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**Determinant Factors of Tourist Expenditure in the  
Lao People's Democratic Republic**

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**Abstract:** *This paper examines the key factors influencing the international tourist expenditure in the Lao People's Democratic Republic (Lao PDR) using a unique survey data of international tourists. The empirical analysis was implemented with quantile regression technique. The data are based on the 2019 survey of international tourist arrivals from the Ministry of Information, Culture and Tourism (MICT), Lao (Lao PDR). The results indicate that the increase in international tourist arrivals and improving domestic and international flights have had a strong positive impact on international tourist expenditure in Lao PDR. In addition, the growth of hotel and service availability, and promotion of tourist activities in Luang Prabang and the capital city of Vientiane have had a positive impact on tourist expenditure. The promotion of travel for senior citizens, advertising on social media (such as Facebook or Twitter) and visits to Luang Prabang (a World Heritage site) have had a positive impact on overall international tourist expenditure.*

**Keywords:** international tourists, expenditures, expenditure survey

**JEL Classification:** D12, F20, F63

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## 1. Introduction

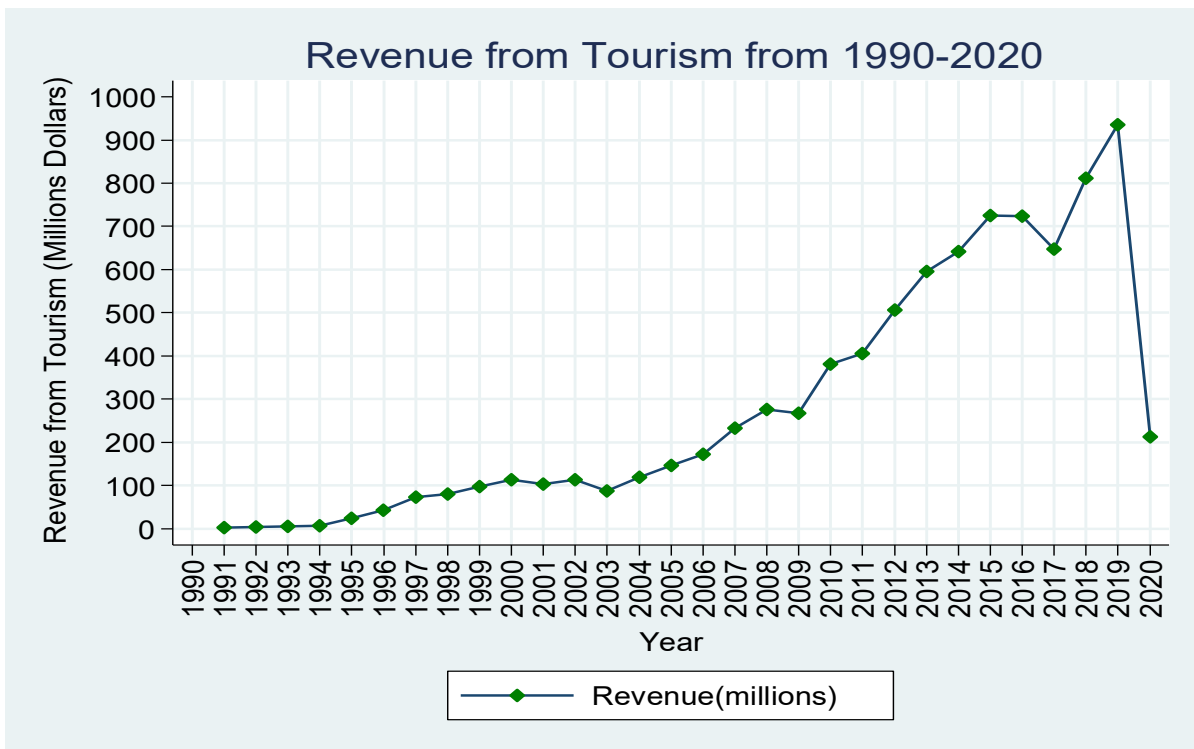
In less developed countries, the tourism sector plays an important role in government revenue. The key component for the tourism sector is the revenue generation in terms of foreign exchange earnings through international tourism expenditure and employment creation in the domestic economy. International tourist expenditure on hotels and restaurants, excursions, and visits to historical sites have a strong impact on the domestic economy in terms of small and medium-sized enterprises (SME) activities and creating employment. The Lao People's Democratic Republic (Lao PDR) government promotes the tourism sector for economic growth and poverty reduction to create more inclusive and sustainable development.

In Lao PDR, tourism revenues play crucial roles in government revenue and employment, thereby affecting the macroeconomic stability of the country. During the novel coronavirus disease (COVID-19) pandemic, tourism revenues declined significantly, and this decline had a significant impact on fiscal sustainability, exchange rates, and inflation in the domestic economy (Figure 1).

