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Choice Experiment: The Benefits of Living Heritage Conservation in Melaka City, Malaysia

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Abstract

Melaka living heritage is a unique living testimony to the multi-cultural heritage and tradition of Asia from the past with great national and international significance, recognised by UNESCO as World Heritage Site in year 2008. Despite the great opportunities for conserving the living heritage in Melaka, the city is currently facing threats of high traffic, excessive depletion of the natural environment in the city. This is due to underestimation on the non-market values of living heritage in development decisions. The aim of this study is to estimate the economic benefit of living heritage in Melaka city as the results would be able to provide insight to the value of this unique heritage to the society. The method employed is Choice Experiment (CE). The payment vehicle opted in this study is via accommodation, where a fixed heritage charge per night was included in the total accommodation bill in Melaka. In CE, four attributes of non-market value of the city were defined; living heritage, natural environment, crowded recreational activities and heritage charge value. A total of 502 respondents were interviewed in person, using random stratified sampling method. The attribute for crowded recreational activities in the city provides the highest probability for the respondents for this study to pay for an improvement level. While living heritage attribute has a negative probability of the respondents to pay for a higher level of this attribute. The results of valuation can help to convince the government and other decision makers to allocate more resources for conservation. Quantifying the major benefits provided by living heritage can provide invaluable support to the conservation efforts and the WTP results could encourage policy-makers to set priorities to ensure that the living heritage would be conserved in proper manner.

Keywords

Living Heritage, Choice Experiment, Willingness-to-Pay (WTP)

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1. Introduction

Heritage is referred as inherited things that have some cultural significance. Heritage covers a large range of goods, eg symbolic, cultural, national identity-oriented, social (Chastel, 1986). These include oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices about nature. Living heritage in this study covers the information of a practicing community about who they are and how their past that has formed them. Living heritage is commonly defined as the handing down of knowledge and practices, within a defined social structure. The primary motivation for heritage conservation is economic gain. In economic point of view, decision needs to be made due to scarcity. When the conservation of environmental asset whether it is natural asset or a cultural asset is increased, something has to be sacrificed.

Melaka City has been listed as a UNESCO World Heritage Site on 7 July 2008 due to its unique architecture and culture comprising government buildings, churches, squares and forts as the living testament to its glorious past. Melaka city has been listed by The New York Times as one of the 45

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places to visit in year 2012 and this is a significant recognition by the world of uniqueness of Melaka (The Star, 9 January 2012). The maintenance cost in Melaka city increases due to the increasing number of tourists visiting the historical city, led to the introduction of flat heritage charge of RM2 per night by MajlisBandaraya Melaka Bersejarah (MBMB)[1]. This flat RM2 heritage charge will be effective from April 2012 for all accommodation in the city (eg. hotels, hostels, motels, inn etc). This chosen payment vehicle is relatively consistent to Venice and Rome. Both Venice and Rome have implemented "hotel tax" and "tourist tax" to tourists in order to upkeep the city's maintenance cost. Venice implemented the same way as Melaka City, which is through hotel accommodations. Meanwhile, Rome implemented "tourist tax" and have yet to decide on how to implement the tourist tax and one of the option is through accommodation as well. Same scenario goes to the Melaka City where the tax revenue is urgently needed for the upkeep of the city.

The method used to study the economic valuation of heritage conservation is Choice Experiment (CE). CE is able to capture both use and non-use value is one of the strengths of this method, hence the reason CE being used in this study. The key element in using CE method is its capability in valuing different attributes of natural environment (Hensher et al. 2005; Louviere et al. 2000). According to Hanley et al. (2002); Christie et al. (1999) and Bullock et al. (1998), CE has been widely used to estimate the value of different environmental goods including recreation, biodiversity and landscapes respectively.

1.1. Research Problem

Melaka city has been listed by The New York Times as one of the 45 places to visit in year 2012 and this is a significant recognition by the world on the uniqueness of Melaka (The Star, 2012) since Melaka city has been listed as a UNESCO World Heritage Site on 7 July 2008. This privileged status greatly uplifted Melaka as a renowned tourism destination in Malaysia.

There has been a tremendous increase and high visitors' traffic to the historical city due to all the recognition given to the Melaka city. Table 1 shows the increasing number in tourist arrival and there is an urgent need to upkeep Melaka city, in order to fulfill the UNESCO World Heritage Site criteria; otherwise this prestige title would be revoked. Melaka introduced a flat heritage charge of RM2 per night in accommodation (hotels, motels, hostels, inns) in the city. The maintenance cost in Melaka city increases due to the increasing number of tourists visiting the historic city. Melaka city's status as a tourist destination is greatly uplifted after the conferment of UNESCO World Heritage Site title. Hence, the city needs an additional source of revenue to upkeep the city's living heritage.

The increasing statistical data of hotel guests and tourists' arrivals in Malaysia showed that this heritage charge is indeed necessary and there is a need to study the value of heritage charge in Melaka city. Living heritage is an irreversible loss, which should be conserved as it brings a sense of belonging and the origin of a nation. There are many competing and important projects that will need federal government funding. Therefore, the qualification of government projects in monetary terms allows policy-makers to prioritize conservation programs and projects with limited and tight budgets. Proper conservation guidelines and implementationcould slow down the deterioration of living heritage so that present and future generations would be able to enjoy and experience them first-hand.

