

## TOURISM AND ECONOMIC GROWTH IN SRI LANKA: EVIDENCE FROM COINTEGRATION AND CAUSALITY ANALYSIS

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### ABSTRACT

*Tourism has been identified as one of key industries in promoting economic growth and development of Sri Lanka. The aim of this study is to investigate the role of international tourism in economic growth of Sri Lanka. The study uses a tri-variate model of real gross domestic product, international tourist arrivals and real effective exchange rate to investigate the long-run and short-run dynamics of the relationship between tourism and economic growth. The annual time series data were obtained for the period spanning from 1967 to 2011. The results of Johansen's Cointegration procedure show the evidence of long run relationship between the variables. In particular, result confirms the tourism-led economic growth hypothesis; tourism has a positive impact of economic growth in the developing countries. However, Granger causality test reveals evidence of unidirectional causality running from tourist arrivals to economic growth but not vice versa. The finding validates the need of government involvement at promoting and increasing international tourism demand to attain sustainable growth and development in the industry.*

**Keywords:** Causality, Cointegration, Economic Growth, Effective Exchange Rate, Tourism

### INTRODUCTION

Over the years, tourism has been identified as one of fastest growing economic sectors in the World. According to the UNWTO, international tourist arrivals expanded at an annual rate of 6.2%, growing from 25 million to 980 million from 1950 to 2011. As a result, many developing countries have given prominent precedence to the industry in pursuing economic growth and development. Tourism is considered as the industry which not only generates foreign exchange income to the host country, but also creates employment opportunities in various sectors, stimulates the development of services and economic growth and development. Moreover, benefits of tourism are spread over a wide section of society comparatively to other sectors of the economy.

Sri Lanka is one of major tourist attraction destinations in South Asian region. The country has unique opportunities for various kinds of tourism including traditional tourism, adventure tourism, coastal tourism, eco tourism and safari tourism, cruise tourism and medical tourism etc. Its geographical location, natural beauty and historical and heritage values have made additional potential for promoting tourism in the country. After the economic reforms in 1977, the successive governments have implemented various attractive policies and programs to promote tourism in pursuing economic growth and development. In particular, the country witnessed a strong upsurge in tourism after the end of the civil war in 2009. According to Tourism Development Authority of Sri Lanka, 654447 and 855975 tourist arrivals have been recorded in 2010 and 2011 respectively (Tourism Development Authority, 2011). The annual growth rates of the arrival in last two years were 46% and 23% respectively. Recent past, the government of Sri Lanka has taken some of initiatives such as income tax exceptions, interest subsidiary, import tax release and other subsidiaries for the firms and entrepreneurs those who involve in the industry. Moreover, the government has employed a number of initiatives to encourage and attract Foreign Direct Investment (FDI) to the hospitality and tourism industry.

Although an extensive body of literature has been dealt with international tourism and economic growth, the link between two variables is ambiguous. For example, a series of studies (Dritsakis, 2004; Balaguer and Cantawella, 2002; Kim et al. 2006; Katircioglu, 2008) show the evidence for existence of unidirectional causality from tourism development to economic growth while some of studies (Durberry, 2002; Lanza et al. 2003; Shan and Wilson, 2001) denote bidirectional causality between the variables. Oh (2005) reveals no evidence to establish either unidirectional or bidirectional causality between tourism and economic development in Korea.

Since no comprehensive empirical investigations have yet been made in Sri Lanka with perspective to investigate the link between tourism development and economic growth, this study aims to fill the gap by the way of empirical time series investigation. The findings of this study will provide important implications for policy decisions and the development of the tourism in the country.

