

# Exploring the Relationship between Visitors' Industrial Heritage Perceptive Value and Willingness to Pay -A Case Study of the Sugar Mill Heritages Regeneration Project-

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## Abstract

The Bureau of Cultural Heritage, Ministry of Culture conducted the *Industrial Heritages Regeneration Project* to preserve the cultural landscape of industrial heritages and help the rebirth of these old sugar mills. This research first adopted the focus group to identify the value of industrial heritages; following by conducting an on-site questionnaire survey (Hu-Wei sugar mill and Si-Hu Sugar Mill) to ascertain the value of the industrial heritage sites and the willingness of tourists to pay for visiting the sugar mills. 339 valid questionnaires were collected. The Exploratory Factor Analysis using SPSS 16.0 was adopted to identify the value factors of these industrial heritage sites. The EFA results showed that visitors' industrial heritage perceptive values toward the sugar mill have 7 dimensions: Symbol, Tourism, Archaeology, Economy, Product, Environment, and Aesthetics. The total variance explained was 65.7%. Moreover, the average amount the tourists were willing to pay (WTP) for the preservation of the sugar mills was 182 NT dollars (about 6 U.S. Dollars). The overall traveling spending is 273 NT dollars (about 9 U.S. Dollars). The regression analysis also found visitors' industrial heritage perceptive value did not affect tourists' WTP and the travel spending. This indicated the prediction of visitors' perceptive value to WTP and travel spending is weak.

**Keywords:** Cultural Landscape, Industrial Heritage, Regeneration, Sugar Mill, Cultural Tourism

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## I、Introduction

Sugar industry played an important role during Taiwan's economic and social development a few decades ago. Due to the trend of the economic development, most of the Taiwanese sugar mills were forced to close because the import sugar price was much cheaper than the price of the sugar made by the Taiwan Sugar Company. These unused sugar mills soon caused some management issues and landscape impacts to the urban and suburban areas. However, the landscape and the architecture of these factories have become the landmark for the local community long time ago and it is possible to provide the recreational opportunities for the local residents or tourists to use. Therefore, the Headquarters Administration of Cultural Heritage (HACH), Council for Cultural Affairs<sup>1</sup> conducted the *Industrial Heritages Regeneration Project (IHRP)* to preserve the landscape of industrial heritages and help the rebirth of these old factories and communities (Yang, 2008).

This project asked the Taiwan Sugar Company, Taiwan Tobacco and Liquor Corporation, local government, and non-government organization to make the regeneration plans based on their own characteristics and needs. The plans could include both hardware and software improvements. After reviewing the plans the HACH would subsidize these programs based on the potential of each program. Moreover, each site would assign at least one expert to supervise the quality of each program. The HACH also formed a committee to monitor the progress of

each regeneration site. Each regeneration site had significant improvement after three years; e.g. the remodeling of machines allowed people a better understanding of the production procedure of sugar, liquor, and salt; the landscape improvement revised the scenery of suburban and the overall environment; the cultural landscape was well preserved and purposefully utilized for recreational use; master plan and design of the open space were conducted to let the environment fit the need of users; festivals were being held to let more people know about these locations and the cultural industries.

The effort of HACH preserved both the industrial heritage and the cultural landscape in Taiwan. Without this project, most of the industrial and cultural landscape would have been abandoned or destroyed. The rebirths of these sites let more people have a chance to get to know the history of their own community and provided the educational and recreational opportunities for them to enjoy their life. The regeneration of these places can offer more open space for the local residents to use; this is especially important in Taiwan which has very limited amount of useable land. Moreover, they regain the images of their community's stories and glory histories for young people to think about their own root.

In order to help the rejuvenation of the old industries, the HACH set up the following goals for the IHRP (Yang, 2007):

- 1 To assist and guide the onsite operation of the industrial heritage business.
- 2 To make the sustainable development possible for the industrial heritage.
- 3 To collaborate the local resources and to develop the connection web.
- 4 To build up the operation system for the regeneration.

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<sup>1</sup> The Headquarters Administration of Cultural Heritage (HACH), Council for Cultural Affairs became the Bureau of Cultural Heritage, Ministry of Culture in 2012.



