

MACRO ENVIRONMENTAL EFFECT ON SUSTAINABILITY OF TOURISM SECTOR: INDIAN EVIDENCE

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Abstract Sustainability of tourism sector measures through the revenue from tourism sector (IFTS). The Tourism sector of any country depends on various macro- and micro-environmental elements. In India, the tourism sector also depends on different macro-environmental elements like the Human Development Index (HDI), Political Stability Index (PSI), and Global Terrorism Index (GTI), etc. The objective of this study is to identify the effect of these selected elements on the revenue earned from the tourism sector of India and also to investigate the more influential element(s) for the sustainability of the tourism sector. Multiple variate regression analysis is used on twenty two years (1997–2018) annual data that is collected from the website of different national and international agencies and cross checked. It is observed that only one element among the three has a significant impact on the sustainability of the Indian tourism.

Keywords: Sustainability, Tourism Sector, HDI, PSI, GTI, Regression

INTRODUCTION

Economic prosperity of the nation depends on the activities of various sectors (see, Dreher, 2006; Rani et al., 2019). The tourism sector that works under the service sector plays an important role (Honey, 1999) for economic development. Various macro- and micro-environmental elements assist to measure its strength (see, Muhanna, 2007; Maheshwari et al., 2023). It is assumed that macro elements like Human Development, Political Stability, and Terrorism etc. have effect on tourism sector. Sustainability of tourism sector is essential for maintaining the growth of the country. It helps to generate more revenue. Hence, the sustainability of tourism sector is measured through the revenue generated from this sector. Here, the degree of Human Development, Political Stability, and Terrorism are measured through their respective indexes, i.e., Human Development Index (HDI), Political Stability Index (PSI), and Global Terrorism Index (GTI). Hence, it can be said that these indexes may have an effect on revenue earned from tourism sector (RVTS).

The remaining of this paper is designed as follows: Section-II presents a review of the literature and research gap. The objective of the study is depicted in section III. Section IV deals with collection of data and study period. Section V helps to define the formulation of hypotheses. Research

methodology is depicted in Section VI. Section VII highlights the analyses of the results and finally, conclusion and recommendation are given in Section VIII.

REVIEW OF LITERATURE AND RESEARCH GAP

The tourism sector may spread out peace throughout the world (International Institute for Peace through Tourism [IIPT], 2011). Since four decades the researchers on tourism (Allen, Long, Perdue & Kieselbach, 1988; Brougham & Butler, 1981; Cater, 1987; Cohen, 1978; Farrell & McLellan, 1987; Liu & Var, 1986; Smith, 1977; Turner & Ash, 1975; Young, 1973) have drawn their attention on the impact of economic, social, and environmental elements on tourism. Carlsen (1999) discusses that how demand of tourism will increase and the techniques for managing the destination of tourists. Griffith (2002) conducts a study and investigates the economic performance of tourism among four Caribbean communities. Chen (2006) in his study develops quantitative and qualitative model for assess the economic impact of tourism sector on society. Sharpley (2003) investigates that the overall development of Cyprus depends on the tourism sector. Belle and Bramwell (2005) investigate whether the environmental policy supports the tourism policy of their

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country or not. They also investigate that if there exists any gap between these two, then the tourism sector will be hampered. Shareef and McAlteer (2005) examine the impact of economic volatility of a country on the tourism sector and they identify that there is a negative impact. Sahli and Nowak (2007) conduct a study by considering the general macroeconomic equilibrium technique for measuring the impact of tourism on the overall development of the country and observing the negative impact of tourism on economic development in the developing country. The relationship between tourism and other export industries is calculated by Ghina (2003) in his study. Winson (2006) conducts a study and identifies that relatively large number of people engaged in the tourism industry than other sectors in Japan.

