



Factors determining the expenditure of Lao tourist on Luang Prabang tourism during the epidemic situation of COVID-19

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Abstract

The purpose of this research was to study the factors that determine the expenditure of Lao tourist on Luang Prabang tourism during the epidemic situation of COVID-19. It was developed on a model based on Engel's law and applied Multiple Classification Analysis (MCA) to analyze the data to forecast tourist spending based on their personal attributes. The results showed that certain personal characteristics of tourists influenced what Lao tourists spent on tourism in Luang Prabang at a significant level of 0.01, with the highest spending on Luang Prabang tourism. This was found to be a tourist who earns more than of 601 USD per month or more, are male, aged 40 years and over, married, and from Vientiane Capital. They have an education level of a Bachelor's degree or higher, have a private business career, and traveling to Luang Prabang for the 5th time or more and will spend about than 150.49 USD per person per day on Luang Prabang tourism. Therefore, tourists with such characteristics are a marketing target that concerned parties must prioritize in marketing.

Keywords Factors determining the expenditure of Lao tourist, analysis of multiple classification

1. Introduction

Luang Prabang is the capital of Luang Prabang Province located on both sides of the Mekong and Khan rivers in the northern part of the Lao PDR. It has unique characteristics that are different from other areas and has a diversity of tourism, including natural, cultural and historical resources which are outstanding and interesting. It was also recognized as a UNESCO World Heritage Site in 1995 and was voted the world's number one tourist destination by Wanderlust Travel Magazine, from the United Kingdom for 8 consecutive years. from 2006-2019 (Lao Statistics Bureau, 2021). With this

potential, Luang Prabang therefore attaches great importance to tourism in the economic-social development of the province as an economic sector that generates income causing employment, creating careers both directly and indirectly for all types of people. It also contributes to the distribution of income to people and all sectors in Luang Prabang. This can be seen over the past decade, where Luang Prabang's tourism is expanding rapidly. Total tourist numbers and revenues grew at an average rate of 9.43 % and 10.26 % per year annually, respectively, up from 349,000 people and 100.3 Million USD in 2009 to 860,000

people and 266.52. Million USD in 2019, respectively (Luang Prabang Provincial Department of Information, Culture and Tourism, 2020).

The epidemic situation of COVID-19 since the end of 2019 has severely affected the tourism sector of Luang Prabang as the tourism sector relies heavily on the international tourist market, (more than 85 % of total tourist revenue) and currently, Luang Prabang close for international travel and has made the province has no foreign tourists, therefore, the government and private agencies need to adjust their marketing strategies in the short term. By turning to rely more on the domestic tourist market (Lao tourists) by attracting and encouraging more Lao tourists travel to Luang Prabang. This includes encouraging more per person per day spending to help generate income for local residents. It is hoped that the domestic market will help the tourism sector of Luang Prabang.

Due to the population constraints of the Lao PDR, the stimulation to increase the number and frequency of Lao people's tourism (Lao tourists) to in Luang Prabang that could not compensate for the lost income from foreigners' tourism. One of the ways to increase the tourism income of Lao people is to encourage them to spend more per person per day in tourism destination. Therefore, the main objective of this research is to explore factors that will encourage Lao tourists to spend more when traveling to Luang Prabang, especially during the epidemic situation of COVID-19. The results of the study will became important information use to formulate policies and strategies to promote marketing and encourage more Lao tourists to visit Luang Prabang and to spend more on tourism. It can also be used to define the target audience who has high expenditure assist to increase tourism income for Luang Prabang as well.

1.2 Objective of the Study

The objective is to study the factors that determine the expenditure of Lao tourist on

Luang Prabang tourism during the epidemic situation of COVID-19.

2. Materials and Methods

The main objective is to study the factors that determine the expenditure of Lao tourist on Luang Prabang tourism during the epidemic situation of COVID-19. The model was developed based on Engel's law and applied Multiple Classification Analysis (MCA) to analyze the data to forecast tourist spending based on the tourists' personal attributes.

