

## Determinants of Demand for International Tourism in Sri Lanka: An Econometric Evaluation

P.M. BANDULA JAYATHILAKE

School of Management, Wuhan University of Technology, Wuhan,

Hubei, P. R. China

[bandulapmb@yahoo.com](mailto:bandulapmb@yahoo.com)

### *ABSTRACT*

International tourism has become a popular global leisure event and emerged as a major source of foreign exchange earnings for the developing countries. This study seeks to investigate the determinants of demand for international tourism in Sri Lanka within the framework of bounds test approach to cointegration. Data were gathered from formal sources of various publications of World Bank and Tourism Development Authority of Sri Lanka. Data analysis was performed using Unit root tests followed by bounds test to cointegration based on Autoregressive Distributed Lag. The results reveal that tourism price in the country, travelling cost, income and exchange rates, tourism prices at alternative destinations are significant determinants of the international tourism demand to the country in the long run. The implication of these results for policy makers is that a more attentions is required to pay for the economic factors associated with the international tourism in order to keep the tourism price in the country at a competitive level.

*Keywords:* Determinants of international tourism, demand for tourism, cointegration, Sri Lanka

## 1. INTRODUCTION

International tourism has been given a prominence place by many countries which recognized its positive impact on the social, culture, education, and economic segment in the economic development route and their international relations. In particular, it creates opportunities for employment in the service sectors associated with tourism such as transport, hospitality, entertainment, and health and business services. The World Tourism Organization (WTO) shows that international tourism has been rapidly increased in past few decades at impressive rate. 983 million of international tourist arrivals were recorded in 2011 by representing 4.6% growth in the year compared 940 million arrivals in 2010. This expansion is mainly attributed with higher growth rates of income in developed countries and newly industrialized countries and the substantial decrease in real transport costs between the countries (WTO, 2012).

Sri Lanka is a small island on the Indian Ocean with a land area of 65600 square kilometers and is home to a multi ethnic and multi religious community of around 20 million at present. The colonial rule influenced Sri Lanka into an exchange economy integrated into the international market at an early stage of its economic devolution. Location attributes, incomparable climate, ancient values in the country created extra features to attract more and more international tourists and the development of the tourism in the country. The country witnessed a strong upsurge in tourist attraction end of the civil war in 2009. Tourism which forms 0.6% of the total GDP of the country was one of the fastest growth sectors in the economy growing by 39.8% in 2010 over 2009. It recorded 23% impressive annual growth in international tourist arrivals in last three years (SLTDA, 2012).

The primary purpose of travel can be leisure, visiting friends and relatives, business, convention or meetings, health, education, religious or sports. Once a decision to travel has been made; a consumer may choose tourism at different destinations with varying degrees of substitution to consume tourism services. Individual must visit the place of supply and while they are purchase goods and services subject to availability.

The tourist derives utility for spending time in a particular destination. The utility stems from destination attributes such as an agreeable climate, beautiful sceneries and social culture features (Lim, 2002; Dritsakis, 2005). However, these decisions are predominated by the economic factors associated with the travel and tourism. In that sense, income, tourism price of the destinations and other economic factors mainly impact on the decision whether particular destination is selected or not (MuHoz, 2006; Lim, 2002). Therefore, taking the above factors into consideration, this study attempts to examine the economic factors which determine the demand for the international tourism in Sri Lanka. The findings of the study would be helpful to policy making bodies and people those who engage in the industry to get better understanding of the determinants of the demand for international tourism and make their actions more effectively and productively.

The rest of the paper is organized as follows: the next section reviews the theoretical and empirical literature on tourism. The methodological approach used in the study is outlined in third section. Fourth section is devoted for empirical results and discussion which leads to conclusion and policy implications which are included in the final section of the paper.

## **2. LITERATURE**

The demand for the tourism is a special form of demand since it relates with a bundle of complementary goods and services (Morley, 1992). The concept of tourism demand is originated from the classical definition of demand in the economics where demand is defined as the desire to possess a commodity or to make use of a service with the ability to purchase it. Empirical studies used a number of ways to measure the demand for the tourism. Kim (1988) divides the measures for tourism demand into four categories namely a door criterion, a pecuniary criterion, a time consume criterion and a distance travel criterion. The door criterion contains the measures such as number of tourist arrivals, number of tourist visits and tourist visit rates. The pecuniary criterion contains the financial measures such as tourist expenditure, and share of expenditure in income. The time consumed criterion uses the measures of tourist days and tourist night spend in the host destination.