5 To ensure the performance of the operation system for industrial heritage.

There are three major plans under the IHRP: (1) Assistant and Guide Plan, (2) Regeneration Operation System Plan, (3) Performance Evaluation Plan (Yang, 2007). (Please see Figure 1.)

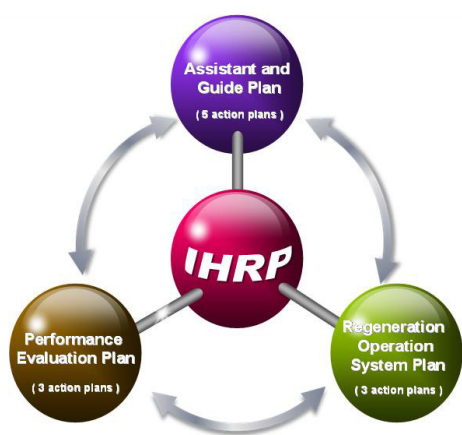


Fig. 1 Three major plans of the IHRP

### 1. Assistant and Guide Plan:

The IHRP set up the following action plans to assist each industrial heritage site: (a) To set up the communication platform for stakeholders to communicate, (b) To set up the administration system to manage the feedbacks, (c) To invite the panel experts to assist and guidance, (d) To provide the suggestions and to supervise the plans, (e) To set up the four dimensions (Positioning, Plan and Design, Collaboration, Feedback Plans) for the evaluation.

### 2. Regeneration Operation System Plan

The IHRP set up the following action plans to help the actual operation of each industrial heritage site: (a) The core operation concepts are “Wisdom Regeneration”, “Economy Regeneration”, “Business Regeneration”, and “Reputation Regeneration”, (b) To operate sustainable development based on these core concepts, (c) To organize the related resources and stakeholders within and outside the industrial heritage sites.

### 3. Performance Evaluation Plan

The IHRP first asked eight regeneration sites to propose the Master Plan for their own site. The Master Plans were examined by the panel experts from the fields related to the industrial heritages regeneration. Moreover, the panel experts also visited the eight sites to make sure the quality and feasibility of each Master Plan. The action plans are: (a) Establishing the evaluation framework, (b) Applying the performance evaluation charts and checking schedule to monitor the plan, (c) Playing the coordinator between the stakeholders (HACH, Cultural Bureau, Organization, the Industrial Heritage Sites ...etc.)

Five sugar mills 【Nan-Ying Tsung-Yeh Arts and Cultural Center (Illustration I.), Si-Hu Sugar Mill (Illustration II.), Hua-Lien Sugar Mill (Illustration III.), Hu-Wei Sugar Mill (Illustration IV.), Tai-Tung Sugar Mill (Illustration V.)】 were funded for four years by the HACH to improve their hardware and software environment. The following illustrations demonstrate the changes of these five sugar mills. The funding from the HACH did give a new life for these sugar mills and helped these sugar mills to create a new “*cultural tourism*” business.

The cultural tourism soon became the main business of these sugar mills. Conversely, some issues have been revealed after a couple years of development. For example, “How can they survive without the support from the government?”, “How can they make money from these cultural heritages?”, “What are tourists’ values toward these industrial heritages?”, “What are tourists’ needs and willingness to pay for visiting these industrial heritages?”.

The main purposes of this study were: First, to identify the value of industrial cultural heritages; Second, to explore the willingness of the tourists to pay toward the sugar mill industrial heritages; Third,



to understand the relationship between the value and willingness to pay for visiting the sugar mills.

## II、Literature Review

The economic value of industrial heritages is to integrate both use and non-use value. The use value refers to the profits from the users' direct use of facilities or services belonging to an industrial heritage site, while non-use value is derived from the intangible valuation of the industrial heritage site, including option value, existence value, and perceptive value ( Kim, Wong, & Cho, 2007). The contingent valuation method (CVM) and the perceptive value of industrial heritages will be discussed in the following paragraph.

