

A Study into the Tourism Dynamics in Indian Economy

PRIYA SAXENA* and ANKITA GARG**

*Priya Saxena, Assistant Professor, Economics, University of Delhi, New Delhi, India

**Ankita Garg, Research Assistant, Research & Information System for Developing Countries, New Delhi, India

ABSTRACT

This paper aims to delve empirically into the short-run and long-run dynamics between the tourism sector and its significant role in escalating the economic growth in India. In literature, the following investigation is popularly known as *tourism led growth hypothesis* that suggests a positive relation between the growth of the tourism sector and overall economic growth of an economy. We will test for the existence of any cointegrating relationship between the two growth rates in the long-run as well as the presence of any causality between the two in the short-run. For the purpose of the study, the tourism sector is represented by the number of foreign tourist arrivals in India while the economic growth proxy is Gross Domestic Product at factor cost (2004-05 prices). The period of the study is Q1 1999 to Q1 2014. With a brief review of the existing literature, the data is first run through the unit root tests using the Augmented Dickey-Fuller test to determine the stationarity of the time series. This is followed by Johansen Cointegration test to examine the long-run relationship between the two variables. The final step in the data methodology is the Granger causality test to study the short-run dynamics between the tourism sector and overall economic growth. Data testing for the case in hand reveals an existence of a short-run bi-directional causality between tourism and economic growth.

Keywords: *India; Tourism; Economic Growth; Johansen Cointegration; Granger Causality*

Introduction

India is one of the fastest growing developing countries, but it is essential to tap every nook and cranny of the economic spectrum to keep the economy growing and taking it to a sustainable level of development. This calls for utilization of all the untapped or underused resources in the country. One such resource that can be instrumental in helping India reach a higher growth trajectory is its promising tourism sector.

Tourism industry is seen to have extensive economic linkages, forward and backward, that build overall income, investment, employment (especially for women, youth, and disabled people bringing greater social equity), and raises central, state, and local government revenue (National Tourism Policy, 2002).

While on one hand, tourism sector paves the way for increased foreign exchange earnings, on the other hand, it holds the potential to stimulate investments in private and public infrastructure and in human capital. Tourism creates employment opportunities and income driving up the overall economic

growth. *“Promotion of tourism is an instrument which not only drives up the economic growth but helps toward overall economic development on the back of its intermediate requirements for investment in social-economic variables”* (Brida and Pulina, 2010).

United Nation World Tourism Organization (UNWTO) also notes that with the growth in international and domestic tourism there is strong evidence that, if managed properly, tourism can make significant contribution in tackling poverty and fostering development. (*Tourism and Poverty Reduction, 2015*)

Indian Tourism has grown at a steady rate in the past but is fast picking up with the growing demands of the markets. As per the World Travel & Tourism Council India Initiative (WTTCII), the total contribution of travel & tourism to GDP in 2013 was INR 6.63 trillion. The number is expected to grow by 7.0% per annum to INR 13.98 trillion by 2024.

According to the study, the total contribution of travel & tourism to employment was 35.44 million jobs directly in 2013 accounting for 7.7% of total employment. The number is expected to increase to 43.84 million by 2024, an increase of 1.9% per annum.

Cross-country evidence reveals that several countries have used tourism to their advantage to pick up faster economic growth, which is commonly known as tourism led growth hypothesis. Though India is not traditionally a tourism-centered economy, it abounds huge potential as a tourist destination due to its rich cultural heritage. And only via a proper policy framework India can stimulate the tourism sector further. For the purpose, we shall look into whether or not any significant causality exists between tourism and national income in the long-run and short-run. Even the slightest indication of any causality between the two would help the policy makers in basing and targeting their policies. India holds vastly untapped tourism potential which if positioned in a right way, can help contribute to the overall economic development.

Literature Review

The existing literature on tourism-led growth hypothesis is limited, and whatever instances there are, they do not extend similar results. While some countries have witnessed a bi-directional causality between their economic growth and tourism growth while others have observed the one-way relationship between the two variables. Before testing the tourism led growth hypothesis for India, we will look at several countries where the tourism sector has served as a catalyst in promoting the short-run as well as the long-run economic growth of that country.

