Tourists' Willingness-to-Pay for the Conservation of a UNESCO World Heritage Site: the Case of the Rice Terraces of the Philippine Cordilleras^{1,2}

by

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Abstract

The paper discusses the willingness to pay of local and foreign tourists for the conservation of the Rice Terraces of the Philippine Cordilleras. These terraces, which are found in four municipalities in the province of Ifugao in northern Philippines, were inscribed in the UNESCO World Heritage List in 1995, but were placed under the World Heritage in Danger List in 2001 owing to their deterioration.

The problems confronting the terraces include neglected irrigation facilities that have resulted in inadequate water supply in the rice paddies; low rice yields; landslides and collapsed terrace walls; earthworm and snail infestation; unregulated development due to tourism; and outmigration. Some farmers have already abandoned rice farming in the terraces. If this trend will continue, the rice terraces that the Ifugaos built more than 2,000 years ago can be ruined.

A 2006 UNESCO mission noted the need to develop a coordinated and sustainable resource generation mechanism both at the provincial and municipal levels. This paper investigates the possibility of tapping the tourism sector to develop a sustainable conservation financing mechanism for the terraces. Presently, two municipalities are collecting uniform fees from local and foreign tourists.

We conducted a contingent valuation survey among local (300 respondents) and foreign (250 respondents) tourists to estimate their willingness-to-pay for the conservation of the terraces. The average WTP for local and foreign tourists were estimated to be P440 (about

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US\$10) per person and US\$71 per person, respectively. These WTP estimates are much higher than the uniform fees collected by the municipalities from local and foreign tourists (about US\$0.20 and US\$0.60). For local tourists, the significant factors affecting WTP are gender (male), knowledge about the present condition of the terraces, and bid amount. For foreign tourists, the significant factors affecting WTP are age, knowledge as UNESCO World Heritage Site, and bid amount.

The paper recommends that the local government units should review the fees they are collecting from tourists, specifically to increase the fees and collect different fees from local and foreign tourists. The same rates for local and foreign tourists should also apply across municipalities. The revenues generated from tourists should be placed in a trust fund to be managed by a council that is not controlled by politicians to ensure continuity, and should be used mainly to support the activities of farmers such as the rehabilitation of terrace walls and irrigation canals.

Key words: contingent valuation, sustainable financing mechanism, UNESCO World Heritage Site

1. Introduction

The rice terraces in four municipalities of Ifugao were inscribed in the UNESCO World Heritage List in 1995 as the Rice Terraces of the Philippine Cordilleras under the category of organically evolved landscapes. This category includes landscapes that developed because of an initial social, economic, administrative or religious imperative, and by association with and in response to the natural environment.

The terraces have deteriorated over the years, and those inscribed in the World Heritage List have been reclassified to the World Heritage in Danger List in 2001 (Rossler 2005). The Ifugao Rice Terraces and Cultural Heritage Office (IRTCHO 2004 as cited by Yap n.d.) identified the following factors to have contributed to the terraces' deterioration: loss of biodiversity due to bio-piracy, unregulated hunting, indiscriminate use of new technologies, and introduction of new species; reduced farm labor because of out-migration; and accelerated erosion and siltation of the watershed.

On the other hand, the World Heritage Committee (2006) noted the following threats and dangers to the terraces: abandonment of the terraces due to the neglect of the irrigation system in the area, causing many farmers to leave; unregulated development; tourism needs not being addressed; and the lack of an effective management system.

A 10-year Ifugao Rice Terraces Master Plan was prepared in 2002 with a funding requirement of P47.6 million (about US\$ 1 million) for the first year of implementation alone. A Conservation and Management Plan was likewise drawn in 2004 based on the 10-year Master Plan, over which the International Union for the Conservation of Nature (IUCN) expressed its concern about the lack of clear financing mechanisms for the plan. Furthermore, a 2006 UNESCO mission identified the need to develop a more coordinated, long-term funding and a more sustained local resource generation mechanism, including tourism revenues and the marketing of local products. The mission recommended that a financing mechanism both at the provincial and municipal levels should be established between 2006 and 2008, and stressed the need to make available the human and financial resources required to implement the Conservation and Management Plan. To date, the plans have not been implemented for lack of funds.

