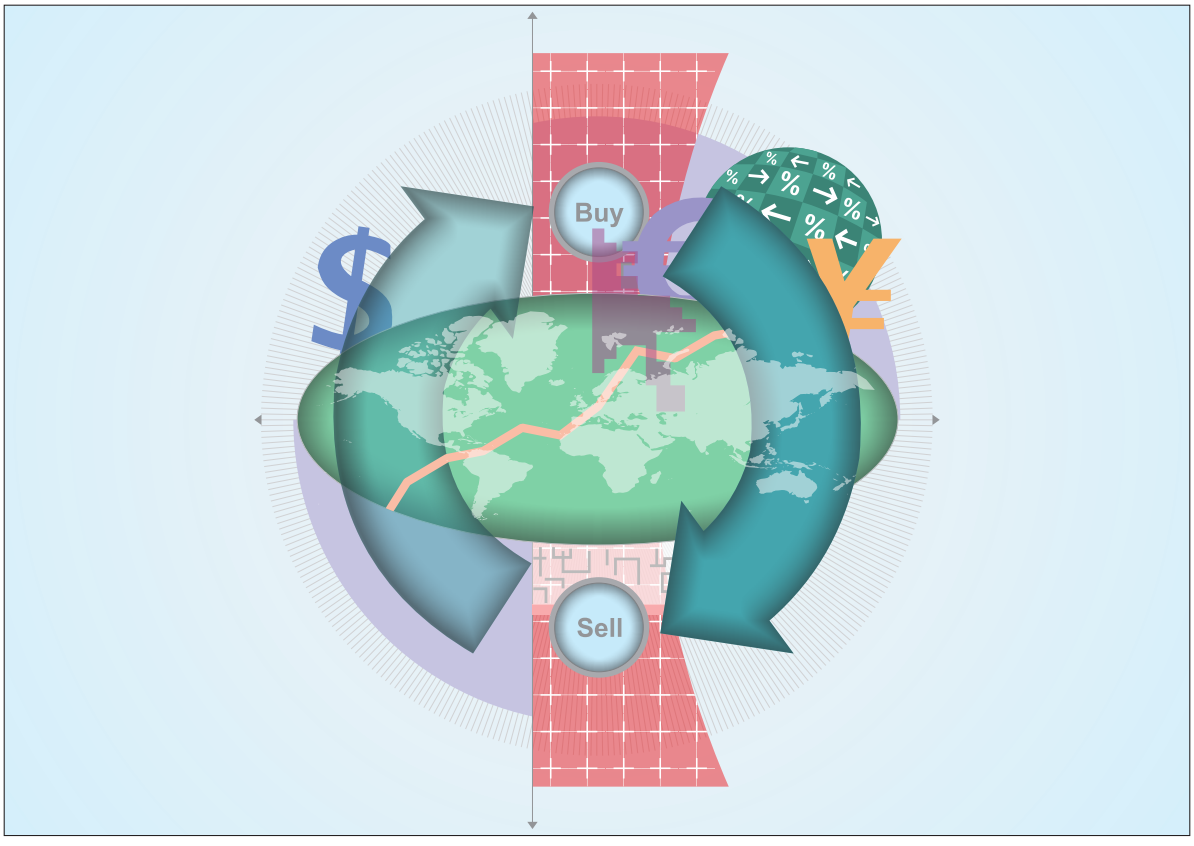

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Valuing Ecotourism and Conservation Benefits in Marine Parks: The Case of Redang Island, Malaysia

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Abstract: The purpose of this study is to estimate the visitors preferences of ecotourism attributes in Redang Island Marine Park. This study employs the Choice Experiments (CE), the Conditional Logit (CL) to investigate the visitors' preferences of the ecotourism attributes. The personal interview has been made with a total of 298 representative respondents. The respondents has been asked to select the best among the alternatives of ecotourism attributes. The ecotourism attributes which have been investigated are ecological management, recreational activity congestion, provision of employment opportunity to local people and conservation charge. Results of the study found that the visitors preferred the highest changed in ecological management attribute levels compared to recreational activity congestion and provision to local employment attributes levels. Results of this study are very important in assists policy maker in management and development plan for ecotourism in marine parks.