Measures such as travel distance in miles or kilometers from origin to destination are incorporated to the distance travelled criterion. The doer and pecuniary criteria dominate the studies in international tourism demand (Kim, 1988). Accordingly, tourist arrivals and tourism expenditures have widely been used in the empirical studies in order to modeling and forecasting the tourism demand.

The demand for international tourism is a function of wide range of factors such as economic, political, attitudinal and social (Lim, 2002; Salleh et al. 2007; Salman, 2003). Since most of factors effecting to demand for tourism are either difficult to measure or unobservable, researchers have given special attention to economic factors in the previous studies. Mikulicz (1983) identified determinants for international tourism demand with three categories namely Market volume (population, income, leisure time, education, occupation ect), cost of travel (cost of tourist services, travel cost to destination ect) and utility image (tourist appeal, publicity, information, weather, ancestry ect).

The economic factors have been extensively used in the empirical investigation to modeling and forecasting are income, price of tourist good and services, cost of transportation and exchange rates. Among these factors, income and prices play significant roles in determining the tourism demand. Crouch (1994) shows that income is the most important predictor variable of international tourism demand. Song and Witt (2010) noted that in addition to price variable marketing expenditure, consumer taste, consumer expectations, habit persistence, origin population and one-off events have potential impact on tourism demand. As a result, lagged explanatory variables are often included to the demand models to capture the effect of tourism expectation, habits persistence, the word-of-mouth effect and supply constraints (Lim, 1997). Similarly, recent literature (Salleh et al. 2007; Chaitip and Chaiboonsri, 2009; Song et al. 2010) show that tourism price of the destination, substitute prices of alternative destinations, origin income and dummy variables to capture the effect of one-off events are significant predictors of tourism demand. Some studies have included dummy variables to capture the effect of various disturbances that might have influence the estimation parameters had they been ignored. Typically, political factors such as political unrest, terrorism and various travel restrictions are commonly cited in the previous studies.

### 3. METHODOLOGY

#### 3.1 Model Specification

The key objective of this study is to investigate the factors which have a significant influence on the determination of demand for international tourism in Sri Lanka. Empirical studies have employed various indicators to measure the international tourism demand to the host countries such as number of tourist arrivals, tourist expenditure, number of night staying the country etc. Many studies have used total tourist arrivals as a proxy for demand for tourism due to the difficulties in obtaining information on tourist expenditure and number of nights staying ([Witt and Witt, 1995](#); [Crouch, 1994](#); [Li, 2004](#)). Thus, this study as well uses number of tourist arrivals as a proxy for tourism demand, the dependent variable of the study.

The literature suggests that tourism price in the host country is a significant predictor of the international tourism demand ([Salleh et al. 2007](#); [Chaitip and Chaiboonsri, 2009](#)), therefore, tourism price in the host country and alternative destinations are considered as the predictors of the tourism demand in the present study. The ratio of Consumer Price Index (CPI) of visited destination relative to the CPI of country of origin is used as a proxy for the tourism price at visited destination. Similarly, tourism prices at alternative destination are proxy by relative CPI of alternative destination to the CPI of country of origin. Three alternative tourist destinations, namely India, Maldives and Thailand, were selected as the alternative destinations to the Sri Lankan market. The literature cited in the study shows that income of the tourists, travelling cost, exchange rate, word of mouth effect has a significant impact on tourism demand to the host country ([Salleh et al. 2007](#); [Chaitip and Chaiboonsri, 2009](#); [Song et al. 2010](#)). Those variables, therefore, were incorporated into the analysis as the predictors of the international tourism demand.

The income variable of the present study refers to the real per capita income (RPI) of the country of origin. The price of crude oil is used as the proxy for travelling cost since it is difficult to obtain real data on cost of travelling from country of origin to the destination. The exchange rate, the ratio of currency values between receiving country and the country of origin, is also incorporated as a predictor variable of the study. It is widely believed that knowledge of the destination is spread out as people talk about their holidays, experiences to the potential visitors. Hence, Word-of Mouth effect has a significant influence over tourism demand. Number of tourist arrival in the previous year is used as the proxy for word of mouth effect since it is difficult to measure in other ways. Dummy variables are used in the studies where one-shot events have significant impact on the dependent variables. It is evident that the critical stage of civil war which has been prevailed 30 years in Sri Lanka has made significant affect to reduce tourism demand to the country. Thus, a dummy variable was also used in the study to present the impact of the civil war on the demand for the international tourism.