This paper discusses the results of a study that sought to evaluate the possibility of capturing local and foreign tourists' willingness to pay for the conservation of the Ifugao Rice Terraces. It also identifies the factors affecting tourists' willingness to pay for the conservation of the terraces, and estimates potential revenues from tourism if a conservation fee is collected.

2. Methods

The contingent valuation method was used to estimate tourists' willingness to pay for the conservation of the Ifugao Rice Terraces. A total of 550 tourists were interviewed (300 local, 250 foreign). Ideally, this kind of survey should have taken place before the tourists have decided to come to Ifugao. However, interviewing tourists in their places of origin or at the airport was not feasible due to financial constraints and security considerations. Instead, the

respondents were interviewed when they were already in Ifugao. The CV question was thus posed as a contingent behavior question, and the respondents were requested to go back to the time when they were still going to make a decision regarding the places they would visit. They were then asked if they would still have visited Ifugao had they known that they would be made to pay a certain fee.

Tuan and Navrud (2006) also used this approach to determine foreign tourists' WTP to visit the My Son world cultural heritage site in Vietnam. They noted that asking tourists about their WTP when they have already arrived in the country would have placed them in a *fait accompli* situation, with no options to look for substitute sites. We recognize that the use of the contingent behavior question has limitations because the tourists were already in the area at the time of the interview, and possibly had already seen the terraces. This could sway the WTP estimates upwards.

The following steps in conducting a CV study, as described by Boyle (in Champs, Boyle and Brown 2003), were adopted:

- 1. *Identifying the change in the quality to be valued.* In this case, the improvement in the management and conservation of the Ifugao Rice Terraces was valued.
- 2. *Identifying whose values will be estimated.* The method was used to estimate the domestic and foreign tourists' willingness to pay for the conservation of the terraces.
- 3. Selecting a data collection method. Data were collected through personal interviews.
- 4. *Choosing a sample size.* The population of interest in this study consists of tourists visiting the site(s) since they are a good potential source of funds for the rehabilitation of degraded portions of the terraces. Due to financial and time constraints, the total sample size (n) was set at 550.
- 5. *Designing the information component of the survey instrument.* This includes a detailed description of the Ifugao Rice Terraces as the resource to be valued, how the enhanced conservation program is proposed to take place, the payment vehicle, a decision rule, and the time frame of the payment, among other things.
- 6. Designing the CV question. The dichotomous choice format was used.
- 7. *Developing auxiliary questions*. These are questions that generate data to be used in analyzing the CV responses, like socio-economic data. Follow-up questions were also included to ensure that the respondents understand the questions asked.
- 8. *Pre-testing and implementing the survey*. The survey instrument was first pre-tested to assess its strengths and weaknesses, and revised based on the feedback generated. Three pre-tests were conducted, involving a total of 140 respondents, 75 of whom were interviewed in the province of Laguna and 65 in Banaue, Ifugao. There were 112 Filipinos and 28 foreigners, who came from Australia, Canada, China, France, United States of America, Vietnam, Great Britain, East Timor, Indonesia, Burma, and Germany.

The bid amounts used in the survey were generated from the pre-tests using an open-ended question to elicit WTP. The following bid amounts were used in the final survey: P30, 50, 100, 200, 500, and 1,000 per visit for local tourists; and US\$ 10, 20, 50, 100 and 200 for foreign tourists. After the revisions, the instrument was used in the survey implementation. The survey was conducted from May 18 to July 8, 2008 in the municipality of Banaue. The respondents were chosen systematically, and were requested to sign a consent form before the interview.