2.1 Conceptual framework for model development

The conceptual framework used to develop the model is Engel's law which proposed by the German statistician Ernst Engel in 1857. The rule suggests that as things are constant, the proportion of expenditure on food costs will decreases as income increases. In other words, the elasticity of food demand to income is less than 1 (Likhitekaraj, 1992). The law is widely applied in the study of the demand for food, clothing, housing and commodities. (Especially in the area of necessity goods) by attempt to express and prove that the proportion of consumption will not increase as income or it can be said that proportion of consumption of goods and services, there will be no additional change if there is an increase in income (Nassarasarn, 2005; Unthong, Phiboonrungroj and Kaosa-ard, 2006). This study applied this rules as a basis for developing a model of factors determining the expenditure of Lao tourists traveling to Luang Prabang. with a preliminary agreement that Lao tourists' spending on tourism in Luang Prabang varies according to income and personal characteristics of tourists such as age, gender, status, district of residence, education, occupation, etc.

The study meet some limitations of the tourist expenditure data which cannot collect all the detailed expenditure data and a simplified model used in the analysis and developed to meet the objectives of the study. Therefore, the study assumes that expenses in other goods and services are constant and focuses on the

development of a partial equilibrium model instead of the general equilibrium model (Unthong, Phiboonrungroj, and Kaosa-ard, 2006) by model variables, and in addition to the income of tourists, what will influence the expenditure of Lao tourists in Luang Prabang.

There are also other personal attribute variables of tourists influencing the expenditure of Lao tourists' spending in Luang Prabang tourism, as can be seen in the conceptual framework in Figure 1.

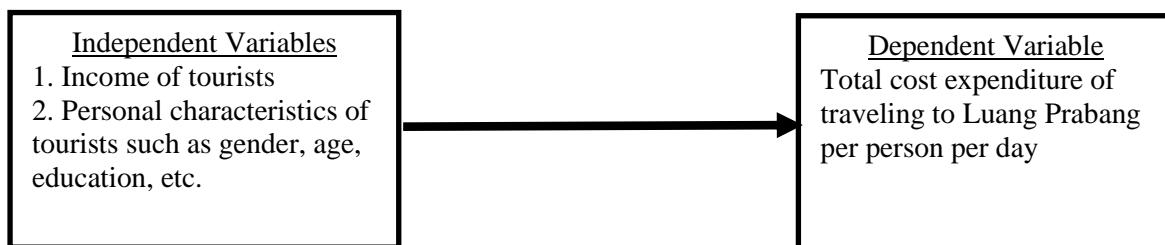


Figure 1 Conceptual framework for model development

2.2 The model used in the study

According to the literature reviews different personal characteristics of tourists resulted in statistically significant differences in tourist expenditure by income, age, gender, status, education, occupation and region of residence. It is often a key set of variables that influence the determination of tourist expenditure (Likhitekaraj, 1992; Nassasan, 2005; Unthong, Phiboonrungroj and Kaosa-ard, 2006; Amir et al., 2015; Laipaporn and Praprom, 2020). Therefore, seven personal trait variables were selected as independent variables in the model.

From the conceptual framework in Figure 1 and the variable set from the literature reviews, a model of factors determining the

expenditure of Lao tourists traveling to Luang Prabang has developed by specifying income, age, gender, status, province of residence, educational level and occupation of Lao tourists as independent variables. The dependent variable was the total cost expenditure of tourism in Luang Prabang per person per day. All independent variables are category variables, while total cost expenditure per person per day is a continuous variable. An appropriate statistical method for this case is Multiple Classification Analysis (MCA), which, according to the preliminary agreement of MCA analysis, that the format of the model must have positive format (additive model), so the model used in the study can be defined as follows:

$$C_i = \alpha + \sum_{j=1}^3 b_j Y_{ji} + \sum_{k=1}^3 c_k Age_{ki} + \sum_{l=1}^2 d_l Gender_{li} + \sum_{m=1}^2 e_m Status_{mi} \\ + \sum_{n=1}^2 f_n Region_{ni} + \sum_{o=1}^2 g_o Education_{oi} + \sum_{p=1}^4 h_p Job_{pi}$$

C_i = tourist total cost spending of sample i (USD per person per day)

α = constant

B_j = coefficient of group j of variable Y

Y_{ji} = monthly income of group j of sample i (USD)

C_k = coefficient of group k of variable Age

Age_{ki} = age of group k of sample i

d_l = coefficient of group l of variable Gender

$Gender_{li}$ = gender of group l of sample i.

