TOURISM INDUSTRY AND ECONOMIC GROWTH: AN INCOME ELASTICITY APPROACH FROM SRI LANKAN EVIDENCE

A.L.Mohamed Aslam[1] and S.I. Nimsith[2]

[1]*Sri Lanka Planning Service, Ministry of National Policy Planning, Sri Lanka,*
[2]*Department of Arabic Language, Faculty of Islamic Studies and rabic Language,*
South Eastern University of Sri Lanka
mohamedaslamalm@gmail.com, sinimsith@gmail.com

ABSTRACT

Recently, Sri Lanka identified the tourism industry as an income factor for foreign exchange which impacts on economic growth of Sri Lanka by income elasticity compared with other income sources. But the income elasticity of tourism in Sri Lanka was econometrically not studied. So, this study filled this research gap, the aim of this study was to measure the income elasticity of tourism earnings in Sri Lankan economy during the sample periods. In this study, to achieve this objective the time series data were annually considered and the earnings of tourism were used as independent variable and the gross domestic product was considered as dependant variable. The simple regression model was used to test the coefficient of tourism and the equation of income elasticity was employed to test the income elasticity of tourism industry during the period of 1970 to 2015. According to the analytical results, the R- squared of estimated model was 61 percent and the coefficient of tourism industry was 17.35 (0.000) which was significant at one percent level. The mean value of tourism industry was 1.449 and the mean value of the gross domestic product was 152.78. Therefore, when this study calculated the income elasticity of tourism using the coefficient of tourism industry, the mean values of tourism industry and the gross domestic product of Sri Lanka, the value of income elasticity of tourism was 0.16, this means that if the tourism industry was changed by 1 unit, the gross domestic product had been changed by 16unit. It indicated that, additional increased in the tourism earnings of Sri Lanka by hundred million rupees, the economic growth of Sri Lanka had been increased by 16 million rupees. Therefore, this study recommends that if Sri Lankan economy has to be achieved the high economic growth as fast as possible it should have to focus on the specialization of tourism industry.

Keywords: Tourism industry, Sri Lankan economy, tourism Income elasticity, and Simple regression model

INTRODUCTION

In Sri Lanka tourism is biggest foreign exchange earning sector, which contributes to economy through several ways, such as creating the jobs, reducing the current account deficit of the balance of payments, positive externalities, etc. According to the World Tourism Organization, the tourism has become one of the fastest growing industries in the last decades. In the analysis of tourism, economic accentuate the economic effects of tourism (Hossein and Razzaghi, 2014). The development of tourism industries increases household incomes and government revenues through tourism income elasticity effect. Sri Lanka is one of the developing countries.It suffers

from many economic problems such as low economic growth rates, lack of physical capital and unemployment issues.

Based on the statistics Tourism Development Authority of Sri Lanka, the international tourist's arrival in Sri Lanka has been increased from very recently. In 1978, nearly 1.9 million tourists arrived in Sri Lanka. By these tourists, Sri Lanka earned 55.8 million dollars in that year. This situation increased in 2014 which earned 31.7 million dollars from 1.5 million international tourists (SLTDA, 2015).

In the view of economic thought the income elasticity approach is the best measurement for calculating the tourism income of countries. Regarding this measurement, there were lot of research which made by [Veity, 1978; Pradhnanga, 2000; Prakash, 2001; Adamou and Clerides, 2009; Dhungel, 2015]. But in Sri Lankan experience,[Wickremasinghe and Thalanayake, 2007; Mustafa and Santhirasegarem, 2014; and AhamedLebbe and JothiSivagnanam (2011)] studied onthe impact of tourism in Sri Lanka. But, none of the researchers in Sri Lanka involved in income elasticity measurement which arises the research gap in this field. Therefore, this research is going to fill this gap.Accordingly, this study is organized into the following subsection such as objective of this study, research method, results and discussion, and conclusion.

Objective of the study

The objective of this study is to measure the income elasticity of tourism earnings in Sri Lanka.