The average length per international tourist traveling to Lao PDR was 5 days, which is the lowest amongst all Association of Southeast Asian (ASEAN) nations. The average expenditure per international tourist travelling to Lao PDR is also the lowest amongst all ASEAN nations (Figures 1–3). In fact, Lao PDR tourism sector faces challenges. First, Lao PDR lacks a diversified source of tourists compared to the neighbouring countries such as Thailand and Malaysia, and the average expenditure per person travelling to Lao PDR was the lowest amongst all ASEAN nations. Domestic challenges include poor transportation infrastructure, poor human resources, and ineffective marketing strategies.

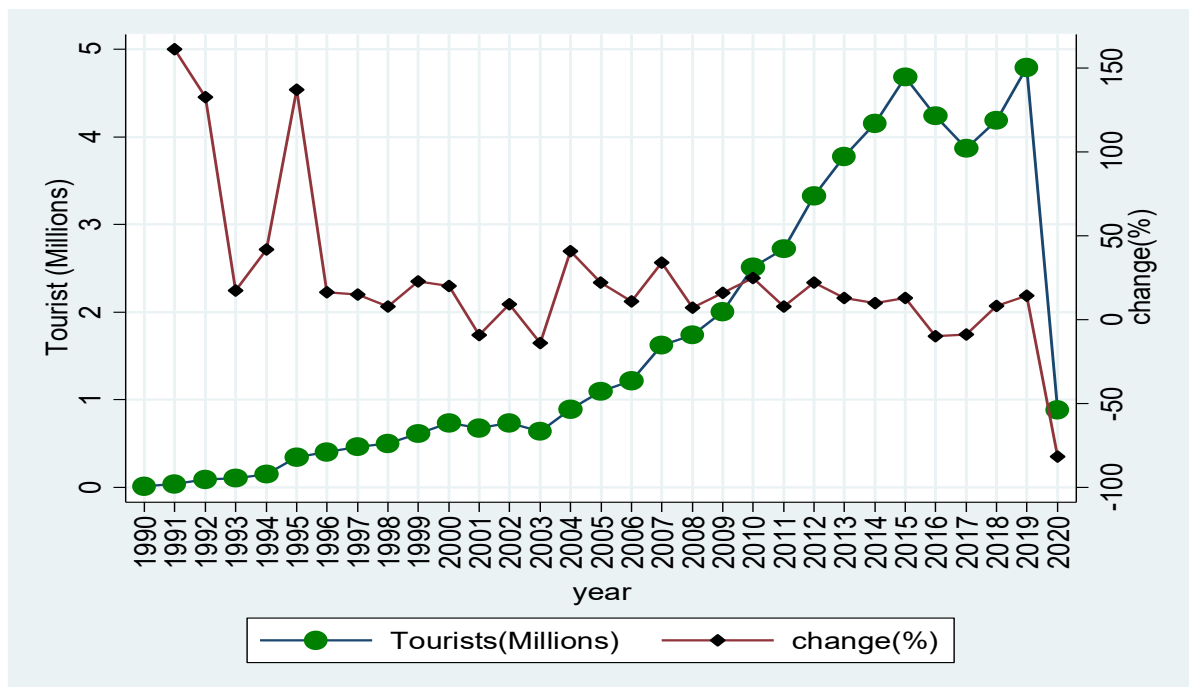
Several studies have highlighted the factors influencing tourist expenditure in developed and developing countries, for example, Marrocu et al. (2015) for Italy, Ferrer-Rosell, Coenders, and Martínez-Garcia (2015) for Spain, and Dayour, Adongo, and Taale (2016) for Ghana. However, according to our best knowledge, studies have yet to be made on the determinants of tourist expenditure in Lao PDR. Therefore, the main objective of this study is to examine the factors that affect tourist expenditure in Lao PDR. We used the quantile regression framework to study the factors influencing international tourist expenditure. The study used the survey data from the 2019 survey for international tourist arrivals from the Ministry of Information, Culture and Tourism (MICT), Lao PDR. The data contains 729 samples, and the international tourist is the targeted group.