### LITERATURE

The tourism literature is predominated by two main streams of thought stemming from the Export Led Growth (ELG) hypothesis and Tourism Capital Imports to Growth (TKIG) hypothesis. Tourism-Led Growth (TLG) hypothesis which is directly derived from ELG hypothesis postulates that the economic growth of countries can be achieved by expanding international tourism as a nontraditional export. According to this hypothesis, the international tourism is considered as a

potential strategic factor for economic growth. On the other side, TKIG argues that economic growth can be achieved through increases in the volume of inputs. In particular, it is argued that the foreign exchange earned through tourism is used for importing capital goods to produce products and services which lead to economic growth and development of the host countries (Balaguer and Cantawella, 2002; McKinnon, 1964). Balaguer and Cantawella (2002) state that since tourism closely relates to accommodation facilities, food, transport services and other related services, tourism development increases the host country's production which leads to generate income and new employment in the country.

The economic impact of tourism development has been widely studied in both developed and developing countries since tourism connects the wider range of industries and it creates benefits to various parts of the society. Researchers argue that the development of tourism has a positive impact on household income, government revenues and balance of payment. Therefore, it is widely accepted that tourism development has a positive impact on economic growth of the host countries (Khan et al. 1990; Lim, 1997).

A series of studies has been devoted to examine the long term and short term dynamics of the relationship between tourism development and economic growth. Cantawella (2002) investigated the long-term impact of tourism on economic growth in Spain. They found a positive relationship between tourism development and economic growth and confirmed the TLG hypothesis by following the results of cointegration and causality tests. Similarly, Kreisha (2010) found a positive unidirectional linkage between tourist receipts and economic growth in the long run for the period of 1970-2009 in Jordan. Mirsha et al. (2011) studied the dynamics of the relationship between tourism sector expansion and economic growth in India. Their results show that there is a positive relationship between tourism and economic growth in the country over the period 1978-2009 and found unidirectional causality runs from tourism activities to economic growth of the country. Kim et al. (2006) find bidirectional causality between tourism expansion and economic growth for Taiwan by performing the Granger causality test and cointegration approach.

Samina et al. (2007) observed the causality and long run relationship between economic growth and tourism development in 20 developing countries using P-VAR approach during 1995. Their findings confirmed the TLG hypothesis in which there is a positive and long run relationship between economic growth and tourism development in the selected countries. They further found a bilateral causality between economic growth and tourism development.

Lee and Chang (2008) shed the light for new insight of link between tourism and economic growth. They used panel data approach to investigate the relationship between tourism development and economic growth for Organization for Economic Co-operation and Development (OECD) countries and non-OECD countries. They find that tourism development has a greater impact on economic growth of non-OECD countries than OECD countries. Further, they find a unidirectional causality runs from tourism development to economic growth in OECD countries and bidirectional causality relationship in non-OECD countries. They concluded that real effective exchange rate has a significant impact on economic growth.

Zortuk (2009) studied the link between tourism development and economic growth of Turkey using the data for period of 1990-2008. Vector error correction method and Granger Causality test used in his study show that there is a unidirectional causality from tourism development to economic growth exists in between the two variables. By examining the role of tourism in Pakistan economy, Samina et al. (2007) concluded that there is a strong relationship between tourism receipt and economic expansion in the country. Kasimati (2011) uses a tri-variate model of real GDP, international tourist arrivals and real effective exchange rate to investigate the relationship between tourism and economic growth in Greece. He finds a long term positive relationship between tourism and economic growth for the country using data for the period of 1960-2010. However, Granger Causality test and vector error correction model didn't support to establish short run relationship and directional causality between the variables.

However, a few studies do not support a positive relationship between tourism development and economic growth and TLG hypothesis (Oh, 2005; Lee and Chang, 2008). Oh (2005) studied the long-term link between the tourism receipts and economic growth in South Korea. He finds no evidence to confirm TLG hypothesis from cointegration test for the period of 1975-2001. Similarly, Sequeira and Campos (2005) conclude that there is no significant relationship between tourism and economic growth through the panel data analysis.