Kokkranikal et al. (2003) highlights on sustainable tourism and also explores the geographic, environmental, structural, and political limitations for the development of sustainable tourism sectors. The term 'sustainable tourism' is used by May (1991) and Nash & Butler (1990). The tourism sector has direct and indirect impacts on society and the environment. Here, impacts on air and water are called direct impacts. Similarly, the impact on manufacturers and transports are called indirect impact (Aall, 2011; Buckley & Araujo, 1997; Chan & Lam, 2003; Majumdar et al., 2020; Chawla et al., 2020). Tourism some time damages wildlife and creates negative impact on natural life (Buckley, 2004; Buckley, 2011a; Liddle, 1997; Nimon, Schroter & Stonehouse, 1995). In 1999, Honey, investigated the social and political impact on tourism in his study. Lane et al. (2009) in their study, identify that the tourism sector helps to enhance public relationship. Bojanic et al. (2009) conduct a study for evaluation of the relative importance of the tourism sector for Islands and regular countries. They use panel data of twelve years from 140 countries and reveal that Islands have lower capacity to accommodate travellers as compared to others but their GDP is highly influenced by the tourism sector than other countries.

So, the tourism sector is highly affected by various elements (environment, economic, and politics). Tourism and environmental policies should be coinciding for the development of the tourism sector. Few papers highlight that country's GDP totally depends on the tourism sector. The tourism sector is adversely affected by the economic shocks. Moreover, this sector creates negative impacts on wildlife and nature. Very few studies highlight the sustainable tourism. Although, environmental pollution creates a negative impact on sustainable tourism. Researchers around the world have dealt with various areas of the tourism sector but till now there exists a gap where the impact of the Human Development Index (HDI), Political Stability Index (PSI) and Global Terrorism Index (GTI) on the sustainability of the tourism sector is not covered and this study tries to fill

this gap and surely add value to the existing literature.

OBJECTIVE OF THE STUDY

Here, two-fold objectives are examined. At first, the effect of the selected factors on the revenue generated from the tourism sector is examined and thereafter, to identify the more influential element(s) for maintaining the sustainability of the Indian tourism sector.

DATA AND STUDY PERIOD

The study considers twenty two years of annual data starting from 1997 to 2018, and the variables are revenue generated from tourism sector (RVTS), HDI, PSI, and GTI, and the data are collected from their respective websites and cross checked with the data collected from the official website of the World Bank.

FORMULATION OF HYPOTHESES

The following hypotheses are formulated by taking into consideration of the environmental elements for testing:

H₁: There is a positive relationship between revenue generated from tourism sector and human development index (HDI).

H₂: There is a positive relationship between income from tourism sector and Political Stability Index (PSI).

H₃: There is a negative relationship between Global Terrorism Index (GTI) and revenue earned from Tourism Sector.

RESEARCH METHODOLOGY

The study uses two types of variables namely dependent variable and a set of independent variables. Here, income from the tourism sector is treated as dependent variable and human development index (HDI), political stability index (PSI), and also global terrorism index (GTI) are considered as exogenous variables.

The Human Development Index (HDI) is a combined measure of average achievement of key dimensions of human development, i.e., a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalised indices for each of the three dimensions (Human Development Report). A higher score indicates higher development of human life. Whereas, PSI represents the perception regarding stability of the Government. It also indicates the situation regarding stabilisation or destabilisation of the government. So, a higher score presents more stability and vis-à-vis. Finally,

the GTI is an attempt to present the systematic rank of the nations of the world according to the terrorist activities. The index combines a number of factors associated with terrorist attack and the index is developed by Institute for Economics and Peace (IEP) and is based on data from the Global Terrorism Database (GTD) which is collected and collated by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. A higher value of this index suggests high prone to terrorism activity and vis-à-vis. It varies between zero (0) and one (1) (Wikipedia).

The study uses log operator to convert the data into log form and then the Kolmogorov-Smirnov test is applied to check the normality of the data as under:

$$D = \text{Maximum} |F_o(X) - F_r(X)| \tag{1}$$

Where $F_o(X)$ = observed cumulative frequency distribution of a random sample of n observations and $F_o(X) = k/n$ (No. of observations $\leq X$)/(Total no. of observations).

$F_r(X)$ = the theoretical frequency distribution.

If the calculated value is less than the critical value then null hypothesis is accepted that means data is normal or vice-versa.