Key words: Ecotourism, economic valuation, choice experiments, conditional logit models, marine parks, sustainable development

INTRODUCTION

Ecotourism in Malaysia takes place in the country's protected areas system. At present, Malaysia has 54 protected areas including 28 strict nature reserves, 16 national parks, 9 managed nature reserves/wildlife sanctuaries and one protected landscape. These areas make up approximately 10% of the area of Malaysia. This area is becoming popular among tourists because of the biological richness of Malaysia's tropical forests, marine ecosystem and wetland ecosystem (Mohd Rusli *et al*., 2008). In addition, Malaysia has 40 islands and the surrounding marine ecosystems have been gazetted as marine parks under the Fisheries Act 1985. These islands are grouped into five marine parks for better administration and management and are located off the coast of the States of Kedah, Terengganu, Pahang, Johor and Labuan.

The establishment of marine parks as protected areas in the country aims at protecting special biological and environment values. However, because of open access to marine park resources and failure of the market system in restricting their use, over-use and environmental degradation have resulted. The degradation of marine parks might affect the sustainability of ecotourism in future. The market failure is associated with users not paying the full costs of using the natural resources in the marine parks. Thus it is possible that the park may be subject to excessive use, overcrowding and biological degradation. The high level of usage may result in conflicts between users, the social and biological carrying capacity and potential environmental degradation.

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Despite the functions of marine parks for conservation and protection of the marine environment, at the same time these areas are becoming popular as ecotourism sites in our country. The attractions of marine parks are actually the natural resources themselves: the coral reefs, fish, mangroves, coastal vegetation, beautiful beaches with clear blue waters and the peaceful and harmonious condition of the islands (Mohd Rusli *et al*., 2008). Furthermore, most of the marine parks are famous for their sea turtle resources. The combination of all these marine resources has become the main attraction among tourists. As a result, the number of tourists has vastly increased each year. For example, in the Redang Island Marine Parks, the number of tourists (domestic and international) was 22,725 in 1995 and increased to 142, 476 in 2005.

The purpose of this study is to assess the value of ecotourism development in marine parks in Malaysia by using environmental economic tools to help develop management policies that enhance ecotourism contribution to sustainable development and conservation in Malaysia. The valuation and assessment of the ecotourism development in marine parks in Malaysia is important in order to realize that development fulfils the requirement of the visitor preferences through the concept of ecotourism. At the same time it is necessary to realize the archiving and monitoring of sustainable ecotourism development and biodiversity conservation in marine parks.

MATERIALS AND METHODS

Redang Island Marine Park (RIMP) is situated in the South China Sea and is located an approximately 24.28 nautical miles or 45 km, from the Northern state of Terengganu, Malaysia. It is located at latitude between 5° 44' and 5° 50' North and a longitude of 102° 59' East. This marine park comprises the main island of Pulau Redang, which is associated with 8 islets. These are Pinang Island, Lima Island, Ekor Tebu Island, Kerengga Kecil Island, Kerengga Besar Island, Paku Besar Island, Paku Kecil Island and Ling Island. Of these, only Redang Island and 3 islets (Pinang, Lima and Ekor Tebu Islands) are included as part of the RIMP. However, the other islets are still afforded some protection by virtue of their close proximity.

The main access to RIMP is via boats, ferries and speedboats that depart from the jetties in Kuala Terengganu and Merang. The journey takes about one hour from Kuala Terengganu and about 30 min from the Merang Jetty. Alternatively, there are vessel services available from Kuala Besut Jetty, this ride taking about 2 h to complete. The main jetties of Redang Island are at Kuala Redang River and Pinang Island. Land transportation in the island uses roads and pathways.

The marine parks of the East coast of Malaysia, including RIMP, constitute a globally important area of coral and fish biodiversity. The area of RIMP contains 149 species of coral from a total of 226 species identified in Malaysia. Most of the species are found around Redang Island. Meanwhile, a total of 209 fish species have been found in the RIMP (Harborne *et al*., 2000). The island also has landing and nesting areas for turtles, some of which are protected as turtle sanctuaries under the SEATRU project, including those at Cagar Hutan, Pasir Mak Kepit and Pasir Mak Simpan. Birds of the layang-layang species are also seen at Tanjung Gua Kawah and Tanjung Batu Tok Kong.