3.1 Uni-directional Causality

According to a study undertaken by Balaguer and Cantavella-Jorda (2002) for Spain during the 1975-97, it was noted that there existed a stable relationship between tourism and economic growth of the country in the long-run under the

standard Granger causality test. Oh (2005) studied data on the South Korean economy to find the direction of causality between tourism growth and economic growth and discovered that there existed only one-way relationship between economic growth and tourism expansion.

Chew Ging Lee (2008) found a similar result for Singapore where data analysis indicates a short-run unidirectional causality between economic growth and tourism expansion or just economic-driven tourism expansion during 1980-2005.

Juan Gabriel Brida, Edgar J Sanchez Carrera and W. Adrian Risso (2008) in their study confirm the tourism-led growth hypothesis for Mexico.

3.2 Bi-directional Causality

However, Dritsakis (2004) conducted a similar study for Greece during 1996-2000 and found a strong evidence of bi-directional causality between tourism earnings and economic growth. In 2005, Hyun Jeong Kim, Ming-Hsiang Chen and SooCheong "Shawn" Jang ran the standard Granger causality test and cointegration analysis on Taiwanese data and established a reciprocal relationship between tourism growth and economic growth in the country during 1975 and 2000.

Data and Methodology

The aim of this paper is to check the existence and direction of the long-term and short-run relationship between the tourism sector and the economic growth of India during 1999-2014. The proxy used for the tourism sector is the number of Foreign Tourist Arrivals in the country while economic growth is represented by Gross Domestic Product measured at Factor Cost at constant 2004-05 prices.

Figure 1 shows the quarterly total foreign visitor arrivals obtained from Ministry of Tourism, India. The Ministry of Tourism provides only monthly data, so the quarterly data is derived from the original monthly data set to facilitate comparison between the two variables in hand. The quarterly Gross Domestic Product at 2004-05 constant prices is plotted in Figure 2. The GDP data has been obtained from Ministry of Statistics and Programme Implementation. Both variables are studied from the first quarter of 1999 to the first quarter of 2014. The time series plot for the both the variables show an upward trend.

Figure 1 Quarterly Foreign Tourist Arrivals (1999-2014)

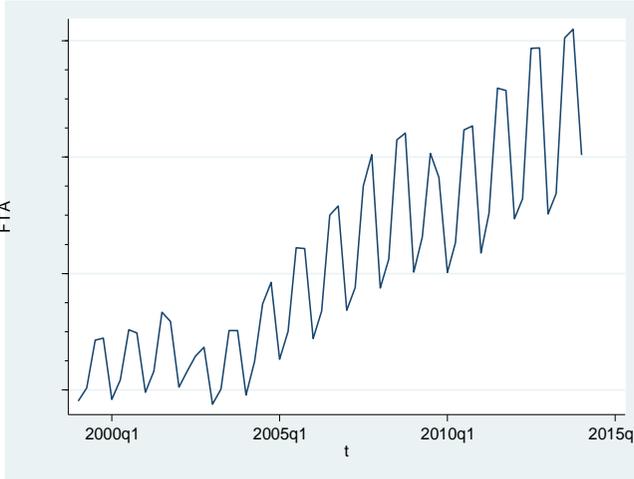
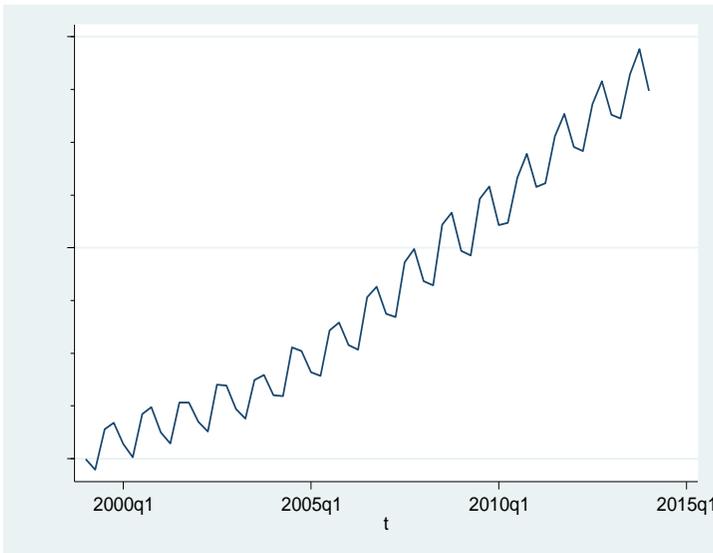


Figure 2: Quarterly Gross Domestic Product (1999-2014)



The data was tested positively skewed using the histograms. The histograms for quarterly Gross Domestic Product and Foreign Tourist Arrivals are shown below in Figure 3 and 4 respectively.