9. *Data analysis.* Since the dichotomous choice format generated binary data, maximum likelihood techniques were used to estimate the log likelihood function and parameters. The theoretical framework used for model specification was based on Haab and McConnell (2002).

The sample weighted expected gross revenue was also calculated for each respondent that agreed to the bid offered to him or her. This weighted expected gross revenue was then regressed with bid and bid^2 as independent variables.

3. Results

3.1. Characteristics of Respondents

The minimum age set for respondents was 18 years, but the oldest respondent interviewed was 74 years old. The average age of respondents was about 35 years old. The proportion of male and female was almost the same, but 58% of the respondents were single. In terms of educational attainment, the biggest group was that of college graduates. The respondents who were not employed were a minority, and most of them are students. On the other hand, about 80% of local tourists and 76% of foreign tourists were employed. The annual income ranged from zero (0) for students to P4.33 million, with a mean of P71,359 and P459,297 per year for local and foreign tourists, respectively. However, the undergraduate students were dropped from the sample, as will be discussed later.

3.2. Knowledge and Perception about the Terraces

Understandably, the school was where 75% of local tourists learned about the rice terraces, this being discussed in elementary school as one of the country's beautiful spots and an important part of the national heritage. In the case of foreign tourists, the major sources of information were friends, guide books and the internet. On the average, 85.5% of all respondents were aware that the rice terraces have been inscribed in the UNESCO World Heritage List.

The rice terraces in Barangay Viewpoint, Banaue was the most visited (93% local, 66% foreign), even if this is not a heritage site. This is because the best views of the terraces are readily available at Viewpoint, which earned it its name. Among the heritage sites, Batad had the highest proportion of both local and foreign tourists. It is interesting to note that Viewpoint

and Batad almost had the same proportion of foreign tourists, despite the fact that going to Batad entails a one-hour travel by jeepney or tricycle and another hour to walk to the barangay. Less than 15% of visitors have gone to Bangaan, Hapao (Hungduan), Kiangan and Mayoyao, with the latter having the least proportion at 6.5% of all tourists.

These results confirm that most tourists go only to Banaue among the four heritage municipalities, and the Batad is the most popular heritage site. We personally observed that tour guides are more aggressive in promoting Batad, although it cannot be said that it is the most accessible. Hungduan is easier to reach and does not require tourists to walk. Perhaps the trek to Batad is in itself part of its selling points. The results also show the need to promote the other heritage sites, and that Viewpoint is the most popular destination among local tourists.

Many tourists (44% local, 76% foreign) perceived the terraces to be in excellent condition, and 46% and 22%, respectively, thought that they were in fair condition. On the average, only 6% thought that the condition of the terraces was poor. These findings are further reflected in their response as to whether their expectations were met, where 79% and 95% of local and foreign tourists, respectively, answered in the affirmative.

Both local and foreign tourists would like their grandchildren to see the terraces, and indicated that they do care if the terraces will be destroyed. Furthermore, many of them hope that the Ifugaos will continue planting rice on the terraces, and that they take pride in them. Eighty-two percent (82%) of local tourists strongly agreed with this statement, compared to 61% for foreign tourists

3.3. Responses to the Contingent Valuation Question

The CV question that was posed to the respondents was:

Suppose you are still in your country (province) of origin contemplating a visit to the Philippines (Cordillera Region). Would you have decided to visit the Ifugao Rice Terraces if you knew that you would be made to pay $P_{__}/visit$, which will go to a fund for the conservation of the Terraces?

Several observations were dropped from the original survey data. In particular, respondents that had the following characteristics were removed from the data set before analysis:

- a. Respondents who agreed to a bid that was higher than their stated income;
- b. Undergraduate students that reported allowances rather than incomes. Graduate students that were earning income were however retained; and
- c. Respondents that had unusually high income (as compared to other respondents of similar age, education, location, and occupation). These were considered as either outliers and / or erroneous data. The per capita income (PPP adjusted) in the country of origin was also used as basis in deciding to drop these observations.

