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Tourism as a Long-Run Economic Growth Factor: An Empirical Investigation for India Using Causality Analysis

UMER JEELANIE BANDAY
PhD Research Scholar
Department of Economics, Jamia Millia Islamia University
Delhi, India
MUSTAFA KOCOGLU
PhD Research Scholar
Department of Economics, Jamia Millia Islamia University
Delhi, India

Abstract:

Although much literature exists to demonstrate the importance of tourism as a foreign exchange earner, little is known about how tourism expansion affects the economy of a developing country (LDC). This paper employs a Time series analysis to demonstrate the potential contribution of tourism for economic growth in India from the time period of 1991 to 2012. Tourism contributes growth of economies (tourism led economic growth) or (economic-driven tourism growth). Co- integration test has been done for ascertaining long run relationship and VECM for short run dynamics. Granger Causality test has been applied to determine causal relationship between these variables. The evidence confirms the conventional the tourism led-Hypothesis, that tourism (represented by foreign exchange earnings) causes economic growth both in short and long run. The results also conforms the long run association between foreign tourist earnings and gross domestic product and the Granger causality indicates bi-directional causality between these variables.

Key words: Foreign exchange earnings, tourism, co-integration, granger test, time series analysis

1. INTRODUCTION

Tourism is considered to be harbinger of economic growth. It is considered as a mechanism of generating the employment as well as income in both formal and informal sectors. If we look on the other side the researchers finds a number of negative impact which affects the town, like high prices, drug addiction, brawls, vandalism, sexual harassment and crimes [1]. A general thought has emerged that it not only increases foreign exchange, but also creates employment opportunities, stimulates the growth of the tourism industry and by virtue of this, leads overall economic growth[2]. Tourism is becoming an important target for most governments, especially for developing countries. Tourism supplements the foreign exchange earnings derived from trade in commodities and sometimes finance the import of capital goods necessary for the growth of manufacturing sectors in the economy [3]. On the other hand rapid economic growth in the developed economies attracts foreign travels (Business travels), which leads to an increase in the foreign reserve of the country as well as long run economic growth of the country [4]. The World tourism Organization (WTO) statistics indicate that the annual average growth rate of international tourism arrivals in developing countries for the years 1990-2005 was 6.5%, compared to 4.1 % growth worldwide over the same period. Tourism's contribution to economic growth and development could be seen from its exports and this according to represents over 40% of all services exports, which puts it as the highest category of global trade. Estimate put tourism to have accounted between 3% - 10% of the GDP in the developing world. In general, there is an increasing and widely accepted belief that tourism can play a fundamental role for developing countries to achieve economic growth and can built a culture diversity which will create an indirect demand of that culture [5].

This belief that tourism can promote, long-run economic growth is known in literature as the tourism-led growth hypothesis [6]. Tourism-led growth tends to occur when tourism demonstrates a stimulating influence across the overall economy in the form of spillovers and other externalities. As in the export-led growth hypothesis, a tourism-led growth hypothesis would postulate the existence of various arguments for which tourism would become a main determinant of overall long-run economic growth [7]. In a more traditional sense it should be argued that tourism brings in foreign exchange, which can be used to import capital goods in order to produce goods and services leading in turn to economic growth in the field of tourism [8]. India is getting 0.87% tourist of all around the globe. Since the starting of Incredible India champagne the Indian travel market shows a positive growth rate. Global Travel & Tourism contribution to direct GDP in 2013 is forecast to grow by 3.1%, compared to 3.2% in 2012 [9]. Travel & Tourism is again forecast to outpace growth of the total global economy (2.4%) in 2013 [10]. According to WTTC (WTTC, Asia, Nov., 2013) Travel & Tourism direct industry GDP in Asia reached $US646 billion in 2013. Including its indirect and induced impacts, Travel & Tourism generated $US 2.0 trillion in GDP, or 8.7% of Asia's GDP in 2013, exceeding that of the banking, mining, education, and higher education sectors. The Oxford Economics global industry model projects Travel & Tourism GDP to grow 5.3% per annum (compound annual growth) over the next decade. Travel & Tourism generated a total impact of $US 128 billion of India's GDP in 2013 (WTTC, India, Nov., 2013) [11]. Based on its direct, indirect, and induced GDP impact, Travel & Tourism generated 6.7% of India's GDP in 2013. Travel & Tourism generated, either directly or indirectly, 7.6% of employment in India in 2013 [12].