Figure 3: Gross Domestic Product Histogram

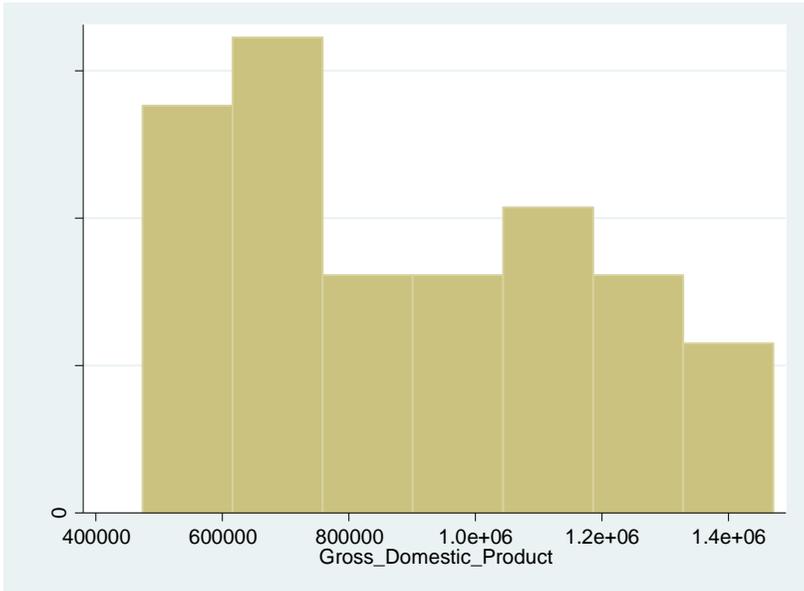
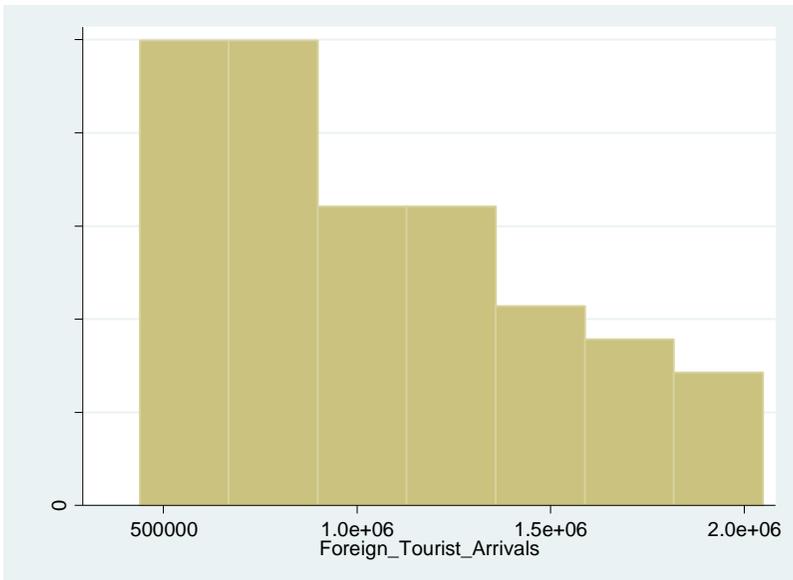
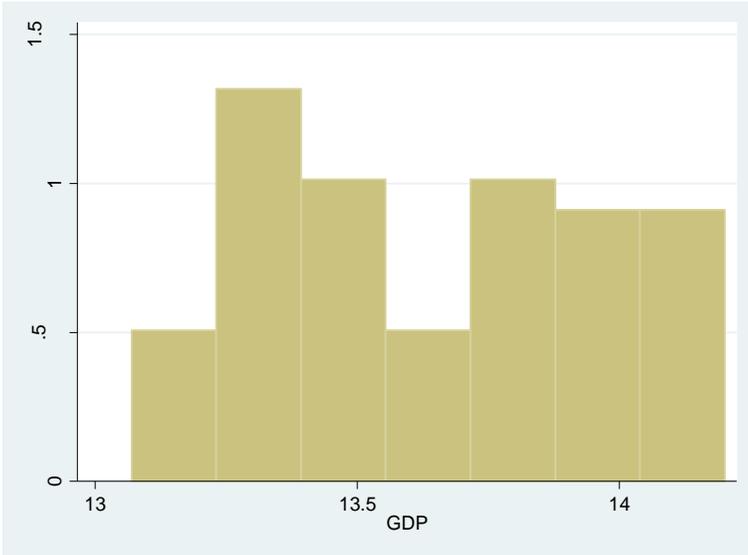
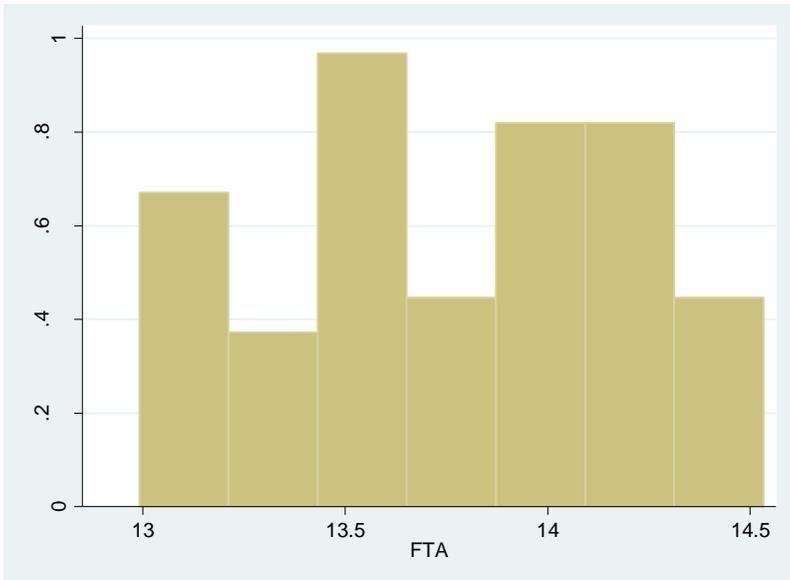