## METHODOLOGY

This study uses three variables, volume of tourism, economic growth and real effective exchange rate, which have been widely used in the empirical studies to examine the existence of link between tourism development and economic growth. There are number of indicators to measure the volume of tourism such as receipt of tourism, number of tourist arrivals, number of night spent by tourists, etc. This study uses tourist arrivals which have been heavily used in empirical investigation as a proxy for the first variable of the study, the volume of tourism. GDP is used as the proxy for the second variable. Real effective exchange rate is also added to the analysis. Hence, the following equation (1) presents the frame of the study.

$$GDP_t = \alpha + \alpha_1 TRV_t + \alpha_2 REER_t + \varepsilon_t \quad (1)$$

Where,

GDP – Gross Domestic Product (Constant prices)

TRV – Number of tourist arrivals

REER – Real effective exchange rate

E – Error term

Annual time series data of the total tourist arrivals were obtained from various issues of the annual report of Tourism Development Authority of Sri Lanka. Since, the exact data were available only from 1976 to 2011, the study limits the investigation for this period. Annual real GDP was obtained from the World Bank Indicators publish by the Bank. Real Effective Exchange Rates were calculated for the selected period by using the data published by Central Bank of Sri Lanka with its various annual reports. Each time series values were converted into their natural logarithms (ln) before the analysis. The data analysis involves three steps; stationary property of each time series is first tested using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests (Dickey and Fuller, Phillips and Perron, 1988). Cointegration test is performed in the second step to identify the existence of the long run relationship between the variables. In the third step, Vector error correction mechanism and Granger Causality test are performed to find the short run dynamics of the relationship between tourism and economic growth and directional relationship between the variables. Eviews 5.0 is assisted in the data analysis.

**RESULTS AND DISCUSSION**

**Data**

Data spanning from 1967 to 2011 for GDP and tourist arrivals followed the similar trend over the period although tourist arrival has been more volatile than GDP growth. The average annual growth concern, 4.80% average growth rate with standard deviation of 2.04% were recorded for GDP while 10.25% growth rate with standard deviation of 20.04% were recorded for tourist arrivals. These results confirm that the tourist arrivals have a higher volatility compared to the GDP growth.

**Unit Root And Cointegration Tests**

Empirical literature shows the evidence that most of time series data contain unit roots which lead to generate spurious regression with a biased and meaningless results. Therefore, all the timeseries were tested for stationarity using Augmented Dickey-Fuller and Phillips and Perron Tests. The test for each variable was performed on both levels and first difference with two stages; for intercept and for intercept & trend. Table 1 represents the results of Augmented Dickey-Fuller and Philips-Perron unit root tests. The results reveal that the null hypothesis of non-stationary cannot be rejected either at the 1% and 5% level of significance in the levels of the variables. However, the null hypothesis of non-stationary is rejected for all variables in their first difference at the 1% level of significance. Therefore, all the time series are integrated of order one, I(1).

**Table 1 Result of Unit Root Tests**

Variable	ADF Test		PP Test					
	Level		1 <sup>st</sup> difference		Level		1 <sup>st</sup> difference	
	c	c & t	c	c & t	c	c & t	c	c & t
ln GDP	2.18	0.22	-4.15**	-4.83**	2.02	-0.06	-4.56**	-4.89**
ln TRV	-2.13	-2.40	-4.51**	-4.55**	-2.54	-2.41	-4.48**	-4.58**
ln REER	0.26	-0.74	-4.70**	-4.89**	-0.03	-1.01	-4.73**	-4.89**

\*significance at 10%

\*\* significance at 5%

Since all the variables have been integrated of the same order, Johansen’s cointegration based on Trace and Maximum Eigen value tests was applied to test the cointegration between the study variables. The results are shown in Table 2. The p-value associated with Trace test reveals that there is at least one cointegration equation between the variable at the 5% level of significance. The maximum Eigen value further confirms the result. Thus, there is a long run positive relationship between the variables. Ward coefficient test was performed to investigate the significance of estimated coefficient of the equation by using the restriction that each coefficient estimated is zero ( $\alpha_1 = 0$  and  $\alpha_2 = 0$ ). The results of Wald Coefficient test reveal that the null hypothesis is rejected for ln TRV at 1% level of significance ( $\chi^2 = 741.90, P = 0.00$ ) and null hypothesis is not rejected for ln REER at all levels of significance ( $\chi^2 = 2.16, P = 0.23$ ). Hence, REER does not affect the specification of the model. These results finally conclude that there is a long run relationship between tourism and economic growth and confirm the TLG hypothesis.