RESEARCH METHODS

In this study, the percapita gross domestic product (PCGDP) and percapita tourism income (PCTSM) were identified as variables of this study. The per capita gross domestic product was used as dependent variable and percapita tourism income was considered as independent variables. The annual time series data were considered during the period of 1970 to 2015, which were gathered from the annual statistical reports of Sri Lanka Tourism Development Authority. In this study, the simple regression method was considered to get the coefficient of tourism earnings, which model was used by Dhungel (2015). Most of the literature considered this simple regression model to test the correlation between the dependent and independent variables. The relationship between the tourism earnings and the economic growth was indicated by below function:

$$PCGDP_t = f(PCTSM_t) \ldots\ldots\ldots\ldots (1)$$

When this function was converted into econometric equation, the equation was derived as follows:

$$PCGDP_t = \beta_0 + \beta_1 PCTSM_t + U_t \ldots\ldots (2)$$

Where:$PCGDP_t$: Per capita gross domestic product, $PCTSM_t$: Per capita tourism earnings, β: Coefficients, U_t: Error term

To test the tourism income elasticity, this study considered the income elasticity model of Dhungel (2015). This model connected the per capita gross domestic product and per capita tourism earnings, which model was derived as follows:

$$E_{ie} = \frac{\partial(PCGDP_t)}{\partial(PCTSM_t)} * \frac{\overline{PCTSM_t}}{\overline{PCGDP_t}} \ldots\ldots\ldots\ldots\ldots (3)$$

Where:E_{ie}: Notation of tourism income elasticity, $\partial(PCGDP_t)$: Differentiation value of per capita gross domestic product, $\partial(PCTSM_t)$: Differentiation value of per capita tourism earnings,$\overline{PCTSM_t}$: Mean value of per capita tourism earnings which was calculated by equation (4), $\overline{PCGDP_t}$: Per capita gross domestic product which was measured by equation (5),$\frac{\partial(PCGDP_t)}{\partial(PCTSM_t)}$: Coefficient of tourism earnings equation (1) which was indicated by β_1 .

$$\overline{PCTSM_t} = \frac{\sum PCTSM_t}{N} \ldots\ldots\ldots\ldots.. (4)$$

$$\overline{PCTSM_t} = \frac{\sum PCGDP_t}{N} \ldots\ldots\ldots\ldots. (5)$$

$$E_{ie} = \beta_1 * \frac{\overline{PCTSM_t}}{\overline{PCGDP_t}} \ldots\ldots\ldots\ldots\ldots (6)$$

RESULTS AND DISCUSSION

To test the objective of this study, this section considers two econometric techniques such as simple regression model and income elasticity equation. In the simple regression model, the coefficient of tourism earnings is considered to test the proportional relationship between per capita gross domestic product and per capita tourism earnings. The tourism income elasticity equation is used to test the coefficient of tourism income elasticity.As mentioned in the research methods, this study estimates the following econometric simple regression model. The table shows the estimated model and its statistics.

Table- 1: Estimated model and its statistics

$PCGDP_t = 45.71293 + 17.35172PCTSM_t$				
Variable	Coefficient	Std. Error	t-statistic	p-value
TE	17.35172	2.103857	8.24757	0.0000
R-squared: 0.6127	F- statistic: 68.022	DW:0.727862		

Source: Estimated from secondary data from 1970- 2015

In the table -1, the coefficient of tourism earnings is 17.35 and its probability value is 0.000 which means the variety of tourism is significant at the 1% level and this variable has a positive relationship with the gross domestic product of Sri Lanka. The R- squared of estimated model is 0.6127 which indicates the estimated model is fitted by 61 percent.