Figure 4: Foreign Tourist Arrivals Histogram



Therefore, we will apply log transformation on both the variables to correct for positive skewness, the result of which is displayed in Figure 5 and 6.

Figure 5: Gross Domestic Product Histogram (Post Log Transformation)**Figure 6: Foreign Tourist Arrivals Histogram (Post Log Transformation)**

We have normalized the data using the logarithmic transformation. The variables for study in the rest of the paper will be the common logarithm of Gross Domestic Product at 2004-05 prices (represented by GDP) and total visitor arrivals in India (represented by TOURIST).

4.1 Unit Root Test using augmented Dickey-Fuller Test

The first step in the process is to examine whether the time series variables- GDP and TOURIST- are stationary or not. We will apply the unit root test for the purpose. We will use one of the most widely used tests for a large sample which is Augmented Dickey-Fuller (ADF) test, an augmented version of the Dickey-Fuller test. The null hypothesis of ADF test is a series which is non-stationary or has a unit root. The test reports that both the series are integrated of order 1. Both series have only one unit root. The results of unit root test are reported in Table 1.

Table 1: Unit Root Test

| Variable | Augmented Dickey Fuller Test |
|------------------|------------------------------|
| GDP | -1.108 |
| Δ GDP | -21.196** |
| TOURIST | -2.868 |
| Δ TOURIST | -21.774** |

**denote that the null hypothesis is rejected at 5% level of significance. Since both series are integrated of order one, we proceed with the investigation for cointegration.