### **3.2 Data and Data Analysis**

India, United Kingdom (UK), German, France, Maldives and Australia, from which higher tourist arrivals have been made in the previous years to the country, are selected as major markets of the study. The relevant data were obtained from the various publications of World Bank and Tourism Development Authority of Sri Lanka for the period spanning from 2002 to 2011.

The different methodologies have been applied to analyze the factors affecting the demand for international tourism. In early stage of tourism demand analysis, the most popular method of estimation was the ordinary least square (OLS), which has been used since 1960s. OLS is a static analysis method, with thus relies heavily on the assumption of classical Linear Regression Method. Because static regression tends to generate invalid or spurious results for the data contain unit roots and time series with non stationary property, dynamic analysis has been used in recent studies. The most popular and widely used dynamic technique in the recent studies is the cointegration method. This method is introduced by Engle and

Granger (1987) has proved to be a useful tool in avoiding spurious regression when working with non stationary time series data in the econometric modeling. The limitation of this method is that time series are required to be in same order to perform cointegration. However, the Ordinary Least Square based Autoregressive Distributed Lag (ARDL) approach to cointegration has become popular in recent studies since it can be applied the variables which are of mixed order of integration (Shrestha, 2006). This method also can be applied to small sample where to estimate the long run and short run components of the mode. Moreover, bounds test approach to cointegration based on ARDL is widely used in recent studies since it can be used in the situation where the time series are stationary at different levels. Therefore, bounds test approach to cointegration based on ARDL was employed in the present study.

Before performing the econometric analysis, all the data series obtained for the selected variables were tested for the stationarity using Augmented Dickey-Fuller (ADF) (1979.) and Phillip and Perron (PP) (1988) unit roots tests. Bounds test approach to cointegration is performed in the second step to identify the existence of the long run relationship between the variables. Finally, Autoregressive Distributed Lag (ARDL) method is employed to find the long run dynamics of the relationship between the study variables. EViews 5.0 is employed in the data analysis.

#### **4. RESULTS AND DISCUSSION**

Empirical literature shows that economic and financial time series data contain unit roots and non-stationary properties. In such a situation ordinary least square regression does not generate trustworthy results and leads to furious regression. Therefore, all the time series data used for the present study were tested for unit roots using Augmented Dickey Fuller (ADF) and Phillip and Perron (PP) unit root tests. The results are shown in Table 1 below. The test results show that all the variables are stationary at their level or first difference, I (0) or I (1).

Table 1 Result of Unit Root Tests

Country of Origin	India		UK		German		France		Maldives		Australia	
	ADF	PP	ADF	PP	ADF	PP	ADF	PP	ADF	PP	ADF	PP
Tourist Arrivals	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(1)	I(1)	I(1)	I(1)
TP in SL	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)
Income (GDP)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)
TP in India	-	-	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)
TP in Maldives	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	-	-	I(1)	I(1)
TP in Thailand	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)
Crude oil Price	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)
Exchange Rate	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)

Different procedures are used to perform the cointegration analysis. Engle-Granger (1987), Johansen (1998) maximum likelihood test and Johansen-Juselius (1990) have widely been used in the early stage of the cointegration analysis. The limitation of these methods is that time series are required to be in same order to perform cointegration. However, the Ordinary Least Square based ARDL approach to cointegration has become popular in recent studies since it can be applied the variables which are of mixed order of integration (Shrestha, 2006). This method can also be applied to small sample where to estimate the long run and short run components of the mode. Moreover, bounds test approach to cointegration based on ARDL is widely used in the recent studies since it can be used in the situation where the time series are stationary at different levels.

Tale 2 report the F statistics generated for each of ARDL model and critical values of Bound tests procedure developed by Pesaran (2001). The critical values are taken from Perseren et al (2001) case III , unrestricted intercept and no trend . F-statistics for all the market are higher than the upper critical value at 5% level. Therefore, cointegration relationships can be identified among the variables in the all models.

