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Chi-Ming Hsieh

Department of Community, Agriculture, Recreation and Resource Studies Michigan State University

Sung Hee Park

Department of Community, Agriculture, Recreation and Resource Studies Michigan State University

Chang Huh

College of Hospitality and Tourism Management Niagara University

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A Comparison Model of Residents' and Tourists' Attitudes toward Sustainable Tourism Development: A Case of Penghu Island in Taiwan

Chi-Ming Hsieh

Department of Community, Agriculture, Recreation and Resource Studies
Michigan State University

and

Sung Hee Park

Department of Community, Agriculture, Recreation and Resource Studies
Michigan State University

and

Chang Huh

College of Hospitality and Tourism Management
Niagara University

ABSTRACT

Two stakeholders, residents and tourists, play critical roles in developing and promoting sustainable tourism planning and development. Little research has been done to investigate simultaneously both residents' and tourists' attitudes toward sustainable tourism development. This study was conducted to fill in the gap. Residents who lived in Penghu Island in Taiwan and Taiwanese tourists who visited Penghu were surveyed for the study. Following the web-based online survey, structural equation modeling was carried out to identify the direction and relationships among five sets of tourism development impacts and support for sustainable tourism in Penghu. The results of residents' and tourists' attitudes models indicated that positive economic and cultural dimensions greatly influenced their support for sustainable tourism development. Managerial and marketing implications of the findings are discussed.

Keywords: *sustainable tourism development, residents' and tourists' attitudes, Penghu island.*

INTRODUCTION

Sustainable tourism development depends on host residents' attitudes because they are key stakeholders in critical decision-making and provide the necessary labor power for tourism planning and development in their community. For more than three decades tourism studies have focused on residents' attitudes toward support for tourism development. These studies have examined four dimensions including: 1) economic dimensions (employment opportunities, tax revenues, and additional income) (Akis, Peristianis, & Warner, 1996; Dritsakis, 2004; Lee & Chang, 2008); 2) social dimension (education and entertainment of visitors, interaction with residents and tourists, and increase in crime) (Akis et al., 1996; Byrd, Cardenas, & Dregalla, 2009; Dyer, Gursoy, Sharma, & Carter, 2007; Kang, Lee, Yoon, & Long, 2008; Kuvan & Akan, 2005); 3) cultural dimension (quality of life, conservation of local traditional values, and increased cultural recognition) (Huttasin, 2008; Jurowski, Uysal, & Williams, 1997; Yoon, Gursoy, & Chen, 2001); and 4) environmental dimensions (air pollution, sound pollution, crowding, and depletion of natural resources) (Byrd et al., 2009). In general, residents' attitudes toward tourism development and planning are positive when

they see its economic benefits, but negative when they believe that tourism activities reduce the social, cultural, and environmental well-being of their community.

Another key stakeholder consists of the tourists who visit and spend money in the residents' community, and also favor sustainable tourism development. These tourists are believed to be aware of problem of mass tourism development and seek to protect tourist destinations. Several studies have shown that tourists support sustainable tourism with respect to economic, social, cultural, and environmental dimensions (Weaver & Lawton, 2004). They perceived both the positive economic impact on their destinations and the negative social, cultural, and environmental impacts. However, compared to studies of rich host resident attitudes, little research has been done on tourists' attitudes toward sustainable tourism development. Therefore, the question is whether the two stakeholders' attitudes for supporting sustainable tourism development will differ, and if so, in which of the four dimensions.

The purpose of this study is to investigate residents' and tourists' attitudes toward sustainable tourism development. Specifically, the study proposes the causal models that examine the relationship between residents' and tourists' attitudes and their support for sustainable tourism development with respect to economic, social, cultural, and environmental dimensions. The study identifies the differences between residents' and tourists' attitudes and their different dimensions of support for sustainable tourism development. The findings will help community tourism developers and local governments to alleviate the negative impacts and promote sustainable tourism development.