### 1. Contingent Valuation Method

The environmental economists often use the CVM to evaluate environmental policies or damages. By using the CVM we mean that the value of an environmental good is elicited directly, as answer to a question about willingness to pay (WTP) to have more of the good. CVM has been widely used to estimate the economic benefits of cultural heritage (Venkatachalam, 2004). The CVM has proven the most popular method for the measurement of valuation of the environment. The reasons are: First, the technique is simple. A direct question on WTP and a few socioeconomic details are required in a survey. Second, the CVM provided freedom from being restricted by available economic data which had limited all previous approaches to secondary. Third, the range of economic values was expanded to categories previously outside the economists' grasp so that the CVM introduced measurement of option, existence and bequest values. These new categories have been termed passive or indirect use values- the term non-use is misleading as preference utilitarianism means all economic values are based on

utility or usefulness to an individual (Fischhoff, 1991; Kahneman, et. al. 1993; Schkade and Payne, 1994).

Theoretically, the CVM is based on welfare economics and assumes that stated WTP amounts are related to respondents' underlying preferences. Furthermore, CVM is the only valuation technique that can capture nonuse values. Application of the CVM to cultural heritage goods is well suited because respondents accept the idea of public provision of these goods. Option value indicates a future use value, while existence value relates to the fact that an individual may benefit from the resource through his/her belief in the continuity of its existence. Bequest value is related to the concept of taking responsibility of keeping the resource intact for our descendants. In addition, many studies have widely applied this method in the research on cultural heritage (Maddison & Mourato, 2001; Pollicino & Maddison, 2001; Salazar & Marques, 2005; Santagata & Signorello, 2000).

### 2. Cultural Consumption Patterns

The predictable view of cultural consumption patterns follows the elite to mass theory. Based on this, high-class individuals are more likely to consume elitist culture while low class individuals enjoy popular culture because of the extremely possessed cultural capital. Hence, one's socioeconomic status that is often perceived as an indicator of cultural capital may play an important role in determining their participation in cultural attractions. Much of the previous literature empirically shows the close linkage between tourists' socioeconomic status and their participation in cultural attractions and the patterns of cultural consumption ( Kim, Cheng, & O'Leary, 2007).

### 3. Value of Cultural Landscape

The value of cultural landscape included the following values: cultural value (Bowitz & Ibenholt, 2009; Conesa, Schulin & Nowack, 2008), heritage



value (Feighery, 2008 ; Lablaude, 2006 ; Greff, 2004 ; Mascari, Mautone, Molto, & Salonia, 2009), industrial value(Conesa, Schulin, & Nowack, 2008 ; Stephenson, 2008), landscape value(Tuan & Navrud, 2008; Xie, 2006), tourism value(Bowitz & Ibenholt, 2009; Yen, Tsai, Li, & Lin, 2009 ; Ondimu, 2002 ; Yan, 2008).