In terms of the ecotourism facilities and services, there are 16 chalets and resorts in RIMP. There are about 900 rooms from a range of categories, including 252 luxury rooms and a nine-hole golf course on the island. Camping sites are also available for the more adventurous tourists and backpackers at Teluk Kalong. The Department of Fisheries has also established privatized and commercialized chalets at the marine parks centre at Pinang Island. Activities like snorkeling and scuba-diving are also popular attractions for tourists on the island. Thus, RIMP is becoming an increasingly important ecotourism destination in Malaysia. For example, in 1995 this marine park was visited by just 22,725 tourists. However, this number has increased on a yearly basis and in 2005 it received more than 123,159

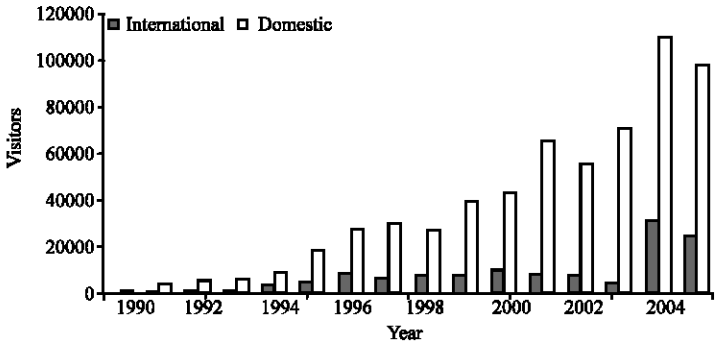

Fig. 1: Total number of visitors to Redang Island marine park

tourists (Fig. 1). This overwhelming increase in visitor numbers now poses a serious challenge to the parks management, who must cater for the needs of the tourists whilst ensuring that economic concerns, environmental awareness, marine ecosystem protection and conservation are maintained.

CHOICE EXPERIMENT

Choice Experiment was originally proposed by Louviere and Woodworth (1983) in order to avoid some of the problems and ad hoc assumptions associated with rank order or rating scale data. It involves the design of experiments in which choice situations described by a combination of attributes, referred to in the literature as choice or attribute profiles are presented to individuals in a hypothetical market. Respondents are then asked to make choices between the different profiles which implicitly reveal their preferences. The choice responses are directly translated into marginal values through the estimation of a discrete choice model reflecting the trade-offs respondents make between the attributes in a manner consistent with random utility theory (Bateman *et al*., 2002).

In the CE visitors are asked to choose a single preferred combination of attributes from the alternatives in the set provided. This approach has a format with combinations of attributes that make up specific situations selected from the universe of possible situations. The first study to apply choice experiments to non-market valuation was Adamowicz *et al*. (1994). Since, then there has been an increasing number of studies. In the CE format, the respondent is asked to choose between alternatives that are described by attributes. These combinations of attributes make up specific situations that are selected from a universe of possible situations. This is analogous to the problem of decision-making by visitors, who have to assess a variety of potential attributes in the alternatives before finally deciding to choose the best of the alternatives.

In the CE exercise, the first task involves identification of the attributes which are most important in the market investigated. The list of attributes needs to be carefully established, preferably using prior exploratory research backed by a mixture of experience and knowledge of the particular research problem. Once the attributes are identified they are partitioned into generic groups with each group defined by elemental levels.

The CE approach allows trade-offs between goods in the choice set or attribute profile, as well as monetary compensation (Hanley *et al*., 2001). This implies that the environmental policy makers can examine the number of environmental quality factors that the visitors are willing to trade off for one another. In this study, for example, the marine parks manager or decision makers can examine the numbers of attributes related to ecotourism development in Redang Island Marine Parks that the visitors are willing to trade-off for one another. This information could improve the effacing of management in RIMP.

Generally, in a CE study, the respondents will choose from among alternatives by decision makers. In this case, respondents or visitors act as decision makers and are required to choose from among the alternatives or policy options. There are two aspects of CE related to theoretical foundations; theory of value by Lancaster (1966) and random utility theory by Manski (1977). Lancaster's theory specifies the value of a good as a function of the attributes that characterize the good rather that the good *per se*. This theory gives rise to the utility function that is used for the application of CE. Meanwhile, the Random Utility Theory (RUT) helps to derive the best estimator of the unknown true utility function. This theory relates utility directly to the probability of choosing an alternative from a set of alternatives.

