Single-Bounded Contingent Valuation Method (CVM): Heritage in Melaka City and George Town, Malaysia

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ABSTRACT

The living heritage in Melaka City and George Town, Penang is a unique living testimony to the multi-cultural heritage and tradition of Asia from the past with great national and international significance. The historical cities were recognised by UNESCO as World Heritage Site in year 2008. The unique living heritage in both the historical cities calls for an urgent need for conservation, primarily due to the rising numbers of visitors to the city. This paper uses stated preference method; particularly contingent valuation method (CVM) to measure the willingness-to-pay value and the payment vehicle is a fixed heritage charge per night (RM2) that was charged in the total accommodation bill in both the historical cities. The logit model was defined based on dichotomous choice method to estimate the willingness-to-pay (WTP) randomly with five different starting bid values. The willingness-to-pay for Melaka city and George Town is relatively the same with RM2.60 and RM2.30 per night respectively. The aim of this study is to estimate the economic benefit of living heritage in both Melaka city and George Town as the results would be able to provide insight on the conservation policies to the value of this unique heritage to the society for the tourism industry in Malaysia.

Keywords: Stated Preference, Contingent Valuation Method (CVM), living heritage

1. INTRODUCTION

Melaka and Penang Island are both a rich-cultured and multi-ethnic state due to its well-known trade centre. Penang Island has many places of worships such as temples, mosques, synagogues and churches. Melaka city is the capital of Melaka while George Town is the capital of Penang and it is a place that is rich with living heritage such as its buildings, cultures, customs, practices, beliefs, traditions etc that has been passed down from past generations to their descendants. These living heritages provide people with a sense of belonging, identity to a community. This living heritage is a sign that both the historical cities do indeed reflect its rich historical background. Living heritage is more than just the physical statues, buildings or objects that have been preserved and survived over time. Tangible heritage is heritage that is "built". According to UNESCO convention in 2003, intangible cultural heritage

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comprises information in the dynamic form of expressions, representations, practices, knowledge and skills that are associated with instruments, objects, artifacts and cultural spaces or landscapes that communities, groups etc. These include oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices about nature. In the past, heritage experts tend to regard economists as being insensitive and heavy-handed, focused too single-mindedly on financial measurement, and overlooking the true cultural significance of heritage assets (Cannon-Brookes, 1996). When market fails, as in the case for example of public goods, it is the willingness-to-pay (WTP) or willingness-to-accept (WTA) of individual consumers that expresses the value of the goods in question.

1.1 Research Problem

Both Melaka City and George Town have been listed as a UNESCO World Heritage Site on the 7 July 2008. This given privileged status greatly uplifted Melaka and Penang as a renowned tourism destination in Malaysia. The tourism industry remained strong and continued to be a key foreign exchange earner, contributing to growth, investment and employment as well as strengthening the services account of the balance of payments. Therefore, there is a need to upkeep the conservation of the Melaka City in order to continue to fulfil the UNESCO World Heritage Site criteria; otherwise this prestige title would be revoked. All these conservation activities around this area are necessary. Melaka state introduced a heritage charge of RM2 per night occupied in accommodation under the jurisdiction of MBMB starting April 2012 for every night.

2. LITERATURE REVIEW

Contingent valuation method (CVM) is the most widely used stated preference technique for estimating non-market values and this method was originally proposed by Ciriacy-Wantrup (1947) and was implemented by Davis (1963); Armirnejad et al. (2006). Mitchell and Carson (1999) proved that CVM can provide appropriate estimate of true willingness to pay if it is done correctly. CVM is a relatively direct approach in valuing non-marketed goods. This method asks directly to its respondents to state the maximum amount of money that they are willing to pay to conserve non-marketed goods and services, or the minimum amount of payment they would accept for a reduction in an environmental service in a hypothetical market. The values obtained represented the value of the non-market change (Freeman III, 1993). According to Bateman et al. (2002), the difference between CVM and revealed preference methods is that CVM values are asked directly in a constructed market rather than inferred from the actual market behaviour.