In this study, we aim to identify whether there is a unidirectional or bidirectional causal relation between tourism and economic growth in the case of India. For this we use

annual data for tourism growth and economic expansions from 1991 to 2013, and will test it by the time series technique, co-integration, to find out the existence of long run relationship between these variables. Co-integration is a powerful concept, because it allows us to describe the existence of an equilibrium, or stationary relationship among two or more time series, each of which is individually non-stationary.

The evidence of co-integration allows using an error correcting modeling (VECM) of the data to formulate the dynamic of the system. If both variables, that is, tourism growth and economic expansion are co-integrated then there is a long run relationship between them. However, in short run these variables may be in disequilibrium, due to the disturbances. The dynamics of this short run disequilibrium relationship between these two variables can be described by a Vector error correction model (VECM).

2. REVIEW OF LITERATURE

The theoretical trend of studies stems from the export-growth nexus where export causes economic growth or in other words the export-led growth hypothesis. Literature on export-led growth hypothesis affirmed the contribution of export on economic development (Shan and Sun, 1998; Marin, 1992). Recently, some researchers focused on non-traded goods, more specifically on tourism and economic growth (Balaguer and Cantavella-J, 2002; Dristakis, 2004; Durbarry, 2004; 2009b; Khalil et al., 2007).

Ghali's (1976) study empirically examined the role of tourism in economic growth on Hawaii using expanded version of growth equation. Diamond (1977) analyzed the role of tourism in the economic development of the country in general and Turkey in particular. Jimenez and Ortuno (2005) though were based on country specific analysis, provided frameworks and ingredients for the economic impact analysis for similar

cases ranging from developed to developing countries. The tourism impact analysis presented in the Zhang's (2001) paper demonstrated how regional analysis can be carried out by using an economic model. The model presented in the study can be applied in several other policy-oriented projects, such as agriculture, transport and taxation policy and all kinds of regional analysis [13].

Throughout the literature, GDP has been proxied as the indicator of a country's economic growth regardless nominal or real term. Two most common variables for tourism activity pointers are total number of tourist arrivals and tourism receipts or earnings. The selection of proxy subjects to the reliability, availability of data and other technical problems, such as serial correlation or multicollinearity (Gunduz and Hatemi-J, 2005). On (2005) discussed that tourism receipts provide more precise measure of tourism expansion generated from economic data due to the role as universally measured consistent index that closely linked to GDP.

Considering both the positive and negative potential effects on destination communities, researchers propose that tourism should be developed in coordination with the local community's value and environment. Tourism has assumed very high significance in the development of the economy (Kartik, Clement, 1998). It is often assumed that Tourism provides a mean of relieving poverty. Indeed international organisation such as World tourism Organisation often links its development with potential for poverty relief and rural development. However apart from studies of specific projects and programs that indicate how this industry can assert poverty relief (Ashley and Roe, 2002). World tourism can contribute to the establishment of a new international economic order that will help to eliminate the widening economic gap between developing countries and ensure the steady acceleration of economic and social development and progress, in particular in developing countries.

Balaguer and Cantavella-J (2002) suggested including real effective exchange rate (REER) to deal with potential omitted variables problem and to account for external competiveness. It is noted that Nanthakumar et al. (2008) included consumer price index (CPI) to study the relationship between total tourist arrivals and real GDP. However, we argue that it would be superfluous to include CPI if it comparatively absorbs the price level changes only in domestic market but REER comprehensively considers both the local currency against major currency with the inclusion of domestic cost living.

Similarly, Khalil and et.al (2007) examined the role of tourism in economic growth of Pakistan. Using annual data for the period from 1960 to 2005, they identified empirically whether there is a unidirectional or bidirectional causal relation between tourism and economic growth. Using the concepts and methods of the co-integration and Granger Causality Test, their study explored the short-term dynamic relations as well as long-run equilibrium conditions and concluded about the existence of co-integration between tourism and economic growth in Pakistan.

The causal relationship between tourism earnings and growth in developing economies has been of considerable interest among contemporary economists because of its tremendous policy implications. Despite the increasing importance of tourism to achieve the national economic goal, economic analysis has attracted relatively little attention in the Nepalese studies. The basic approach of the paper is to assess the relationship of tourism receipt and economic growth variables to ascertain the relationship between tourism and economic expansion.

3. DATA

The annual data for the period 1991 to 2012 is being used for empirical analysis. Foreign Receipts (FTEE) and Gross

Domestic Product (GDP) data in local currency is employed to analyze the dynamic relationship between GDP and tourism receipts. Annual observations of GDP and tourism receipts are taken from various issues of Economic Survey of India and Tourism Year Book, Ministry of Tourism, respectively.