LITERATURE REVIEW

Sustainable development has been applied to many fields, including tourism and community development. The Brundtland report (World Commission on Environment and Development, WCED, p. 8, 1987) first defined sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." According to the United Nations 2005 World Summit Outcome Document (United Nations, p. 12, 2005), sustainable development has "interdependent and mutually reinforcing pillars" of economic development, social development and environmental protection. In the field of tourism, sustainability goes by such names as sustainable tourism, ecotourism, rural tourism and green tourism, with the goal of achieving long-term co-operation among stakeholder groups in protecting the ecosystem while promoting tourism. Sustainable development of tourism is regarded as economically viable, financially profitable, environmentally sustainable, and socio-culturally acceptable (World Tourism Organization, 2002). Thus, not only ecotourism, but most tourism, including cultural tourism or heritage tourism can apply these sustainability principles (Chang & Liu, 2009; Harrill & Potts, 2003; Stoddard, Evans, & Dave, 2008).

Differences exist in perceptions of tourism impacts among stakeholder groups, such as residents, entrepreneurs, government officials, and tourists (Byrd et al., 2009; Byrd & Gustke, 2007; Simpson, 2008). Byrd et al. (2009) found that residents' perceptions of the impacts of tourism differed from those of other groups. For instance, residents saw more long-term negative effects from the environmental, social and economic impacts of tourism than did government officials, and saw fewer positive effects on the local economy than did tourists. Previous comparative studies between residents and tourists found that two groups had different attitudes toward tourism development (Byrd, Cardenas, & Greenwood, 2008; Puczko & Ratz, 2000). Puczko and Ratz (2000) found that residents received more negative environmental impacts from tourism development than did tourists.

Both residents and tourists are influenced by the long-term economic, social, cultural, and environmental impacts of tourism. Residents' perceived impacts of tourism development

are strongly associated with their support for tourism development, and have been critical factors in successful tourism (Andereck & Vogt, 2000). On the other hand, tourists' perceptions are also important considerations in tourism development which influence local economies, societies, cultures and environments as well as their intention to revisit the destination (Jafari, 2001). The literature shows that residents' as well as tourists' attitudes toward tourism planning, development and management have a direct impact on future tourism development.

METHODOLOGY

Study population and online survey

The study population consisted of Penghu residents and tourists from other area in Taiwan who visited Penghu Island. This study employed a web-based online survey through YouthWant, a popular commercial portal site (<http://www.YouthWant.com>) in Taiwan. The two target samples were all members of YouthWant and at least 18 years old and were 1) residents of Penghu or 2) tourists who had visited Penghu within the past two years. Due to its strict requirements for proof of personal identification, this website prevents duplicate responses from the same individuals. In the portal service, there is a survey area (<http://survey.youthwant.com.tw>) where the survey is posted under the YouthWant website (<http://www.youthwant.com.tw>). The survey investigator neither provided invitations via email nor posted any invitations to respondents for this survey. YouthWant advertises surveys and encourages members to fill out the questionnaires by offering participants reward points.

Survey instrument and data collection

The questionnaire consisted of four sections; 1) 21 attributes of four sustainability factors; 2) three attributes of tourism development support; 3) four variables of socio-demographic characteristics; and 4) two variables of travel behavior. The sustainability factors were developed based on a review of literature (Choi & Sirakaya, 2006; Cottrell, Duim, & Kelder, 2004; Yoon, et al., 2001). The responses were measured on a five-point Likert scale of 1 to 5 (1 indicates "strongly disagree" and 5 indicates "strongly agree.") showing the extent to which the respondents agreed or disagreed with statements concerning the impact of tourism development. All questions were translated into Chinese. A pilot questionnaire was tested on ten graduate students at a university where they were able to answer both English and Chinese versions. The instruments were revised based on suggestions from these ten respondents.

The online survey was conducted on the YouthWant website from August 15 to September 4, 2008. Members of YouthWant were informed that this survey was only open to respondents 18 years and over who were residents of Penghu or tourists who had visited Penghu within the past two years. As an incentive, respondents were given points that could be transferred to their membership accounts and used for cash or gift rewards. To ensure confidentiality, all responses remained anonymous. During the survey period, 3011 members clicked and checked the starting section; a total of 363 online questionnaires, from 104 residents and 259 tourists, were completed and saved in an Excel file on the website. Data were downloaded and transferred to an SPSS file for analysis. The usable response rate of this survey was 12.3%.

