

The Willingness to Pay of Overseas' tourists on Visiting Ecotourism at Phou Khao Khouay National Conservation Area, Vientiane Capital, Laos*

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Abstract

This paper is to estimate the Willingness to Pay (WTP) of overseas tourists on visiting Phou Khao Khouay conservation area, Vientiane Capital. The analysis relies on Choice Modeling (CM): Conditional Logit with interaction to seek out to identify the factors that affect the WTP. Both the attribute variables and non-attribute variables are used in the analysis, which are camping, hiking, waterfall activities and culture, and religion visiting. This study examines two types of WTP; the first WTP on general conditional logit model, and the second is the conditional logit with interaction.

According to the sample of 315 respondents, the WTP of tourists from the first model on the waterfall is the highest, which is 74.8 USD, followed by hiking, camping and religion, and culture which are accounted for 65.52 USD, 44.02 USD and 32.85USD, respectively. The second model finds that WTP of tourists on the waterfall is 86.27 USD, followed by hiking, camping, and religion, and culture, accounted for 52.82 USD, 39.94 USD and 30.67USD, respectively. The analysis shows no statistical significance on all the socio-economics characteristics of respondents, which means that the personal characteristics do not have direct effect on WTP. These findings do not only support the provision of good and green services in Phou Khao Khouay conservation area but will also be useful for the whole ecotourism in Laos.

Keywords: Phou Khao Khouay; Choice Modeling (CM); Willingness to Pay; Vientiane

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Introduction

The tourism sector is one of the most important and necessary of globalization movement, impacted directly to economic, which is accounted for 10.4% of the world GDP, and valued more \$ 8.5 billion (72,912 billion Kip), making more 313 billion careers or 9.9% of total hiring in 2017 (World Travel & Tourism Council, 2018).

Currently, eastern Asia and Pacific regions have the fastest growing tourism (World Travel & Tourism Council, 2012) and are expected to reach 1.8 thousand billion tourists in 2030 (UNWTO 2011).

Since opening its door to international tourists, in 1989, tourism sector has become one of the main sectors that earns highest foreign currency of state. Thus, the Lao government rationalizes strongly a need to promote the stability and sustainability of the tourism industry, by also actively engaging in the cooperation with international and regional, and non-government organizations.

In 2018, the tourism sector had grown up for 7.63%, there were 111,851 visitors per year and income 2,003,61 billion kips per year, covered 41.68% of GDP/year (Sitphaxay, 2018). The Lao government promotes various tourist attractions and destinations, including accommodation, transportation, service businesses. Lao government has given important consideration in social-economic (tourism) development, for a better life of Lao citizens, and aim to reduce poverty in remote areas.

It is important for the travel and service enterprises in Laos to continue to develop the ability to support tourists by building hotels and guest houses. In 2011, there are more than 2.7 million visitors and 4.1 million visitors, 4.3 million visitors, in 2014, and 2015 respectively. Which support these enterprises incomes in the year 2011, at \$400 million, and in 2014, \$560 million and more than \$ 6700 million in 2015. The various development plans of the nation include the landing route, airport, tourism places, accommodations, restaurants, vehicles of transportation, visitors checking in-out, reasonable service fee, active, clean, security and in keeping Lao resident's traditional (VOA, 2016).

Literature Review

Hearne and Salinas (2002) conducted a research on the analysis of tourist preferences for ecotourism development by using choice experiments as the tool to analyze the preference of tourists on nature, infrastructure, use of restrictions, and other attributes at Barva Volcano Area, Costa Rica. The survey was conducted of 171 Costa Rican and other 271 foreign tourists who visited the Volcano. The research shows the preferences of tourists as follows: need to improve infrastructure, more information should be provided, and should be lower price of entrance. The marginal willingness to pay (WTP) for greater information was estimated to be USD 1.54 for foreign tourists and USD 1.01 for Costa Rican tourists.