Illustration II. The changes of the Si-Hu Sugar Factory



Illustration I. The changes of the Nan-Ying Tsung-Yeh Arts and Cultural Center

Si-Hu Sugar Mill

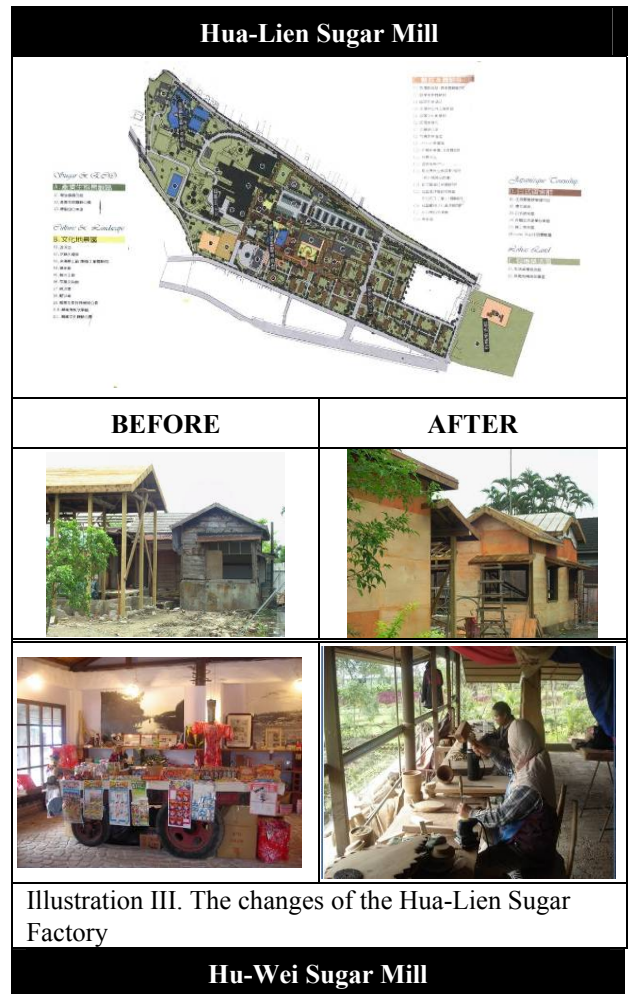


Illustration III. The changes of the Hua-Lien Sugar Factory

Hu-Wei Sugar Mill



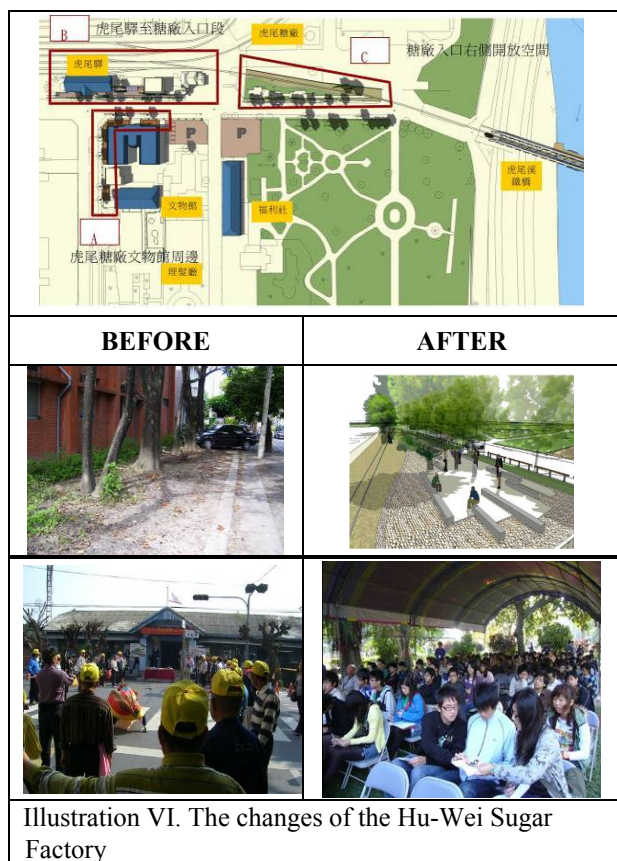


Illustration VI. The changes of the Hu-Wei Sugar Factory



Illustration V. The changes of the Tai-Tung Sugar Factory

※Photos resources: The HACH, Council for Cultural

### III、Method

#### 1. Measurement

The study adopted the literature interview to identify the value items, followed by using the focus group to refine the dimension and contents of the cultural landscape value. The focus group was formed by 15 experts who were asked to discuss some issues related to the value of industrial heritages ( e.g. What elements will attract you to visit the industrial heritages? And what are your motivation? What do you think the values of the industrial heritages are? Will these values cause you to visit these industrial heritage sites?...). A 3-person panel was formed to classify the elements that were identified from the focus group. The 56 items of cultural landscape value were obtained from the above procedure (Yen, Lin, and Lee (2010) describes more detailed operation approaches). Table 1 demonstrates the content of 56 items and the dimensions). The perceptive values were measured by using 5 point Likert scale. The questions of willingness to pay were just “WTP for cultural landscape preservation” and “WTP for cultural guide”. Moreover, the overall travel spending were also recorded, which included expenses for dining, transportation, entertainment, and shopping.

#### 2. Survey

The on-site survey was conducted on both Hu-Wei sugar mill and Si-Hu Sugar Mill. The Hu-Wei sugar mill was chosen as the target in this research due to the fact that Hu-Wei sugar mill is still in operation presently. Therefore, visitors could see how the sugar is made here. The Si-Hu Sugar Mill was chosen because the train was operated as an attractive tourism activity for tourists. The convenience sampling was used to sample the visitors. Moreover, the sampling took place on both weekday



and weekend. The sample size ratio of weekday to weekend was 3:7 (Based on the survey of Bureau of Tourism, the ratio of visitor's number on weekday and weekend was 3:7) . There were a total of 339 valid questionnaires returned from the on-site survey.