1.2. Research Objective

The general objective of this study is to estimate the benefits of conserving the living heritage in Melaka City, Melaka using CE method. The specific objective of this study is to estimate the willingness to contribute toward the conserving and restoring the living heritage in Melaka City based on the identified attributes and its levels. This research is a study on the benefits of conserving the living heritage, particularly Melaka City, Melaka. This study will use non-market valuation technique to measure the benefits of living heritage.

2. Literature Review

CE is the most recently used approach where it was mostly used to study the tradeoffs between the characteristics of transport projects and private goods (Alpizar et al. 2001). CE has recently been applied widely to non-market valuation of environmental goods and services, resource economics and health economics (Bateman et al. 2002; and Alpizar et al. 2001). CE is suitable for the purpose of valuation of non-market goods (Hanley and Barbier, 2009). CE has an extensive literature studies such as Adamowicz et al. (1998a), Hanley et al. (1998), Louviere et al. (2000), Alpizar et al. (2001). The probability of selecting or rejecting an alternative over the other alternatives can be estimated by using a random utility model framework. Hence, the effects of the attribute levels can be estimated as well. It is possible to estimate the value of Hicksian surplus, which individuals placed on each attributes (Ben-Akiva and Lerman, 1985; Hanemann, 1984). Changes in the attributes level can be

[1] MBMB areas covers the Melaka Raya, Cheng, Melaka Baru, Klebang, Senabuketc

estimated using compensated demand functions (Hanley and Barbier, 2009). Natural resource decisions is a complex matter and CE results can be used to investigate the importance of attributes and gaining useful information on preference over a number of decision alternatives (Bateman et al. 2002). In a study by Zander and Garnett (2011), the CE method was adopted and this method allowed the monetary quantification if use values as well as non-marketable non-use values that are often neglected in decision making for the conservation management.

According to Louviere et al. (2010), CE often causes stir among researchers in the optimal CE because of the differences in the set of assumptions researcher used to derive designed results. Assumptions are often stated in technical terms, where, their implications are not clearly communicated. While experiments and models for pairs of options can be useful, many real choice problems involve larger choice sets. There are two major problems with CE method:

a. Little is known regarding the validity of a set of assumptions for a given application context nor how robust the claims of optimality are likely to violate the maintained assumptions.

b. Researchers prefer to calculate the quantities derived such as WTP for a change in attribute levels.

Respondents in this study were presented with panel of choice sets with two options of improved attributes levels and one status quo option. The respondents were presented with several combinations; with each alternative has different group of attributes which are specified in different levels in CE. CE provides greater flexibility; it is potentially a more efficient tool in terms of policy analysis of application of non-market valuation (Rolfe et al. 2000). CE relies on the data gathered in survey and additional questions are added in the questionnaire In CE method, respondents were presented with 2 different choice sets series along with the "status quo" option and were asked to choose their preferred choice set option.

Carson and Louviere (1994) suggested that the average questionnaire to include seven attributes in four choice sets and four alternatives in each choice set. They claimed to be successful in administering the survey with tasks ranging from one to thirty two. Adamowicz et al. (1998b) implied that respondents who response to large numbers of choice sets with more than six alternatives tends to exceed cognitive limits. The respondents understanding from different attributes and levels have great importance. Presenting choice tasks with obvious dominates in their effect of attribute on the choice probabilities, must be avoided (Swait and Adamowicz, 1996).

The "status quo" or "do nothing" should be included in all choice sets. The current situation is known with certainty but other purposed management options are uncertain. Most people would avoid taking the risk, hence they may choose "status quo" over the other options. According to Boxall et al. (1996), and Mazzotta et al. (2000) the importance of status quo as an alternative and the ability to describe it with an alternative-specific constant (ASC); a constant coefficient in the econometric model. Both the studies stated ASC as a significant factor in the CE studies. The researchers believed that the respondents have certain preference towards or against status quo that is not attributable to have the values of respective attributes, ceteris paribus. The respondents may choose status quo because they are not interested in the valuation program. Nevertheless, they may still be able to contribute in the valuation exercise because they are not satisfied with the current situation and they opt to pay to change the present situation. However, they may not be able to understand the nature of trade off or different alternatives and choice sets.

2.1. Advantages of CE

CE had been used widely and there are reasons for the increased interest in the use of CE. According to Alpizar et al. (2001), the advantages of CE were as follows:

a. Reduction of some potential biases of CVM

b. More information can be elicited from each respondent compared to CVM

c. The possibility of testing for internal consistency

d. Application of CE survey will be able to provide value of many alternatives of policy outcome.

e. Capability of CE in providing the value from one scenario makes this technique flexible, multipurpose and cost effective.