Analytical methods

Descriptive and frequency analyses were computed to summarize respondents' profiles. Confirmatory factor analysis (CFA) was performed to indicate the overall model fit, reliability and validity. Last, structural equation modeling was carried out to identify the direction and relationships among the five sets of tourism development impacts and support

for sustainable tourism in Penghu.

RESULTS AND DISCUSSION

Sample profile and descriptive statistics

The socio-demographic characteristics of two samples (Penghu residents and tourists) were examined. Of the 104 resident participants, 54.8% were females, 80.8% were between 20 and 40 years old. 78.9% had at least a college degree or its equivalent, and 39.4% had monthly incomes between US \$607 and US \$1,788. In addition, all residents had visited their local heritage tourism destinations more than five times and 46.2 % were accompanied by family members. Of the 259 tourist participants, 59.8% were females, 81.5 % were between 20 and 40 year old, 71% had at least a college degree or its equivalent, and 37% had monthly incomes between US \$607 and US \$1,788. Furthermore, 39.8% of the tourist participants had visited Penghu once, 26% had visited twice, 46.7% had traveled with family members and 22% with colleagues. The two samples were compared using Chi-Square tests, which showed that the residents visited cultural heritage tourism destinations in Penghu significantly more often than the tourists.

The mean scores of 24 items of tourism development impacts and support were examined. The highest mean scores of tourism development impact in the resident group were identified in: 1) positive cultural impact construct (PC): *Helps international tourists and Taiwan's tourists to understand the local heritage and culture* ($M = 4.22$); 2) positive social impact (PS): *improves relationships with family or friendship* ($M = 4.20$); and 3) PC: *conserves local traditional values*. While the lowest mean scores in the resident group were all found in the negative environmental impact (NE) construct, including: *Tourists cause the problems of garbage and Hygiene* ($M = 2.19$); *Tourists cause crowd and noise pollution* ($M = 2.33$); and *Tourists cause heavy traffic and air pollution* ($M = 2.39$). The highest mean scores of tourism development impact in the tourist group were identified in: 1) PC: *helps international tourists and Taiwan's tourists to understand the local heritage & culture* ($M = 4.17$); 2) NE: *Brings stream of people but influence local residents' daily routines* ($M = 4.16$); and 3) PS: *Improves relationships with family or friendship* ($M = 4.04$). The lowest mean scores in the tourist group were all also found in NE construct, including: *Tourists cause the problems of garbage and Hygiene* ($M = 2.24$); *Tourists cause heavy traffic and air pollution* ($M = 2.26$); and *Tourists cause crowd and noise pollution* ($M = 2.27$).

Confirmatory factor analysis (CFA)

The measurement model was evaluated before the structural model, using the two-step approach suggested by Anderson and Gerbing (1988). The measures were validated through confirmatory factor analysis (CFA), using Amos Version 17 for Windows. The study estimated the measurement model by employing Maximum Likelihood Estimation (MLE) with a sample number greater than 100 (Ding, Velicer, & Harlow, 1995), indicating that the two samples in the current study (resident, $N=104$; tourist, $N=259$) were adequate to be assessed with CFA. A total of eight indicators for endogenous variables were deleted because of low factor loadings and high modification indices greater than 5. Item loadings ranged from 0.72 to 0.98, indicating that constructs could explain 40% of the variance of the corresponding items if the factor loading of each item was greater than 0.63 (Tabachnick and Fidell, 2007). Specifically, ten hypotheses (see below), based on the results of CFA, were generated to examine the causal relationships between five impacts and support for tourism development across residents (H_{1a} - H_{5a}) and tourists (H_{1b} - H_{5b}).