Conditional Logit Model of Ecotourism Attributes Choice

Conditional logit is commonly used to estimate the choice modeling exercise. It is one of the simplest variants of discrete choice method. In this study let us say a respondent n, faces a choice among J alternatives in a choice set. Label the observed attributes, either in qualitative terms (e.g., very good, satisfactory, less congestion) or quantitative terms (e.g., 20%, 1 h, RM5, RM10) of alternative I in the choice set as faced by the respondent, n as the vector Xin. The probability (P_{in}) that respondent n chooses alternatives *I* depends on the observed attributes of alternative I compared with other alternatives (i.e., X_{in} relative to all X_{jn}; $j \neq I$). In this case, there are three alternatives; management option 1, management option 2 and the status quo. The probability can be represented by a parametric function of general form:

$$P_{in} = f(X_{in}, X_{jn}; j \neq i, \beta) \quad (1)$$

Where:

P_{in} = Probability of respondent n choosing alternative I
X_{in} = A vector of observable characteristics of alternative I accessible to respondent n
X_{jn} = A vector of observable characteristics of alternatives j accessible to respondent n

In this case, f is the function that relates the observed data with the choice probabilities. This function is specified up to some vector of taste parameter β to be estimated. These parameters can be interpreted by estimating the marginal value of each ecotourism attribute in the respondent's choice set. In discrete choice procedure, three characteristics of choice set that shonld be considered; the alternatives must be mutually exclusive, the choice set must be exhaustive in that all possible alternatives and the number of alternatives must be finite, (Train, 2003).

Thus, in order to derive of discrete choice model or the specific function of f in Eq. 1, let us consider the utility obtained by the respondent from each alternative. Take the vector of all attributes of alternative I as faced by respondent n as Z_{in}. According to Lancaster (1966), the utility that respondent n obtains from alternative I, denoted U_{in} can be written as follows:

$$U_{in} = U(Z_{in}) \quad (2)$$

where, U is a function. The respondent chooses the alternative that provides the greatest utility. When the respondent n chooses alternative I, we can write the behavior model if and only if $U_{in} > U_{jn}$, ; $j \neq I$. Then we can write; $U(Z_{in}) > U(Z_{jn})$; $j \neq I$. This utility represents the deterministic component since the respondent is already known on their utility.

However, in the choice probability, the element of Z_{in} is divided into two components. The first component is called a systematic component (denote as V) and the second, the random component or error term denoted as ϵ_{in} (Train, 2003).

$$U_{in} = V(X_{in}) + \epsilon_{in} \tag{3}$$

where, In this case, the ϵ_{in} is not known and is therefore treated as a random term. The joint probability density of the random vectors, $\epsilon_n = (\epsilon_{n1}, \epsilon_{n2} \ldots \epsilon_{nj})$ is denoted $f(\epsilon_n)$. With this density, the researcher can make probabilistic statements about the decision-maker's choice. In random utility terms, the probability that respondent n chooses alternative I is (Train, 2003):

$$\begin{aligned} P_{in} &= \text{Prob}\,(V_{in} + \epsilon_{in}) > (V_{jn} + \epsilon_{jn});\ j \neq i \\ &= \text{Prob}\,(V_{in} - V_{jn}) > (\epsilon_{jn} - \epsilon_{in});\ j \neq i \end{aligned} \tag{4}$$

The probability that an individual randomly drawn from the sample population of respondents will choose alternative I equals the probability of the difference between the systematic utility levels of alternative I and j for all alternatives in the choice set. This probability is a cumulative distribution, when the probability that each random term, ϵ_{jn}-ϵ_{in} is lower than the observed quantity V_{in}- V_{jn}. Thus, by using the density $g(\epsilon_n)$ this cumulative probability can be written as:

$$P_{in} = \int I(\epsilon_{jn} - \epsilon_{in}) < (V_{in} - V_{jn})\, g(\epsilon_n)\, d\epsilon_n \tag{5}$$