These *data* corrections led to a final sample size of 210 foreign respondents and 241 Filipino respondents.

Likewise, the standard protest votes and certainty correction were also made. These *response* corrections, however, affected responses of only 11 observations. Respondents who signified that they were not sure about their answer or were not sure whether they are able to decide on the payment had their yes votes converted to no votes. The results of the various runs are shown in Tables 1 and 2.

For the final sample of 241 local tourists, 93% said "yes" to the above question at a bid amount of P30/visit. As expected, the number of respondents who answered "yes" decreased as the bid amount increased, and only 23% of the respondents said they would have still come to visit the terraces even if they were to pay P1,000. On the other hand, 72% of the tourists answered in the affirmative at a bid amount of US\$10, and the proportion of "yes" answers decreased as the bid amount increased. At the highest bid amount of US\$200, only 10% answered "yes".

Bid Amount (P)	Original Sample (n=300)			Sample without Outliers, with no Correction (n=241)			Sample without Outliers, with Correction (n=241)					
	Yes No		Yes No		Yes		No					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
30	47	94	3	6	43	93	3	7	43	93	3	7
50	46	92	4	8	32	91	3	9	31	89	4	11
100	40	80	10	20	32	84	6	16	30	79	8	21
200	31	62	19	38	23	59	16	41	22	56	17	44
500	23	46	27	54	20	47	23	53	20	47	23	53
1,000	13	26	37	74	11	28	29	73	9	23	31	78
Total	200		100		161		80		155		86	

Table 1 Distribution of "yes" and "no" responses to the CV question, local tourists

Table 2 Distribution of "yes" and "no" responses to the CV question, foreign tourists

Bid Amount (US\$)	Original Sample (n=250)			Sample without Outliers, with no Correction (n=210)			Sample without Outliers, with Correction (n=210)					
	Yes No		Yes No		Yes		No					
	No.		No.	%	No.	%	No.	%	No.	%	No.	%
10	37	74	13	26	28	78	8	22	26	72	10	28
20	30	60	20	40	25	57	19	43	24	55	20	45
50	23	46	27	54	20	45	24	55	19	43	25	57
100	22	44	28	56	20	43	27	57	20	43	27	57
200	7	14	43	86	5	13	34	87	4	10	35	90
Total	119		131		98		112		93		117	

All in all, there were 155 local and 93 foreign respondents who said "yes" to the WTP question, representing 64% and 44%, respectively. The top reason given was that they would like the terraces to be conserved. More than 50% also said that they would like to help the Ifugao farmers, they derived satisfaction knowing that they were contributing to a good cause, they would like their children and grandchildren to see the terraces, they cared a lot about the terraces, and they appreciated the efforts of our Ifugao ancestors in building the terraces.

For both local and foreign respondents who answered in the negative, the top two reasons given were that they could not afford the payment, and that it was the government's responsibility to conserve the terraces.

We also asked the tourists whether they found the proposal to create a trust fund for the conservation of the terraces important. Almost all the local and foreign respondents said that the proposal was indeed important, with an average of 98% for all respondents. Furthermore, 87% of all respondents said that they were in a position to decide whether or not to pay the conservation fee.

3.4. Logit Results

As discussed earlier, a split sample logit was used to analyze the willingness to pay of local and foreign tourists. Two models were used: a constant marginal utility of income (CMUI) and a varying parameters (VP) model. Furthermore, the respondents' incomes were classified into four (4) categories, as shown in Table 3.