4.2 Johansen Cointegration Test

The cointegration test helps to determine whether there exists a stationary linear combination of two or more non-stationary series. Any presence of cointegration hints at the existence of a long-run relationship between the variables. Given that both the series are integrated of order 1, we will now investigate for cointegration using the Johansen (1988) cointegration test. To carry out Johansen cointegration test, variables must be non-stationary at level but stationary at the first difference, which is the case as shown above.

Initially, the optimal lag length for the test as determined using different criteria, such as Likelihood-Ratio (LR), Schwarz Information Criterion (SIC) and Hannan-Quinn Information Criterion (HQ) is 4. However, the lag order 4 is tested positive for residual autocorrelation. Therefore, we choose the next best lag order that minimizes the information criteria. The lag length as suggested by LR, SBIC and HQC is 3, at which the residuals are not autocorrelated.

To determine the number of cointegrating vectors, Johansen method provides two different likelihood ratio tests- the trace test, and the maximum eigen value test. The results of these tests are reported in the following table. (Table 2)

Table 2: Johansen Cointegration Test (GDP & TOURIST)

Optimal Lag: 3

| Hypothesized No. of CE(s) | Trace Statistic | 5% critical value |
|---|-----------------|-------------------|
| None | 7.4510* | 15.41 |
| At most 1 | 0.4175 | 3.76 |
| Trace Statistics indicate no cointegrating equation at 0.05 level | | |

| Hypothesized No. of CE(s) | Max-Eigen Statistics | 5% critical value |
|---|----------------------|-------------------|
| None | 7.0335 | 14.07 |
| At most 1 | 0.4175 | 3.76 |
| Max-eigen statistics indicate no cointegrating equation at 0.05 level | | |

The trace and maximum eigenvalue test results presented in Table 2 do not fail to accept the null hypothesis of no cointegration between GDP and TOURIST at 5% level of significance. Therefore, it can be concluded that there is the non-existence of long-run relationship between GDP and TOURIST.

4.3 Granger Causality Test

The lack of evidence of cointegration has limited the case for the testing of long-run causality. So now we will run unrestricted VAR model to test short-run causality from independent to the dependent variable.

Granger causality is related to the question of how useful one variable (or set of variables) y is for forecasting another variable (or a set of variables) x. If y does not Granger cause x, then y does not help to forecast x. Granger causality, however, does not imply the notion of causality in common sense.

Formally, the Granger causality test is applied on the VAR estimation as below:

$$GDP_t = \alpha_0 + \sum_{i=1}^r \alpha_{Gi} GDP_{t-i} + \sum_{i=1}^r \alpha_{Ti} TOURIST_{t-i} + \mu_{1t}$$

-- 1

$$TOURIST_t = \beta_0 + \sum_{i=1}^r \beta_{Ti} TOURIST_{t-i} + \sum_{i=1}^r \beta_{Gi} GDP_{t-i} + \mu_{2t}$$

-- 2

The null hypothesis in equation 1 is that all the lagged variables of TOURIST do not Granger cause GDP. Therefore, here the null hypothesis is $\alpha_{T1} = \alpha_{T2} = \dots = \alpha_{Tn} = 0$. Similarly, in Equation 2 the null hypothesis is $\beta_{G1} = \beta_{G2} = \dots = \beta_{Gn} = 0$. In both the equations, r is the number of lag taken. The same number of lagis selected in the

VAR model as in the Johansen Cointegration test, i.e.3. The results of short-run Granger causality for GDP and TOURIST are reported in Table 3.

Table 3: Granger Causality Wald Test

| Dependent Variable | Independent Variable | chi2 | Prob > chi2 |
|---------------------------|-----------------------------|-------------|-----------------------|
| GDP | TOURIST | 25.708 | 0.000 |
| TOURIST | GDP | 44.893 | 0.000 |

Since, in both the cases p-value is less than 5% level of significance, we do not fail to reject the null hypothesis at the given level of significance. The results indicate the existence of bi-directional Granger causality in the short-run from GDP to TOURIST and TOURIST to GDP.

Conclusion

Today, several economies around the world are positioning their untapped sectors to their optimum use. Though India is not a tourism-centered economy, but it abounds vast potential to attract tourists globally. The key to bringing in more international tourists is to develop and effectively position the tourism sector.

