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DEMAND OF THAI TOURISTS TO LAO PDR: AN ARDL APPROACH

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ABSTRACT

This paper investigates the demand of Thai tourists visit to Lao PDR. Using quarterly data from 2000 to 2010, the study finds that the demand of Thai tourists to Lao PDR has a positive relationship with Thailand's income factor. However, the political crisis has no significant impact on the demand of Thai tourists visit to Lao PDR. Hence, we suggest that Lao PDR should promote her tourism packages to higher income group and expand the cooperation with Thailand's tourism organizations for the development of Lao PDR's tourism industry.

Keywords: Thai Tourists, Tourism Demand, Lao PDR Tourism

INTRODUCTION

Tourism is an important sector in the Lao PDR's socioeconomic development plan for 2006-2010 (Asian Development Bank, 2008). The tourism industry is linked to many industries in Lao PDR and has significant contribution to economic activity (World Bank, 2009). Lao National Tourism Administration (2011) reported that 2.51 million tourists visited Lao PDR in 2010 and the revenue from international tourists was about 381 million USD. World Tourism Council (2011) also stated that tourism contributed 13.3 percent to the national Gross Domestic Product (GDP) while tourism exports shared 15 percent of the total exports (see Table-1).

For centuries, Thailand and Lao PDR have been linked geographically, economically and culturally. Thailand and Lao PDR share a very long border of 1,810 kilometers. In terms of tourism, Thai tourists represent a major market share in the Lao PDR's tourism industry and the

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revenue contributor to Laotian (see Table 2). The number of Thai tourists to Lao PDR increased from 0.4 million in 2000 to 1.5 million in 2010 and generated more than 381 million USD to the Lao PDR's tourism industry (Lao National Tourism Administration, 2011). Hence, it is important to understand the demand of Thai tourists to the Lao PDR's tourism industry in order to develop the industry effectively.

Table-1. Tourism as percentage of GDP, exports and employment in Lao PDR

Item	2006	2007	2008	2009	2010
Tourism GDP (% of National GDP)	12.3	13.0	13.7	13.2	13.3
Tourism Exports (% of total exports)	13.5	14.7	16.3	16.8	15.0
Tourism Jobs (% of total employment)	10.7	11.3	11.9	11.5	11.6

Source: World Tourism Council (2011)

Table-2. Top 5 source countries of international tourist arrivals in Lao PDR (2010)

Rank	Country	Number	Share (%)
1	Thailand	1,517,064	60
2	Vietnam	431,011	17
3	USA	49,782	2
4	France	44,844	2
5	UK	27,272	1

Source: Lao National Administration (2011)

Many previous studies have examined the tourism demand in various countries but none have been done in Lao PDR except Phakdisoth and Kim, (2007). However, Phakdisoth and Kim, (2007) looked at the aggregate data instead of Thai tourists only. This paper would like to fill the gap to explore the demand of Thai tourists to Lao PDR both in the short and long runs.

The next section of the paper reviews the relevant literature; section 3 describes the data and methodology, section 4 presents the empirical results and section 5 concludes.

LITERATURE REVIEW

Tourism demand model and estimation rely heavily on secondary data and can be divided broadly into two categories: non-causal time series models and causal econometric approaches (Chang et al. 2010). Since 1980s, there are many literatures on tourism demand models. In particular, the ordinary least squares (OLS) method was widely used in estimation. However, OLS usually suffered with violation of classical linear regression assumptions (Arsad and Johor, 2010). In addition, estimation by OLS that based on non-static data can lead to the serious problem of spurious regression. On the other hand, many studies in 1990s considered co-integration methodology. Narayan, (2002) found that tourism demand in Fiji is positively related to the income of tourists from major trading partners and the relative prices. Querfelli, (2008) and Choyakh, (2009) investigated tourism demand of European tourists in Tunisia. The results

showed that the income of tourists in the origin countries is the most significant factor in determining the number of nights spent in Tunisian hotels. On the other hand, tourism demand is negatively affected by prices in the competing destinations. Likewise, Halicioglu (2004) found that income is the most significant factor affecting tourist arrivals in Turkey. For Lao PDR tourism, Phakdisoth and Kim, (2007) found that income and relative price are the significant factors.