H_{1a} & H_{1b} : Residents' (Tourists') perceived positive economic impact has a positive

influence on their support for the cultural heritage tourism development in Penghu;

- H_{2a} & H_{2b}: Residents' (Tourists') perceived positive social impact has a positive influence on their support for the cultural heritage tourism development in Penghu;
- H_{3a} & H_{3b}: Residents' (Tourists') perceived negative social impact has a negative influence on their support for the cultural heritage tourism development in Penghu;
- H_{4a} & H_{4b}: Residents' (Tourists') perceived positive cultural impact has a positive influence on their support for the cultural heritage tourism development in Penghu; and
- H_{5a} & H_{5b}: Residents' (Tourists') perceived negative environment impact has a negative influence on their support for the cultural heritage tourism development in Penghu.

Construct validity was evaluated by examining the item loadings and their associated *t*-values, as well as the composite reliabilities and the average variance extracted (Fornell and Larcker, 1981). All loadings in the final CFA were significant, with a standardized loading of at least 0.73 and *t*-values ranged from 7.82 to 19.75 ($p < 0.001$) that showed an evidence of convergent validity (Fornell and Larcker, 1981; Bagozzi, Yi, & Phillips, 1991). The composite reliability value ranged from 0.78 to 0.92 greater than 0.60 (Hair, Black, Babin, Anderson, & Tatham, 2006), demonstrating reliable factors and an internal consistency of all items. Moreover, all of the average variance extracted values (0.63 to 0.80) exceeded 50% (Barclay, Thompson, & Higgins, 1995) indicating that the measurement error variance was less than the variance captured by the latent variable, and that measurement error was not driving the results. All factors were significantly correlated in both groups.

All constructs were verified to be separate factors (i.e., to construct discriminant validity) by comparing the square root of the average variance extracted for a given construct with the correlations between that construct and all other constructs (Capron, 1999). Discriminant validity was supported because the square root of the average variance extracted greater than absolute correlations between two constructs. Resident group shows that all diagonal values ranged from 0.75 to 0.89 were greater than most of their off-diagonal values, indicating that each construct shared more variance with its items than it did with other constructs. Except for some correlations related between standard deviation and other constructs, the tourist group also shows that all square roots of AVE (0.75 to 0.89) on the diagonal are greater than correlations off the diagonal.

Measurement model fit

As recommended by researchers (Hu & Bentler, 1999), the goodness of fit of the model should be tested via the Chi-square, Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Residual (SRMR), Comparative Fit Index (CFI), and Non-Normed Fit Index (NNFI). The χ^2 tends to become more significant as the sample size increases (Hair et al, 2006). Thus, the value of relative Chi-square (χ^2/df) less than 3 is recommended (Kline, 2005). Criterion values for a model with a reasonable fit are: RMSEA with a value of 0.08 or less (Browne & Cudeck, 1993); SRMR with a value of 0.08 or less (Hu & Bentler, 1999), CFI and NNFI with values exceeding 0.90 and 0.95 (Hu & Bentler, 1999). Both revised measurement models showed a good fit with the data ($\chi^2 = 176.3$, $p < 0.001$, RMSEA = 0.08, SRMR = 0.07, CFI = 0.94, NNFI = 0.92 for residents; $\chi^2 = 280.9$, $p < 0.001$, RMSEA = 0.08, SRMR = 0.06, CFI = 0.94, NNFI = 0.92 for tourists).

Measurement invariance analysis

Nuevo, Ruiz, Izal, Montorio, Losada, & González (2008) suggested that factor invariance of the measurement should be assessed prior to comparisons between groups because there is reason to believe that the structure of the compared construct is not equal across groups. The study statistically compared the equivalence of the factor structures across two samples by following the guidelines suggested by Joreskog (1971) and elaborated by Byrne, Shavelson, and Muthen (1989). Factor structure equivalence was tested across the two