2.2. Disadvantages of CE

One of the main problems with CE is its complexity in terms of the number of choice sets and attributes. Each choice set may affect the quality of responses. Task complexity is determined by factors such as the number of choice sets presented to the individual, the number of alternatives in each choice sets, the number of attributes describing the alternatives and the correlation between attributes for each alternative (Swait and Adamowicz, 1996). In this study, the orthogonal design is a full factorial design was 3^4=81 (The number of levels to the power of the number of attributes) different possible combination of attribute and attributes' levels. A full factorial design, in general is very large and it is impossible to ask respondents to consider a total of 81 combinations. Therefore, there was a need to choose a

rational of all possible combinations and criteria for optimality and then construct the choice sets. The underlying design for arranging the attributes and levels can be done through SPSS or other statistical softwares (Bateman et al. 2002).

3. Methodology

A series of focus studies may be useful at the first stage of identifying the relevant attributes of non-market goods under valuation study in the development of CE. In this stage, the relevant attributes and attribute levels as well as each of the attributes importance in the choice decisions should be identified through reviewing previous studies and discussion from the expert. In addition to that, the selection of attributes should be guided by the attributes that are expected to affect respondents' choice, as well as those attributes that have decision-making perspectives. The focus group was performed in order to determine the number of attributes and attribute levels as well as the value assigned to the attributes. At the first stage, the task of the focus group studies is to provide information about the reliable minimum and maximum attribute levels. Then, identification of any possible interactions between the defined attributes is important as well. According to Bateman et al. (2002); Hanley and Barbier (2009), if the aim is to measure welfare, the money or cost attribute should be included as well. Layton and Brown (1998), the focus group studies will indicate the best method of presenting the monetary attribute. In this way, credibility has critical importance and the researcher should be confirmed that the selected attributes and their levels can be combined in a credible manner. Hence, appropriate restrictions are needed at this stage. In this study, one of the purposes was to calculate the welfare measure and therefore, the monetary attribute need to be included. The monetary value was based on the flat RM2 heritage charge in accommodation each night in Melaka city in this study.

3.1. Definition of Levels

The selected attributes and levels for economic valuation of living heritage in Melaka City are shown in Table 1. While the description for each attributes' level is illustrated in Table 2.

Table 1. Selected attributes and levels.

Attribute	AttributeLevel
Natural Environment	Not satisfactory*
	Less satisfactory
	Satisfactory
Living Heritage	Less satisfactory*
	Satisfactory
	Very satisfactory
Recreational Activities Congestion	Some congestion*
	Less congestion
	No congestion
Conservation value	RM2*
	RM5
	RM7.50
	RM10

*Status quo or current situation of the living heritage in Melaka City

Table 2. Descriptions of the Attributes and its levels.

Attributes	
Natural Environment: A natural environment is an environment that is as close as possible to its natural state-one that is relatively unaffected by human activity. The options of natural environment can be measured as follows:	
Levels	
Not Satisfactory	Allow natural environment continue to degrade and lost, give permission for any kind of activities to threat the existence of Melaka City.
Less Satisfactory	Support current environment in Melaka City. Fairly clean environment, allowance of some construction in the Melaka City, restoration destroyed part.
Satisfactory	Clean environment, attractive natural scenery, support all conservation of Melaka City, prevention of all activities that may cause Melaka City destruction by posing more conservation.
Attributes	
Living Heritage: Living heritage is the cultural tradition that is expressed in the great variety of religious buildings of different faith, ethnic quarters, many languages, worship and religious festival, dance, costumes, art music, food and daily life. Living heritage can be measures as follows:	
Levels	
Less Satisfactory	Support current living heritage in Melaka City. Fairly well-conserved.
Satisfactory:	Well-preserved living heritage. Prevention of all activities that may cause the lost of the heritage in Melaka City by posing more conservation.

Very satisfactory	Excellent-preserved living heritage. Obliged and fulfil all the conservation guidelines by the UNESCO Heritage
Recreational Activities Congestion: Congestion at certain places and during enjoyment of recreational activities. The level of congestion will affect the experiences and satisfactions among visitors. Congestion can destroy the living heritage that exists in Melaka City. Congestion levels can be measured as follows:	
Levels	
Some Congestion	Crowding in a few areas, but others overcrowded. Crowded and close to other persons.
Less Congestion	No queue, no encounter by other. Less distributed by others.
No Congestion	No queue. Not disturbed at all by other person.
Conservation Value: Conservation value is the amount of money interests that can be collected for conservation of the living heritage purposes. The level of conservation value are as follows:	
Current condition	RM2 conservation contribution
RM5	The current conservation value higher than current value.
RM7.50	The current conservation value higher than current value.
RM10	The current conservation value higher than current value.

The designation technique used to derive of 10 alternatives out of possible 81 alternatives for this study. Orthogonally has often been used as the principal part of an efficient design. Here is assumed that each of the variables has zero correlation with others (Bateman et al. 2002). The application of orthogonal design is often very useful, but need to consider about the possible implausible alternatives is required. The ability of interaction would be lost during drives of combination from 81 to 10, where it assumes that the utility of each case varies with 4 attributes, but that the effect of each attribute is not depend on the value that any other attribute takes (Bateman et al. 2002). As an example of interaction effect, the natural living heritage in Melaka City depends on the level of conservation and cleanliness of the area. The value of increasing quality of conservation or the cleanliness of the area is greater than the sum of the values of doing each of them separately and orthogonal design cannot measure this possible interactions.