Income Category	Local Tourists (PhP/mo)	Foreign Tourists (US\$/mo)
Ι	0-5,000	0-550
Π	5,001-13,500	551-1,450
III	13,501-24,500	1,451-2,800
IV	24,501-300,000	2,801-8,000

Table 3 Income categories used in the logit regression

The logit results for factors affecting local and foreign tourists' WTP are given in Tables 4 and 5, respectively. For all models and for both the local and foreign tourists, the income variable was not a significant determinant of willingness to pay. In terms of the foreign tourists' demographic variables, age seems to be a consistent factor in determining the probability of saying yes to a particular bid level. All four models showed that for foreign tourists, the likelihood of visiting the IRT increases with the respondent's age. In contrast, age is not a determinant for local tourists. For them, the retrospective probability of visiting the IRT for a given offered bid is related with gender. Local male tourists were more likely to not change their travel plans given an offered bid than local female tourists were. This result is robust across the different models except for the certainty and protest corrected CMUI Model.

			Protest a	nd Certainty	
	No Corr	rection	Co	rrected	
Explanatory Variable	Constant	Varying	Constant	Varying	
	Marginal	Parameters	Marginal	Parameters	
	Utility Model	Model	Utility Model	Model	
	-0.003*		-0.003*		
Bid	(0.00)		(0.00)		
Knowledge of UNESCO	-0.008	-0.305	0.213	-0.098	
Listing	(0.57)	(0.58)	(0.57)	(0.56)	
Knowledge of IRT	-0.428	-0.470	-0.664***	-0.691***	
Condition ^a	(0.37)	(0.36)	(0.36)	(0.36)	
	0.012	0.013	0.008	0.010	
Age	(0.01)	(0.01)	(0.01)	(0.01)	
	-0.113	0.110	-0.073	-0.074	
Education	(0.15)	(0.33)	(0.014)	(0.14)	
	0.536***	0.567***	0.507	0.540***	
Sex	(0.33)	(0.33)	(0.33)	(0.32)	
Income		-0.003*		-0.003*	
Category I x Bid		(0.00)		(0.00)	
Income		-0.003*		-0.004*	
Category II x Bid		(0.00)		(0.00)	
Income		-0.004*		-0.003*	
Category III x Bid		(0.00)		(0.00)	
Income		-0.003*		-0.003*	
Category IV x Bid		(0.00)		(0.00)	
	1.704**	0.159**	1.601***	1.522***	
Constant	(0.87)	(0.89)	(0.84)	(0.85)	
Sample Size	241	241	241	241	
% of Correct Predictions	54	76	53	76	
Likelihood Ratio	-121.93	-123.30	-124.16	-125.53	

Table 4 Logit results for factors affecting local tourists' WTP

a- 0-None; 1-Fair; 2-Excellent *- significant at 1%; ** - significant at 5%; *** - significant at 10%

			Protest an	nd Certainty	
	No Corr	ection	Cor	rected	
Explanatory Variable	Constant	Varying	Constant	Varying	
	Marginal	Parameters	Marginal	Parameters	
	Utility Model	Model	Utility Model	Model	
	-0.014*		-0.013*		
Bid	(0.00)		(0.00)		
Knowledge of UNESCO	0.755**	0.908**	0.628***	0.754**	
Listing	(0.38)	(0.38)	(0.36)	(0.36)	
Knowledge of IRT	0.029	0.007	-0.008	-0.015	
Condition ^a	(0.34)	(0.33)	(0.34)	(0.33)	
	0.031**	0.023***	0.031**	0.024***	
Age	(0.01)	(0.01)	(0.01)	(0.01)	
	0.133	0.099	0.024	-0.003	
Education	(0.16)	(0.10)	(0.159)	(0.16)	
	-0.599***	-0.494	-0.536	-0.474	
Sex	(0.31)	(0.32)	(0.31)	(0.32)	
Income		-0.018**		-0.0152***	
Category I x Bid		(0.01)		(0.01)	
Income		-0.006*		-0.007**	
Category II x Bid		(0.00)		(0.00)	
Income		-0.012*		-0.011*	
Category III x Bid		(0.00)		(0.00)	
Income		-0.017*		-0.016*	
Category IV x Bid		(0.00)		(0.00)	
	-0.772	-0.581	-0.400	-0.275	
Constant	(0.92)	(0.91)	(0.91)	(0.90)	
Sample Size	210	210	210	210	
% of Correct Predictions	65	63	65	62	
Likelihood Ratio	-123.04	-124.69	-123.58	-125.87	

