

The Dynamic and Causal Relationship between Tourism and Economic Growth in Sri Lanka

K. Kumudhini

*Department of Economics and Statistics, University of Peradeniya,
Sri Lanka*

Key words: *Granger causality; Tourism income; VEC model; Economic growth*

Introduction

The tourism industry has grown to be one of the largest industries and fastest growing economic sectors in the world. Tourism is considered as a most powerful tool and an economic activity to trigger economic growth in developing countries. Over the years tourism has contributed towards the generation of remittances and creating of job opportunities by using local resources. Tourism accounts for 10.4% of global GDP and 313 million jobs globally or 9.9% of total employment in 2018 (World Bank Report, 2019). Acknowledging these facts, countries in general are heavily focused on tourism as an option for their sustainable development.

As a developing country, Sri Lanka has given high priority to the tourism sector as a result; this sector is growing rapidly as a key sector in the economy. Sri Lanka has been a popular place of attraction for foreign travelers because of its uniqueness, strategic location, natural environment, cultural diversity, wildlife sanctuaries, sandy white beaches, underwater life that surrounds the island and warm climate making visitors comfortable and attracted to it. In 2018, Lanka received over 2.3 million international visits, generating revenue of approximately US \$ 4.3 billion from tourism. In 2019, contribution of travel and tourism to GDP for Sri Lanka was 12.6 %. It increased from 6 % in 2000 to 12.6 % in 2019 growing at an average annual rate of 4.28 (Sri Lanka Tourism Development Authority, 2019). In 2017, travel and tourism generated 404,000 direct jobs, equal to 5.1% of national employment (Central Bank of Sri Lanka, 2019). This has grown by 3.7% in 2018 to 419,500 jobs – 5.3% of total employment.

Several empirical studies have explored the relationship between tourism and economic growth in emerging economies (King and Gamage, 1994). Wickremasinghe (2006) examines the causal relationship between tourism and economic growth using an error correction model and variance decomposition analysis. But though tourism is considered as one of the major contributing sectors to economic growth in Sri Lanka, the relationship has not been established empirically using econometric analysis. Also, the causal relationship between tourism and economic growth has not been explored statistically for the period 1971-2019 in the Sri Lankan context. Therefore this research is an attempt to fill this gap.

Objective

The objective of this study is to investigate the causal relationship between tourism and economic growth in Sri Lanka for the period 1971-2019.

Methodology

This study uses yearly data on Real Gross Domestic Product (RGDP) which measures the overall economic performance of the country, and Tourism Revenue (TR) as a measure of tourism sector expansion. The data of RGDP was extracted from the Central Bank of Sri Lanka annual report (for various years) and TR was collected from Tourism statistics published by Ministry of Tourism, Government of Sri Lanka over the period from 1971 to 2019. Both variables of this study have been transformed to their natural logarithms. The following equation shows the basic relationship between the dependent and independent variables as in the study of Godbey et al. (1994).

$$\ln RGDP_t = \beta_0 + \beta_1 \ln TR_t + u_t \quad (1)$$

In the 1st step of the estimation technique, the stationarity of the variables have been tested by Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests. In the second step, AIC and SC criteria were adopted to choose the optimum number of lags that can be included in the model. In the next step, Johansen's co-integration test has been performed to assess whether a cointegrating relationship holds between the tourism sector development and economic growth. Finally, the Granger causality test has

been applied in the vector error correction framework to find the direction of causal relationship between the variables.

Results and Discussion

The table below presents the results of unit root tests. Both approaches confirmed that both variables are integrated in the same order, i.e. I(1), which suggests using the Johansen cointegration method to identify the existence of a cointegrating relationship.

Table 1: Result of Unit Root Tests

Variables	ADF test		PP test	
	Level	1 st difference	level	1 st difference
lnRGDP	0.7854	0.0000***	0.7191	0.0000***
lnTR	0.6673	0.0008***	0.2575	0.0000***

Note: *, ** and *** represent variables stationary at 10%, 5% and 1% level of significance respectively.