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CVM is a survey-based method which goods are traded in a constructed or hypothetical market. Therefore, the designing of the questionnaire for the survey plays a very significant role in CVM.CVM is called contingent because in this method, respondents were asked to state their willingness-to-pay (WTP) contingent upon the nature of the hypothetical market. The questionnaire generally includes detailed information about the current scenario of the non-market good, the hypothetical scenario in which the change in the environmental good is presented and the market in which it is hypothetically trade. Then questions about the values of the environmental good, the attitude of respondents towards environmental issues and along with socioeconomic profile should be included as well (Desvousges et al. 1998, p.14; Freeman III, 1993, p.170; Mitchell and Carson, 1989, p.3-4)

3. METHODOLOGY

An analysis should provide an economic valuation of the living heritage that will indicate to the policy makers the importance of conserving living heritage in the state. The average value of all attributes or all non-market goods provided by the living heritage can be estimated using the CVM. Data aggregations will provide us the main objective in estimating the total economic value of the benefits of the living heritage in Melaka city and George Town.

3.1 Payment Vehicle

In this study, the chosen payment vehicle is through heritage charge on accommodation in the city. The payment vehicle chosen for this study is relatively the same as Venice and Rome as 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 vehicle as Melaka city and George Town, 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 George Town; tax revenue is urgently needed for the upkeep of the city.

3.2 Survey Instrument

The questionnaire is categorised into three sections. First, the introductory script used by the interviewer to identify and initiate contact with the respondents. During the interview, only respondents with age 18 years and above with income/pocket money are selected. The interviewer will introduce himself/herself, the purpose and objectives of the survey and how the respondent is selected. Lastly, the interviewer

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will explain the potentials and threats faced by the living heritage in George Town Heritage City. In order to assist the respondents in answering the questions, graphical such as pictures are shown. Later they are asked to choose between options that are presented to them.

(a) Section 1 – Introduction
- Brief history of George Town and importance of George Town
- Purpose of this study.
- Knowledge and values of living heritage in George Town

(b) Section 2- Assessment of WTP
- Valuation scenario
- WTP value

(c) Section 3- Behavioural and attitudinal information
- Behavioural questions : Respondents knowledge and awareness on conservation
- Attitudinal questions: Views on George Town living heritage conservation
- Payment vehicle
- Respondents personal background

3.3 Estimating mean WTP

Open ended valuation questions produce a set of welfare measures WTP_i (i=1, 2, n) for n respondents in the sample. The mean WTP can be estimated as:

$$\text{Mean WTP} = \frac{\sum_{i}^{n} WTP}{n}$$

3.4 Single-bounded Contingent Valuation Method Dichotomous Choice (CVM-DC) model

There are incomplete information about all the elements considered important in the decision making process by all individuals making a choice are possessed. Therefore, the utility is broken into two components, V and e:

$$U_{in} = (V_{in} + e_{in})$$

where U_{in} is the overall utility of choice i for individual n, V_{in} is the systematic

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utility for individual n and choice i, e_{in} are taste variations for an individual and it is a random utility component. The error term allows scenarios such as; when two persons with the same measured attributes facing the same choice set different decisions and some individuals in not selecting the best alternative. The "Yes" response is a dependent variable in this dichotomous choice questions and the bid amount range from RM3 to RM7, which is randomly assigned to the respondents. In the questionnaire, the respondents are asked "Based on the scenario and consider your current income and expenses would you be willing-to-pay RM3/4/5/6/7 per night stay as conservation charge? (Currently RM2.00 conservation charge)".

In the logit regression analysis, this dependent variable can be derived from the probability of "Yes" response to the bid amount from the respondents. WTP might be a dummy variable where "Yes" responses are coded as 1 and "No" responses are coded as 0. The logit models in this study predicted the probabilities of "Yes" response as a function of the bid amount, B and other explanatory variables such as income, level of education. The probabilities are used to estimate the mean WTP of respondents using the Hanemann (1984) model.
The general equation for a logistic regression is as follows:

$$\ln(odds) = \alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k + \varepsilon_i \qquad (1)$$

where odds= probability of event/ 1- probability of event, $\beta_{1...}\beta_k$ are estimated coefficient parameters, X_1 is the bid amount (price offered to respondents), $X_{2...}...X_k$ are independent variables that these variables can influence the WTP amount and ε_i is random distribution term. $\ln(odds)$ is the natural log of odds and it is known as "logit".