Table 5 Logit results for factors affecting foreign tourists' WTP

a- 0-None; 1-Fair; 2-Excellent
* - significant at 1%; ** - significant at 5%; *** - significant at 10%

Knowledge variables are significant determinants of the probability of agreeing to offered bid amounts. Like the demographic variables, there are differences between local and foreign tourists. For local tourists, knowing that the terraces are in poor condition reduces the probability of going to the IRT at a given bid price. This result however is not evident for both the uncorrected CMUI and VP models. This means that protest and uncertainty among Filipino respondents resulted in biased estimates, in particular, an upward bias. For foreign tourists, on the other hand, knowing that the terraces are UNESCO Heritage sites increases the probability of visiting the IRT. This result is robust for all four models.

Finally, the bid levels for all four models were highly significant. The sign of this variable was also theoretically consistent. However, a Wald test for the corrected and uncorrected VP models for the Filipino sub-sample showed that the coefficients of the interaction between bids and income categories were not significantly different from each other. This might imply that in terms of specification, the CMUI model is more appropriate for this sub-sample. For the foreign tourist sub-sample and for both the corrected and uncorrected VP models, the interaction terms for the bid and income category II and the bid and income category IV were found to be significantly different at a 5% level. This means that for a given bid level, foreigners with higher incomes are less likely to visit the IRT.

The logit regression results also offer some directions for future policy. The results that different demographic and information variables determine the willingness to visit the IRT given a bid offer may help in defining ways of advertising and packaging the IRT for tourism. To attract foreign tourists, the Heritage Site status of the IRT should be highlighted in advertising. It should also be developed to become a niche destination for say, foreign retirees. The place could be developed to offer activities other than viewing the IRT that would be of interest to older generations.

3.5. Estimates of the WTP of Local and Foreign Tourists

Both nonparametric (Turnbull) estimation and parametric estimation were used to compute the WTP. As expected, several WTP estimates were derived depending on the procedure that was used as well as on the correction for certainty and protest votes. These estimates are shown in Tables 6 and 7.

In general, the average parametric WTP were lower compared to the non-parametric estimates. Certainty and protest corrected WTP were consistently lower compared to the uncorrected estimates for the Filipino sub-sample. However, this is not true for the foreign tourist estimates. Certainty and protest-corrected parametric estimates were (oddly) in general not lower than their uncorrected counterparts were. However, the overall average WTP estimate for both the corrected CMUI and VP models (column (h) of Table 6) turned out to be still lower than the uncorrected average parametric estimate.

	Local (P/person)							
		Parametric						
	Tumbull	Constant	Varying Parameters					Average
		MU of	Income	Income	Income	Income	Parametric	(h)
	(a)	Income	Category	Category	Category	Category	(\mathbf{q})	
		(b)	Ι	II	III	IV	(g)	
			(c)	(d)	(e)	(f)		
No Correction	424	605	583	567	533	655	589	506
Certainty and	394	435	532	453	478	532	486	440
Protest Corrected								

Table 6 Non-parametric (Turnbull) and parametric estimates of local tourists' WTP

Table 7 Non-parametric (Turnbull) and parametric estimates of foreign tourists' WTP

	Foreign (US\$/person)								
		Parametric							
	Turnhull	Constant		Varying P	Avorago	Average			
		MU of	Income	Income	Income	Income	Parametric	(h)	
	(a)	Income	Category	Category	Category	Category			
		(b)	Ι	II	III	IV	(g)		
			(c)	(d)	(e)	(f)			
No Correction	61	73	61	176	90	63	93	77	
Certainty and	41	110	70	153	08	67	101	71	
Protest Corrected	41	117	70	155	90	07	101	/1	

CMUI estimates were lower than VP model estimates for local tourists. This result is robust to certainty and protest corrections. For foreign tourists, on the other hand, estimates from the VP model were higher than that of the CMUI. However, this relationship was reversed once certainty and protest votes were accounted for.