3.2. Payment Vehicle

The chosen payment vehicle chose for this study is heritage charge on accommodation in the city. This payment instrument is chosen because in April 2011, the state government announced and planned to implement a 5% heritage tax on hotel guests. Both Venice and Rome have implemented similar charges such as “tourist tax” and “hotel tax” to tourists in order to upkeep the city’s maintenance cost respectively. Venice implemented the same charge as Melaka city, via charges in hotel accommodations. Meanwhile, Rome implemented “hotel tax” and have yet to decide on the implementation and one of the option is through accommodation as well. A similar urgency of maintenance in the Melaka city; tax revenue is urgently needed for the upkeep of the city.

The payment vehicle chosen for this study is relatively the same as Venice and Rome. Tourists visiting Venice are hit with a hotel tax from August 2011, as the Italian city tries to earn money to "save the city" from rising sea levels (Travel, 2012). Rome is also set to introduce tourist tax for visitors to the Eternal City. Guests staying at four-star and five-star hotels will pay €3 (£2.50) per night and there will be a €2 (£1.70) per night tax on all other accommodation. Tourists will be advised about the tax upon arrival and they will have to pay the levy before they check-out. The maximum number of nights taxable per stay is 10 nights with maximum charge of up to £25. Children under two and youth hostels will be exempted from the tax and this tax is only for tourists and not Romans. Rome followed Venice’s action by drawing up plans to tax visitors in an attempt to raise revenue for the city. The tax is expected to raise much-needed revenue for the city, whose palaces, churches and monuments are in urgent need of restoration (Mail Online, 2012).

3.3. Data Collection and Sample Size

A sample of 502 was collected from Melaka city. It was assumed that the participants in this study answers all the questions truthfully. The questionnaire would be used together with information on the general characteristics of the respondents such as age, income, education, home country etc. The history of working experiences (years of working, nature of employment etc) was collected as well. Primary data on the options selected in Melaka were gathered through personal and in-depth interviews or discussions.

3.4. Study Area

The recognition received by Melaka city due to its colourful and historical history caused high traffic in the city. These are the reasons why Melaka city is chosen as the study area in this research. World Heritage Site conferred by UNESCO in Melaka Heritage city is shown in Figure 1, the map illustration of the studied area.

