



The linear and non-linear relationship between of tourism demand and output per worker: A study of Sri Lanka



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ARTICLE INFO

Article history:

Received 18 January 2016

Received in revised form 15 May 2016

Accepted 21 May 2016

Available online xxxx

Keywords:

Tourism demand analysis

Elasticity

Cointegration

Non-linear

Causality

Sri Lanka

ABSTRACT

Linear and non-linear long-run association between tourism and economic growth is examined using the autoregressive distributed lag procedure with Sri Lanka as a reference country over the sample period 1978–2014. Linear estimation results indicate that a 1% increase in tourism receipts result in an increase in the output per worker by 0.10% in the long run. The net effect in the short run is marginally negative and generally mixed. Non-linear relationship explains the effectiveness of the tourism industry depends strongly on public infrastructure which is subject to congestion like the public transport, airports, road system or telecommunications. A long-run U-shape relationship is detected with the minimum necessary tourism receipts of 1.26% of GDP. The causality results indicate that higher tourism receipts causes growth. The method applied here can be used to examine other countries in the similar domain.

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1. Introduction

Tourism is a leading driver of economic growth for a number of countries. The sector has become a perennial source of income and employment, and hence an important driver of socio-economic changes and progress. Furthermore, it is projected by the United Nations World Tourism Organization (UNWTO) that tourist arrivals on aggregate will grow by 3.3% a year to reach 1.8 billion by 2030. The growth in the number of visitor arrivals provides positive signals in terms of a growing tourism demand. However, from a developing country perspective, it can be argued that growth in tourism revenue and hence the overall income is relatively more important. In this regard, each destination country is required to have supposedly the right policies and the necessary infrastructure in place to attract the right volume of tourists and amount of receipts. While visitor arrivals and the subsequent incomes generated are mainly demand driven, the latter in some ways can be measured and will be of interest to policy planners.

In this paper, using Sri Lanka as a reference country, we identify the minimum level of tourism revenues required for tourism to be supportive

of growth. Indeed, there is a consensus regarding tourism-led growth hypothesis for a number of countries which includes both the small and non-small island countries (Bojanic & Lo, 2016 and the references therein). Therefore, the paper, besides examining the usual linear relationship, extends to a non-linear assessment. Our approach and modelling strategy is simple (Tamazian & Rao, 2010; Zaman, Shahbaz, Loganathan, & Raza, 2016) and can be easily extended to panel and other country-specific studies. To the best of our knowledge, this line of analysis has not been undertaken in tourism-growth studies with exception of a few studies which differs in method and context (Antonakakis, Dragouni, & Filis, 2015; Brida, Lanzilotta, Pereyra, & Pizzolon, 2015; Pérez-Rodríguez, Ledesma-Rodríguez, & Santana-Gallego, 2015).

As a background, it is noted that international tourist arrivals to Sri Lanka have grown since the 1970s. According to the Sri Lanka Tourism Development Authority,¹ the visitor arrivals in 1970 were 46,247 and in 2014, it has increased to 1,524,153. Similarly, the tourism official receipts increased from US\$3.6 million to US\$317,501.7 million over the same period. The 2014 record shows the sector employs some 129,790 people directly and 170,100 people indirectly. Furthermore, the sector contributes 11.1%, 10.0% and 21.3% to GDP (gross domestic product), employment and exports, respectively (World Travel and Tourism Council, 2015).

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¹ <http://www.sltda.lk/statistics> and <http://sltda.lk/sites/default/files>.

However, it must be noted that the country has undergone fierce civil wars in the period from July 1983 to May 2009. The war was between the government and the Liberation Tigers of Eelam (LTTE), who recruited their fighters mostly from the ethnic minority of the Tamils. The objective of the latter was to create an independent Tamil state. The civil war was interrupted by different cease fires and can therefore be split up into four phases: Eelam Wars I (July 1983–July 1987), II (June 1990–January 1995), III (April 1996–September 2002) and IV (July 2006–May 2009), respectively. The characteristic of the civil war was mainly asymmetric because of the military dominance of the national forces. Thus, the LTTE committed bomb and suicide attacks on policy-makers, military personnel, public buildings, infrastructure, and civilians. On the other hand, the government, who represented mostly the interests of the Sinhalese majority, did not interfere against massacres committed by Sinhalese mobs.

The United Nations estimated in various reports that between 60,000 to 100,000 persons were killed in this conflict, just around 150,000 Tamil fled from the conflicts, an estimated number of 1,000,000 persons were displaced and huge economic losses were incurred. In terms of monetary value, Grobar and Gnanaselvam (1993) estimated the economic loss to be equivalent of 20% of the GDP for the period 1983–1988; Arunatilake, Jayasuriya, and Kelegama (2001) estimated the accumulated loss from 1983 to 1996 to be equivalent of more than 160% of the GDP in 1996 using a constant interest rate of 5%; and Ganegodage and Rambaldi (2014) estimated the loss to be equivalent of an annual decline of 9% of the GDP for the conflict period between 1960 and 2008. To add to the misery, Sri Lanka was also hit strongly by a destructive tsunami in December 2004 which killed 30,000 people, and faced its fair share of the adverse effects of the 2007–2008 global financial crises.