DATA AND METHODOLOGY

The study period is 2000 - 2010 with quarterly data. The data are collected from the Lao National Tourism Administration, the Office of National Economic and Social Development Board, Bank of Thailand and the Thai Tourism Department. Most tourism demand models are from consumer theory, which assumes that the optimum consumption level depends on the price of goods, consumer's income, the price of relative goods and other factors (Kadir and Karim, 2009). The Marshallian demand for tourism is as follows:

- The price factor includes tourist's living cost and travel cost to the host country. Witt and Martin (1987) explained the measurement of tourism price as the relative price index which is the consumer price index (CPI) adjusted by the real effective exchange rate (REER). The relative price index is then given by

$$PL_t = \frac{CPI_{Lt}}{CPI_{it}} REER_{Lt} \quad (1)$$

where CPI_{Lt} is the consumer price index of Lao PDR, CPI_{it} is the consumer price index of Thailand and $REER_L$ is the real effective exchange rate of Thailand on Lao PDR.

- The income factor is significant in determining leisure spending consumption. After covering the "primary" needs, the remaining income is usually dedicated to leisure. This factor seems to be suitably measured by the disposable income level, however, due to unavailability of data, GDP is used to proxy the income factor.

- The substitution price factor - tourism price of Vietnam is selected as the substitution tourism price for Thai tourists because Vietnam is the next desired destination in the Indo-China for outgoing Thai tourists. Tourism price of Vietnam is formulated as follows:

$$PV_t = \frac{CPI_{Vt}}{CPI_{it}} REER_{vt} \quad (2)$$

where CPI_{Vt} is the consumer price index of Vietnam and $REER_v$ is real effective exchange rate of Thailand in Vietnam.

- There are some non–economic factors that will affect tourism demand but they are impossible to quantify such as special events, terrorism, and political instability (Choyakh, 2009). For this reason, this study focuses on Thailand's political crisis in 2008-2010 to examine the effect of qualitative factors on tourism demand.

The model of Thai tourists demand to Lao PDR is expressed in a log-linear functional form as follows:

$$LNQDT_t = \beta_0 + \beta_1 LNPL_t + \beta_2 LNGDP_t + \beta_3 LNPV_t + \beta_4 DTP_t + \varepsilon_t \quad (3)$$

where,

$LNQDT_t$ = Natural log of number of Thai tourists to Lao PDR at time t

$LNPL_t$ = Natural log of the cost of living in the relative price index for a Thai tourist to Lao PDR at time t

$LNGDP_t$ = Natural log of the real GDP of Thailand in US dollars at time t

$LNPV_t$ = Natural log of the cost of living in relative price index for a Thai tourist to Vietnam at time t

DTP_t = Dummy variable, 1 if the observation is in the period of Thailand's political crisis (2008 - 2010), and 0 otherwise.

From equation (3), the expected signs for coefficients of explanatory variables are $\beta 2>0$ and $\beta 1, \beta 3, \beta 4< 0$.

The long-run relationship of the variables was tested by using the autoregressive distributed lag (ARDL) approach proposed by Pesaran et al. (2001). The ARDL model can be specified in an unrestricted error correction model (UECM):

$$\Delta LNQDT_t = \beta_0 + \beta_1 LNQDT_{t-1} + \beta_2 LNPL_{t-1} + \beta_3 LNGDP_{t-1} + \beta_4 LNPV_{t-1} + \sum_{i=1}^{P} \beta_5 \Delta LNQDT_{t-i} + \sum_{i=0}^{q} \beta_6 \Delta LNPL_{t-i} + \sum_{i=0}^{r} \beta_7 \Delta LNGDP_{t-i} + \sum_{i=0}^{s} \beta_8 \Delta LNPV_{t-i} + \beta_9 DTP + \varepsilon_t \quad (4)$$

The *F* test is used for testing the existence of a long–run relationship. When a long-run relationship exist, the *F* test indicates which variable should be normalized. The null hypothesis of no cointegration among variables is *Ho:* $\beta_1=\beta_2=\beta_3=\beta_4=0$ against the alternative hypothesis *Ha:* $\beta_1\neq\beta_2\neq\beta_3\neq\beta_4\neq 0$. Given the relatively small size of 44 observations in this study, the critical value used are reported by Narayan , (2005) in case III (unrestricted intercept intercept and no trend).

If the computed *F*-statistic is larger than the critical values, the null hypothesis can be rejected and this infers that the variables are cointegrated. If the variables are cointegrated, there is evidence of long–run relationship among the variables. Following Dusa (2007), the long–run model is written as follows:

$$LNQDT_t = \alpha_0 + \sum_{i=1}^{P} \alpha_1 LNQDT_{t-i} + \sum_{i=0}^{q} \alpha_2 LNPL_{t-i} + \sum_{i=0}^{r} \alpha_3 LNGDP_{t-i} + \sum_{i=0}^{s} \alpha_4 LNPV_{t-i} + \alpha_4 DTP + \varepsilon_t \quad (5)$$