**Figure 1. Tourism Revenue from 1990 to 2020**



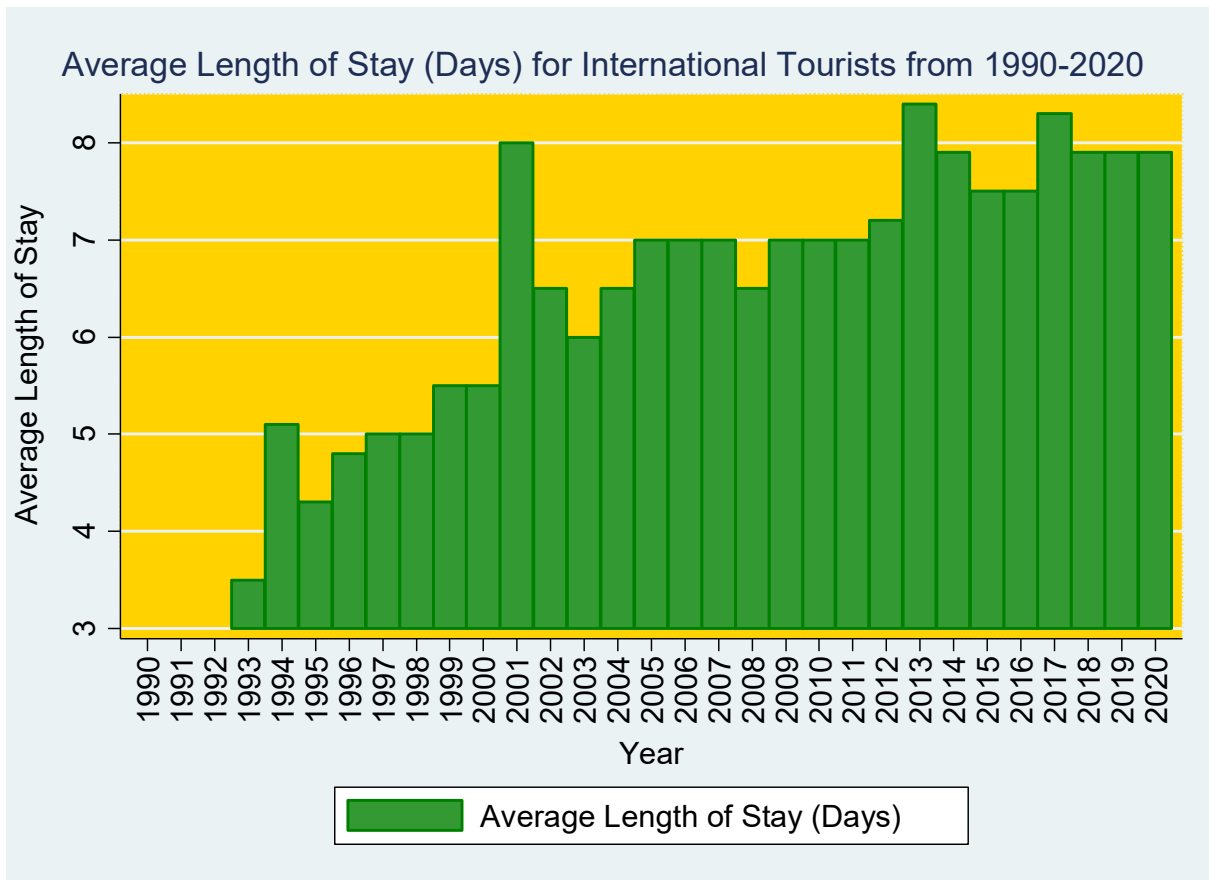
Source: Ministry of Information, Culture and Tourism (MICT) (2022).

**Figure 2. Number of Tourist Arrivals and Percentage Change from 1990–2020**



Source: Ministry of Information, Culture and Tourism (MICT) (2022).

**Figure 3. Average Length of Stay (days) for International Tourists, 1990–2020**



Source: Ministry of Information, Culture and Tourism (MICT) (2022).

## 2. Literature Review

There are many studies on tourist expenditure in other countries, and most of the studies use multiple and quantile regression (Tables 1 and 2). However, there are only few studies on the tourism sector in the case of Lao PDR such as Harrison and Schipani (2007) that discussed Lao PDR's tourism and its impact on poverty alleviation. A few other studies such as Schipani (2011) analysed the perception of the impact of tourism amongst rural communities. Pritchard and Lee (2011) evaluated the tourist attractions in Luang Prabang. Moreover, Kyophilavong et al. (2018) investigated the relationship between the tourism sector and economic growth, and Kyophilavong et al. (2019) discuss whether tourist arrivals are stable with a long run impact (stationary) in Lao PDR. This is the first study to examine the determinants of tourist expenditure in Lao PDR.