It is assumed that income generated from tourism sector is a function of HDI, PSI and GTI. So, it can be written as under:

$$RVTS = f(\text{HDI}, \text{PSI}, \text{GTI}) \tag{2}$$

This function can be presented in statistical sense as under:

$$RVTS = \alpha + \beta_1(\text{HDI}) + \beta_2(\text{PSI}) + \beta_3(\text{GTI}) \tag{3}$$

Here, equation 3 doesn't include error term and so the above model can be represented by taking into consideration the log form of the data in an econometric sense as under:

$$\text{LRVTS} = \alpha + \beta_1(\text{LHDI}) + \beta_2(\text{LPSI}) + \beta_3(\text{LGTI}) + e \tag{4}$$

Where, LRVTS indicates income earned from tourism sector; LHDI indicates human development index; LPSI index political stability index and finally, LGTI indicates global terrorism index and e is the error term with zero mean and constant standard deviation with the following properties: $E(e) = 0$, $\text{Var}(e) = \sigma^2 e$ and $\text{Cov}(e_i, e_j) = 0$ where $i \neq j$. α and β are the coefficients to be estimated by using equation 4.

The study uses the Durbin-Watson (d) test to check the autocorrelation problem in the regression residuals.

ANALYSIS OF RESULT

Table 1 highlights the descriptive statistics of the variables. It is found that the deviation of HDI (0.04433) among

sample years is lower as compared to the others. Here, the coefficient of variation signifies the consistency of the data. It is observed that the coefficient of variation of HDI (0.002) represents more consistency as compare to their counterparts. It indicates the fluctuation of data relating to HDI is very lower. It also highlights that the intensity of fluctuation of GTI in India is very high (3.163) during the sample period. It is also found that the fluctuation of political stability in India is 0.004, which indicates our country's development of human being is in a stable position.

Table 1: Descriptive Statistics

Dimensions	Mean	Std. Deviation	Coefficient of Variation
LRVTS	8.2432	0.84461	0.713
LHDI	1.7453	0.04433	0.002
LPSI	0.0728	0.06489	0.004
LGTI	1.7665	1.77862	3.163

Note: Authors' own calculation.

It is observed from Table 2 that the probability values of the Kolmogorov-Smirnov test statistics of the variables are higher than five percent meaning that acceptance of the null hypotheses or in other words the data are normally distributed.

Table 2: Test of Normality

Variable	Kolmogorov-Smirnov		
	Statistic	df	Probability
LRVTS	0.131	20	0.090
LHDI	0.090	20	0.200
LPSI	0.157	20	0.200
LGTI	0.187	20	0.064

Note: Authors' own calculation.

The outcome of the regression equation is presented in Table 3. The coefficient of the human development index (HDI) is positive and statistically significant which indicates that HDI positively and significantly influenced the income from generated from the tourism sector of India during the study period. But the coefficient of political stability is positive but not significant. Finally, the coefficient of the GTI is negatively influences income from the tourism sector although the coefficient is insignificant that means if terrorism activity increases in a country then income from tourism sector will be in a decreasing trend. It is also observed from the table that the disturbances terms are free from the autocorrelation problem as the Durbin-Watson test statistic is 1.80.

Table 3: Regression Estimates

Coefficients	Beta	T-Statistic	Probability	D-W
HDI	0.899	8.791*	0.000	1.80
PS	0.023	0.190	0.851	
GTI	-0.076	-0.627	0.539	

*Significance at 5% level.

Note: Authors' own calculation.

CONCLUSION AND RECOMMENDATION

Income from the tourism sector of India is influenced by all sample elements. This study is conducted on twenty two years of data on three environmental elements by using the multiple regression method. The result of this study reveals that the effects of three elements satisfy the hypotheses. Out of these three, only the HDI has a significant impact on Income from tourism sector. PSI has positive impact on income from the tourism sector of India but it is insignificant like GTI. Impacts of GTI on Income from tourism sector show that terrorism activity of India decreases the degree of flow of tourism sector. It can be concluded that all three variables have impact on Income from tourism sector but HDI act as more influential factor on it. So sustainability of income from tourism sector of India strongly depends of education, health and income as well as the political stability of the country.

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