Table 2: F-statistics and Critical Values of Bounds Test

Country of Origin	F – statistics	Critical F- value at 5% level of significance	
		Lower	Upper
India	54.12*	2.22	3.39
UK	43.61*	2.14	3.30
France	31.22*	2.14	3.30
German	18.91*	2.14	3.30
Maldives	35.48*	2.22	3.39
Australia	14.32*	2.14	3.30

\* - Significant at 0.05 level.

Table 3 reproduced the results of long run relationship between international tourism demand from selected markets and their determinants based on the ARDL approach.

Table 3: Results for Long Run relationship (ARDL approach)

Country of origin	Con.	TP <sub>SL</sub>	Income	TP <sub>In</sub>	TP <sub>Mal</sub>	TP <sub>Thai</sub>	OP	ER	Dum
India	<b>17.32</b> (0.012)	- 1.21* (0.021)	0.69* (0.031)	-	2.01* (0.021)	0.41 (0.591)	0.63 (0.371)	-0.34 (0.018)	-0.04* (0.038)
UK	74.21 (0.004)	5.86 (0.12)	1.27* (0.031)	-2.31 (0.12)	3.08 (0.129)	4.358 (0.087)	-1.08* (0.013)	0.78 (0.112)	-0.18* (0.042)
German	65.74 (0.027)	2.9 (0.45)	1.97* (0.023)	0.79 (0.273)	4.17 (0.354)	1.56 (0.184)	-0.85* (0.043)	0.63 (0.381)	-0.71 (0.247)
France	29.94 (0.014)	3.47 (0.429)	2.15 (0.431)	4.32 (0.128)	4.66 (0.176)	0.214 (0.018)	1.44* (0.047)	2.12 (0.791)	-0.68* (0.046)
Maldives	19.04 (0.002)	-0.74* (0.043)	1.25* (0.031)	2.64* (0.047)		0.41 (0.612)	0.06 (0.057)	0.108* (0.029)	-0.19* (0.018)
Australia	2.63 (0.042)	-0.34 (0.078)	3.19 (0.771)	1.63* (0.018)	2.06 (0.741)	2.11 (0.358)	-0.48* (0.037)	-0.36 (0.186)	-0.09* (0.022)

\* - significant at 5%

Refer to the Table 3, tourism price in the destination (TPSL) is significant only in the markets of India and Maldives and indicates that tourism price in the host destination has a significant effect on the tourist arrivals from these two markets.

This result reveals that tourism price does not effect to tourist arrivals from the rich countries. Income proxy by real GDP per capita in the country of origin is a significant factor which determines the tourist arrivals from the entire selected destinations except France and Australia. There is evidence to accept that higher income in the country of origin has a positive impact of the tourist arrivals to the destination. India, Maldives and Thailand have been used as the alternative tourist destinations to Sri Lanka. Results in Table 3 show that India is a substitute destination for Maldives and Australian markets while Maldives is a substitute tourist destination to Indian market. Thailand is not a substitute destination to any of the selected market.

Oil price used for the traveling cost show that it has a significant impact on tourist arrivals from the market of UK, German and France and Australia. This result reveals that travelling cost is significant only for the markets which are located outside the region of host destination, the distance from origin to the destination. Exchange rate is not a significant factor influencing to tourist arrivals to the destination from selected countries except for Maldives. As expected the dummy variable show a negative impact on tourist arrivals from all market since the civil war made a significant influenced over the tourist industry of the country.

In sum up the results, the tourism price in the country has a significant effect on international tourist arrivals from the developing countries like India and Maldives. Thus, policy making bodies should closely monitor the existing system to ensure reliable pricing structure and keep it at competitive level in the all related services in the country. Such policies will help to stimulate tourist arrivals from the developing countries and to ensure credibility of tourism price in the country. The closer look should also be given to the alternative destinations like India and Maldives in order to keep tourism price in the country at competitive level with providing infrastructure requirments for the industry. Moreover, in order to devise effective tourism policies and strategies, attention should be paid to the particular measure of tourism demand of the interest and its corresponding economic determinants.