### 3. Analysis

The frequencies analysis was used to describe the data. The item analysis was applied to examine whether or not each question was qualified to identify different respondents' answer; if it failed to pass the examination, the item would be deleted. The exploratory factor analysis was used for the data reduction and to examine how underlying constructs influence the responses on a number of measured variables. Linear regression was used to see the relationship between the willingness to pay and the perceptive value of the industrial heritage.

## IV 、 Results

### 1. Descriptive Analysis

Visitors agreed most of the values of the sugar mill (the mean of all perceptive value items were rated between 3.25~4.49). 77% of the rated values were above 4; especially, visitors agreed the sugar mill has rich historical resources for tourism, the sugar mill can increase leisure and recreation space, the sugar mill heritage is meaningful for local community, train for tourism use, and reuse value of the space. These all indicated that visitors highly valued this place for regenerative use and tourism development. (Please see Table 1 for details.)

### 2. Factor Analysis

In order to perform the *factor analysis*, the *item analysis*, the *Cronbach's Alpha* and the *Kaiser-Meyer-Olkin Measure of Sampling Adequacy* and *Bartlett's Test of Sphericity* were applied to test the quality of data. The test value showed the data was very suitable for the factor analysis (the item analysis showed in each question the highest score

group and lowest score group were significantly different. That is to say, each question can identify different group.  $\alpha = .979$ ,  $KMO = .960$ , *Bartlett's Test of Sphericity's Sig.* = .000).

The principle components method and varimax rotation were used in the factor analysis. 65.66% of total variance were explained by 7 factors extracted in this research: (F1) **Symbol** (14.32% of Variance explained), (F2) **Tourism** (13.21% of Variance explained), (F3) **Archaeology** (12.41% of Variance explained), (F4) **Economy** (8.64% of Variance explained), (F5) **Product** (6.72% of Variance explained), (F6) **Environment** (5.80% of Variance explained), (F7) **Aesthetics** (4.56% of Variance explained) (please see Table 1).

### 3. Economic Analysis<sup>1</sup>

- i. **Willingness to Pay:** Tourists would pay 78.38 NT\* dollars as the entrance fee for the cultural landscape preservation. That is to say, visitors were willing to pay a fee to enter the sugar mill; although, the entrance fee is free now. The entrance fee can be used towards maintaining the site and to balance the cost of management for sugar mills. Visitors also would pay 103.62 NT dollars for the cultural tour guide. That means the visitors are willing to hire a tour guide, so that they can learn and experience more about the in-depth culture of the industrial heritages. (please see Table 2)

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<sup>1</sup> Due to the wide range of the amount of WTP, the outliers (value > 3\*S.D.) were deleted from this analysis to prevent the influence of extremely high and low value to the mean.