**Table 1. Studies on Tourist Expenditure**

<b>No</b>	<b>Author</b>	<b>Country</b>	<b>Data</b>	<b>Methodology</b>	<b>Finding(s)</b>
1	Dayour et al. (2016)	Ghana	2014	Multiple regression	Nationality, trip motivation, travel experience (repeat visit), length of stay
2	Kozak (2001)	British tourists visiting Turkey	1999	Multiple regression	Length of holiday, type of holiday, number of people, income
3	Kastenholz (2005)	Portugal	1998-1999	Multiple regression	Duration of stay, nationality, age, information.
4	Thrane (2014)	Norway	2008	Multiple regression	Travel party size, type of destination, household income, purpose of trip, number of persons in expenditure group
5	Thrane (2016)	Norwegians' foreign and domestic trips	2009-2012	Multiple regression	Length of stay, purpose of trip, transportation, frequency of vacation trips, age, income,
6	Agarwal and Yochum (1999)	African-Americans	1997	Multiple regression	Party expenditures, income, length of stay, party size, and number of children
7	Anderson (2010)	Spain	2009	Multiple regression	Nationality, household income, repetition on level
8	Kim and Qu (2002)	Republic of Korea	1976 to 1996	Multiple regression	Working hours, family size, and Education

Source: The authors.

**Table 2. Studies on Tourist Expenditure Using Quantile Regression**

No	Author	Country	Data	Methodology	Finding(s)
1	Marrocu et al. (2015)	Sardinia, Italy	2012	Quantile regression	Income, foreign nationality, party size, stay length, accommodation, transport cost, holiday motivation
2	Park et al. (2020)	Republic of Korea	2015	Quantile regression	Occupation, education, countries originating, trip purposes, friends traveling, information sources, and consumer price index differential
3	Marrocu et al. (2015)	Sardinia, Italy	2012	Quantile regression	Income, foreign nationality, party size, stay length, accommodation, transport cost, holiday motivation
4	Park et al. (2020)	Republic of Korea	2015	Quantile regression	Occupation, education, countries originating, trip purposes, friends traveling, information sources, and consumer price index differential
5	Sharma et al. (2019)	United Kingdom	2017	Quantile regression	Gender, age, tourist trip purposes, length of stay, nationality, visa required, tourist activities, common language, former colony, common currency, felt welcome, would recommend, log GDP per capita, weighted distance
6	Pérez-Rodríguez and Ledesma-Rodríguez (2021)	Canary Islands	2009-2012	Quantile regression	Length of stay, travel party size, income, tour operator, age, lodging, price.
7	Lew and Ng (2012)	Mainland Chinese visitors to Hong Kong	1999	Quantile regression	Length of stay, number of visitors, age, education, blue collar, junior white collar, proprietor, professional.
8	Santos and Vieira (2012)	Portugal	2010	Ordinary least squares, quantile regression, and instrumental variable techniques	Portuguese, education, travelling groups, accommodation, number of islands visited.

Source: The authors.

### 3. Data and Method

#### 3.1. Data

This study examines the determinant factors of tourist expenditure in Lao PDR. Based on the Statistical Report 2019, the primary source of tourist arrivals in Lao PDR is from ASEAN countries, which covered 66.8% of total tourist arrivals in 2019. This may lead to bias sample for this study due to the descriptive data from the international tourist arrivals survey (2019) for

this study showing that Europe covers the highest ratio of tourist arrivals followed by the United States, East Asia, and ASEAN.

### 3.2. Method

This study employed the quantile regression framework to address the heterogeneity in tourism expenditure in terms of the types of tourism in Lao PDR. The paper followed the classification of the determinants of tourist expenditure proposed by Wang et al. (2006) in terms of identifying four distinct groups of explanatory variables:

$$Tourist\ Expenditure_i = f(EC_i, SD_i, TR_i, PG_i) \quad (1)$$

Where,  $EC_i$  = Constraints

$SD_i$  = Socio-demographic

$TR_i$  = Trip-related

$PG_i$  = Psychographic

In addition, we also used the quantile regression model (QR) to analyse the factors that affect international tourist expenditure. Using QR) model, we can qualify and quantify the impact of the different explanatory variables at the different quantiles in the distribution of a dependent variable (Koenker and Hallock, 2001; Okada and Samreth, 2012). The QR estimation is more robust than the ordinary least squares (OLS) estimation with the presence of outliers and when the distribution of the dependent variable is a highly non-normal pattern.

**Table 3. Definition of Variables in the Empirical Analysis**

Variables	Definition	Unit	Expected Sign
<b>Socioeconomic characteristics</b>			
<i>Gender</i>			
Male	Male	Male=1, 0=otherwise	Positive
Age		Year	
<i>Nationality</i>			
Euro	Europe	yes=1, 0=otherwise	Positive
East	East Asia	yes=1, 0=otherwise	Positive
Sout	Southeast Asia	yes=1, 0=otherwise	Positive