Based on equation (1), the right hand side is the independent variables and the intercept in a regression equation.
Predicted probability of "Yes" or "No" responses are calculated by:

$$P_y = P(Y=1) = \frac{1}{1+e^{-(\alpha+\beta_1 X_1+\beta_2 X_2+...\beta_k X_k)}} \qquad (2)$$

where Y=1 if a "Yes" response and Y=0 is a "No" response. Based on the equation in (2), it can be simplified as follows:

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$$P_y = \frac{1}{(1+e^{-z})}$$

where $Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + ...\beta_k X_k$

4. RESULTS AND DISCUSSION

A total of 270 respondents were collected early year 2014-2015 and 2016-2017 for both Melaka city and George Town respectively. Both the respondents for both the cities have a rather similar socio-economic distribution where both also have same percentage of female respondents with 31.6% and 33% respectively. Other than that, both cities have more respondents in the same categories such as race, education level, race, age and marital status. Nevertheless, in terms of income per annum, Melaka city has higher number respondents with 38.5% and 36.7% respectively. Penang respondents are mostly Malaysian with 95.9% and 47% are of age between 18-30 years of age. The minimum age of the respondents is 18 as they would be mature enough to make rational decisions and also have income/ pocket money. Meanwhile for the marital status, most of the respondents are of single status (59.6%) and married status is 38.1%. As for the education level, approximately 77.8% of the respondents are of masters and above, follows with certificate or diploma level (17%). Approximately 78.1% of the respondents are of Chinese, follows with Malay and Indian; 10% and 8.1% respectively. Most of the respondents have visited George Town and a small number have not visited George Town or would like to visit it in the future or will visit soon; 94.15, 3.0%.2.6% and 0.4% respectively.

Meanwhile, the distributions of the sampled respondents for Melaka city are 44.1% and 55.9% male and female respectively. Most of the respondents are Chinese with 62.5%, 24.5% are Malay, 9.1% are Indians and 3.6% are others. 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%.

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Table 1 Socio-economic Profile of the Respondents

Descriptions	Melaka city	George Town
	Percentage (%)	Percentage (%)
Gender		
Male	41.1	33
Female	58.9	67
Nationality		
Malaysian	94.4	95.9
Non-Malaysian	5.6	4.1
Age		
18- 30 years	49.5	47
31-40 years	11.4	28.5
41-50 years	30.2	15.6
>50 years	8.9	8.9
Marital Status		
Single	64.4	59.6
Married	31.2	38.1
Others	0.4	2.2
Income per annum		
<RM24000	15.9	36.7
RM24000-RM36000	16.9	17.4
RM36001-RM48000	38.5	9.3
RM48001-RM60000	15.9	8.5
>RM60000	12.7	28.1
Education Level		
Secondary	10.4	5.2
Certificate/ Diploma	35.9	17
Masters and above	53.7	77.8
Race		
Malay	31.9	10
Chinese	48.9	78.1
Indian	13.0	8.1
Others	6.3	3.7
Visited Melaka City & George Town		
Yes	86.3	94.1
No	8.1	3.0
will visit in the future	4.8	2.6

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will visit soon	0.7	0.4

Table 2 shows that 42.4% of the respondents agree to contribute to the living heritage in Melaka city. A bivariate logit model is used to estimate the regression equation. The logit model predicts the probabilities of "Yes" responses as a function of the offered bid amount (B_i), and other explanatory variables which will "No" responses. Investigations in answers to willingness-to-pay questions indicated that, there is little evidence of "yea" saying (Refer to Table 4.14). "Yea" saying is a condition in which survey respondents gave the answer that researcher wants to hear. "Yea" saying would indicate nearly all respondents agree to pay because they think the researcher is in favour of the project. Conversely, most respondents refused to pay because they think the researcher is against the project. It was worth noting that respondents were presented with one starting bid randomly because there are 5 different starting bid values from RM3 to RM7. The respondents in Melaka city have a slightly lower percentage in not-willing-to-pay for with 56.7% while George Town has a slightly higher percentage where their respondents are willing to pay with 53%.