\* 30 N.T. Dollars  $\approx$  1 U.S. Dollar



Table 1 The outcomes of descriptive analysis and factor analysis

Items	Mean	S.D.	F1	F2	F3	F4	F5	F6	F7
39. A platform for formal employees to represent their work	4.14	0.78	0.714	0.133	0.186	0.091	0.243	0.063	0.044
42. Know the culture of the Taiwanese predecessors	4.11	0.74	0.713	0.225	0.298	0.162	0.132	0.046	0.122
41. Express the wisdom of the predecessors	4.09	0.79	0.706	0.260	0.273	0.199	0.143	0.037	0.119
40. Become the proud for the local community	4.04	0.81	0.675	0.112	0.225	0.263	0.275	0.115	0.143
43. Spiritual symbol for the local community	4.11	0.75	0.648	0.228	0.352	0.171	0.207	0.034	0.174
55. I believe in the value of sugar mill's preservation	4.02	0.89	0.614	0.139	0.092	0.218	0.032	0.330	0.123
45. The evidence of Taiwanese sugar development	4.25	0.69	0.596	0.287	0.455	0.082	0.081	0.059	0.205
54. Increase identity for sugar culture	3.99	0.78	0.588	0.217	0.224	0.245	0.171	0.384	0.141
44. Vital the historical memory for visitors	4.13	0.72	0.564	0.203	0.410	0.282	0.113	0.101	0.206
53. Increase place identity for residents	4.01	0.81	0.531	0.233	0.180	0.354	0.086	0.365	0.170
51. Remind past times	4.12	0.78	0.506	0.269	0.216	0.197	0.047	0.454	0.231
56. Unique value	4.18	0.79	0.487	0.160	0.378	0.150	0.058	0.205	-0.053
47. Historical stories value	4.11	0.80	0.466	0.305	0.300	0.176	0.146	0.282	0.378
4. Space reuse value	4.35	0.70	0.191	0.677	0.040	0.078	-0.065	0.167	-0.003
5. Beautify surrounding landscape	4.22	0.77	0.164	0.664	0.096	0.215	0.084	0.093	0.242
8. Sugar historical resources for tourism	4.49	0.64	0.158	0.664	0.334	-0.064	0.236	0.109	0.045
6. Improve environmental quality	4.09	0.78	0.129	0.647	0.090	0.214	0.095	0.115	0.269
7. Increase leisure and recreation space	4.41	0.74	0.146	0.633	0.169	0.135	0.180	0.170	0.004
3. Meaningful for local community	4.41	0.68	0.204	0.570	0.169	-0.040	0.127	0.349	-0.083
9. Historical buildings for tourism	4.18	0.84	0.253	0.549	0.213	0.188	0.086	0.020	0.429
12. Industrial landscape for tourism	4.21	0.69	0.201	0.527	0.271	0.176	0.472	0.082	0.131
10. Historical machines for tourism	4.11	0.81	0.135	0.523	0.238	0.267	0.043	0.049	0.478
16. Tourism experience value	4.15	0.77	0.222	0.510	0.118	0.303	0.406	0.172	0.134
26. Potential for tourism development	4.07	0.81	0.186	0.489	0.357	0.396	0.282	0.226	0.058
18. Historical site preservation	4.17	0.81	0.304	0.462	0.297	0.254	0.316	0.129	0.127
25. Cultural landscape value	4.21	0.73	0.197	0.455	0.366	0.264	0.301	0.115	0.129
28. Cultural education value	4.15	0.76	0.319	0.455	0.417	0.166	0.225	0.334	0.093
17. Interpretation for tourism	4.02	0.79	0.245	0.454	0.232	0.358	0.387	0.036	0.167
13. Trains for tourism	4.37	0.71	0.122	0.447	0.234	0.064	0.377	0.430	-0.100
20. Add extra value to local resources	4.10	0.77	0.257	0.430	0.369	0.387	0.306	0.005	0.042
35. Sugar Industrial landscape for archaeological studies	4.13	0.74	0.265	0.148	0.731	0.139	0.198	0.179	0.283
34. Historical machines for archaeological studies	4.10	0.75	0.278	0.114	0.710	0.166	0.218	0.178	0.258
32. Sugar historical resources value	4.26	0.67	0.338	0.237	0.709	0.197	0.107	0.131	0.026
31. Local historical research value	4.07	0.74	0.339	0.253	0.700	0.213	0.137	0.145	0.061
33. Historical buildings for archaeological studies	4.06	0.79	0.265	0.244	0.665	0.206	0.083	0.176	0.294
36. Rail system for archaeological studies	4.26	0.73	0.391	0.231	0.639	0.078	0.135	0.160	0.191

(cont. Table 1)