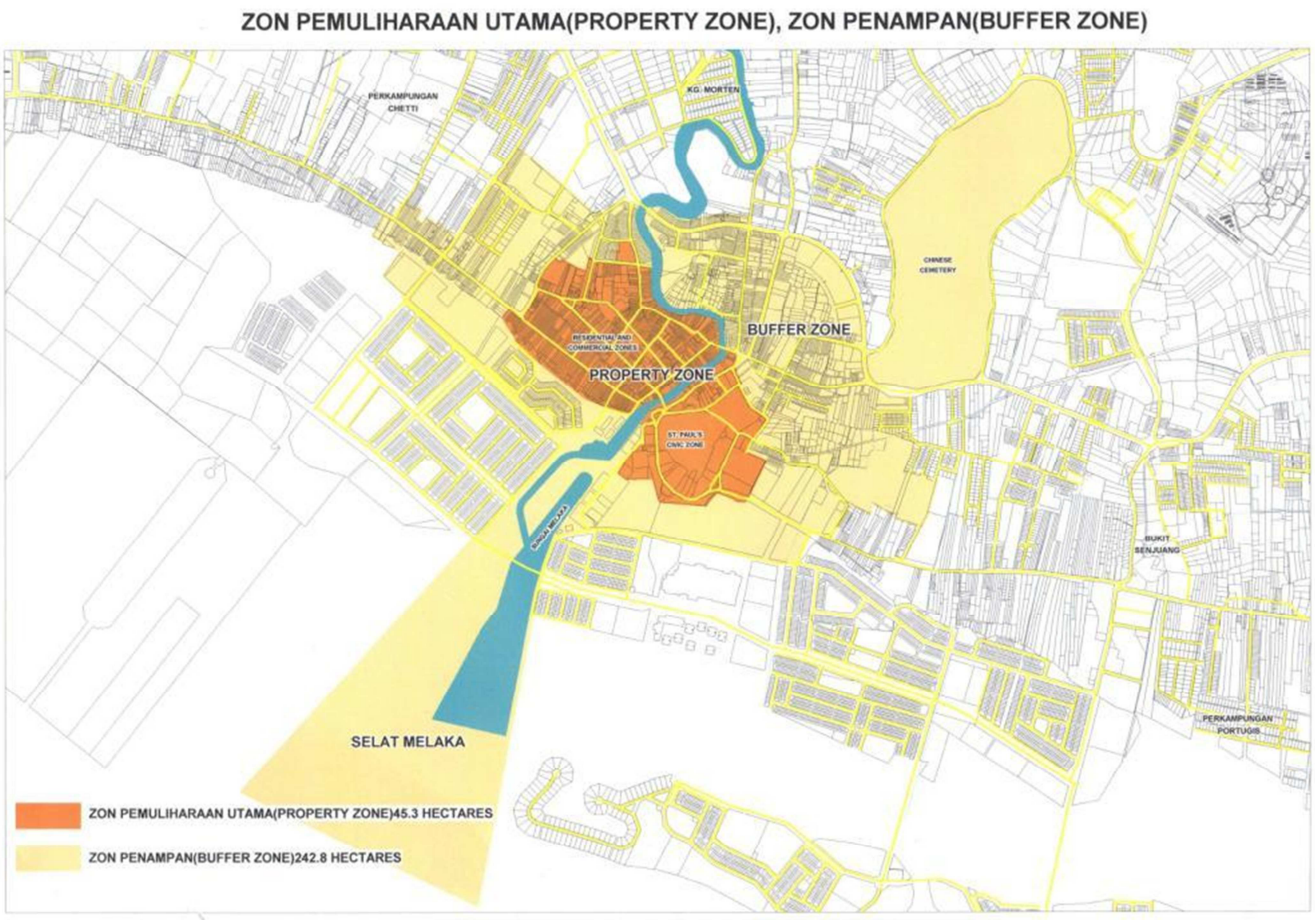

Figure 1. Studyarea.

(Source: Majlis Bandaraya Melaka Bersejarah (MBMB))

3.5. CE Methodology

The individual utility function (for individual *i*), where he or she faced a set of N alternatives (j= 1,…N) can be specified as:

$$U_{ij} = V_{ij} + \varepsilon_{ij} \quad (1)$$

where U_{ij} is the utility individual *i* obtain from alternative set j, V_{ij} is a non-stochastic utility function and ε_{ij} is a random component. This function can also be expressed by decomposing the indirect function for each respondent I (U) into two parts: a deterministic element (V), which would typically be specified as a linear index of the attributes (X) of the jth alternative in the choice set, and a stochastic element (e) which represents the error term:

$$U_{ij} = V_{ij}(X_{ij}) + \varepsilon_{ij} = bXij + \varepsilon_{ij} \quad (2)$$

The equation 2 displays the socio-economic variables. It can be included along with the choice set attributes (X). Assume an individual asked to choose between two alternative set of choices, which are assumed to be differentiated by their attributes and levels. For example, in this study, the two different choice sets[2] of living heritage conservation, with different attributes such as natural environment quality and the level of recreational activities congestion levels. Assume these choice sets are j and k. In choosing between them, the respondent is assumed to compare the utility he or she could get with either choice, and then select the preferred choice set with the highest utility. Respondents were also asked to make a choice from the offered ones and assumed that it is the only available choice.

Predictions cannot be estimated easily when the view point that an error component is used in the utility function and it become one of the probabilistic choice. The probability that any particular respondent, *i,* prefers option j in the choice set to any alternative if $U_{ij} \succ U_{ik}$. We assume that this utility is only known to this particular *i* and that the utility associated with option j exceeds that associated with all other options:

$$P_{ij} = \left(V_{ij} + \varepsilon_{ij}\right) \succ \left(V_{ik} + \varepsilon_{ik}\right)$$

[2]The list of all available options is referred to as the choice set.

$$= P\left[\left(V_{ij} - V_{ik}\right) \succ \left(\varepsilon_{ij} - \varepsilon_{ik}\right)\right] \quad (3)$$

4. Findings and Discussion

The results on social and economic determinants of Melaka City's visitors' attitudes towards the environment in terms of descriptive statistics have been interesting to show that visitors are keen to participate in living heritage conservation programs. Lowe et al. (1980) found out that the variable age is the most influential factor in visitors' concern, while Tognacci et al. (1972) estimated that younger visitors were more concerned about environmental. The results for the socio-economic profile for the respondents are shown in Table 3.

Table 3. Socio-economic Profile of the Respondents.

Variable	Percentage (%)	Mean
Age (year)		24.705
Income per annum (RM)		30863.55
Gender		
Male	44.1	
Female	55.9	
Marital Status		
Single	52.4	
Married	47	
Others	0.6	
Education Level		
Secondary	10.3	
Certificate/Diploma	35.7	
Degree/Masters	54	
Employment status		
Full-time education	1.2	
Unemployed	0.2	
Employed full-time	97.8	
Homemaker	0.4	
Not working/sick	0.4	

The distributions of the sampled respondents' gender are 44.1% and 55.9% male and female respectively. Meanwhile, 10.3% of the respondents had completed their secondary school, 35.7% with a diploma certificate and 54% of them had degree/master certificate. As for the marital status, 52.4% of them are currently single, 47% of them are married and 0.6% of them are widowed. Most of the respondents are currently on full-time employment with 97.8%. Respondents were asked about their perception about Melaka city's living heritage. The questions asked were: "I think Melaka city has high heritage value, compared to other town/cities in Malaysia" with mean value of 3.72 and 60.3% of the respondents agree that Melaka city has high heritage value while 6.8% disagree. The mean value of 3.77 and 63.5% of the respondents agree Melaka city is unique in terms of heritage compared to other town/cities in Malaysia for Q38 as shown in Table 4. The questions in the questionnaire are as follows:

Q38: I think Melaka city has high heritage value, compared to other town/cities in Malaysia

Q39: I think Melaka is unique/ special in terms of heritage, compared to other town/cities in Malaysia

Table 4. Respondents' Perception about Melaka city's living heritage.