e_m = coefficient of group m of variable Status

$Status_{mi}$ = Status of group m of sample i

f_n = coefficient of group n of variable Region

$Region_{ni}$ = Region of group n of sample i

g_o = coefficient of group o of variable Education

$Education_{oi}$ = Education of group o of sample i

h_p = coefficient of group p of variable Job

Job_{pi} = Job of group p of sample i

The reason given α is a constant because all independent variables have special properties:

$$\sum_{j=1}^3 Y_{ji} = 1, \sum_{k=1}^3 Age_{ki} = 1, \sum_{l=1}^2 Gender_{li} = 1, \sum_{m=1}^2 Status_{mi} = 1,$$
$$\sum_{n=1}^2 Region_{ni} = 1, \sum_{o=1}^2 Education_{oi} = 1, \sum_{p=1}^4 Job_{pi} = 1,$$

which can cause perfect linear multiple correlation. So one of the popular solutions to this problem is assigning the value of α to a constant, for example, it has a value of 0, etc. (Santikarn, 1980)

2.3 Multiple Classification Analysis (MCA)

MCA is a statistical method used to analyze the pattern and nature of the relationship between dependent variables and independent variables as well as multiple regression analysis (MRA). It can help estimate the tourism revenue generated by the expenditure of tourists with different personal characteristics. By examining the impact of individual attributes on tourists' expenditure, the results of a multidisciplinary analysis can also reflect the influence of variables on tourists spending. By considering the coefficient showing the deviation (Adjusted deviation) from the mean (Grand mean) by deviation is the influence of independent variables used in model development. Therefore, the coefficients representing the deviations of each property can be directly added to the mean values. This can be regarded as the strength of the method of analyzing MCA. Able to forecast or estimate the total cost according to the tourists' characteristics. The dependent variables used in the model must have an interval scale, and the data must have a normal curve distribution. And if it's a dummy variable, the two classifications should have a uniform distribution. Independent

variables are variables that have a nominal scale or ordinal scale, where independent variables can be correlated with each other (Correlation) and the relationship between the independent variables and the dependent variables may be non-linear relationships. (Santikarn, 1980).

3. Results

The presentation of the study results is divided into two parts. The first part is a presentation on the spending data of Lao tourists traveling to Luang Prabang during the epidemic situation of COVID-19. The second part studied factors that determine the average per capital expenditure per day of Lao tourists traveling to Luang Prabang as a result of statistical analysis. and analysis of multiple classifications. As detailed in each section, briefly as follows:

3.1 Expenditure of Lao tourists traveling to Luang Prabang

This article divides the expenditure of Lao tourists traveling to Luang Prabang during the epidemic situation of COVID-19 into seven categories as shown in Table 1. Lao tourists have an average expenditure per person per day for food and beverage costs up to 73.00.USD or accounted for 38.05% of the total tourism expenditures in Luang Prabang followed by

expenditure for souvenirs and travel expenses where Lao tourists spent 33.89 USD and 33.68 USD, respectively, or 17.67 % and 17.55 %. Expenditure on accommodation was 31.28 USD, or 16.30%, the rest was other expenses such as purchasing goods, making merit, etc. plus service fees within Luang Prabang and expenditure on various entertainment. These account for no more than 5 % of the total cost expenditure of tourism in Luang Prabang. When calculating the average cost spent per person per day by all Lao tourists traveling to Luang Prabang during the epidemic situation of COVID-19, it was seen that each tourist spent an average of approximately 191.87 USD.

3.2 Factors that determine the average daily expenditure of Lao tourists traveling to Luang Prabang

From testing the difference in average expenditure per person per day according to the personal characteristics of tourists are the test statistics shown in Table 2, representing Lao tourists traveling to Luang Prabang during the epidemic situation of COVID-19, the average expenditure per person per day differed according to the personal characteristics of the tourists. All variables were considered statistically significant at 0.01 (i.e income, gender, age, status, district of residence, education level, occupation, number of night stay and number of trips), so from the test results it can be said that there are 9 different personal characteristics of Lao tourists that influence the Lao tourists who traveling to Luang Prabang during the epidemic situation of COVID-19. There are different expenses for traveling in Luang Prabang. Almost all of the tourist personal attribute variables (except the number of nights, which was tested in the MCA and it was found to be statistically insignificant at 0.10) will be used as independent variables in the subsequent MCA.

