

WCBEM2012

Tourism and economic growth nexus: an input output analysis in Turkey

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Abstract

Tourism is the world's largest industry and one of the fastest growing sectors, accounting for over one-third of the value of total worldwide services trade. Tourism, in the last few decades, has become an indispensable source of income for developing countries, Turkey in particular, and this aspect of tourism has managed to catch the attention of a number of countries, principally developing ones. The tourism literature abounds a number of studies into tourism and economic growth nexus through a variety of methods such as Granger-causality, co-integration, regression analyses. However, there are hardly any studies incorporating input-output analysis. Within this context, this study sets out to examine the tourism and economic growth nexus by means of input-output analysis, covering forward and backward linkage effects, based on the 2002 input-output table, which is the latest one released by TURKSTAT. We estimate significance of the impact of tourism on economic growth. The variables used for economic growth are income and production outputs. The findings are discussed in terms of administrative points.

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Keywords: Economic impact, economic growth, tourism, sectoral linkage, input-output analysis;

1. Introduction

When the demand for the products of any sector is increased, the sector will need to purchase more items as an input from other sectors to produce any additional output. These purchases will stimulate additional output which in turn will require further purchases and so on. Thus, we can track these direct and indirect effects throughout the economy using the output, income, employment multipliers (Alpqami, 2004). In this respect, the effects of sectors on economic growth can be investigated. Tourism sector is seen by many developing countries as an impetus of economic growth. The growing business of providing goods and services to meet tourism demand provides a clear reason for recognising the increasing role of tourism in any economy. The tourism sector in Turkey has become a pillar sector of the economy, particularly in the last decade. The economic impact of tourism can be investigated by analysing its impact on the growth of production, using of the factors of production and on the country's balance of payment (Mikic, 1988). Estimating the direct, indirect and induced impact of tourist expenditure, one needs to perform multiplier analysis which can be considered as the fundamental tool to examine the total impact of tourism on an economy. And, input-output is the appropriate technique to capture the total impact of tourism to estimate the multipliers (Mazumder, et.al, 2011). Input-output analysis invented by Wassily Leontief (1936) continues to be a

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useful modeling technique which can be used to determine, define, measure and assess the linkages between sectors and examine the inter-dependence structure of sectors in the economy. Known as the forerunners of the field, Hirschman (1958), Rasmussen (1956), Chenery and Watanebe (1958) investigated the linkages between the sectors and developed the input-output analysis. Input-output analysis identifies the interdependence of production and consumption in an economy. It shows the interrelations among different sectors that purchase goods and services from other sectors and which in turn produce goods and services that are sold to other sectors. The input-output table is designed to provide a concise and systematic arrangement of all economic activities within an economy. It shows the intersectoral flows in monetary terms for a particular year where the flows represent intermediate goods and services. Input-Output analysis is especially well suited to assessing how changes in one or more sectors of the economy will impact on the total economy. Canlı and Kaya (2011) and Dilber (2007) studied the effect of tourism sector on the economy using input-output analysis in terms of backward and forward linkages effect

In this study, we use input-output analysis to examine the significance and impact of tourism sector on the economy of Turkey and identify whether its interaction with other sectors may enhance economic growth. For this purpose, firstly we calculated the output multipliers of the sectors. Also secondly we carry out linkage analysis to examine the interdependence between tourism and other sectors.

2. Input-Output Analysis

Input-output analysis begins with the construction of a table, similar to the table of national/regional accounts, which shows the economy of the destination in matrix form. Each sector of the economy is shown in each column as a purchaser of goods and services from other sectors in the economy, and in each row as a seller of output to each of the other sectors (Rameezden, et.al, 2005). Then a group of equations are computed considering that a change in the amount of final demand will make an increase in the amount of activity within the economy, which manifests itself as changes in the output and sales of each sector.

In input-output analysis, A is the n by n matrix of technical coefficients. Each element of a represents the direct input requirements from sector i per unit of final demand for the output of sector j . Then, there is an inverse matrix in Leontief system like $(I - A)^{-1}$.

Each element of this inverse matrix denoted by w_{ij} is called an inter-dependence coefficient which measures the total stimulus to the gross output of sector i when sector j 's final demand changes by one unit. So, the output multiplier for sector j is given by the column sum of w_{ij} ($i = 1, 2, \dots, n$). The output multiplier for sector j is $OM_j = \sum_{i=1}^n w_{ij}$.

The output for each sector in the economy can be obtained through

$$X = (I - A)^{-1}Y$$

where, Y ; $n \times 1$ dimension vector indicating end-demand amount and X is the vector for output for each sector (Temurshoev, 2004: 3-4). Given the inverse matrix, two different approaches are found in measurement of linkages. Rasmussen (1956) favored the use of column (row) sums of the Leontief inverse matrix for measuring the inter-sectoral linkages because it takes into account both direct and indirect effects generated by the interrelationships. These indicators are considered as total (direct plus indirect) backward and forward linkage indicators. Chenery and Watanabe (1958), proposed to use the column and row sums of technical coefficient matrix to measure the backward and forward linkages of a particular sector. This method measures only the first round effects generated by the interrelationships between sectors since it is based on direct input (or output) coefficients. Therefore, these indicators are called direct backward and direct forward linkage indicators.

Total backward and total forward linkage indicators are also called output multipliers and input multipliers respectively. Backward and forward linkage indices are respectively and If the index value is higher than 1, it is said

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