4. METHODOLOGY

To examine the role of tourism earnings on economic growth it is necessary to investigate whether tourism receipt causes economic growth or not. The model is specified as follows:

$$GDP\ t = a\ 0 + TTEE\ t + \dot{v}\ t \ldots\ldots\ldots (1)$$

where, GDP represents level of real gross domestic product at time t, FTEE refers to the level of real foreign exchange earnings from tourism at time t, v̇ t is the error term and t indicates the time period.

First of all, unit root test has been carried out to each series individually in order to provide information about the data being stationary. Non-stationary data contain unit root. The existence of unit root makes the results of hypothesis test unreliable as it create the problem of spurious. There are various methods such as Dickey Fuller (DF), Augmented Dickey Fuller (ADF), Durbin Watson test (CRDW), and Phillip-Perron (PP) to conduct unit root test. Here, Augmented Dickey-Fuller Test (ADF) has been applied to test for the existence of unit root and to determine the degree of differences in order to obtain the stationary series of GDP and FXET. The result is derived using Johansen Cointegration Test [14].

Johansen's methodology takes its starting point in the vector auto regression (VAR) of

order *p* given by $\mathbf{y_t} = \boldsymbol{\mu_t} + \mathbf{A_t}\ \mathbf{y_{t-1}} + \ldots + \mathbf{A_p}\ \mathbf{Yt_p} + \boldsymbol{\varepsilon_t}$ where **Yt** is an *n*x1 vector of variables that are integrated of order one – commonly denoted I(1) – and $\boldsymbol{\varepsilon_t}$ is an *n*x1 vector of innovations. This VAR can be re-written as :

$$\Delta y_t = \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \Pi y_{t-p} + \mu_t + \varepsilon_t \quad \text{..... (2)}$$

$$\text{Where, } \Pi = \sum_{i=1}^{p} A_i - I \text{ and } \Gamma_i = -\sum_{j=i+1}^{p} A_j$$

In this test, the null hypothesis of r co-integrating vectors is tested against the alternative of r+1 co-integrating vectors. Thus, the null hypothesis r = 0 is tested against the alternative that r = 1 against the alternative r = 2, and so forth. Johansen proposes two different likelihood ratio tests of the significance of these canonical correlations and thereby the reduced rank of the Π matrix: the trace test and maximum eigenvalue test, as follows:

$$J_{trace}(r / p) = -T \sum_{i=r+1}^{n} ln(1 - \hat{\lambda}_i)$$

$$J_{max}(r / r+1) = -T\, ln(1 - \hat{\lambda}_{r+1})$$

Where, T is the sample size and $\hat{\lambda}$ is the i:th largest canonical correlation.

It is also to note that the co-integration tests are very sensitive to the choice of lag length. Following Cartavella-Jorda and Shamin and et al. after confirmation of the existence of co-integration between the variables in the equation, the Granger Causality test has been performed.

The traditional practice in testing the direction of causation between two variables is the Granger causality test. According to Granger X causes Y if the past values of X can be used to predict Y more accurately than simply using the past values of Y. In other words, if a past value of X improves the prediction of Y with statistical significance, then we can conclude that X "Granger Causes" Y. The Granger causality test consists of estimating the following equations:

$$GDP_t = \beta_0 + \sum_{t=1}^{n} \beta_{1i} GDP_{t-i} + \sum_{t=i}^{n} \beta_2 FTEE_{t-1} + U_t \quad (3)$$

$$FTEE_t = \alpha_0 + \sum_{t=1}^{n} \alpha_{1i} FTEE_{t-i} + \sum_{t=i}^{n} \alpha_2 GDP_{t-1} + V_t \quad (4)$$

Where Ut and Vt are uncorrelated and white noise error term series. Causality may be determined by estimating Equations 3 and 4 and testing the null hypothesis that $\sum_{i=1}^{n} ß_{1i} = 0$ and $\sum_{i=1}^{n} \alpha_{1i} = 0$ against the alternative hypothesis that $\sum_{i=1}^{n} ß_{1i} \neq 0$ and $\sum_{i=1}^{n} \alpha_{1i} \neq 0$

for equations (3) and (4) respectively. If the coefficient of α 1i is statistically significant but ß1i is not statistically significant, then GDP is said to have been caused by FTEE (unidirectional). The reverse causality holds if coefficients of ß1i are statistically significant while α 1i is not. But if both ß1i and α 1i are statistically significant, then causality runs both ways (bi-directional).