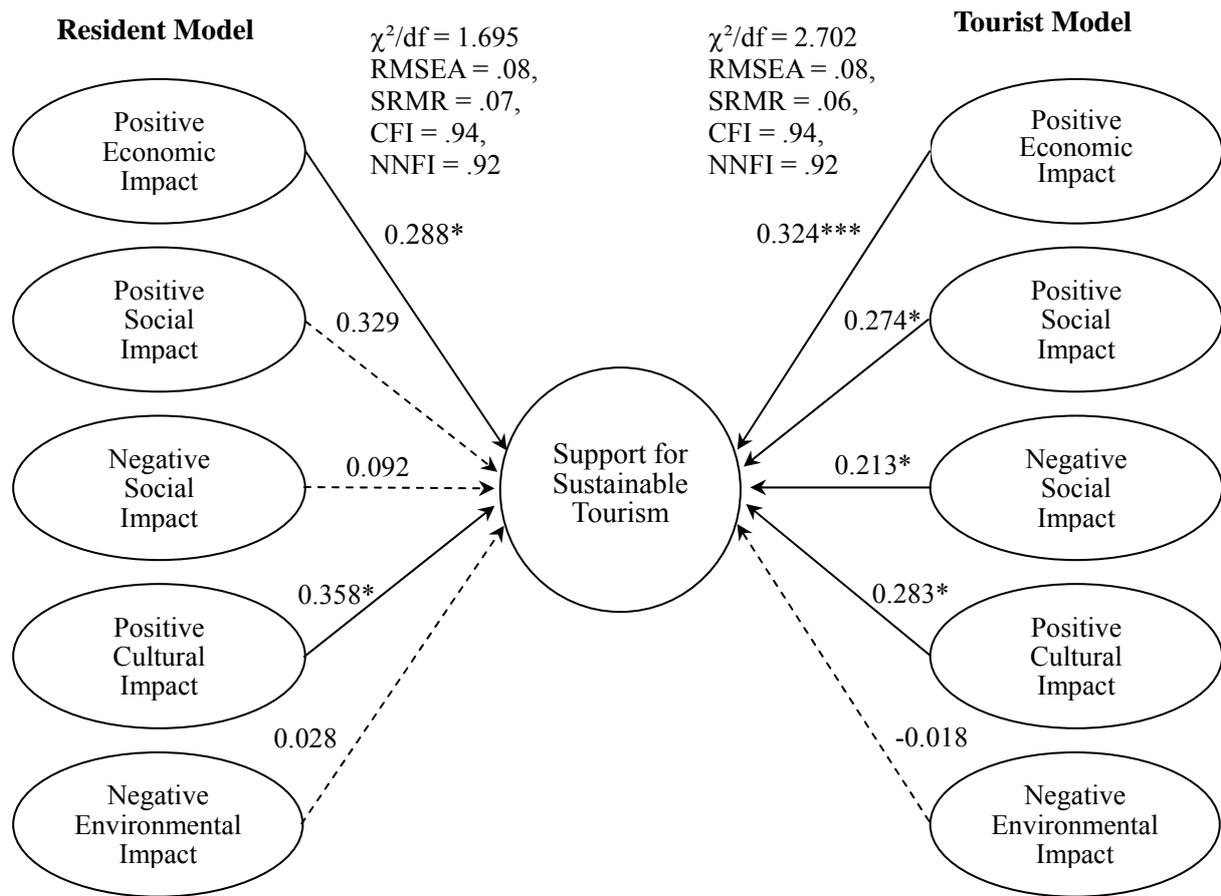
samples by constraining the item loadings, the factor covariances, and the factor variances across the groups, so as to be equal, and by examining the equal lambdas, covariances, and variances. The resulting model fit was acceptable ($\chi^2 = 457.6$, $p < 0.001$, RMSEA = 0.06, SRMR = 0.07, CFI = 0.94, NNFI = 0.92). The result indicated that all of the items on each factor exhibited equivalent factor loadings across samples, demonstrating support for measurement invariance.

Structural model analysis

The structural equation model (SEM) was performed to examine the causal relationships among constructs across samples. The results of SEM across samples are graphically presented in Figure 1. The overall Goodness-of-fit showed that the data moderately fit the model across samples ($\chi^2 = 176.3$, $p < 0.001$, RMSEA = 0.08, SRMR = 0.07, CFI = 0.94, NNFI = 0.92 for residents; $\chi^2 = 280.9$, $p < 0.001$, RMSEA = 0.08, SRMR = 0.06, CFI = 0.94, NNFI = 0.92 for tourists).