Quest	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	%	%	%	%	%
Q38	0.4	6.4	32.9	41.4	18.9
Q39	1.2	5.4	29.9	42.6	20.9

The respondents were asked about their perception about the importance of heritage policies in Melaka City. The results of this section can be seen in Table 5. The result shows that 43.8% of respondents believed that heritage policies are very important, 49.4% of the respondents stated that heritage policies are quite important and 6% indicated it is not really important and only 0.8% did not care about heritage.

Table 5. Respondents' Perception towards Heritage Policies.

Response	Percentage (%)
Very important	43.8
Quite important	49.4
Not very important	6
Do not care about living heritage	0.8
Total	100

Based on Table 6 results, most of the respondents are not willing to pay for heritage conservation with approximately 93% and only a relatively small percentage are willing to pay for heritage conservation in the city with only approximately 7%.

Table 6. Results on respondents' choice of "current condition" of Melaka city in choice experiment or "Not" willing-to-pay for conservation contribution in CE.

Response	Percentage (%)
Yes	6.97
No	93.03
Total	100

Respondents were presented with a series of reasons in order to find the reason for not contributing in living heritage conservation or "No" answer to willingness-to-pay question. The results are presented in Table 7 as the respondents are asked to choose one of these reasons if it was close to their reason. They were also asked to provide reasons if their answer is different from the presented reasons. From the results, 2% stated that the government should pay for the conservation, 1.2% of the respondents did not know the best choice, 0.4% of them found the questions are confusing, 2.4% did not care about living heritage in Melaka city, and finally 1% of them support conservation of living heritage in Melaka city despite not being afford to pay the heritage charge.

Table 7. Respondents' reason for not contributing in Melaka city living heritage.

Response	Percentage (%)
Do not know which option to choose	1.2
Questions are confusing	0.4
Do not care about Melaka city living heritage	2.4
The government should pay	2.0
Cannot afford the conservation charge	1.0
Agreed to pay the conservation contribution	93
Total	100

Table 8. Variables used in the study.

Variable	Description			ExpectedSign
	Male or Female			
GENDER	1=Male	2=Female		+/-
	0=Otherwise	0= Otherwise		
	Marital Status			
MARITAL STATUS	1=Single	2=Married		+/-
	0=Otherwise	0= Otherwise		
	Malaysian or Foreigner			
NATIONALITY	1=Malaysian	2=Foreigner		+/-
	0=Otherwise	0= Otherwise		
	The level of education			
EDUCATION LEVEL	1=Secondary	2=Cert/Dip		(+)
	0=Otherwise	0= Otherwise		
	The respondents race (Malaysian)			
RACE	1=Malay	2=Chinese	3=Indian	+/-
	0=Otherwise	0= Otherwise	0=Otherwise	
INCOME	Respondents' income per annum			(+)
BID	Bid amount offered			(-)

Table 8 indicates the variables used for this study and their expected signs. The sign of the payment coefficient that indicates the effect on the utility of choosing a choice set with a high payment level is negative, as expected. The economic function for random parameter logit of the model is as below:

$$U = \beta_1 NE2 + \beta_2 NE3 + \beta_3 LH2 + \beta_4 CONG3 + \varepsilon \quad (4)$$

The marginal willingness-to-pay (WTP) is calculated by computing the marginal rate of substitution between the attribute of interest and the cost factor. According to Hanley & Barbier (2009), this value ratio can also be identified between non-monetary elements of utility (attribute tradeoffs) is known as implicit price (IP). As an example, one of the attribute is natural environment dividing the β value of this attribute by β value of price, would show the average willingness-to-pay of respondents to increase the quality of natural environment from the current level. The marginal value of the conservation attributes is estimated using the following formula:

$$MV = -\beta_{attribute} / \beta_{monetary\ variable} \quad (5)$$

Table 9. Basic Multinomial Model.

Variables	Coeff (β)	Std. Error
NE	0.73012876	0.04264956***
LH	0.42478155	0.03948460***
CONG	0.57466161	0.03140176***
PRICE	-0.09964683	0.01256524***

Log likelihood function=-2387.751
Log-l fncn coefficients=-2381.0708
R-sqrd=0.281
Rsq Adj=0.361
***Significant at 1%,**5%and*10%

Table 9 shows that all the attributes sign are in agreement with the theories. Natural Environment (NE), Living Heritage (LH) and Crowded Recreational Activities (CONG) are positive in sign refers to higher quality of these attributes the higher the willingness to pay. Meanwhile, negative sign for price shows that the higher the conservation value, the lower the willingness to pay. Several approaches to improve the model fit and estimating models, which are more accurate. Each attribute, except conservation value in term of monetary value (CV) is divided into three levels and recoded as dummy variables (0, 1). Status quo or level one as base line and level two and three implied medium and high level of each attribute.