Table 2 Responses of first bid

Response	Melaka city	George Town
	Percentage (%)	Percentage (%)
Yes	43.7	53.0
No	56.7	47.0
Total	100.0	100.0

4.1 Final Regression Model

Independent variables are used to explain variation in the dependent variables and dependent variables were selected based on the implications from economic theory and the findings of previous studies. The parameters are hypothesised to influence the decision in accepting offered bid price. This study used the model that provides the best "fit" data. Table 3 presents the final regression models for both Melaka city George Town. The final model includes the significant variables in the preliminary model analysis. As in other CVM studies, variables such as age, gender, education, and income are important in WTP estimation. In this study, as shown in Table 3, it shows these variables are somehow different for overall model but bidding price, income, nationality and marital status are important factors that affect WTP in the final models. The results obtained for Melaka city are consistent with several past studies such as studies by Becker et al. (n.d) had significant WTP with marital status of the respondents; and Sakonnakon et al. (2012) had significant WTP with the

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respondents' income and nationality. Both the cities have the same significant results for marital status. Married respondents tend to have higher willingness-to-pay for the living heritage for both the historical cities, probably due to the fact that they have children and would like this unique living heritage be made available to them now and even in the future. The results for both the cities are rather interesting as the respondents in Melaka city, with higher income level will have higher willingness-to-pay for conserving living heritage in the city, while the respondents in George Town with higher education level will have higher willingness-to-pay instead. The bid value is in agreement with the theory of utility as the higher the bid value the lower the willingness-to-pay by the respondents.

Table 3 Final Logit Model (Melaka city & George Town)

Melaka city		George Town	
Variables	Model (Overall)	Variables	Model (Overall)
	B		B
BID	-0.00005***	BID	-0.178***
Income_Annually	0.000046***	Visit_Yes	0.628*
MaritalStatus_Married	-0.395*	MaritalStatus_Married	-0.395*
Nationality_Non Malaysian	1.045**	Edu_MastersAbove	0.619***
Constant	-0.1835***	Constant	-3.029**
-2 Log likelihood = 298.625 Cox& Snell R Square= 0.232 Nagelkerke R Square = 0.311 Mean WTP = RM2.60		-2 Log likelihood = 361.152 Cox& Snell R Square= 0.042 Nagelkerke R Square = 0.056 Mean WTP = RM2.30	
***Significant at 1%, ** 5% and * 10% level		***Significant at 1%, ** 5% and * 10% level	

5. CONCLUSION

According to Chiam C.C (2016), although living heritage is highly valued by residents and visitors, estimating the real value and benefits received from this living heritage are difficult, subjective and complex. As a result, non-market benefits are typically underestimated and the costs of the living heritage appear to outweigh its benefits. This is a sign of "market failure" and it is a serious shortcoming for public goods. This study uses single-bounded contingent valuation method in both Melaka city and George Town in order to make comparisons in the value on the willingness-to-pay by visitors in both Melaka city and George Town. The results showed that interaction models have more accuracy than basic model. The interaction term was socio-economic profile of the respondents with the main attributes. The results indicated that the respondents have positive WTP for all the attributes. The findings showed that 43.7% and 53% in the single-bounded CVM section agreed to

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pay or contribute to the hypothetical heritage charge in Melaka city and George Town respectively. The estimated mean of the willingness-to-pay was RM2.60 per night and RM2.30 per night in Melaka city and George Town respectively. The findings also suggested that socioeconomic variables are important predictors of WTP in both the historical cities. In the CVM-DC models, marital status and nationality were significant predictors for Melaka city while marital status and nationality are the significant predictors for George Town. This is because married respondents are more concerned on the availability of living heritage to their future generations that can give them a sense of identity and who they are in the future. Meanwhile, for nationality may be due to the fact they are Malaysian and hence more awareness and willingness to pay for the living heritage conservation.

5.1 Recommendations for further studies

Valuation studies are relatively new in Malaysia in terms of living heritage. In the future, this kind of study can increase people awareness and more reliable results can be obtained. The comparison on the results from this study with data from more comprehensive valuation studies on the same subject would be able to provide additional insight in designing optimal questionnaire format, ideal starting bid range value and WTP estimates. This study focused on the use values comprises of the hotel guests in the historical city. Day-trip visitors and local communities are not considered in this study although they do play vital role in the living heritage conservation and obtain benefits from the conservation of the living heritage in this historical city as well. Other than that, the total economic values, consists of use and non-use values. There is also a need to look into the non-use values such as people in other states using appropriate methods to capture the non-use values. Other than that, choice experiment can be used to measure the willingness-to-pay for both the historical cities. In CE, several improved attributes and its levels will be identified and CE analysis can provide a different set of information and insights to policy makers to develop new policies and programmes in the studied area.

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