Items	Mean	S.D.	F1	F2	F3	F4	F5	F6	F7
37. Sugar making technology value	4.19	0.74	0.480	0.269	0.563	0.103	0.151	0.124	-0.120
38. Spirited value of Taiwan sugar culture	4.22	0.71	0.466	0.196	0.515	0.143	0.172	0.196	-0.154
30. Opportunities for international visitors to experience culture	3.89	0.93	0.125	0.233	0.469	0.313	0.407	0.327	0.153
22. Reduce population immigration	3.25	1.01	0.207	0.092	0.099	0.808	0.111	0.169	0.149
21. Increase local residents' income	3.58	0.94	0.264	0.206	0.112	0.755	0.116	0.065	0.035
23. Increase job opportunities	3.61	0.94	0.203	0.134	0.200	0.742	0.149	0.192	0.188
27. Draw investment	3.69	0.95	0.206	0.196	0.262	0.556	0.271	0.172	0.187
19. Promote local traditional industry development	4.07	0.79	0.249	0.370	0.276	0.484	0.334	0.095	-0.054
24. Tradition passes from generation to generation	4.13	0.79	0.364	0.373	0.355	0.422	0.140	0.064	0.045
14. Ice cream for tourism	4.11	0.80	0.178	0.147	0.179	0.114	0.750	0.135	0.018
15. Sugar related products for tourism	3.89	0.81	0.251	0.201	0.110	0.270	0.720	0.082	0.181
11. Cultural products for tourism	4.03	0.84	0.192	0.437	0.254	0.205	0.445	0.093	0.218
2. Green resources value	3.87	0.84	0.138	0.338	0.199	0.214	0.185	0.510	0.181
1. Environmental value	3.92	0.83	0.127	0.384	0.242	0.205	0.182	0.505	0.132
52. Raise Taiwanese culture identity	4.12	0.79	0.417	0.193	0.340	0.193	0.025	0.505	0.141
29. Locations for field trip	4.23	0.78	0.244	0.439	0.385	0.155	0.227	0.461	0.005
46. Remind childhood's memory	3.87	1.05	0.338	0.184	0.131	0.273	0.032	0.420	0.363
49. Enhance aesthetic perception for people	3.89	0.88	0.367	0.159	0.244	0.244	0.341	0.260	0.536
50. Aesthetic value of the landscape	3.93	0.84	0.435	0.225	0.222	0.246	0.255	0.217	0.494
48. Preserve sense of beauty of the historical culture	4.01	0.84	0.445	0.178	0.271	0.161	0.210	0.355	0.455
<b>% of Variance</b>			<b>14.319</b>	<b>13.210</b>	<b>12.412</b>	<b>8.636</b>	<b>6.719</b>	<b>5.800</b>	<b>4.564</b>
<b>Cumulative %</b>			<b>14.319</b>	<b>27.529</b>	<b>39.941</b>	<b>48.577</b>	<b>55.295</b>	<b>61.095</b>	<b>65.658</b>

**F1: Symbol; F2: Tourism; F3: Archaeology; F4: Economy; F5: Product; F6: Environment; F7: Aesthetics**

Table 2 The descriptive analysis of economic analysis

	Mean	Median	S. D.	Skewness	Kurtosis
WTP for cultural landscape preservation	78.38	50.00	91.00	5.68	47.66
WTP for cultural tour guide	103.62	100.00	64.59	0.57	0.55
Food and drink fee	74.12	50.00	92.44	2.39	7.45
Traffic fee	104.57	48.00	177.30	2.98	10.64
Entertainment fee	33.71	0.00	66.94	2.66	7.94
Shopping fee	60.78	0.00	116.18	2.86	10.42
Overall traveling spending	273.18	200.00	288.79	1.60	2.81

【n=244 The outliers (value>3\*S.D.) were deleted from this analysis.】



Table 3 The regression model summary (Perceptive value and WTP)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
	B	Std. Error	Beta		
(Constant)	183.188	8.540		21.450	.000
Symbol	17.377	8.062	.146	2.156	.032
Archaeology	16.778	8.328	.137	2.015	.045

Table 4 The regression model summary (Perceptive value and Travel Spending)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
	B	Std. Error	Beta		
(Constant)	183.188	8.540		10.518	.000
Economy	152.966	40.530	.228	3.774	.000
Tourism	86.938	39.976	.132	2.175	.031

ii. **Traveling spending:** The traveling spending analysis indicated that the tourists spent most of the money on transportation ( $M=104.57$  NT), followed by dining ( $M=74.12$  NT), shopping ( $M=60.78$  NT) and entertainment ( $M=33.71$  NT). The overall traveling spending was 273.18 NT. (please see Table 2)

#### 4. Regression Model of Perceptive Value and WTP

The regression was adopted to examine whether the tourists' perceptive value toward cultural landscape would influence their willingness to pay to preserve the cultural landscape. The stepwise method was used in regression analysis. There were only two out of seven factors that appeared in the regression model: *Symbol* and *Archaeology* (See Table 3). This indicated *Symbol* and *Archaeology* value are more predictable than other factors within seven value factors in explaining tourists' willingness to pay. However, the  $R^2$  value was quite low in this model (adjusted  $R^2=.040$ ). This indicated that the WTP did not derive from their perceptive value toward the heritage.