<b>Variables</b>	<b>Definition</b>	<b>Unit</b>	<b>Expected Sign</b>
Amer <i>Occupation</i>	America	yes=1, 0=otherwise	Positive
Gove	Government	yes=1, 0=otherwise	Positive
Privat	Private company	yes=1, 0=otherwise	Positive
Selfem	Self-employed	yes=1, 0=otherwise	Positive
<b>Trip-related</b> <i>Travel companion</i>			
Spouse	Travel with spouse/partner	yes=1, 0=otherwise	Positive
<i>Transportation to the country</i>			
Air	Travel by Air	yes=1, 0=otherwise	Positive
<i>Travel arrangement by</i>			
Yself	Yourself	yes=1, 0=otherwise	Positive
<i>Countries visited on the trip</i>			
Thai	Thailand	yes=1, 0=otherwise	Positive
Camb	Cambodia or China or Viet Nam	yes=1, 0= otherwise	Positive
Othcou	Other Southeast Asian countries	yes=1, 0= otherwise	Positive
<i>Source of information</i>			
Website	Website	yes=1, 0=otherwise	?
Factw	Facebook or Twitter	yes=1, 0=otherwise	?
<i>Accommodation</i>			
Hotel	Hotel	yes=1, 0=otherwise	Positive
<i>Domestic transportation used</i>			
Aeroplane	Aeroplane	yes=1, 0=otherwise	Positive
<i>Duration</i>			
Length	Length of stay	No. of days	?
<b>Psychographic characteristics</b> <i>City visited</i>			
Vien	Vientiane Capital	yes=1, 0=otherwise	Positive



<b>Variables</b>	<b>Definition</b>	<b>Unit</b>	<b>Expected Sign</b>
Luang	Luang Prabang	yes=1, 0=otherwise	Positive
Cham	Champasak	yes=1, 0=otherwise	Positive
Vang	Vang Vieng	yes=1, 0=otherwise	Positive
<i>Interested place to visit</i>			
Nature	Nature/ecotourism	yes=1, 0=otherwise	Positive
Histor	Historical tourism	yes=1, 0=otherwise	Positive

Source: The authors.

## 4. Empirical Results

### 4.1. Data Description

Table 4 shows the descriptive data of socioeconomic and psychographic characteristics on the factors determining tourist expenditure in Lao PDR. The data show that most international tourists are female (51.6%), with the ages ranging from 20–29 years (38.7%), and most of them are from Europe (65.8%) followed by the United States (13.58%). Furthermore, the tourists main occupation is a private company which covers (39.8%), student and self-employed (11.4%), retired (10.9%), and government sectors (7.3%).

Moreover, based on the 2019 psychographic survey of international tourist arrivals, the most popular places for tourists to visit were Luang Prabang (34.9%), Vientiane, the capital (26.8%), and Vientiane province (15.2%) with the highest ratios compared to other regions where the sites relate to natural tourism (35.7%). These are the most interesting places for international arrivals followed by historical tourism (19.4%), and temples and monuments (12.1%). In addition, food (10.7%) and new destinations (8.5%) also attracted attention.

Based on trip-related statistics in Table 3, the study highlights that tourists travel to Lao PDR with their partner or spouse (41.8%) or a friend (26.2%) by the same entry and exit check point (42.5%). Most of their trips are arranged by themselves (74.7%), and they travel to the country by aeroplane (65.4%), with the trip including other neighbouring countries such as Thailand (36.0%), Cambodia, China, and/or Viet Nam (30.4%). At the same time, direct trips to Lao PDR covers only 16.2%. Moreover, the survey also denotes that websites are the number one source of information for tourists.

**Table 4. Descriptive Data**

<b>Socio-demographic Characteristics</b>	<b>Number</b>	<b>%</b>	<b>Psychographic Characteristics</b>	<b>Number</b>	<b>%</b>
Gender			City/region visited		
Male	353	48.42	Vientiane Capital	457	26.80
Female	376	51.58	Luang Prabang	595	34.90
Age			Xieng Khouang	35	2.05
19 or less	21	2.88	Champasak	75	4.40
20–29	282	38.68	Khammouane	62	3.64
30–39	158	21.67	Savannakhet	38	2.23
40–49	76	10.43	Bokeo	32	1.88
50–59	84	11.52	Bolikhamxay	13	0.76
60 and over	108	14.81	Luang Namtha	29	1.70
Nationality			Xayabouly	8	0.47
European	480	65.84	Attapeu	7	0.41
American	99	13.58	Salavanh	10	0.59
East Asian	35	4.80	Huaphanh	5	0.29
ASEAN	11	1.51	Oudomxay	39	2.29
Other	104	14.27	Sekong	11	0.65
Occupation			Phongsali	20	1.17
Government	53	7.27	Xaisomboun	9	0.53
Private company	290	39.78	Vientiane Province	260	15.25
Student	83	11.39	Interested in places to visit		
Housewife	20	2.74	Nature	1027	35.75
Retired	80	10.97	Historical tourism	558	19.42
Self-employed	83	11.39	Community-based tourism	54	1.88
Other	120	16.46	Ethnic	131	4.56
			Temples and monuments	348	12.11