In order to estimate a random utility model, a distribution on error terms must be specified. In this case, in order to develop a conditional logit model (McFadden, 1974; Train, 2003). By assuming that all of the error terms in the choice set are independently and identically distributed, IID with a Weibull distribution, the conditional logit model can be developed by Freeman (1993). Thus, the probability of respondent n choosing alternative I can be formed as:

$$P_{in} = \frac{\exp(\mu V X_{in})}{\sum_j^J \exp(\mu V X_{jn})} \tag{6}$$

By assuming that V_{in} is linear in parameters, the functional form of the respondent systematic component of the utility function can be expressed as:

$$V_{in} = \beta_1 X_{in} + \beta_2 X_{2in} + \ldots + \beta_k X_{kin} \tag{7}$$

where, Xs are variables in the utility function and the β_s are coefficients to be estimates. If a single vector of coefficients β that applies to all the utility functions associated with all the alternatives is defined and the scale parameter $\mu = 1$ (Train, 2003; Swait and Louviere, 1993), thus the Eq. 4 and 6 can be rewritten as:

$$P_{in} = \frac{\exp(\beta' X_{in})}{\sum_j^J \exp(\beta' X_{jn})} \tag{8}$$

where, P_{in} is a Respondent n choice probability of alternative I, X_{in} and X_{jn} are the vectors describing the attribute of I and j and β is a vectors of coefficients. Then, the next step is to estimate the choice probability and to calculate the welfare measure. If one of the attributes is a monetary attribute. Thus, the indirect utility function, in Eq. 7 is linear and therefore a ratio of any two coefficients in it provides information about the trade-off or Marginal Rate of Substitution (MRS) between the corresponding variables. The ratio of an attribute's coefficient and the price coefficient represents the marginal

implicit price of the attributes. This ratio represents the implied change in the implicit price of the attributes relative to a current situation or status quo as in the equation below:

$$\rho_{i,k} = \frac{\partial V/\partial X_{i,k}}{\partial V/\partial P_{i,k}} = -1\frac{\beta_{i,k}}{\beta_{i,k=p}} \quad (9)$$

DATA COLLECTION

The aim of this research is to use the CE technique to assess the value of ecotourism development in Redang Island Marine Park, Malaysia. The experimental design and questionnaire development began by determining ecotourism attributes to be included in the data collection. A Choice Experiment (CE) study involves five important stages: selecting attributes, determining levels, choosing experimental design, constructing choice sets and measuring preferences (Bateman *et al*., 2002).

The first stage in the CE question design was to choose a set of characteristics or attributes related to the policy implemented, which was related to the study site problem. In this study, the ecotourism values had a variety of attributes for consideration and most of the attributes were expressed in qualitative rather than quantitative terms. The first stage of attributes and levels selected were identified in this study by using relevant sources such as literature, government annual reports, brochures and expertise judgement. During this process, the selection of the main attributes and levels was closely related to the policies implemented in RIMP. At the end of this stage, there are four ecotourism attributes were selected. All levels and attributes included the current management practices as the status quo are presented in Table 1.

This study applied a series of multiple choices. The choice options or management options for ecotourism attributes differed according to the choice sets. Each choice set had three alternatives or management options for ecotourism development in RIMP. Management options one and two are the alternatives; meanwhile, management option three is always the same as the status quo option. The status quo option was provided for respondents who do not want a change for the management options described.

In the CE questionnaire, the choice sets were the main portion and were designed to elicit the choice-based information. Generally, designing a choice experiment involves determining a set of decision attributes and levels to represent the variation in the real situation (Adamowicz *et al*., 1994). Furthermore, it involves determining the choice sets or number of alternatives that respondents have in making a decision and ensures that the task is not too long or too difficult or lacks snfficient realism and credibility. In addition, there are three ways of reducing task complexity if the cases have too many attributes; by reducing the number of alternatives or levels, grouping the attributes into subsets and splitting them into blocks Bateman *et al*. (2002).

All CE studies require an experimental design. The design is formulated from nnmber of attributes (or factors) or the nnmber of levels for each attribute. In a Fractional Factorial Design (FFD), only a subset of all possible combinations of attributes levels is selected. This design reduces the nnmber of alternatives the respondent evaluates and still allows the estimation of the unknown parameters the researcher seeks. Therefore, in this study with a Fractional Factorial Design (FFD) of $3^3 4^1$ for ecotourism attributes, the total number for choice sets were 14 optioual choices after two choices has been drawn due to implausible or dominated alternatives (Bennett, 1999).Thus, in this study, there are seven choices in total. These options did not include alternatives for status quo. The example of a CE question is shown in Table 2.