The evidence of co-integration allows using a vector error correcting modeling of the data to formulate the dynamic of the system. If both variables GDP and FTEE are co-integrated then there is a long run relationship between them. Of course, in the short run these variables may be in disequilibria, with the disturbances being the equilibrating error. The dynamics of this short run disequilibrium relationship between these two variables can be described by an error correction model (ECM) [15].

According to Engle and Granger, the Error Correction Model can be specified as follows for any two pairs of test variables.

$$\Delta GDPt = + p_1 Z_{t-1} + \alpha_1 \Delta FTEEt + U_{1t} \quad \text{.....(5)}$$

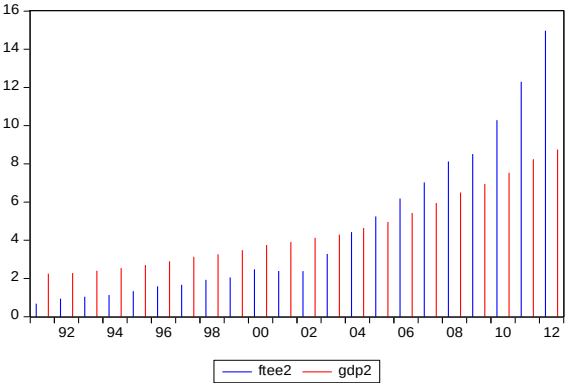
$$\Delta FTEEt = + p_2 Z_{t-1} + \beta_1 \Delta GDPt + U_{2t} \quad \text{.....(6)}$$

Statistical significance tests are conducted on each of the lagged Zt term in Equations (5) and (6). The coefficients of the Zt reflect the short run disequilibrium in the model. The parameters, p1 and p2, are the speed adjustment parameters in equation (5) and (6) when there is a discrepancy from long run equilibrium.

5. EMPIRICAL RESULTS

This paper utilizes annual data starting from 1991 to 2013. Out of two variables used in the model, earning from tourism (FTEE) is obtained from Tourism Statistics while GDP is derived from Economic Survey, 2010/11 and Indian Planning commission. Figure 1 shows the annual growth rate for both variables.

Figure 1: GDP and Tourism Earnings (% Growth)



Source: Author's computation with Eviews 9.0.

The empirical analysis begins with identifying level of integration of each variable as regression with non-stationary time series data may lead to spurious result. Thus, the analysis proceeds for the unit root test (Augmented Dickey Fuller) for both the variable GDP and FTEE and results are presented in Table No. 1. The Augmented Dickey Fuller (ADF) Test results confirm that the time series data of the variables in the model are non-stationary in their levels. However these variables are stationary in their second difference.

Table 1: ADF test at level

Series	t statistic	ADF at 1% Level	ADF at 5% Level
GDP	-0.694785	-2.692358	-1.960171
FTEE	-0.905737	-2.685718	-1.959071

Note: A variable is stationary when the ADF t-stat is greater than the critical values and Non-stationary when t-stat is less than critical value.

Table 2: ADF at Second Difference

Series	t statistic	ADF at 1% Level	ADF at 5% Level
GDP	-5.432000	-2.692358	-1.960171
FTEE	-4.967852	-2.692358	-1.960171

Source: Author's computation with Eviews 9.0.

Note: A variable is stationary when the ADF t-stat is greater than the critical values and Non-stationary when t-stat is less than critical value.

The result exhibited that both variables are stationary in first difference and when we take them at second difference all the variables became stationary. Hence, one can estimate the long run relationship using Johansen Co-integration Test. Given the integration of these series is of the same order; it is desirable to test whether the series are co-integrated over the sample period.

Table 3: Johansen Co-integration Test (For Trace Value stat)

Maximum Ranks	Eigen Value	Trace Statistic	5% Critical Value
0	0.609726 .	17.87987	15.49471
1	0.000140	0.002665	3.841466

Trace-Value stat indicates 1 co-integrating equation at 0.05 level.

** denotes rejection of hypothesis at 0.05 level.*

Table 4: Johansen Co-integration Test (For Max-Eigen Value stat)

Maximum Ranks	Eigen Value	Max Statistic	5% Critical Value
0	0.609726	17.87721	14.26460
1	0.000140	0.002665	3.841466

Source: Author's computation with Eviews 9.0.