<b>Socio-demographic Characteristics</b>	<b>Number</b>	<b>%</b>	<b>Psychographic Characteristics</b>	<b>Number</b>	<b>%</b>
			Cruising	66	2.30
			Foods	309	10.76
			Shopping	108	3.76
			New destination	245	8.53
			Other	27	0.94

### **Trip-related**

<b>Check point</b>			<b>Source of information</b>		
Entry and exit at the same point	310	42.52	Website	439	41.61
Entry in Vientiane	248	34.02	Facebook or Twitter	44	4.17
Entry in Luang Prabang	290	39.78	Book or magazine	151	14.31
Travel companion			TV or radio	12	1.14
Alone	163	22.36	Friend	225	21.33
Spouse/partner	305	41.84	Travel agent	128	12.13
Child	21	2.88	Other	56	5.31
Colleague	7	0.96	Accommodation		
Friend	191	26.20	Hotel	404	45.14
Other	42	5.76	Guesthouse	354	39.55
Transportation to the country			Home stay	68	7.60
Travel by air	477	65.43	Private house	18	2.01
Travel by land	252	34.57	Other	51	5.70
Travel arrangement by			Domestic transportation used		

<b>Trip-related</b>					
Yourselves	545	74.76	Aeroplane	252	13.76
Travel agent	167	22.91	Bus	439	23.96
Other	17	2.33	Boat	256	13.97
Countries visited on the trip			Tuk-tuk	383	20.91
Only Lao PDR	187	16.42	Taxi	176	9.61
Thailand	410	36.00	Car	139	7.59
Cambodia, China, or Viet Nam	346	30.38	Bicycle	113	6.17
Other Southeast Asian countries	187	16.42	Other	74	4.04
None of above	9	0.79	Duration (average per person) (days)		
			Length of stay	11	
			Expenditure on (average per day) (USD)		
			Total expenditure	91	
			Transportation	54	
			Accommodation	15	
			Food and beverage	11	
			Other	11	

Source: The authors.

Domestic accommodation and transportation are considered one of the most important aspects of international tourist arrivals. Based on Table 4, hotels (45.14) and guesthouses (39.55) were the most used for accommodation, whilst domestic transport used was varied such as buses (23.96%), followed by tuk-tuk (20.91%), boat (13.97%), and aeroplane (13.76%). The average length of stay was 11 days and total expenditure per person was USD91.

#### 4.2. Results from Multiple Linear Regression Model

The results obtained by applying the empirical analysis are reported in Table 5. We divided the multiple regression base on nationality: European, East Asian, and American. The total expenditure is regressed as the dependent variable and is considered as total expenses per day. Our finding indicates that for European tourists, age and occupation as self-employed significantly increase total expenditure by 0.15% and 0.57%, respectively.

Trip-related activities show European tourists who travel with a spouse or parent arrange their own trips, and the choice of hotel accommodation also significantly increases total expenditure by 0.52%, 0.65%, and 0.60%, respectively. In contrast, the length of stay negatively impacts total expenditure. For American tourists, for those who arrange travel themselves positively impacts total expenditure by 1.58%.

Furthermore, for the psychographic characteristics, a 0.68% significant increase in total expenditure of European tourists for visiting Vientiane capital. For American tourists, a positive effect on total expenditure by 1.6% is found when visiting Luang Prabang, whilst visits to Vang Vieng significantly decreases total expenditure by 1.5%.

**Table 5. Results of Multiple Regression Model: Total Expenditure as Dependent Variable**

Nationality	European	East Asian	American
<b>Socio-demographic characteristics</b>			
Gender			
Male	0.302	-1.619	0.322
Age			
Age	0.152*	0.372	0.213
Occupation			
Government	0.033	-0.861	0.136
Private company	0.295	-0.567	0.89
Self-employed	0.573*	1.053	0.334
<b>Trip-related</b>			
Check point			
Entry and exit at the same point	0.318	0.313	0.171
Entry in Vientiane	-0.182	1.827	0.784