Chaminuka, Groenevel, Selomane, and van Ierland (2012) conducted a research on the tourist preferences for ecotourism in rural communities adjacent to Kruger National Park in South Africa, by applying the conditional logit model based on income and to promote

cultural awareness amongst tourists. The aim of the study is to determine the preferences of tourists, according to origin and income levels, to engage in ecotourism as well as their marginal willingness to pay (MWTP) for three specific ecotourism attributes: village accommodation, village tours and visits to crafts markets. 319 tourists were conducted through the choice experiment and analyzed by conditional probit model. The MWTP for accommodation and income group was negative, but village tours and crafts market were positive and the MWTP among accommodation and income group was higher than the fees that village tours proposed.

Hearne and Santos (2005) study the tourists' and locals' preferences toward ecotourism development in Maya Biosphere reserve, Guatemala, which uses the choice experiments to analyze the preferences toward alternative scenarios of ecotourism of two important stakeholder groups: foreign tourists and educated local residents. The result shows that these two populations have unequal but similar preference orderings, especially toward: improved national park management and the presence of guides for wildlife viewing. These stakeholder groups have different opinions toward paved access roads and the presence of illegal colonists within the protected area.

Iasha, Yacob, Kabir and Radam (2015) estimate the visitors' Willingness to Pay (WTP) for ecotourism in Puncak Lawang Park (PLP), Agam District of West-Sumatera Indonesia by applying Contingent Valuation Method (CVM) on 300 sample visitors comprising both local and international tourists. Their study shows that majority of the visitors are willing to pay for ecotourism at PLP. The outcome from logit regression indicates that bid, income, and males are the most significant factors that influence visitors' WTP. The mean WTP for entrance fee to PLP was Rp9411.35 (RM2.64) per entrance.

In China, Yu et al. (2018) studied the willingness to pay (WTP) for marine conservation, by considering two marine protected areas in Zhejiang Province through Contingent Value Method (CVM), and by combining logit and Tobit models to estimate the WTP for marine conservation between tourism and residents. The study focused on the individuals' willingness to pay and how much they would prefer to pay may be affected separately by different factors. The results showed that most respondents were willing to pay for marine conservation, but they were affected by different factors. The average amounts that the respondents were willing to pay were 216.20 CNY (\$34.3) and 172.43 CNY (\$27.4) in the Nanji Islands MPA and Putuo Islands MPA, respectively.

In Vangvieng, Laos, Khamsay et al (2015) conducted a research to estimate the tourists' preferences and willingness to pay for ecofriendly services which are related to the natural and environmental conservation of the hotel industry by using choice experiment. They used the mixed logit to take into account of preference by allowing coefficients to be normally distributed and assumed to vary among individuals. The result showed that all ecofriendly practices offered in this study were significantly preferred by tourists. Income, age, and education did not have significant effect on the probability of choosing ecologically friendly practices of hotel and attributed to support the ecotourism of the area; the study provided important information that female tourists are more receptive to a new alternative.

Kyophilavong and Bennett (2011) conducted a research estimating the willingness to pay of cleaning up road dust in urban areas in Vientiane, Laos, by using the contingent valuation method (CVM). The research collected 6590 sample respondents, which showed

mean WTP at 7069 kips (USD 0.86) per person per month. The education and income had positive statistically impact on WTP. On the other hand, the number of children in family had negative impact on WTP.

Method

The questionnaire designed of this study is based on the choice modeling process, which uses the Design Expert program to create the games. The data were collected by the individuals interviewing directly with the overseas tourists in Vientiane Capital, Laos.

Before rolling up the formal survey, two pre-tests were conducted for 30 respondents per each and based on the feedback from the pre-tests, the questionnaire was revised accordingly. The time of the interviews was about 10 minutes on average.

The questionnaire is consisted of three parts: (1) the socio-economic characteristics of the respondents, (2) the Willingness to Pay of the respondents on the activities, and (3) the rating of interests on the activities and the last part is the recommendation or suggestion for the activities.