Estimation of tourism income elasticity

As mentioned inthe equation (4) and (5), the mean value of per capita tourism and gross domestic product is shown below:From equation (4), the mean value of per capita tourism earnings is 1.448832 and from equation (5), the mean value of per capita gross domestic product is 152.7832. And also, the coefficient of tourism in equation (1) is 17.35. Therefore, based on the equation (6) the tourism income elasticity is given bellow:

$$\beta_1 = 17.35, \overline{PCTSM_t} = 1.449, \text{ and } \overline{PCGDP_t} = 152.7832$$

$$E_{ie} = 17.35 * \frac{1.449}{152.73832} = 0.16$$

Therefore, according to the equation (6), the tourism income elasticity is 0.16 which means that if the per capita tourism earningschange by one unit; the per capita gross domestic product will be changed by 0.16 units. It indicates that if the per capita tourism earnings are increased by 100 million rupees in Sri Lankan economy, the per capita gross domestic product will be increased by 16 million rupees. On the other hand, if the per capita tourism earnings are decreased by 100 million rupees in Sri Lankan economy, the per capita gross domestic product will be decreased by 16 million rupees. In addition, another 84 million rupees will be substituted by other income sectors in the per capita gross domestic product of Sri Lanka.

CONCLUSION AND RECOMMENDATIONS

In this study, the tourism income elasticity of Sri Lanka was focused, to test this objective this study used two econometric techniques: simple regression model and tourism income elasticity model and also the annual time series data from 1970 to 2015 were utilized to estimate the econometric output. According to the econometric output, this study explored that the tourism earnings had maintained a positive relationship with the economic growth of Sri Lanka. In the meantime, this study found that the coefficient of tourism income elasticity of Sri Lanka was 0.16 during the sample period.

REFERENCE:

Ahamed Lebbe, SM and Jothi Sivagnanam, S. (2011), "Study on Tourism Industry and infrastructure Development in the post-war peace – Building initiatives in Ampara district, 1st international symposium, South Eastern University of Sri Lanka.

Adamou, A and Clerides, S. (2009), "Tourism Development and Economic Growth: Internal Evidence and Lessons for Cyprus", Cyprus Economic Policy Review, 3(2):3-22

Dhungel, K.R. (2015), "An Econometric Analysis on the Relationship between Tourism and Economic Growth: Empirical Evidence from Nepal", International Journal of Econometrics and Financial Management, 3(2):84-90

Hossein, B.S and Razzaghi, S. (2014),"Assessing the Dynamic Economic Impact of Tourism for OIC Members", World Applied Sciences Journal, 32(6): 1098 – 1105

Mustafa, A.M.M and Santhirasegaram, S. (2014), "Empirical Investigation of the relationship between toruismrecipts and sustainable economic growth in Sri Lanka", Journal of Emerging Trends in Economics and Management Sciences (JETEMS), 5(7): 131 - 137

Pradhnanga, A. (2000), "Tourist' Consumption Pattern and Its Economic Impact in Nepal", Delhi: Adroit Publishers.

Prakash, S.O. (2001), "Tourism Development and Planning in Nepal", Unpublished PhD thesis, Faculty of Social Sciences, Banaras Hindu University, India.

Sri Lanka Tourism Development Authority (2011), "Annual Statistical Report", SLTDA, Colombo, Sri Lanka.

Veit, B. (1978), "The Economic Impact of Tourism in Nepal: An Input Output Analysis", Unpublished PhD thesis, Faculty of Graduate School, Cornell University, Austria.

Wickremasinghe, G, B and Thalanayake, R. (2007), "The causal relationship between tourism and economic growth in Sri Lanka: Some empirical evidence". CAUTHE Conference: Tourism past Achievements, Future Challenges, Sydney, Australia

Appendix:

Regression Results for Tourism and GDP in Sri Lanka

Dependent Variable: GDP
Method: Least Squares
Date: 03/23/16   Time: 07:15
Sample: 1970 2015
Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45.71293	1098.663	0.041608	0.9670
TE	17.35172	2.103857	8.247574	0.0000

R-squared	0.612691	Mean dependent var	4971.078
Adjusted R-squared	0.603684	S.D. dependent var	9826.608
S.E. of regression	6186.208	Akaike info criterion	20.34146
Sum squared resid	1.65E+09	Schwarz criterion	20.42175
Log likelihood	-455.6828	F-statistic	68.02247
Durbin-Watson stat	0.727862	Prob(F-statistic)	0.000000