This study discovered several findings across two samples. As illustrated in Figure 1, two (H_{1a} and H_{4a}) out of five hypotheses ($H_{1a} - H_{5a}$) were supported by the data in the resident model. Residents' perceived positive economic impact ($\beta = 0.288$, $t = 2.442$, $p < 0.05$), and positive cultural impact ($\beta = 0.358$, $t = 2.442$, $p < 0.05$) positively affected their support for tourism development in Penghu island. The findings supported previous empirical studies showing the link between positive economic impact and support for tourism development (Dyer et al., 2007; Kang et al., 2008; Yoon, et al, 2001) and the link between positive cultural impact and support for tourism development (Dyer et al., 2007; Gursoy & Rutherford, 2004; Yoon et al., 2001). However, positive and negative social impact as well as negative environmental impact had no statistically significant effect on tourism development. The findings were inconsistent with prior studies that showed: 1) a link between positive social impact and support for tourism development (Dyer et al., 2007); 2) a link between negative social impact and support for tourism development (Dyer et al., 2007; Kang et al., 2008); and 3) a link between negative environmental impact and support for tourism development.

On the other hand, four (H_{1b} , H_{2b} , H_{3b} , and H_{4b}) out of five hypotheses ($H_{1b} - H_{5b}$) were significant in the tourist model. These results explained that tourists' attitudes toward positive economic impact ($\beta = 0.324$, $t = 4.068$, $p < 0.001$), positive social impact ($\beta = 0.274$, $t = 2.456$, $p < 0.05$), negative social impact ($\beta = 0.213$, $t = 2.560$, $p < 0.05$), and positive cultural impact ($\beta = 0.376$, $t = 2.333$, $p < 0.05$) significantly influenced their support for tourism development in Penghu island. The current study first attempted to investigate the causal relationships between tourists' perception of tourism impact and their support for tourism development, compared with the resident model. The results of the tourist model showed that a negative social impact had a positive impact on their support for tourism development. Residents and tourists, two stakeholders in the tourism destination, may be on opposite sides in negative social impact. The NS (Negative Social Impact) construct was composed of two items, including item NS1: *Brings stream of people but influence local residents' daily routines* and item NS2: *Affects the maintenance of ancient heritage and public property*. A summary of the hypotheses testing results is presented in Table 1.



* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 1
Significance of Impacts on Support for Sustainable Tourism

Table 1
The Results of the Tested Hypothesis across Samples

Hypothesis	Hypothesized Path	Path Coefficients	t-value	p -value	Support
Resident					
H _{1a}	PEc → STD	.288	2.442	.015*	Yes
H _{2a}	PS → STD	.329	1.870	.061	No
H _{3a}	NS → STD	.092	1.006	.314	No
H _{4a}	PC → STD	.358	2.460	.014*	Yes
H _{5a}	NEn → STD	.028	.348	.728	No
Tourist					
H _{1b}	PEc → STD	.324	4.068	.000***	Yes
H _{2b}	PS → STD	.274	2.456	.014*	Yes
H _{3b}	NS → STD	.213	2.560	.010*	Yes
H _{4b}	PC → STD	.283	2.333	.020*	Yes
H _{5b}	NEn → STD	-.018	-.252	.801	No

* $p < .05$; ** $p < .01$; *** $p < .001$

CONCLUSION

This study examined the casual relationship between residents' and tourists' attitudes and their support for sustainable tourism development with respect to economic, social, cultural, and environmental dimensions. In addition, this study investigated the differences between the attitudes of residents and tourists toward sustainable tourism development. The results indicate that positive economic and cultural dimensions have greatly influenced support for sustainable tourism development. However, the results of the tourists' attitudes model show that both positive and negative social dimensions were related with tourists' support for the sustainable tourism development. This could be because tourists who might promote sustainable tourism development were aware of their positive and negative social impacts on the tourism destination they visited.

To promote sustainable tourism development, local government and tourism developers should create a sustainable economic system that would generate income and employment for residents who expect positive tourism to have a positive economic impact. Tourists want to support sustainable tourism if it stimulates the local economy and any resulting economic benefits that may accrue to preserving the tourist destination. Marketing and communications programs to showcase of the economic and cultural aspects of sustainable tourism development are also recommended.

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