<b>Nationality</b>	<b>European</b>	<b>East Asian</b>	<b>American</b>
Entry in Luang Prabang	-0.091	3.013	0.326
Travel companion			
Spouse/partner	0.523**	-0.581	0.33
Transportation to the country			
Travel by air	0.293	1.651	0.216
Travel arrangement by			
Yourself	0.650**	1.671	1.583**
Countries visited on the trip			
Thailand	-0.024	-1.346	-0.114
Cambodia, China, or Viet Nam	0.068	-1.694	-0.47
Other Southeast Asian countries	0.171	0.605	-0.36
Source of information			
Websites	0.049	-0.124	-0.097
Facebook or Twitter	0.07	2.441	0.548
Accommodation			
Hotel	0.600**	1.597	0.491
Domestic transportation used			
Aeroplane	0.235	0.332	0.145
Duration			
Length of stay	-0.021*	-0.038	0.015
<b>Psychographic characteristics</b>			
City visited			
Vientiane Capital	0.686***	-0.724	0.644
Luang Prabang	0.067	-0.131	1.648**
Champasak	-0.382	-0.27	-0.988
Vang Vieng	-0.372	-0.846	-1.559**
Interested in places to visit			
Nature	0.248	-0.731	-0.164
Historical tourism	-0.353	-1.099	-0.75
Constant	1.425**	0.787	0.011
Number of observations	480	35	99
F-statistics	3.58	1.05	1.93
Prob > F	0.000	0.502	0.016
R-squared	0.1646	0.7439	0.3977

Notes: \*\*\*, \*\* and \* denote significant at 1%, 5%, and 10% level, respectively.

Source: The authors.

### 4.3. Results from Quantile Regression Model

To determine factors that affect the international tourist expenditure, we also applied the quantile regression model, and the results are reported in Table 6 for European arrivals. We use the following percentiles,  $q = 0.10, 0.25, 0.50, 0.75, \text{ and } 0.90$ ; the results show that the age of European tourists significantly affects total expenditure on high quantile ( $q > 0.5$ ), and occupation as self-employed in quantile 0.95.

In the case of trip-related, the quantile regression model indicates that entry and exit at the same checkpoint, entry in Luang Prabang province, travel to Lao PDR by air, trip including Thailand, information from the website, use of hotel for accommodation, domestic transport by aeroplane is found to be statistically significant across different high quantiles ( $q > 0.5$ ). For the low quantile ( $q = 0.25$ ), only spouse or partner, travel arrangement by self, hotel, and length of stay are found to be statistically significant, whilst spouse or partner is also significant at the median quantile ( $q=0.5$ ). For psychographic characteristics, only the city visited significantly impacts total expenditure in different quantiles.

**Table 6. Results of Quantile Regression Model for Europeans: Total Expenditure as Dependent Variable**

	q = 0.25	q = 0.50	q = 0.75	q = 0.95
<b>Socioeconomic characteristics</b>				
Gender				
Male	0.383	0.152	-0.014	-0.036
Age				
Age	-0.04	0.149	0.182**	0.325***
Occupation				
Government	-0.522	-0.175	-0.035	1.108
Private company	0.129	0.191	0.122	0.433***
Self-employed	0.045	0.234	0.069	0.244
<b>Trip-related</b>				
Check point				
Entry and exit at the same point	0.448	0.434	0.238	0.274**
Entry point in Vientiane	-0.507	-0.214	-0.296	-0.034
Entry point in Luang Prabang	-0.258	-0.072	-0.125	-0.335**
Travel companion				
Spouse/partner	1.518***	0.531*	0.124	0.087
Transportation to the country				
Travel by air	0.421	0.225	0.286*	-0.014
Travel arrangement by				
Yourself	0.867**	0.428	0.013	-0.1
Countries visited on the trip				
Thailand	0.049	-0.273	-0.286*	-0.222*
Cambodia, China, or Viet Nam	0.216	-0.035	0.038	-0.026
Other Southeast Asian countries	0.25	-0.086	-0.147	-0.077
Source of information				
Website	0.248	0.016	0.101	0.391**
Facebook or Twitter	-0.716	-0.201	0.513	0.13
Accommodation				
Hotel	0.752**	0.387	0.448***	0.393**

Domestic transportation used				
Aeroplane	0.499	0.206	-0.02	0.436**
Duration				
Length of stay	-0.09***	-0.02	0.009	0.017
<b>Psychographic characteristics</b>				
City visited				
Vientiane Capital	1.288***	0.795**	0.281	0.208
Luang Prabang	-0.568	0.429	0.452**	0.015
Champasak	-0.899*	-0.162	0.043	-0.079
Vang Vieng	-0.036	-0.091	-0.266*	-0.206
Interested in places to visit				
Nature	-0.425	-0.152	0.035	-0.028
Historical tourism	0.407	0.207	0.18	-0.026
Constant	0.539	2.15***	3.452***	3.972***

Notes: \*\*\*, \*\* and \* denote significant at 1%, 5%, and 10% level, respectively.

Source: The authors.