4.1. Simple Multinomial Model (MNL)

For the simple multinomial model, only main attributes are applied. Table 10 shows the basic multinomial logit model. All coefficients have the expected a priori sign and are highly statistically significant. The sign for all the attributes are positive. All the variables are significant at 1% level and less, with correct expected sign. Price is significant at 1% with an expected negative sign. It means as conservation price increases, respondents are less likely to contribute because of the decrease in the utility level.

Table 10. Simple Multinomial Logit Model.

Variable	Coefficient	Std. Err
NE2	1.24659531	0.07665319***
NE3	1.27422701	0.12314200***
LH2	0.77041232	0.07937705***
LH3	0.50544183	0.08578919***
CONG2	0.62320528	0.11292712***
CONG3	1.43015147	0.11294923***
PRICE	-0.10833869	0.01564213***

Log likelihood function=-2320.732
Log-l fncn coefficients=-2381.0708
R-sqrd=0.2534, Rsq Adj=0.2398
***Significant at 1%, **5%and*10%

4.2. Random Parameter Logit Model (RPL)

Random parameter logit is not subject to the Independent Irrelevant Attributes (IIA) problem. Table 11 shows the result for RPL model. For the simple multinomial model, only main attributes are applied. Table 10 shows the basic multinomial logit model.

Table 11. Random parameter logit marginal value for different attribute levels.

Variables	Marginal Value
NE2	11.9315621***
NE3	15.5408355**
LH2	10.2817851*
LH3	12.2639074
CONG2	12.7217588
CONG3	17.2487135***
PRICE	-0.88716618***

***Significantat 1%,**5% and *10%

Table 11 illustrates the results for random parameter logit marginal value for different attributes levels. All the signs are in agreement with the theories as the level of attributes improves, it has higher willingness-to-pay for these improved attributes except for very satisfactory level for attribute living heritage and lesser crowds for congestion attribute. These may be due to the fact of respondent's inability to visualise the benefits they may obtain with the highest level of quality for living heritage. This is because respondents' welfare may not be affected and respondents may not be able to feel the benefits of higher quality of living heritage attribute as compared to natural environment and congestion in the city. On the other hand, respondents tend to be very concern and have the highest willingness to pay for highest level for congestion attribute, which caused the attribute to be insignificant to the respondents of this study. The attribute natural environment for less satisfactory and no crowd for recreational activities are significant at 1%. While, the natural environment at satisfactory level is significant at 5% with living heritage at satisfactory level, living heritage at very satisfactory level and less crowd for recreational activities is significant at 10%.

Marginal rate of substitution (MRS) between not satisfactory and less satisfactory for natural environment in the random parameter logit (RPL) model is RM11.93 and the value still increase to RM15.54 when the attribute level increases to satisfactory. Meanwhile, there is an increase in the willingness-to-pay in the value from satisfactory level to very satisfactory for living heritage from RM10.28 to RM12.26. This attribute has the lowest willingness-to-pay among the attributes. This may be due to the fact that most respondents perceived this as intangible and could not experience the benefits on a short-run basis. Next, congestion for recreational activities has the highest willingness-to-pay as the level increases from lesser crowd to no crowd level with RM12.72 to RM17.25. From this result, it is obvious that visitors in this study are very concern and have a relatively higher willingness to pay for congestion recreational activities attribute.

5. Conclusion

Heritage is an unappreciated resource by most people and has been taken advantage and been taken for granted for years. There are only a few historical sites in the world can claim to be a "living heritage" town or city. Melaka City, proudly claim to be one of the heritage site in the world after being acknowledged by the UNESCO as World Heritage Sites. The unique culture, history, historical buildings and food are Melaka City's major tourist attraction in Melaka. Natural resource including heritage is an important part of wealth in the country. Heritage is something intangible and it is an irreversible loss if there is any harm been done to it. The results, in general, suggested that public high value on the living heritage, and they would be willing to contribute in conserving living heritage in a sustainable manner. The findings can be used for larger societal awareness about the living heritage and its benefits, including economic benefits. The results from this study would be beneficial to policy makers and authorities such as regional planners to set priorities to ensure that the living heritage is maintained and its uniqueness will be preserved in a proper manner.

Therefore, only the future decisions on the management and conservation of existing heritage and future modern developments take into consideration the real valuation of this heritage asset by the people. It could halt further irreversible loss of cultural heritage so that present and future generations would be able to enjoy and experience them first-hand.

References

[1] Adamowicz, W Boxall, P, Williams, M, and Louviere, J. (1998a). Stated 2 preference approaches for measuring passive use values: Choice experiments and contingent valuation. *American Journal of Agricultural Economics*. 80 (1): 64-75.

[2] Adamowicz, W, Louviere, J. and Swait J. (1998b). Introduction to attribute-based stated choice methods. *Report to NOAA Resource Valuation Branch*, Damage Assessment Centre.