The results of the Multiple Classification Analysis (MCA) can estimate the tourism income of Lao tourists with different personal characteristics by bringing the coefficient

showing the deviation (Adjusted deviation) to add or subtract with the average cost expenses per person per day. From the results of the MCA analysis in Table 3, it was found that Lao tourists in all groups spent an average of 57.81 USD per person per day, with variables of monthly income, gender, age, and marital status, province of residence, educational level, occupation, and travel time. It is an influencing factor in determining the expenditure of Lao tourists. Lao tourists with incomes of 601 USD or more are tourists with higher expenditure on tourism than other income groups while male tourists spend more than females. As for tourists aged 40 years and over, they are the group with higher expenditure on tourism than other age groups. The same is true for married tourists who expense more on tourism than single do. Tourists from Vientiane capital are the group with higher expenditure on tourism than other provinces spend. Tourists with a Bachelor's degree and above were the group with higher expenditure on tourism than whom with a lower secondary education level, while self-employed tourists are the group with higher expenditure on tourism than other occupation groups. Tourists who came to Luang Prabang for the fifth time or more, are the group with higher expenditure on tourism than other groups. Therefore, according to the MCA, revenue from the group with the highest expenditure can be estimated. That must be a tourist with an income of 601 USD or more, male, aged 40+, married, from Vientiane capital, have an education level of a Bachelor's degree or higher have a private business career and have traveled to Luang Prabang for the 5th time or more, and will spend about 150.49 USD per person per day (57.81+13.50+12.33+4.00+13.34+3.03+3.27+21.83+21.38).

4. Discussion

A study of the factors that determine the expenditure of Lao tourist on Luang Prabang tourism during the epidemic situation of COVID-19 revealed that monthly income, gender, age, status, province of residence,

education, occupation and times of travel are the set of variables. Statistically significant influence on the expenditure determination of Lao tourists. These results are consistent with the study by Sukthamwong and Puttawong (2016), which found that the factors affecting the expenditure on Lao tourism consisted of gender, educational level, age, and income. Studies by Amir et al., (2015), Laiphaporn and Praprom (2020), Chaimoolwong et al., (2020), and Pérez-Rodríguez and Ledesma-Rodríguez (2021) have also found consistent results. in the same way that the key factors that determine tourist expenditure are income, age, gender, status, region of residence, education and occupation. While this study also found that tourists with income of 601 USD are more often male, aged 40 years and over, married, come from Vientiane, have an education level of a Bachelor's degree or higher operate a private business and have traveled to Luang Prabang more than 5 times will be the tourists who have statistically significantly higher expenditure on Luang Prabang tourism than other groups. Therefore, tourists with such characteristics are a marketing target that concerned parties must prioritize in marketing.

5. Conclusion

The results of this study can be conclude that Lao tourists spent about 102.24 USD on average per person per day of tourism in Luang Prabang, with the highest percentage expenditure on food and beverages with 38.05 %, followed by souvenirs, travel expenses and accommodation costs, which accounted for approximately 16-18 % of the four expenditure items which altogether account for up to 90 % of the total cost expenses of tourism in Luang Prabang.

The MCA revealed that tourists with certain personal characteristics (i.e. income, gender, age, marital status, place of residence, education level and occupation) spent differently on Luang Prabang tourism at a significance level of 0.01. It shows that these personal characteristics are the influencing

factors for Lao tourists to expense differently on Luang Prabang tourism. But the tourists with the highest expenditure on tourism in Luang Prabang is a tourist with an income of 601 USD per month or more, male, aged 40 years and over, married, from Vientiane capital, have an education level from a Bachelor's degree or higher, a private business career And come to visit Luang Prabang for the 5th time or more and will spend about 150.49 USD per person per day on Luang Prabang tourism.

Marketing Strategies Recommendations

In planning marketing to increase tourism income of Lao tourists traveling to Luang Prabang, priority should be given to tourists who earn more than 601 USD per month or more, male, over 40 years old, married, from Vientiane capital and have an education level from a Bachelor's degree or higher, operate a private business. They are group of repeat tourists who travel to LuangPrabang more than 5 times. Hence, this recommendation might directly relevant to both organization the public and private sector that should implement marketing strategies to attract more tourists to come to Luang Prabang and increase their attraction to spend more, especially on food & beverages and souvenirs products that are the main commodities that could be generate income directly to residence of LuangPrabang.