The willingness to pay (WTP) part of the survey, before asking the open-ended WTP, the packages of the tour for ecotourism, were explained clearly to the interviewees on what is there in the services and explained to them how to mark or select the choices on the questionnaire correctly.

The survey was conducted from May 4th to May 12th, 2019 in Vientiane capital, Laos. The total of respondents is 300 people. The survey was carried by the thesis team and other colleagues in the Faculty of Economics and Business Management at the National University of Laos. The team was trained before starting the survey (Whittington, 2002).

Results

Socio-Economic Characteristic of Respondents

As shown in Table 1, the average age was around 18-25 years. On average, the education level of respondents found 50.79 % of Bachelor degree. About more 30% of the participants are students, and others are organization officers, government and non-government officers. About 35.3 per cents of the respondents came from Europe and around 35.67 % of respondent's income was 501 -2000 (USD/month), which covered the largest number. Respondents about 78 % had never heard about Ecotourism at Phou Khao Khouay Protected Area and about 93.7% never visiting. About 54 % of respondents said that it is a very interesting project and activities.

Table 1. Social-Economic characteristics of Respondents

Social-Economic Condition	Percentage
Female	52
Single	55.24
Age 18-25	25.4
Income 501 -2000 (USD/month)	34.16
Education Level in Bachelor	
Non-Education	0.95
Primary School	2.54
High School	18.10
Bachelor Degree	50.79
Master Degree	20
Doctoral	7.62
Main Occupation (%)	
Non-govern	33.97
Government Office	15.24
Student	18.41
Retail/Owner of Business	23.81
Retirement	8.57
Nationalities (%)	
European	35.24
Asian	34.60
American	22.86
Other	7.30
Never heard	78
Never visiting	93.7
Interesting	54
Very interesting	18.33
Neutral	22.66
Less interesting	3.33
Not interesting	a.

The Willingness to Pay

A total of 315 questionnaires were collected. Of these, 315 questionnaires which include 4725 observations (100 percent of the total sample) are effective information. Out of the total, 3150 observations (33 percent) provided a zero WTP, and 1575 observations that choose by respondents (67 percent) offered positive WTP on our activities. As showed in Table 2, the willingness to pay of 50.00 USD covered 30 percent of the total, followed by the WTP of 100.00 USD which accounted for 18%, 150.00 USD and 200.00USD which are counted for 16% and 6% respectively.

The main reasons that given by respondents for the willingness to pay for those activities are that they fall in love with nature, which is accounted for 26 percent, love to stay with local people and taste local food counted for 32 percent, and love our adventure activities which counted for 42 percent.

On the other hand, the main reason for respondents not to pay or giving zero WTP are that they are concerned about their safety, which is numbered for 35 percent, second is the price is a little bit expensive in some activities which counted for 34 percent. The zero willingness to pay could be classified into two types: true zero WTP and protest bids (Wang et al., 2006). The protest bids, the respondents might be hardly understanding the valuation of the questionnaire. However, it is difficult to separate the zero WTP and protest bids and thus, no protest bids were excluded.

There are many research-works and cases that have been conducted and they estimate the WTP case in Laos, but there is a rare case in Laos of applying the Choice Modeling (CM). Most of the researches in Laos are related to estimating WTP, preferring to apply CVM rather than CM. There are many researches and cases that have been conducted in estimating the WTP in overseas by applying the Choice Modeling (CM), and CVM as well.

In this survey, we focused on an individual's perspective on their payment and focused on overseas tourists only. Like many developed and developing countries, the salaries or income per month of their citizens are pretty high if we compare them to some developing and least developed countries. This CM questionnaire has been criticized (Arrow et al., 1993) for providing the lower price.

Table 2. Range of WTP of Respondents

Willingness to Pay (USD)	Number of Interviewees	Percentage (%)
0	613	39
50	471	30
100	252	16
150	123	8
200	116	7
Total	1575	100

Table 3 state the reasons to pay and not to pay of the respondents.