For local tourists, the estimated WTP ranged from a low of P394 to a high of P655 per person. On average, local tourists' WTP falls between P440 to P506 per person. On the other hand, the WTP of foreign tourists was estimated to range from US\$61 to US\$176 per person. The average WTP of foreign tourists is between US\$71 to US\$77 per person. For both local and foreign tourists, there seems to be a U-shaped relationship between income (categories) and estimated WTP, thus suggesting that WTP first decreases as income increases and afterwards a positive relationship becomes evident.

Considering that the respondents were already in Ifugao when they were interviewed and could have already seen the rice terraces, it is highly possible that the WTP estimates generated by the models have some bias in the upward direction. Different WTP estimates may have been arrived at had the tourists been interviewed before they have gone to Ifugao. As such, recommendations based on these estimates should be made on the conservative side.

3.6. Potential Revenues from Tourism

The sample weighted expected gross revenue was also calculated for each respondent that agreed to the bid offered to them⁹, and was then regressed with bid and bid² as independent variables. The results of these regressions are as follows¹⁰:

Local Tourist (corrected for certainty and protest votes, CMU Model): E[expected revenue] = $0.425 \times bid - (4 \times 10^{-4}) \times bid^{2}$

Foreign Tourist (corrected for certainty and protest votes CMU Model): E[expected revenue] = $0.273 \times bid - 0.001 \times bid^2$

Local Tourist (corrected for certainty and protest votes, VP Model): $E[expected revenue] = 0.442 \times bid - (4 \times 10^{-4}) \times bid^{2}$

Foreign Tourist (corrected for certainty and protest votes, VP Model): E[expected revenue] = $0.267 \times bid - 0.001 \times bid^2$

¹⁰ All coefficients are significant at 1% level

⁹ Sample Weighted Expected Gross Revenue=[(Probability of paying)*(% of Yes Votes/Bid)*Bid. The probability of payment was generated from the logit regressions discussed in the previous section. To interpret this, for example, about 90% of local tourists said yes to a bid price of P 30. This means that 9 out of 10 local tourists would be expected to pay P30*(Probability of paying).

These regressions imply the following (expected) revenue-maximizing bids or price¹¹:

Tourist Type/Model	Bid/Price That
	Maximizes Expected
	Revenue
Local Tourist (corrected for certainty and protest	P535/person
votes CMU Model)	_
Foreign Tourist (corrected for certainty and protest	US\$105/person
votes, CMU Model)	
Local Tourist (corrected for certainty and protest	P537/person
votes, VP Model)	
Foreign Tourist (corrected for certainty and protest	US\$112/person
votes, VP Model)	

Table 8 Expected revenue-maximizing bids/prices by tourist type and model

These results, along with the WTP estimates, show that the revenue-maximizing bid is higher than what individuals are willing to pay for the IRT. Furthermore, on average, local tourists' WTP is closer to the revenue-maximizing bid than that of foreign tourists. Using the conservative estimates (i.e. CMU model) for the revenue- maximizing bid/price and with say a maximum of 43,526¹² local tourists and 26,585 foreign tourists a year, the Local Government can expect at most around P5 million and P17 million¹³ every year from local and foreign tourists, respectively.

Using further the simulated regression results, we came up with the following bidrevenue schedule for both local and foreign tourists (Table 9). The bid-revenue schedule shows the maximum total revenues the local government can get for a given bid or entry fee. From these tables, the status quo of charging P10 per person (US\$0.23 per person) for both local and foreign tourists (i.e. uniform pricing) results in revenue losses simply because foreign tourists are willing to pay more on average than Filipinos. To have an idea of the magnitude of the loss, note that the most conservative discriminatory pricing (P10 per person for local tourists; US\$10 per person for foreign tourists) yields an annual revenue of around P4.2 million, while a uniform pricing policy would only yield P0.2 million (or P200,000). Thus, the revenue losses amount to around P4 million. Thus, a discriminatory pricing policy could be justified on efficiency grounds.