The table below shows the results of the Johansen rank test. Both Trace test and Maximum Eigen value test identified one cointegrating relationship between the variables since the null hypothesis was rejected at rank 0 but it failed to reject the null hypothesis at rank at most 1 as the test statistic was less than the 5% critical value. This indicates the existence of long-run correlation between the variables.

Table 2: Results of Johansen's Cointegration Test (Trace Test)

Null hypothesis	Eigen Value	Trace statistics	Critical value at 5%	Max Eigen statistics	Critical value at 5%
None*	0.1887	13.187	12.32090	23.326	21.131
At most1	0.0689	3.355	4.129906	9.014	14.264

The following normalized cointegrating coefficients show that Tourism Revenue affects Real GDP positively and significantly in the long run which is consistent with theory and some of the empirical studies.

$$\widehat{\ln RGDP}_t = 0.762 + 3.388 \ln TR_t$$

std. error = (0.234) (0.49065)

Table 3 below shows the short run relationship between the variables and long run adjustment of the real GDP.

Table 3: Results of VECM (Dependent variable: DLNRGDP)

Variables	Coefficients	T-stats
D(LNRGDP(-1))	-0.21949	-1.6062
D(LNITR(-1))	-0.03468	-0.0254
constant	0.06077	0.3988
ECT(-1)	-0.30437**	-2.5917

Note: *, ** and *** represent variables are stationary at 10%, 5% and 1% level of significance respectively

Tourism revenue does not have a significant impact on real GDP in the short run. Sometimes, it takes some periods to affect the GDP even though we receive more income from the tourism sector due to long term investment. This could be the reason that it does not have significant impact on real GDP. Negative and significant coefficient of speed of adjustment implies that real GDP moves towards steady state line at the speed of 30 % in each year one period after the exogenous shocks.

Granger Causality test is used to test the causality between the variable. Table 4 below shows the results of VECM based Granger Causality test (Block Exogeneity Wald Test results). The results show weak evidence of existence of unidirectional causality that running from Tourism Revenue to RGDP at 10% significance levels.

Table 4: Results of Pairwise Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
D_LNITR does not Granger Cause D_LNRGDP	47	4.9289	0.0851
D_LNRGDP does not Granger Cause D_LNITR		3.9649	0.1377

Conclusion

The present study investigates the relationship between tourism revenue and economic growth using annual data for the period 1971-2019. The empirical analysis suggests that all variables used in this study are integrated in order one. On this basis, the Johansen cointegration test identified one cointegrating relationship among the variables. This study found a positive and significant relationship between tourism and real GDP in the long run but tourism revenue does not have significant impact on real GDP in the

short run. Also this study identified weak unidirectional causality between tourism and economic growth that runs from tourism revenues to economic growth. It means that if tourist activities increase, the GDP growth rate improves via increase in Tourism Revenue. It provides a rationale for the government to provide tourism related facilities in the country. In general, the study appears to support a tourism led-growth (TLG) hypothesis for Sri Lanka. The results of this study suggest that promoting tourism via developing a long-term tourism strategic plan will contribute to economic growth in Sri Lanka. The finding validates the necessity of government intervention for promoting international tourism demand by providing mandatory facilities and other motivation to enhance tourist arrivals.

References

- Jayathilake, P.B. (2013). Tourism and economic growth in Sri Lanka: Evidence from cointegration and causality analysis. *International Journal of Business, Economics and Law*, 2(2), 22-27.
- Mishra, P. K., Rout, H. B. and Mohapatra, S. S. (2011). Causality between tourism and economic growth: Empirical evidence from India. *European Journal of Social Sciences*, 18(4), 518-527
- Wickremasinghe, G.B. and Ihalanayake, R. (2007). Causal relationship between tourism and economic growth in Sri Lanka: some empirical evidence. *CAUTHE 2007: Tourism-Past Achievements, Future Challenges*, 742.