Table 3: Reasons to Pay or Not to Pay

Reasons to pay	Percentage
Interesting Activities	42
Would like to taste local food and see local's culture	32
Love Nature	26
Total	100
Reasons not to pay	
The safety during the activities	55
Expensive Price	45
Total	100

Factors Affecting WTP

In order to evaluate the influence of socioeconomic characteristics on WTP, the multiple regression model was used. The definitions of the variables are given in Table 4. The Conditional Logistic Regression Model had applied on this to estimate the affected factors on the WTP.

Table 4. Definition of regression Variables.

Variables	Definition	Unit	Mean	Std. Dev	Min	Max	Expected sign
Dependent Variable							
WTP	Willingness to Pay	USD	0.5	0.33	0	1	NA
Independent Variables							
Attribute Variables							
Camping	Camping	1= yes, 0= No	0.5	0.47	0	1	+
Hiking	Hiking	1= yes, 0= No	0.5	0.46	0	1	+
Religion	Religion and culture	1= yes, 0= No	0.5	0.47	0	1	+
Waterfall	Waterfall Activities	1= yes, 0= No	0.5	0.46	0	1	+
Price	Price for activities	USD	100	78.59	0		-
Non-attribute Variables							
Gend	Gender	1= Male, 0 = female	0.5	0.5	0	1	+
Age	Age of respondents	Years	35.1	12.23	18	71	-
Stat	Status	1= Single, 0= Others	0.5	0.5	0	1	+
Income	Income per month		0.5	0.34	0	1	+
Occ		1= (3001-5000)	0.5	0.5	0	1	+

Cont	Occupation	0= other, 1= Company officer, 0= Others	0.5	0.48	0	1	+
Educ	Continent	1= Europe, 0= Others	0.5	0.41	0	1	+
	Education Level	1= bachelor up, 0 = below bachelor					

According to the choice modeling regression, as shown in Table 5 and as we expected, most of the socioeconomic variables, like gender, marital status, education, continent, occupation, income, and age, have the impact as our assumption; unfortunately, they are not statistically significant, which means that those socioeconomics characteristics have no effect on respondents' decision on WTP.

Table 5. Factors affected on WTP by Conditional Logit with interaction regression

Variables	Definition	Coefficient	T-test
Attribute Variables			
Price	Price to pay for activities	-0.0305371***	-5.86
Waterfall	Waterfall activities	2.634573***	4.45
Religion	Religion and culture activities	0.9364389*	1.84
Hiking	Hiking activities	1.613055***	3.10
Camping	Camping activities	1.219755 **	2.41
Non- Attribute Variables			
Gcamping	Gender interact with camping	0.0952016 ^{ns}	0.46
Ghiking	Gender interact with Hiking	-0.0210058 ^{ns}	-0.10
Greligion	Gender interact with religion and culture	-0.2345818 ^{ns}	-1.13
Gwaterfall	Gender interact with waterfall	-0.2187546 ^{ns}	-0.90
Statcamping	Status interact with camping	0.4085608 ^{ns}	1.18
Stathiking	Status interact with Hiking	0.092854	0.26
Statreligion	Status interact with religion and culture	0.273346 ^{ns}	0.78
Statwaterfall	Status interact with waterfall	-0.0900519 ^{ns}	-0.22
Agecamping	Age interact with camping	-0.0011305 ^{ns}	-0.12
Agehiking	Age interact with Hiking	0.0037364 ^{ns}	0.38
Ageligion	Age interact with religion and culture	0.0009894 ^{ns}	0.10
Agewaterfall	Age interact with waterfall	0.0002581 ^{ns}	0.02
Contcamping	Continent interact with camping	-0.0835631 ^{ns}	-0.54
Conthiking	Continent interact with Hiking	0.0047364 ^{ns}	0.03
Contreligion	Continent interact with religion and culture	-0.1163772 ^{ns}	-0.72
Contwaterfall	Continent interact with waterfall	-0.0845205 ^{ns}	-0.47
Educamping	Education interact with camping	-0.216109 ^{ns}	-0.80
Eduhiking	Education interact with Hiking	0.0898724 ^{ns}	0.32
Edureligion	Education interact with religion and culture	-0.1312744 ^{ns}	-0.49
Eduwaterfall	Education interact with waterfall	-0.4657758 ^{ns}	-1.45
Occcamping	Occupation interact with camping	-0.028133 ^{ns}	-0.13