[3] Alpizar, F, Carlsson, F, and Martinsson, P.(2001) Using choice experiments for non-market valuation. *Working Papers in Economics* no 52 Department of Economics Goteborg University.

[4] Ben Akiva M and Lerman SR (1985) Discrete choice analysis: Theory and application to travel demand. *Cambridge MA: The MIT Press.*

[5] Boxall, P Adamowicz, W Williams, M Swait J and Louviere J (1996). A Comparison of stated preference approaches to the measurement of environmental values. *Ecological Economics.* 18: 243-253.

[6] Carson R. T., Louviere. J., (1994a). Experimental analysis of choice. *Marketing letters.* 5 (4): 351-368.

[7] Chastel, A. (1986), 'La notion de patrimoine', in P. Nora (ed.), Les lieux de mémoire, Vol. 2, Paris: Gallimard, pp. 405–50.

[8] Christie, M., (1999), An assessment of the economic effectiveness of recreation policy using contingent valuation, *Journal Environmental Planning and Management*, 42 (4), 547-565.

[9] Hanemann, M. (1984b). Welfare Evaluation In contingent Valuation Experiments with Discrete Responses. *American Journal of Agricultural Economics*. 66: 332-341.

[10] Hanley, N., Wright, R., and Adamowicz, W. (1998). Using choice experiments to value the environment. *Environmental and Resource Economics*. 11: 413-428.

[11] Hanley, N., Wright. R. and Koop, G. (2002). Modeling recreation demand using choice experiments: Climbing in Scotland. *Environmental and Resource Economics.* 22 (3): 449-466.

[12] Hensher, D., Shore, N., and Train, K. (2005). Households' willingness-to-pay for water service attributes. *Environmental and Resource Economics.* 32: 509-531.

[13] Layton, D. and Brown, G (1998). Application of stated preference methods to a public good: Issues for discussion. *Paper presented at the NOAA Workshop on the Application of Stated Preference Methods to Resources Compensation*, Washington, DC.

[14] Louviere, J., Hensher, D., and Swait, J. (2000). *Stated Choice Methods. Analysis and Application. Cambridge*: Cambridge University Press.

[15] Louviere. J., Pihlens, D., Carson, R., (2010), Design of Discrete Choice Experiments: A Discussion of Issues That Matter in Future Applied Research, *Journal of Choice Modeling*, 4 (1), 1-8.

[16] Lowe, G. D., Pinhey, T. K., and Grimes, M. D. (1980). Public support for environmental protection, Pacific Sociological Review. 23 (4). P. 425-445.

[17] Mail Online (2012) http://www.dailymail.co.uk/travel/article-1336119/Rome-imposes-tourist-tax-hotel-charge-1-January-2011.html#ixzz1thKhIGPk. Assessed 1 May 2012.

[18] Mazzotta, M. J., Opaluch, J. J., and Grigalunas (2000), T. A. Identifying Symbolic Effects from Contingent Choice Surveys: A Case Study of the Peonic Bay Estuary System. *Working paper, University of Rhode Island, Department of Environment and natural Resource Economics*.

[19] Melaka Bandaraya Bersejarah Melaka (2011) http://www.mbmb.gov.my/-kenali-bandaraya-melaka. Assessed 26 September 2012.

[20] Rolfe, J. C., and Bennett, J. W (2000b). Testing for framing effects in environmental choice modeling. Choice Modeling. *Research Report No. 13, University College, The University of New South Wales*, Canberra.

[21] Smith, V. K and Desvouges, W. H. (1986), *Measuring Water Quality benefits*, Boston: Kluwer-Nijhoff.

[22] Swait, J. and Adamowicz, W. (1996), The effect of choice environment and task demands on consumer behavior, Discriminating between contribution and confusion. *Working Paper, Department of Rural Economy, University of Laberta.*

[23] The Star, "5% heritage tax on hotel guests shelved", Assessed 17 January 2012.

[24] The Star, "Malacca among 45 "must-visit" places", Assessed 9 January 2012.

[25] The Star, "Malacca, the movie studio", Assessed 1 October 2009.

[26] Tognacci, L. N., R. H. H. Weighel, Widden, M. F., and Vernon, D. T. A (1972). "Environmental quality: How universal is public concern?" Environmental and Behaviour, 4 (1): 73-86.

[27] Tourism Malaysia (2012). http://corporate.tourism.gov.my/research.asp?page=facts_facts_figures. Assessed 1 May 2012.

[28] Travel (2012) http://www.telegraph.co.uk/travel/travelnews/8659521/Venice-to-introduce-tourist-tax-to-save-the-city-from-rising-sea.html. Assessed 1 May 2012.

[29] UNESCO-EIIHCAP Regional Meeting, Hue, Vietnam, 11-13 December 2007, "Background Paper, Safeguarding Intangible Heritage and Sustainable Cultural Tourism: Opportunities and Challenges".

[30] Zander, K. K., Garnett, S. T., (2011), The Economic Value of Environmental Services on Indigenous- Held Lands in Australia, Plus One, 6 (8).