Max-Eigen stat indicates 1 co-integrating equation at 0.05 level.

** denotes rejection of hypothesis at 0.05 level.*

The result of the trace and maximum Eigen value summarized in Table 3 and 4 indicates the possibility of rejecting the null hypothesis that says there are no co-integrating vectors at 5 percent level of significance. That means when 5 percent

critical value is greater than trace statistic that means we can reject null hypothesis which means there is a 1 co-integration. This validates the existence of long run equilibrium relationship between GDP and the foreign tourist's earnings (FTEE) as the trace statistics indicates 1 co-integrating relationship while the maximum Eigen value indicates 1 co-integrating relationship, which means that they do not diverge away from each other in the long run. It means our two variables are co-integrated and have long run association and are moving together in the long run.

Applying the WALD test, the results from Table 5 and 6 shows that the causality between gross domestic product and foreign tourist's earnings does exist at 5 percent level of significance. The value 0.000 is statistically significant showing that gross domestic product causes granger to foreign tourist earnings and foreign tourists earning also causes granger to gross domestic products. The results show the existence of bi-directional relationship between GDP and FTEE. The main objective of this paper is does FTEE impact GDP, it has been know confirmed that FTEE impact the GDP of the country and have a long run association with each which means both the variables move together in the long run.

Table 5: Granger Causality Tests. Dependent Variable; D (FTEE)

Excluded	Chi-Square	Df	Prob
D(GDP)	27.185	4	0.000
ALL	27.185	4	0.000

Source: Author's computation with Eviews 9.0.

Note: when probability value is more than 0.5% we accept null hypothesis

Table 6: Granger Causality Tests. Dependent Variable; D (GDP)

Excluded	Chi-Square	Df	Prob
D(FTEE)	15.994	4	0.003
ALL	15.994	4	0.003

Source: Author's computation with Eviews 9.0.

Note: when probability value is more than 0.5% we accept null hypothesis.

To determine the short-run dynamics, error correction model is estimated. The focus of the Vector Error Correction analysis is on the lagged Z_t terms. These lagged terms are the residuals from the previously estimated co-integration equations. It will be useful to use a (Vector Error Correction Model (VECM) to understand the relationship between the variables in the short run, which will be useful to have comprehensive information concerning the dynamic relationship between the variables and how the adjustment toward the equilibrium position occurs after the initial divergence.

Table 7: VECM Dependent variable D (GDP)

Test Statistic	Value	Df	Probability
F-statistic	0.060025	(2, 13)	0.9420
Chi-square	0.120051	2	0.9417

Source: Author's computation with Eviews 9.0

Table 8: VECM Dependent variable D (FTEE)

Test Statistic	Value	Df	Probability
F-statistic	4.999352	(2, 13)	0.0245
Chi-square	9.998705	2	0.0067

Source: Author's computation with Eviews 9.0

Null Hypothesis: C (9) = C (11) = C (12) = C (13) = 0

Note: when probability value is more than 0.5% we accept null hypothesis.

The result of the f-statistic, chi-square and probability value summarized in Table 7 indicates the acceptance of null hypothesis that says there is no short run causality among the variables. In table 8 indicates the rejection of null hypothesis, it depicts that the change in economic growth is explained by the change in foreign exchange receipts. In addition, it is clear from the estimate of both the variables, GDP (economic activities) and FTEE (tourism earning), respond to a short term deviation from long run equilibrium meaning thereby that, it is the GDP which influences the FTEE in short run.

Granger causality in a co-integrated system Z_t granger causes GDP and FTEE in both the equations. It is clear that a

bi-directional causality exists between real gross domestic product and tourism receipts in India prospective.

6. CONCLUSION

The analysis about the relationship between tourism earning and economic growth exhibited the significant association between the variables. Using the concepts and methods of the unit root test, co -integration, Granger causality test and vector error correction method, the study confirms that there exists short-term dynamic relationship among one variable as well as long -run co-integrating relationship between both variables i.e. is tourism income and GDP. It is consistent with the results of Balaguer and Cantavella-Jorda (2002) that used the data for Spain and also with Khalil et al. (2004) that used data for Pakistan.

In addition, the evidence seems to verify the notion that tourism growth granger causes economic growth and vice versa indicating a bi-directional causality between economic growth and tourism growth. It is clear that tourism growth increases economic activities and economic growth also facilitates for the expansion of tourism activities in the country. Our finding suggests that policy should be focused to develop tourism sector in order to achieve high economic growth.

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