Occhiking	Occupation interact with Hiking	-0.1836968 ^{ns}	-0.83
Occreligion	Occupation interact with religion and culture	0.0599698 ^{ns}	0.28
Occwaterfall	Occupation interact with waterfall	0.0269924 ^{ns}	0.11
Incocamping	Income interact with camping	-0.0740617 ^{ns}	-0.23
Incohiking	Income interact with Hiking	-0.1634372 ^{ns}	-0.53
Incoreligion	Income interact with religion and culture	0.4317246 ^{ns}	1.38
Incwaterfall	Income interact with waterfall	-0.3766291 ^{ns}	-1.06
Number of observations		4725	
F-Statistic		1481.21	
Probability		0.000	
R²		0.428	

However, we find that the WTP on every activity, based on the general conditional logit regression and the conditional logit with interaction, are different as evidenced in Table 5 and Table 6. After it interferes by the socioeconomic characteristics, we determine some coefficients are greater and some are less than before interference.

Table 6. Factors of effect by Conditional Logit with interaction regression.

Variables	Definition	Coefficient	T-test
Pgender	Gender interact with Price	0.0027307 ^{ns}	1.29
Pstatus	Status interact with Price	-0.0046239 ^{ns}	-1.3
PAge	Age interact with Price	0.0000347 ^{ns}	0.35
PCont	Continent interact with Price	0.0012919 ^{ns}	0.8
Pedu	Education interact with Price	0.0030743 ^{ns}	1.08
Pocc	Occupation interact with Price	0.0001924 ^{ns}	0.09
Pincome	Income interact with Price	-0.0007634 ^{ns}	-0.24
Number of observations		4725	
F-Statistic		1481.21	
Probability		0.000	
R²		0.428	
Attribute Variables	Price to pay for activities	-0.026275	-25.2
Price			
Waterfall	Waterfall activities	1.966357	16.6
Religion	Religion and culture activities	0.8631826	8.53
Hiking	Hiking activities	1.721588	16.26
Camping	Camping activities	1.156623	14.45
Number of observations		4725	
F-Statistic		1457.53	
Probability		0.000	
R²		0.4212	

*** 1% significant, ** 5% significant, * 10% Significant. ns: not significant.

Moreover, we can completely visualize the differentiation from Table 7, which compared how much the WTP change after taking interference by the socioeconomic characteristics of the respondents.

Table 7. Comparison between general WTP and interaction WTP of respondents.

	WTP	WTP interaction	Difference	Percentage Change
Hiking	\$ 65.52	\$ 52.82	12.70	-19%
Religion	\$ 32.85	\$ 30.67	2.19	-7%
Waterfall	\$ 74.8	\$ 86.27	11.44	15%
Camping	\$ 44.02	\$ 39.94	4.08	-9%

Conclusion

The main of this paper was to estimate the overseas tourists' Willingness to Pay (WTP) for visiting ecotourism at Phou Khao Khouay protected area of Vientiane, Lao PDR. The Choice Modeling (CM) was use and the factors affecting WTP were identified using Conditional Logit with interaction model analysis.

The WTP for visiting ecotourism at Phou Khao Khouay protected area of Vientiane was 0-50 USD per person per time. The main reason for WTP was for activities during their visiting as camping, hiking, waterfall, religion and culture. The respondents who have income 450 USD and Bachelor degree education show higher WTP. The result indicates that Phou Khao Khouay protected area of Vientiane will benefit from the visits of overseas tourists. This is useful information for the government agencies or other projects to consider. It will help them to understand the benefits by providing more activities and choices to foreign tourists to visit.

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