A pilot survey was conducted before the actual survey, with the purpose of testing the questionnaire, including checking the choice of wording, the clarity of questions and avoiding

Table 1: Ecotourism attributes in Redang Island Marine Park

Attribute	Description	Levels	Description
Ecological management	Refers to solid waste disposal, sanitation and sewage system. Example: Waste disposal and untreated sewage dumped directly into the ocean will pollute the beaches	Not Satisfactory	Open burning for rubbish and waste. Some used septic tank for sewage system but sometime direct dumped into the sea
		Satisfactory	Used a standard waste disposal system; open burning for waste and rubbish. Some used a septic tank for sewage system
		Very good	Clean environment and schedule managed, effective waste management, used recycling system and septic tank for sewage system; shipping to mainland
Recreational activities congestion	Congestion at the certain places and during enjoying recreational activities: picnic places, beach areas, snorkeling areas and scuba diving	Less	No queue, no encounter by other. Less disturbed from other persons
		Some	Crowding in a few areas, but others overcrowded. Crowded and close with other persons
		Very	Long queues and very close to other people
Employment to local people	Job opportunities to local people; works with hotels, own business, tourist guides and boatmen	No change	Maintain the current level of jobs and involvement with 10%
		Increase 10%	Increase jobs and involvement of local people in ecotourism sectors to 20%
		Increase 20%	Increase jobs and involvement of local people in ecotourism sectors to 30%
		Decrease 5%	Decreasing jobs opportunity and involvement in ecotourism sector to 5%
Conservation charge	The current revenue collection system in RIMP for maintenance, management and operation expenses. The collection will be channel to Marine Park Trust	RM 5	The current conservation charge; RM 5 for adult and RM 2.5 for children; visitors
		RM 7.5	Conservation charge higher than current level; RM 7.5 for adult and RM 5 for children; visitors
		RM 10	Conservation charge higher than current level; RM 10 for adult and RM 7.5 for children; visitors

Table 2: Example of choice experiment question

Variables	Management option 1	Management option 3
Ecological management	Satisfactory	Not satisfactory
Recreational activities congestion	Less congestion	Less congestion
Employment to local people	No change	5% decrease
Conservation charge	RM 7.5	RM 5
Option	X	

Or would you prefer NO CHANGE with current management practice for PRMPs with ecological management, recreational activities congestion, employment to local people and conservation charge?

ambiguous questions. The data was collected during the period of May-July 2004. This study applied the face-to-face or personal interview data collection technique. The CE method was a new approach in this field and in Malaysia, so it was better to use personal interview as a data collection technique to make sure information given and gained was meaningful. With this technique, the interviewer could highlight and explain the questionnaire, the confidentiality, the purpose of the study and CE questions. This process can produce high quality data. Thus, this kind of survey method was better than other data collection techniques. The interviews with visitors were made at the specific locations; Marine Park Centre, Pasir Panjang and Berjaya Redang Beach Resort due to visitor availability and time constraints. Thus, the survey sample was comprised of 289 respondents includes both foreign and local visitors.

RESULTS AND DISCUSSION

Results in Table 3 shows the parameters of the simple and interactions models with both of them are generally in accordance with a priori expectations. For example, in Model 1 the higher positive coefficient for EM2 and EM3 implies that these are highly favored compared to EM1 as a status quo (base). The coefficients for all ELP levels are positive, indicating that the base chosen has the smallest contribution to utility, followed by ELPD5, ELP10 and ELP20 being significant at 1 and 10% levels, respectively.

The inclusion of interactions between attributes into the estimation process has the effect of generating a model where only four variables, EM2, ELP20, ELP10 and CC in the main attributes, became significant. Comparison of the result in model 2 with the model 1 indicates that variable EM3 becomes insignificant. However, variable ELP20 becomes a strongly significant explanation of choice in this model compared to the model 1. The implications of this are that there are some interaction effects within socio-economic attributes with main attributes.