The outcome of the VAR granger causality test in India between its Foreign Tourist Arrivals and Gross Domestic Product from 1999-2014(quarterly) implies that GDP can granger cause Foreign Tourist Arrivals and vice-versa as can be seen from the low p-values. Although, we find that there is no long-run relationship (co-integrating relationship) between India's Foreign Tourist Arrivals and GDP, yet given the findings on bidirectional granger causality between the two variables, it can be said that India's foreign tourist arrivals has significantly contributed to the country's economic growth in the short run. Meanwhile, India's economic growth has evidently promoted the development of India's foreign tourism.

From the perspective of policymaking, one should identify the key areas in the tourism sector that have the greatest positive externalities and focus on their development. The present study lends support to the assertion that India can improve its economic growth performance, not only by investing on the traditional sources of growth, such as investment in physical and human capital and trade, but also by strategically harnessing the tourism industry. An effective tourism policy, well discounted for a sustainable level of development, is the need of the hour.

References

- Ahking, Francis W. "Model Mis-specification and Johansen's Co-integration Analysis: An Application to the US Money Demand." *Journal of Macroeconomics* 24.1 (2002): 51-66.
- A.P., John and John L. Crompton, "Developing and Testing a Tourism Impact Scale" *Journal of Travel Research* November 37 (1998): 120-30.
- Balaguer, Jacint, and Manuel Cantavella-Jordá, "Tourism as a Long-run Economic

- Growth Factor: The Spanish Case." *Applied Economics* 34.7 (2002): 877-84.
- Brida, Juan Gabriel, and Manuela Pulina, A Literature Review on the Tourism-led Growth Hypothesis. Working paper. 2010/17
- Brida, Juan Gabriel, and Manuela Pulina, "A Literature Review on the Tourism-led-growth Hypothesis." Centre for North South Economic Research. 25 June 2015.
- Brohman, John, "New Directions in Tourism for Third World Development," *Annals of Tourism Research* 23.1 (1996): 48-70.
- Brida, Juan Gabriel, Edgar J. Sanchez Carrera, and W. Adrian Risso, "Tourism's Impact on Long-Run Mexican Economic Growth," *Economics Bulletin* 3.21(2008): 1-8.
- Constantin, A.-O., & Gruici, B. (2010), "Testing the Cointegration of Oil Prices and Energy Sector Equity Indices", *Economic Sciences Series*, 75-82.
- Hakkio, Craig S. and Charles S. Morris, "Vector Auto regressions: A User's Guide." Research Division, Federal Reserve Bank of Kansas City (1984).
- Kim, Hyun Jeong, Ming-Hsiang Chen, and Soocheong "Shawn" Jang. "Tourism Expansion and Economic Development: The Case of Taiwan." *Tourism Management* 27.5 (2006): 925-33.
- LEE, Chew Ging. "Tourism and Economic Growth: The Case of Singapore." *Regional and Sectoral Economic Studies* 8.1 (2008)
- Lee, Chien-Chiang, and Chun-Ping Chang, "Tourism Development and Economic Growth: A Closer Look at Panels." *Tourism Management* 29.1 (2008): 180-92.
- Milne, Simon. "Tourism and Development in South Pacific Microstates," *Annals of Tourism Research* 19 (1992): 191-212.
- "National Tourism Policy." Ministry of Tourism (2002).
- "National Tourism Policy." Ministry of Tourism (2004).
- Oh, Chi-Ok, "The Contribution of Tourism Development to Economic Growth in the Korean Economy." *Tourism Management* 26.1 (2005): 39-44.
- Po, Wan-Chen, and Bwo-Nung Huang, "Tourism Development and Economic Growth—a Nonlinear Approach," *Physica A: Statistical Mechanics and Its Applications* 387.22 (2008): 5535-542.
- Scheyvens, Regina, "Backpacker Tourism and Third World Development," *Annals of Tourism Research* 29.1 (2002): 144-64.
- Sukati, Mphumuz, "Cointegration Analysis of Oil Prices and Consumer Price Index in South Africa Using STATA Software," (2013)
- Tourism & Poverty Reduction Report, United Nations World Tourism Organization (2015).
- "Travel & Tourism Economic Impact India," World Travel & Tourism Council 2014.