Collecting a P50-fee per person from local tourists and US\$20 per person from foreign tourists can generate annual revenues of P0.88 million and P5.77 million, respectively, or a total of P6.65 million/year. Thus, the revenues from tourists have the potential to help finance the rehabilitation and conservation of the terraces.

¹³ US\$ 1= PhP 44

¹¹ The revenue-maximizing bid was calculated by taking the derivative of the expected revenue equation with respect to the bid and equating it to zero

Lo	cal Tourists	Foreign Tourists			
Bid/ Entry	Total Expected Gross	Bid/ Entry Fee	Total Expected Gross		
Fee (P/person)	Revenues (Million P)	(P/person)	Revenues (Million P)		
10	0.18	0.23	0.07		
30	0.54	10	3.04		
50	0.88	20	5.77		
100	1.68	50	12.14		
200	3.01	100	16.67		
500	4.93	200	2.90		
1000	1.19				

Table 9 Bid-revenue schedules for local and foreign tourists

4. Conclusions and Recommendations

Based on the results of the study, we conclude that:

- 1. The average WTP for local and foreign tourists are P440 per person and US\$71 per person, respectively. For local tourists, the significant factors affecting WTP are gender (male), knowledge about the present condition of the terraces, and bid amount. For foreign tourists, the significant factors affecting WTP are age, knowledge as UNESCO World Heritage Site, and bid amount.
- 2. The revenue-maximizing fees range from P535 to P537 per person for local tourists, and US\$105 to US\$112 per person for foreign tourists.
- **3**. Collecting fees from both local and foreign tourists can help finance the conservation of the Ifugao Rice Terraces.

We also offer the following recommendations:

- 1. *Revise the fees charged for local and foreign tourists.* The LGUs fear that charging higher fees may drive tourists away. However, it should be pointed out that such a fee will only be a small amount compared to the total travel costs tourists incurred to reach Ifugao. Our results also show that for as long as tourists are informed about the condition and problems of the rice terraces, most of them are willing to help in their conservation.
- 2. The fees to be collected from tourists should be the same across heritage municipalities. The amount of fee should be revised to better capture the tourists' WTP, as revealed by the results of this study. Furthermore, different rates should be charged for local and foreign tourists. The results of the study show that local and foreign tourists have different average WTPs, i.e. P440 per person and US\$71 per person for local and foreign tourists, respectively. We are not recommending a drastic increase in the rates, for example from P10 to P400 or US\$73 per person. However, the present rates, ranging

from P10 to P30 per person, are way too low, and there is a great opportunity to capture a higher proportion of the tourists' WTP.

- 3. Revenues generated from cultural and environmental fees should be retained where the fees are collected (i.e. barangay or municipality) and placed in a trust fund. The Local Government Code provides under Section 18 that the local government units "shall have the power and authority to create their own sources of revenue and to levy taxes, fees, and charges which shall accrue exclusively for their use and disposition and which shall be retained by them".
- 4. The possibility of collecting the cultural and environmental fee only once to gain access to all the rice terraces in the heritage municipalities and, eventually the whole province of Ifugao, should be studied. This may promote visits to non-heritage areas and enable the communities in these municipalities to benefit from tourism as well. This will also be easier to administer, monitor and control; lower transaction costs; and reduce the inconvenience to tourists of having to pay each time they go to a site. However, adopting this recommendation will require issues on revenue sharing and prioritization of conservation and development activities to be carefully studied.
- 5. Revenues that will be generated from tourist fees should be used to support farmers, particularly to maintain the terrace walls and rehabilitate the irrigation system.

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