Table 3: Results for the conditional logit model part 1 (MPA attributes)

	Simple model (Model 1)		Interactions model (Model 2)	
Variable	Coeff (β)	t-value	Coeff (β)	t-value
EM2	1.7011	9.552***	1.3617	6.009**
EM3	1.1075	7.151***	-0.0415	-0.107
RAC1	0.0435	0.312	0.0439	0.312
RAC3	-0.0149	-0.093	0.0173	0.107
ELP20	0.2569	1.775*	1.0049	2.969***
ELP10	0.4887	4.796***	0.9856	3.019***
ELPD5	0.1103	0.666	0.1177	0.703
CC	-0.1023	-3.735***	-0.1013	-3.670***
EM3_AGE			0.0092	1.461
ELP20_AGE			-0.0135	-1.664*
ELP10_AGE			-0.0192	-2.187**
EM2_GEN			0.5357	2.333**
EM3_GEN			0.4345	2.256**
ELP20_GEN			-0.4303	-2.196**
EM3_EDU			0.1767	2.446**
ELP10_IMED			0.5120	2.781***
Marginal values for MPA attributes levels in RM; - $\beta_{ik}/\beta_{ik=p}$				
EM2	16.624	4.582***	13.436	4.153***
EM3	10.823	4.740***	-0.409	-0.106
RAC1	0.425	0.315	0.433	0.314
RAC3	-0.146	-0.094	0.171	0.106
ELP20	2.511	1.557	9.916	2.307**
ELP10	4.776	3.293***	9.726	2.433**
ELPD5	1.078	0.624	1.161	0.655
EM3_AGE			0.091	1.351
ELP20_AGE			-0.133	-1.540
ELP10_AGE			-0.190	-1.893*
EM2_GEN			5.286	1.980**
EM3_GEN			4.287	1.922*
ELP20_GEN			-4.246	-1.877*
EM3_EDU			1.744	2.019**
ELP10_IMED			5.052	2.211**
Summary statistics				
No. of observations	1047.00		1047.000	
Log likelihood(L(β))	-995.831		-981.683	
Log likelihood(L(0))	-1150.247		-1150.247	
Pseudo-R^2	000.1342		00 0.1465	
Adjusted Pseudo-R^2	00 0.1309		000.1399	

***Significant at 1%, **Significant at 5%, *Significant at 10%

Model 2 has generated substantial detail about the links between respondent characteristics and choice for ecotourism attributes. The negative sign on all age coefficients (ELP20_AGE and ELP10_AGE), indicates that young people were more inclined than older people to support the employment to local people for either a 10 or 20% increase in employment. Meanwhile, gender was significant and shows positive signs on ecological management variables (EM2_GEN and EM3_GEN), indicating that males tended to agree more than females to support either satisfactory ecological management or very good ecological management. Meanwhile, a higher level of education contributed positively toward ecological management (EM3_EDU).

The lower part of Table 3 also reports the Marginal Rate of Substitution (MRS) of the ecotourism attributes for each level, for both models. In Model 1, EM2 and EM3 have a value of RM16.6 and RM10.8 respectively. RAC1 has a value of RM0.4 but a negative value for RAC3 (RM0.146). However, there are positive values for all ELP variables, ELP10 is a higher value than the other (RM4.7), ELP20 valued at RM2.5 and ELPD5 at a value of RM1.0.

CONCLUSIONS

The main purpose of this study was to assess the economic value of ecotourism attributes in RIMP by using the choice experimental approach. The most important input of the ecotourism resources is the ecological condition itself. Good ecological management means good maintenance regarding to waste, waste disposal, bin locations at the beach and waste treatment. The combination of these elements is the task for the ecological management. It is clear from the findings of this study that visitors prefer and are willing to pay highly for satisfaction of ecological management. This implies that it is the most important element that should be considered.

Congestion level has a direct impact on satisfaction level and experience especially on recreational activities in RIMP. Increasing resources by charging higher entrance fees to enter RIMP is one of the approaches to reduce the problem of congestion. An important policy finding was that visitors did not give a clear indication on this issue. The insignificance of the congestion levels in this study obviated the need to make further suggestions regarding to congestion in RIMP.

However, this study is involved with the assessment and evaluation of the current management practice and changes in ecotourism attributes levels. The findings of the CE study are very important for the future, in order to develop a revenue mechanism that needs to be well-implemented to achieve the effectiveness of income and revenue collection for marine parks. It is important that the findings of this study provide suggestions for appropriate policies, especially regarding to income and revenue collection in RIMP. This mechanism will help the park managers, decision makers and ecotourism operators in the determination of appropriate action in their management and administration to be better in providing activities and services.

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