Moreover, although, Sri Lanka has improved its overall travel and tourism competitiveness index (TTI) the years following the defeat of the LTTE in 2009 from 3.8 (2009) to 4.0 (2013) and its rank from 78 to 74 out of 140 countries (Blanke & Chiesa, 2013), it is still lacking in terms of the tourism infrastructure measured by hotel rooms per 100 citizens, the presence of major car rental companies and the number of ATMs accepting VISA cards (c.f. Blanke & Chiesa, 2013). Specifically, Sri Lanka ranks 112 out of 140 countries with 0.1 hotel room per 100 citizens, 3 out of 7 major rental car companies and 106 ATMs per one million citizens. The overall rank in terms of TTI is only 108 with a total score of 2.3 out of 7. Important to note is that with respect to small scale tourist businesses, it costs on average 19.1% of the GNI per capita (Blanke & Chiesa, 2013) to set up a business which becomes a serious growth constraint if one also considers the relatively strong income and wealth inequality. Moreover, it is noted that Sri Lanka ranks 123 in terms of threatened species with 16.7% of all species in the danger of becoming extinct in the near future. Notably, the economic duels of the past and present no doubt had a damaging effect on the tourism sector and the overall economic progress of the country. However, with the Sri Lankan government's execution of timely proactive policies to overcome adverse effects, the tourism sector has shown a reasonable degree of resilience and progress.

Against these backdrops, we examine the decisive role of tourism in supporting the economic growth of the country. While we acknowledge there are a few studies that have examined the tourism-growth nexus in Sri Lanka (Srinivasan, Kumar, & Ganesh, 2012a; Wickremasinghe & Ihalanayake, 2006),² we note that these studies do not explicitly account for the role of capital and labour stock, trend or structural breaks due to civil wars which are important considerations in accurately identifying cointegration, magnitude impacts and the direction of causality. Moreover, for a single country time series data, the error correction term reported in these studies is very low (less than 1%), which can be due to, among other things, model specification failing to account for structural breaks. Furthermore, while we acquiesce that tourism in Sri Lanka has a broad-based impact, we must also accept that there are other sectors and factors such as, trade and manufacturing (Athukorala, 2000;

Gordon & Rankaduwa, 1992), textiles, institutions, other hard infrastructure (Chaffai, Kinda, & Plane, 2012), foreign remittances (Siddique, Selvanathan, & Selvanathan, 2012), tea products, transportation services and rubber-based products (Samaranayake, Lantra, & Jayawardena, 2013) which are crucial for growth and development of the country. Additionally, noting that a country's growth prospect can be explained by a number of factors and some of them are specific to each country, we hypothesise that tourism for Sri Lanka is growth enhancing (Bandara & Tisdell, 2003; Fernando, Bandara, & Smith, 2013).³ Therefore, by including the role of capital and labour, and treating tourism as a shift parameter in the augmented Solow (1956) framework (Rao, 2010), we can accurately reflect the contribution of tourism in the economy. Subsequently, the contributions of this paper are: (a) to estimate the short-run and long-run elasticity of output with respect to tourism whilst controlling for capital and labour and correcting for breaks in the series in both the linear and the non-linear setting, whereby the latter analysis is used to highlight the threshold level of tourism earnings in the long run; (b) to examine the tourism-led growth hypothesis for an economy which has suffered political instability and civil wars in the past; and (c) that studies of this nature provides impetus to examine tourism demand and preferences at a micro-level. Of course, the methodology used is not new and can be easily applied to check for threshold levels of tourism revenues for other countries and especially for those economies which are facing severe political crisis such as Egypt, Tunisia, Algeria, Libya, Lebanon and Syria.

The rest is of the paper organized in the following manner. In Section 2, we briefly discuss the development and growth theory and present a summary of studies pertaining to tourism and economic growth. In Section 3, we discuss the modelling strategy and data. In Section 4, we present the results. Section 5 concludes with some policy deliberations.

2. Literature survey

2.1. Development and growth

The notion of development (Hirschman, 1958; Lewis, 1954; Myrdal, 1957; Nurske, 1953; Prebisch, 1950; Rosenstein-Rodan, 1943; Rostow, 1960; Singer, 1950) and economic growth (Daly & Cobb, 1989; Hueting, 1974; Kuznets, 1934; Nordhaus & Tobin, 1972) continues to be one of the most burgeoning concerns for every country. Hicks (1965) argued that the distinction between the two (development and growth) is necessary because the economics of underdevelopment should be a practical subject and therefore call upon any branch of theory, including theories from other sciences like sociology or anthropology.

To have a better understanding of the complexities associated with the process of economic growth, one must be willing to appreciate, among a number of things, the role of diminishing returns to scale, physical and human capital accumulation, and the relationship between per capita income growth and population growth, the specialization of labour and the role of innovations of technology (Knight, 1944; Malthus, 1798; Ramsey, 1928; Ricardo, 1817; Schumpeter, 1934; Smith, 1776; Young, 1928).

The first theoretical model of economic growth, inspired by the work of Keynes (1936), was developed by Harrod (1939) and Domar (1946). Almost a decade later, Solow (1956), Swan (1956) and Meade (1961) developed the neoclassical growth model which was extended to integrate the intertemporal optimization approach of Ramsey (1928) and overcame the weakness of instability of equilibrium in earlier models. Romer's (1986, 1987, 1990) papers were largely based on the ideas of Arrow (1962) and Sheshinski (1967) and focused on endogenous growth, where the endogeneity of the growth rate is caused technically by external economies of scale. Based on the model of Uzawa (1965), Lucas (1988) developed a similar idea, where he introduced the idea of positive

² See also Srinivasan, Kumar, and Ganesh (2012b).

³ Note that there can be growth retarding drivers such as crime, terrorism, political instability and the like.

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