6. Conflict of Interest

We certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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Table 1 Average expenditure structure per person per day of Lao tourists traveling to Luang Prabang

| Type of expenses | Average cost (USD) | Proportion (percent) |
|---|-----------------------|-------------------------|
| Food and beverage | 73.00 | 38.05 |
| Souvenirs | 33.89 | 17.67 |
| Travel expenses | 33.68 | 17.55 |
| Accommodation cost | 31.28 | 16.30 |
| Other expenses (buying items, making merit) | 8.00 | 4.17 |
| Service fees within Luang Prabang | 6.83 | 3.56 |
| Entertainment expenses | 5.20 | 2.71 |
| Total | 191.87 | 100.00 |

Source: From a survey between January-February 2021

Table 2 The results of testing factors that determine the average daily expenditure per person per day of Lao tourists

| Variables | Test statistics | Degrees of Independence | Calculated statistical values | p-value |
|-----------|-----------------|-------------------------|-------------------------------|---------|
| Income | F-statistic | 2 | 17.884 | 0.000 |

| | | | | |
|-----------------------|--------------|---|--------|-------|
| Gender | t –statistic | 1 | 49.415 | 0.000 |
| Age | F-statistic | 2 | 18.194 | 0.000 |
| Marital status | t –statistic | 1 | 51.025 | 0.000 |
| District of residence | t –statistic | 1 | 48.909 | 0.000 |
| Educational level | t –statistic | 1 | 61.695 | 0.000 |
| Occupation | F-statistic | 3 | 20.926 | 0.000 |
| Number of nights | F-statistic | 2 | 7.685 | 0.001 |
| Time of travel | F-statistic | 2 | 21.175 | 0.000 |

Source: calculated

Table 3 The results of a multidisciplinary analysis (MCA) of the expenditure of Lao tourists.

Grand means = 57.81 (Unit: USD per person per day)

| Independent Variables | Number of Samples | Unadjusted deviation | Eta | Adjusted deviation | Beta |
|-------------------------------|-------------------|----------------------|--------------|--------------------|--------------|
| Income | | | 0.328 | | 0.119 |
| Up to 300 USD | 56 | -17.30 | | -3.54 | |
| 300-600 USD | 142 | -2.84 | | -2.56 | |
| More than 601 USD or more | 101 | 13.58 | | 5.57 | |
| Age | | | 0.331 | | 0.075 |
| not more than 30 years | 152 | -10.94 | | -2.47 | |
| 30-39 years | 87 | 10.61 | | 2.71 | |
| 40 years or more | 60 | 12.33 | | 2.32 | |
| Gender | | | 0.097 | | 0.052 |
| Female | 179 | -2.68 | | -1.43 | |
| Male | 120 | 4.00 | | 2.14 | |
| Marital status | | | 0.374 | | 0.231 |
| Single | 158 | -11.91 | | -7.34 | |
| Married | 141 | 13.34 | | 8.23 | |
| Province of residence | | | 0.128 | | 0.137 |
| Vientiane Capital | 200 | 3.03 | | 3.24 | |
| other provinces/districts | 99 | -6.12 | | -6.54 | |
| Educational level | | | 0.140 | | 0.120 |
| no more than secondary school | 97 | -6.81 | | -5.83 | |
| from Bachelor's degree | 202 | 3.27 | | 2.80 | |
| Occupation | | | 0.419 | | 0.252 |
| private company employees | 126 | -7.05 | | -1.36 | |
| self employed | 81 | 21.83 | | 12.05 | |
| government officer | 51 | -2.21 | | -4.08 | |
| Other | 41 | -18.71 | | -14.55 | |
| Number of times travel | | | 0.354 | | 0.176 |
| first time | 110 | -13.47 | | -6.55 | |
| 2-4 times | 144 | 3.61 | | 1.56 | |
| 5 or more | 45 | 21.38 | | 11.03 | |

Note: R = 0.591, R² = 0.349.

Source: calculated