

Willingness of Local Tourists to Pay for Conservation of Tourism Spots in the Damai District Sarawak



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The increasing competition for land use, due to development at Damai beaches and its other wilderness within the coastline of Santubong in Sarawak, has significantly agitated wildlife ecosystems and contaminated beaches to the extent of decreasing the income of the surrounding indigenous groups. Thus the ability to conserve this area is of significance in balancing the ecosystem and conservation of the environment for future generations. The objective of this paper is to determine visitor's satisfaction levels through their willingness to pay for the conservation of the Damai Resort district. This study utilizes CVM (Contingent Valuation Method) to measure willingness to pay.

CVM has been widely used to calculate willingness to pay by individuals for products or services obtained. Among other studies using the method are Rendall *et al.* (1974), Bishop and Heberlein (1979), Bishop *et al.* (1983), Seller *et al.* (1986), Cameron and James (1987), Bowker and Stoll (1988), Cameron (1988), McConnel (1990), Balderas and Laarman (1990), Donaldson *et al.* (1997), Rollins (1997), Ryan (1997), Willis and Powe (1998), Hayes and Hayes (1999), Carlson and Johansson-Stenman (2000), Shackly and Dixon (2000), Loomis *et al.*, (2000), and Scarpa (2000).

In the study undertaken, the Damai Recreational Site was used as a product attribute. The dichotomous choice survey asked respondents if they would pay a certain amount of the price to use the facilities as they are. This particular question format is called a dichotomous choice, since the respondents simply answer "YES" or "NO" at the specified price given. The maximum WTP for the recreational site is not directly observed in the dichotomous choice approach but it can be calculated from the responses. Hanemann (1984) viewed CVM respondents using a utility difference approach when he decided whether to answer, "YES" or "NO" at the price increase. If the utility difference is logistically distributed, a logit model of the probability of YES response is related to the respondent's price as;

$$P = (1 - e^{-x})^{-1} \quad (1)$$

where x is the estimated regression, 1 is the logit regression equation and P is the probability of accepting the price. The mean WTP is estimated as the area under this probability function. This area shows the proportion of the population who would consume the good at each price level, and their associated utility. The area under the curve is estimated by integration techniques and can be expressed as;

$$E(WTP) = \int_L^U (1 + e^{\alpha + \beta PRICE})^{-1} dPRICE \quad (2)$$

where, $E(WTP)$ is the probability of saying "YES" and U and L the upper and lower limits of the integration respectively.

The initial estimation of the model using all the socio-economics characteristics as an independent variables reveals that all other variables were insignificant except for income and price. Income shows a significant and positive relationship towards WTP. The larger the income, the greater the contribution to one's WTP, as a surplus of family income over family expenditure. The results are given in Table 1. The chi-squared statistics shows that the model is highly significant. The value of McFadden's pseudo-R² is 0.1304 and 0.1286 for logit and probit models respectively. The percent of right prediction is 73.13 and 73.13 per cent for both models. The price and income in both models are significant at five and one percent level, respectively. The results also show the logit and probit models differ slightly in terms of summary statistics. This corresponds with prior work in which neither model dominated the other empirically in the binary dependent variable case (Bowker and Stoll, 1988).

Table 1
Parameter Estimates for CVM

Variables	Logit Model	Probit Model
Intercept	0.1927 (0.424)	0.1262 (0.451)
Price	-0.0694(-4.230) ^a	-0.4122(-4.335) ^a
Income	0.000597(2.420) ^b	0.000345(2.443) ^b
Log-likelihood	-93.2765	-93.3728
McFadden R ²	0.1304	0.1286
χ^2	27.9737	27.5862
% Ringgit prediction	73.13	73.13

Note: Figure in parentheses are t-statistics

^a Significant at 1% level

^b Significant at 5% level

The calculated mean and median values for WTP are listed in Table 2. The WTP mean is RM11.70 for probit and RM15.11 for logit model. The medians are RM11.40 to RM11.90 for logit and probit respectively. It is shown that the mean WTP is higher than the median and this is consistent with the finding by Hanemann (1984). The median value is preferred to the mean as it measures one's welfare (Bowker and Stoll, 1988). This is due to the sensitivity of mean towards slight changes in the shape of decision distribution from different methods or outliers in the data, while the median is relatively robust. As WTP obtained from the logit model is a more reliable measure, the value of RM11.90 can be taken as the conservative WTP for the preservation of the Damai area.

Table 2
Mean and Median Estimation of WTP for Damai Preservation

Function	Mean WTP	Median WTP
Logit	RM15.11	RM11.90
Probit	RM11.71	RM11.40

The Damai district consists of various beautiful and nature based recreational sites. It has become one of the finest attractions in Sarawak and the pride of the state for many years. This area needs protection from many types of harmful activities and modernization.

As discussed, RM11.90 is the median WTP value. At present most of the tourist spots charge an entrance fee of between RM5 to RM10. The amount could be collected by dividing the whole Damai resort into specific areas (e.g. beach, mangrove swamp, mountain range, etc.). The current environmental condition in Damai is still pristine and undefiled (the mangrove swamps, beaches, and mountain treks), as it has yet to be fully developed into a tourist attraction. As such, each individual area of interest could be developed accordingly with the level of WTP as indicated in this study.

If the authorities were to collect this fund, they could preserve and protect Damai while also improving public facilities such as toilets, pedestrian path, signboards, rubbish bins etc. In addition, the fund could be used to educate the public on the importance of preserving the environment. Indirectly, through such efforts, the relationship of one's satisfaction derived from their visit to Damai will more or less determine their WTP to preserve the areas. The responsibility of protecting and preserving nature resources and its wildlife such as Damai, does not solely rest with the authority, it involves strategic co-operation between the authority and the public. By charging a small fee to the area, the problems associated with managing the public good could be minimized.

Reader Enquiry

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