The order of lags in the ARDL model is selected by Schwarz Baysian criterion (SBC). If the variables are cointegrated, we examine the Granger causality test based on vector error-correction model (VECM). Following Engle and Granger (1987), the short–run model is as follows:

$$\Delta LNQDT_t = \lambda_0 + \sum_{i=1}^{p} \lambda_1 \Delta LNQDT_{t-i} + \sum_{i=0}^{q} \lambda_2 \Delta LNPL_{t-i} + \sum_{i=0}^{r} \lambda_3 \Delta LNGDP_{t-i} + \sum_{i=0}^{s} \lambda_3 \Delta LNPV_{t-i} +$$

$$\lambda_6 \Delta DTP_t + \lambda_7 EC_{t-1} + \nu_t \quad (6)$$

where Δ denotes the first differences, ν is the disturbance term and EC_{t-1} is the lagged error correction term generated from the long-run relationship (equation 5).

$$EC_t = LNQDT - \alpha_0 - \sum_{i=1}^{P} \alpha_1 LNQDT_{t-i} - \sum_{i=0}^{q} \alpha_2 LNPL_{t-i} - \sum_{i=0}^{r} \alpha_3 LNGDP_{t-i} - \sum_{i=0}^{s} \alpha_4 LNPV_{t-i} - \alpha_5 DTP \quad (7)$$

The coefficients of the short–run equation are related to the short run dynamics of the model's convergence to equilibrium.

RESULTS

The KPSS unit root test shows that all variables are I(1). ARDL (1, 0, 2, 0) is the best model with *F*–statistics = 3.8065 inferring that there is a long–run relationship. The long–run coefficients are presented in Table-3.

Table-3. Long Run Coefficients

Dependent Variable:	Independent Variables				
LNQDT	*LNPL*	*LNGDP*	*LNPV*	*DTP*	*Constant*
ARDL(1,0,2)	-1.7031	5.7030*	0.5069	0.1061	-43.397*
	(-1.3875)	(2.7250)	0.4035)	(0.7248)	(-2.6772)

*Note: t-statistic is in the parentheses. The asterisk * denotes significance at the 1 percent level.*

We find that the demand of Thai tourism to Lao PDR is positively related to Thailand's income factor at a 1% significance level. However, the price factor, substitution price factor and Thailand's political crisis in the ARDL long run model are not statistically significant. The result of the short–run coefficients of the ARDL model is presented in Table-4.

Table-4. Short Run Coefficients

Independent Variables						
Constant	ΔLPL_t	$\Delta GDPt$	ΔGDP_{t-1}	ΔLPV_t	ΔDPT_t	EC_{t-1}
-35.5748	-1.3961	3.4035*	-2.9702*	0.4156	0.0870	-0.8198*
(-.0787)	(-1.3264)	(3.0585)	(-3.0384)	(1.2252)	(0.7184)	(-10.2330)
Diagnostic tests		R^2 = 0.8345	$\bar{R}^2$ = 0.7983	Reset = 0.4006	*Norm*= 3.7687	*DW*=1.536

*Note: t- statistics are in the parentheses. The asterisk * denotes significance at the 1 percent level.*

Table-4 shows that the demand of Thai tourists to Lao PDR deviates from the equilibrium to return to the long-run equilibrium, is approximately 81.98%. Moreover, in the short-run, Thailand's income factor has a significant positive effect on Thai tourists to Lao PDR. In contrast, price factor, substitution price factor and Thailand's political crisis have no effect on Thai tourists to Lao PDR. Hence, any short term instability may not shake the relationship in the long-run.

CONCLUSION AND POLICY RECOMMENDATIONS

The objective of the study is to investigate demand factors of Thai tourists to Lao PDR. The main findings of this study are as follows. First, the bounds testing approach for cointegration demonstrated that the number of Thai tourists to Lao PDR. Thailand's income, Lao PDR relative price index, Vietnam relative price index and Thailand's political crisis are cointegrated. Second, Thailand's income has a significant positive effect on Thai tourists to Lao PDR both in the short and long runs.

Consistent with the previous studies, income in the original countries offers a robust explanation for the tourism demand. It means that tourism product is a luxury good because the tourism demand increases more than proportionally as income level rises (Bull, 1991). In contrast, Phakdisoth and Kim (2007) found that the tourism product in Lao PDR is an inferior good because tourism demand to Lao PDR is inelastic to changes in income level.

Finally, the high income group of Thailand's tourists is an important factor to focus the tourism market promotion in Lao PDR. We suggest that Lao PDR should promote Lao tourism to higher income group and expand the cooperation with Thailand's tourism organizations for the development of Lao PDR's tourism industry.

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