#### and Travel Spending

The regression model of tourists' perceptive value toward cultural landscape and their travel spending showed there were only *Economy* and *Tourism* factors that appeared in the regression model. (See Table 4). However, the  $R^2$  value was quite low in this model (adjusted  $R^2=.061$ ). This indicated that the travel spending did not derive from their perceptive value toward the heritage.

#### V、Conclusion

The study tried to identify the value of industrial cultural heritages and to explore the relationship of visitors' perceptive value between WTP and travel spending. The major findings of this study were:

1. The exploratory factor analysis identified seven value factors: *Symbol*, *Tourism*, *Archaeology*, *Economy*, *Product*, *Environment*, and *Aesthetics*. The total variance explained in these seven factors was 65.7%. This showed these seven factors could include most of the value dimension. Moreover, visitors agreed most of the values of the sugar mill (77% of the rated mean values were above 4). Therefore, the future



research could adopt these seven dimensions to measure the value of the heritage.

2. As soon as this research used these seven factors to predict tourists' willingness to pay for visiting and for cultural heritage preservation, the results showed only *Symbol* and *Archaeology* as the two significant influences. These results showed that future development should focus more on strengthening the symbolic image and preserving these industrial heritages. Tourists would pay more money to visit these areas if they could see the expression of the old memory and well preservation see the expression of the old memory and well preservation of these old heritages.
3. Most important of all, the results showed that visitors' willingness to pay did not derive from their perceptive value toward the industrial heritages. This pointed out that the attraction of the cultural heritages may come from other factors. Future research may try to find another direction to figure out which factor can provide more prediction for visitor's WTP. It will provide the administrative unit to reconsider their strategy for future management of cultural heritage sites. The destination image, branding may be the new direction for solving the puzzle of understanding the relationship between these factors.

Although the findings from this study identified a weak relationship between WTP and perceptive value, based on the participation in IHRP, some suggestions can still aid the sugar mills in their future development:

1. The sugar mills should concentrate more on their core cultural resources to attract tourists and to use these core values to create more new culture-related products for the tourists to purchase.

2. A well-planned and designed industrial heritage site will attract more visitors. That means the administrator should focus more on identifying the core spirit of this area and use this core spirit to develop better environment to draw in visitors.
3. The training of the interpreters and story-tellers still need to be improved to let the tourists have higher value and experience about these cultural heritages.

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# 探究遊客之支付意願與產業文化資產認知價值之關係 -以製糖產業文化資產再生計畫為例-

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## 摘 要

行政院文化部文化資產局曾推動過「產業文化資產再生計畫」，希望藉此使產業文化景觀及產業文化遺址得以保存，並希望能達到活化並賦予舊糖廠新活力。本研究首先運用焦點座談來找出產業文化資產的價值再將所得之價值項目研擬成問卷並於虎尾糖廠及溪湖糖廠進行現地調查，藉此以找出產業遺產所具備的價值，以及遊客造訪糖廠所願意支付的價格。本研究共獲得 339 份有效問卷，接著再運用 SPSS 16.0 統計分析軟體，將糖廠價值面向進行探索性因素分析，分析結果顯示糖廠的文化價值分為七個面項【象徵、觀光、考古、經濟、生產、環境、美學】(總解釋變異量為 65.7%)。除此之外，遊客對糖廠進行文化保存的平均願付價格為台幣 182 元，平均的旅遊花費為台幣 273 元。透過迴歸分析結果發現，遊客對產業文化資產的認知價值並無法有效預測其對糖廠的文化保存願付價格及其在產業文化遺產中的旅遊花費。

**關鍵詞：**文化景觀、產業遺產、再生、糖廠、文化觀光

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