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Beyond Growth: Does Tourism Promote Human Development in India? Evidence from Time Series Analysis

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Abstract

The present study aims to investigate the impact of tourism growth on human development in Indian economy. For this purpose, the study uses annual data from 1980 to 2018 and utilizes two proxies for tourism growth – tourism receipt and tourist arrivals – and uses human development index calculated by UNDP. The study uses control variables such as government expenditure and trade openness. The study employs auto regressive distributed lag (ARDL) approach to investigate the cointegrating relationship among the variables in the model. Further, the study also explores the causal nexus between tourism sector and human development by using the Toda-Yamamoto Granger non-causality test. The result of ARDL bounds test reveals the existence of cointegrating relationship between human development indicators, government expenditure, trade openness, and tourism sector growth. The cointegating coefficient confirms a positive and significant relationship between tourism sector growth and human development in India. The causality result suggests that economic growth and tourism have a positive impact while trade openness has a negative impact on human development in India. The major findings of this study suggest that tourism plays an important role in the socio-economic development of Indian economy in recent years and the country must develop this sector to achieve sustainable development.

Keywords: Tourism Sector Growth, Economic Growth, Human Development, ARDL, Granger Causality

JEL Classification Code: C22, O1, O15, O53, Z32

1. Introduction

Tourism has always been one of the largest economic sectors in the world and an important one for many countries. However, with the development process, the degrading effect of tourism has become a major concern for all countries and needs to be addressed appropriately (Vu, Tran, Nguyen, & Nguyen, 2020). Many researchers have extensively explored the tourism and economic growth nexus for numerous economies. Many single country-specific and panel studies have emphasized tourism's pivotal role in promoting economic growth (Kumar, Kumar, Kumar, & Stauvermann, 2019; Mitra, 2019). Brida, Cortes-Jimenez, and Pulina (2016) provide extensive literature review studies related to tourism and growth linkage. However, most of the studies use economic growth as a measure for development. The studies assume that enhancing GDP growth eventually trickles down to the poor and promote development. However, Noble laureate Amartya Sen argues that economic growth is a one-dimensional measure, whereas the term 'development' basically involves multi-dimensions aspects (Sen, 1985, 1993). Hence, with this argument, GDP may not be considered only as a welfare and development measure. While income and consumption are essential aspects, Sen argues that building individual capabilities that enhance overall experience and freedom in life is crucial (Sen, 1993). Since 1990, the human development index (HDI) has gained momentum among scholars and academicians in accounting for welfare and human development. HDI encapsulates three important features, i.e., income, health, and education, which gives a better picture in understanding the level of development in any economy.

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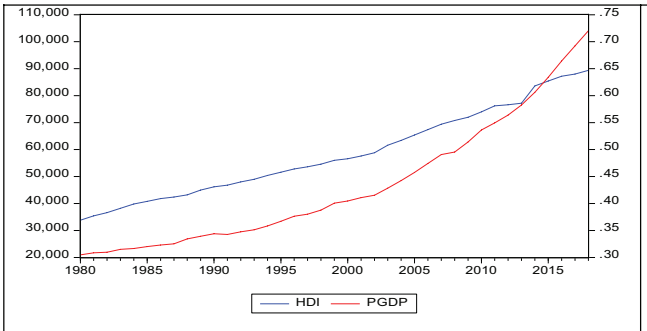
The travel and tourism sector is one of the fastest-growing sectors of the world. Having backward and forward linkages, research on tourism sector makes it an indispensable part for any prudent policymaker (Uzar & Eyuboglu, 2019). However, the researchers have mostly sidelined the plausible development effects of tourism sector growth. The existing literature lacks in identifying the possible application of the tourism sector to enhance individual capabilities.