In addition, we also apply quantile regression to the estimation of American tourist arrivals (Table 7). Our results found that only occupations related to government sectors negatively impact total expenditure at a high quantile ( $q = 0.95$ ). For trip-related, only travel arrangements by yourself ( $q = 0.5$ ) and the trip including southeast Asian countries are found to be significant ( $q = 0.95$ ). When psychographic characteristics are considered, cities visited, such as Luang Prabang and Vang Vieng, are essential across different quantiles. Moreover, natural tourism is significant in total American expenditure at a high quantile ( $q = 0.95$ ).

**Table 7. Results of Quantile Regression Estimation for Americans: Total Expenditure as Dependent Variable**

	q = 0.25	q = 0.50	q = 0.75	q = 0.95
<b>Socioeconomic characteristics</b>				
Gender				
Male	0.512	0.222	-0.03	0.425
Age				
Age	0.148	0.163	0.413	0.255
Occupation				
Government	-0.205	0.36	-0.548	-1.617**
Private company	1.059	1.274	0.8	0.763
Self-employed	0.886	0.73	0.565	-0.754
<b>Trip-related</b>				
Check point				
Entry and exit at the same point	-0.18	0.357	0.112	0.2



Entry point in Vientiane	1.599	0.73	0.563	0.799
Entry point in Luang Prabang	0.248	0.227	0.361	0.759
Travel companion				
Spouse/partner	-0.092	0.342	-0.278	-0.091
Transportation to the country				
Travel by air	0.301	0.223	0.059	0.319
Travel arrangement by				
Yourself	2.868	1.799**	0.754	-0.52
Countries visited on the trip				
Thailand	-0.214	-0.042	0.324	0.33
Cambodia, China, or Viet Nam	0.004	-0.252	-0.356	-0.634
Other Southeast Asian countries	-0.217	-0.081	-0.77	-1.639***
Source of information				
Website	-0.485	-0.098	0.264	0.818
Facebook or Twitter	-0.426	-0.304	-0.306	-0.147
Accommodation				
Hotel	0.697	0.681	0.341	-0.031
Domestic transportation used				
Aeroplane	0.325	-0.071	0.521	0.453
Duration				
Length of stay	0.000	0.05	0.053	0.076
<b>Psychographic characteristics</b>				
City visited				
Vientiane Capital	0.836	0.202	1.111	0.222
Luang Prabang	2.441**	2.128	1.795*	1.053
Champasak	-1.179	-2.169	-0.469	-0.662
Vang Vieng	-2.121**	-1.053	-1.471	-1.762**
Interested in places to visit				
Nature	-0.869	-1.17	-0.432	-1.811**
Historical tourism	-0.046	-0.759	-0.25	0.278
Constant	-2.531	-0.114	0.239	4.101*

Notes: \*\*\*, \*\* and \* denote significant at 1%, 5%, and 10% level, respectively.

Source: The authors.

## 5. Conclusion and Policy Recommendations

This paper investigates the key factors affecting the international tourist expenditure in Lao PDR. The quantile regression and multiple regression models were employed in our analysis. We used the 2019 survey for international visitor arrivals data from the information gathered from the Ministry of Information, Culture, and Tourism.

The results indicate that the key variables of age, occupation (private company and self-employed), companion (spouse/partner), arrangement of tour by themselves, stay at the hotel,

and visiting Vientiane capital are essential variables for increasing the total tourist expenditures. In addition, increasing the flights (international and domestic), increasing the number of hotels and services, and promoting tourist activities in Vientiane capital and Luang Prabang are the key reasons for increasing the tourist spending. In addition, promoting tourism for older tourists, using social media (Facebook or Twitter) for advertising and promoting visits to Luang Prabang (World Heritage) could increase tourist spending.

The tourism sector and recovery in the tourism activities are critical for the recovery of Lao PDR. Currently, there are progressive signs of improvement in tourism arrivals and tourism activities in the domestic economy. However, the results indicate that tourism expenditure is critically dependent on the type of tourism that is attracted to Lao PDR. Lao PDR needs high quality tourists that will stay longer and have greater spending power in the domestic economy. There are several key policy dimensions under consideration:

1. There is a need for more direct flights to Vientiane, the capital. More direct flights will increase the flow of tourism to the domestic economy.
2. There is a need to create more linkages in the domestic economy in terms of tourism hub activities. The current fast train<sup>1</sup> is a good example of increasing the linkages to other cities and towns in Lao PDR.
3. The quality of service and service linkages must be improved in Lao PDR. Skills development and training of workers are critical to provide quality service to the tourism sector.

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<sup>1</sup> The Lao PDR–China Railway (LCR) is a joint venture between Lao PDR and China, the railway was officially opened on 3 December 2021. This railway plays an important role to promote tourism development in Lao PDR, especially in the north region (Kuik and Rosli, 2023).

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