## 5. CONCLUSION

This paper examined the determinants of demand for international tourism to Sri Lanka from the key markets of India, UK, France, German and Maldives. The Bounds Test Approach to cointegration based on ARDL was employed in the empirical data analysis. The results show that tourism price in the country is more important to attract tourists from the developing countries where real GDP per capita is low compared to that of developed countries. Although the origin country's income, travelling cost and exchange rate have make a significant influence over tourist arrivals, those are out of the single country's control. Thus, more attention should be given to keep tourism price of the country at competitive level against to the alternative destinations while adapting policies and measures at fostering sustainable international tourism growth and development in the country. Although international tourism demand is determined by the wide range of factors scu as economic, social, political and altitudinal this study more focused on the economic factors in evaluating the determinant of demand for internal tourism. Thus, further studies should validate the findings of the present study by incorporating behavioral factors which are supposed to have a significant impact on the demand for the international tourism in the similar and different settings.

## REFERENCES

- Chaitip, P. & Chaiboonsri, C. (2009), "Forecasting with X-12 ARIMA and ARFIMA: international tourist arrivals to India., Annals of the University of Petrosani, Economics, vol. 9, no. 3, pp. 147-62.
- Crouch, G.I., (1994), "The study of international tourism demand: a survey of practice", Journal of Travel Research, vol. 32, pp. 42-54.
- Dickey, D.A. & Fuller, W.A. (1979), "Distributions of the estimators for autoregressive time series with a unit root", Journal of the American Statistical Association, vol. 74, pp. 427-31.

Dritsakis, N. (2005), "Tourism as a long run economic growth factor: an econometric investigation for Greece using causality analysis", *Tourism Economics*, vol.10, no. 3, pp. 305-16.

Engle, R.F. & Granger, C.W.J. (1987), "Cointegration and error correction: representation, estimation and testing", *Econometrica*, vol. 55, pp. 251-76.

Kim, S.H. (1988), "The demand for international travel and tourism to South Korea: an econometric evaluation of major economic factors", PhD thesis, University of Santo Tomas, Manila.

Li, G., Song, H. & Witt, S.F. (2005), "Recent developments in econometric modeling and forecasting. *Journal of Travel research*", vol. 44, pp. 82-99.

Lim, C. & McAleer, M. (2002), "A cointegration analysis of annual tourism demand by Malaysia for Australia", *Mathematics and Computer in Simulation*, vol. 59, pp. 197-205.

Lim, C. (1997), "Review of international tourism demand models", *Annals of Tourism Research*, vol. 24, pp. 835-49.

Morley, C. (1992), "A microeconomic theory of international tourism demand", *Annals of Tourism research*, vol. 19, pp. 250-67.

MuHoz, T.G. (2006), "Inbound international tourism to Canary Islands: a dynamic panel data model", *Tourism Management*, vol. 27, pp. 281-291.

Phillips, P.C.B. & Perron, P. (1988), "Testing for a unit root in time series regression", *Biometrika*, vol. 75, no. 2, pp. 335-346.

Salleh, N.H.M., Othman, R. & Ramachandran, S. (2007), "Malaysia's tourism demand from selected countries: the ARDL approach to cointegration", *International Journal of Economics and Management*, vol. 1, no. 3, pp. 345-63.

Salman, A.K. (2003), "Estimating tourism demand through cointegration analysis", *Current Issues in Tourism*, pp. 323-38.

Shrestha, M.B., (2006), “ARDL modeling approach to cointegration test”, Working paper Series, No. 1/2006, University of Wollongong, Northfields Avenue, new South Wales, Australia.

[Song, H., & Li, G. \(2008\), “Tourism demand modeling and forecasting”, Tourism Management, vol. 29, pp. 203-20.](#)

Song, H., Li, G. Witt, S.F. & Fei, B. (2010), “Tourism demand modeling and forecasting: how should demand be measured?”, Tourism Economics, vol. 16, no. 1, pp. 63-81.

Sri Lanka Tourism Development Authority. (2010), Annual Report, Sri Lanka Tourism Development Authority, Colombo, Sri Lanka. Available at [http:// www.Sltsa.lk/statistics](http://www.Sltsa.lk/statistics)

[Witt, S.F. & Witt, C.A. \(1995\), “Forecasting tourism demand: a review of empirical research”, International Journal of Forecasting, vol. 11, pp. 447-75.](#)

WTO. (2012), “Yearbook of tourism statistics”, Madrid: World Tourism Organization