**Table 2 Results of Johansen’s Cointegration Test**

Null Hypothesis	Eigen value	Trace statistics	Critical value at 5% (p -value)	Max-Eigen statistics	Critical value at 5% (p-value)
None (r = 0)	0.378	23.41	15.49 (0.003)	20.39	14.26 (0.005)
At most 1 (r = 1)	0.209	10.82	15.49 (0.222)	7.49	14.26 (0.432)

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At most 2 (r =2)	0.099	3.33	3.84 (0.068)	3.33	3.84 (0.068)
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**Vector Error Correction And Granger Causality**

Empirical results show that although the cointegration has shown a long run association between the variables, there may be some deviation from the equilibrium in short run. Therefore, Vector Error Correction Model (VECM) was performed to investigate the short-run disequilibrium converges to the long-run equilibrium. The results are reproduced in Table 3.

**Table 3: Results of Vector Error Correction**

Variable	D(GDP)	D(TRV)	D(REER)
EC <sub>t-1</sub>	-0.017139 (0.00680) [-2.95500]	0.102024 (0.04160) [ 2.45250]	-0.016081 (0.01732) [-0.92858]
D(GDP(-1))	-0.581448 (0.24117) [-2.41095]	-2.113711 (1.87428) [-1.12775]	0.542356 (0.60561) [ 0.89555]
D(TRV(-1))	0.051800 (0.02252) [ 2.30063]	0.488614 (0.17498) [ 2.79237]	-0.011471 (0.05654) [-0.20289]
D(REER(-1))	0.158830 (0.07944) [ 1.99934]	1.135410 (0.61738) [ 1.83906]	0.014400 (0.19949) [ 0.07218]
C	0.075632 (0.01207) [ 6.26625]	0.108834 (0.09380) [ 1.16026]	-0.012871 (0.03031) [-0.42468]

With reference to the GDP equation, the coefficient estimated for error correction (EC<sub>t-1</sub>) is statistically significant with its negative sign. This result reveals that the long-run relationship between the variables would not be influenced by short run dynamics.

**Table 4 Results of Granger Causality Test**

Null Hypothesis:	F-Statistic	Probability
TRV does not Granger Cause GDP	4.68420	0.01519
GDP does not Granger Cause TRV	1.98914	0.15081
REER does not Granger Cause GDP	2.25986	0.12375
GDP does not Granger Cause REER	2.59973	0.09278
REER does not Granger Cause TRV	1.56959	0.22654
TRV does not Granger Cause REER	2.80481	0.07821

The existence of cointegration between the variables implies that there is at least unidirectional causality between the variable. Therefore, Granger Causality test is used to test the causality between the variable. Table 4 shows the results of Granger Causality test. The results show the evidence for existence of unidirectional causality running from tourist arrival to real GDP in short run but not in vice-versa. However, there is no other causality between the variable either at 1% and 5% levels of significance.

**CONCLUSION**

This study investigated the influence of tourism development to Sri Lankan economic growth. In particular, the study analyzed the relationship between real GDP, international tourist arrivals and real effective exchange rate. Augmented Dickey Fuller and Philips and Perron unit roots tests showed that the series data used for each variables are integrated at their first differences I(1). The cointegration test based on Johansen's procedure shows the evidence for the existence of the cointegration between the

variables. Hence, long-run relationship was found between the variable. However, Granger causality test reveals that the evidence for existence of only one unidirectional causality that running from tourist arrivals to real GDP but not vice versa. An overall, the finding of the study confirms the hypothesis of Tourism –Led economic growth and the positive impact of tourism development on economic growth. The finding validates the necessity of government intervention at promoting and increasing international tourism demand by providing the mandatory facilities and other motivators which encourage and attract more and more tourists to the country. Future studies should be focused to investigate the factors effecting the tourist arrivals and tourism development in the country.

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