Biagi, Ladu, and Royuela, (2017) observed that existing studies relate tourism to human development, but lack theoretical analysis explaining how tourism can potentially influence human development. They are of the view that tourism and human development could be linked through the social exchange theory, and the tourism sector provides the possibility of interaction between tourists and residents of the host nation through cultural values and social exchanges are possible. However, with the local tourist interaction, there is a possibility of positive and negative externalities of the tourism sector. They also pointed out that tourism gives motivation and incentive to conserve and promote cultural values and heritage apart from economic channels such as wages and profits in this sector. Further, with the frequent interaction with tourists, local people may get creative ideas and knowledge for entrepreneurship in this field (Biagi et al, 2017). However, the rising tourism sector may pressure the available natural resources, which may impact the quality of life, such as rising pollution, congestion, and crimes, which adversely affect human development (Raza & Shah, 2017; Zaman, Shahbaz, Loganathan, & Raza, 2016; Lee & Syah, 2018).

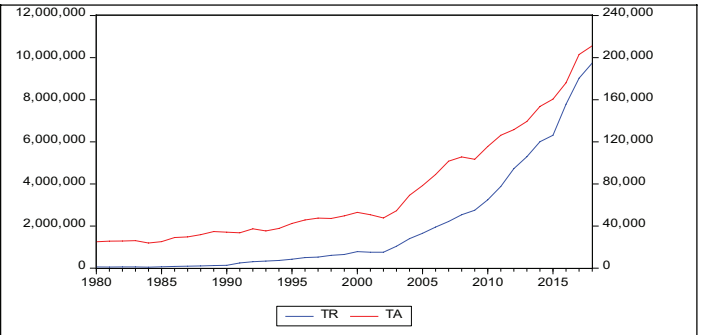
India has witnessed improvement in GDP per-capita and human development over the last few decades. However, as we notice from Figure 1, the rise in the GDP per-capita is faster that that of HDI. While India comes in the top five great emerging economies of the world, surpassing that of United Kingdom and France, HDI ranking depicts a different picture altogether. The India's HDI rank for 2019 released by the United Nations development program (UNDP) is 129th out of 189 countries, even though the nation comes among the world's fastest-growing economies. Moreover, the country marginally improved from 2018 in HDI ranking (United Nations Development Programme, 2019).

The performance of the tourism sector in India has remained almost stagnant until early 2000s. However, after the implementation of the National Tourism Policy of 2002, the tourism industry in India continuously increased both in respect of number of foreign tourists' arrivals and foreign exchange earnings as tourism revenue. As depicted by the Figure 1, after 2002 a rising trend is clearly visible.

In this backdrop, the purpose of the present study is to find the short-run and long-run relationship between the tourism sector and human development along with other important variables, namely, government expenditure, GDP per-capita, and trade openness, which may have a possible impact on human development using time-series data from 1980 to 2018. The rest of the study is organized in the following manner. Section 2 reviews the literature and section 3 presents the data, data sources and methodology employed for the analysis. Section 4 describes the empirical findings, and in the section 5 conclusion and policy implications of the study are discussed.



Note: The figure represents the plot of per capita GDP and human development index for India from 1980-2018 Based on the author's own estimation.
Data sources: WDI and UNDP



Note: TR and TA represent tourism receipts and tourist arrivals, respectively. While the left axis represents the number of tourist arrivals, the right axis represents tourism receipts in Indian currency (Rs. Crores) Based on the author's own estimation. Data sources: Ministry of Tourism, India

Figure 1: Trends in human development and GDP per-capita and tourism sector in India

2. Literature Review

The economic impact of tourism has been explored through the tourism-led growth hypothesis in numerous studies. The hypothesis derives the theoretical ground based on another hypothesis that advocates that rising exports raise economic growth named as ELGH hypothesis (Balassa, 1978; Ohlan, 2017; Mohamed Mustafa, 2019). Many researchers have argued for the tourism sector's positive influence on sustaining and promoting growth in both country specific and panel studies. However, some researchers argue that, since tourism can impact growth through different channels, these channels should be discovered in depth (Blake, 2009; Brida et al., 2016; Mahadevan, Amir, & Nugroho, 2017; Vu et al., 2020). Further, it is advocated that tourism-related socio-dynamic channels should be given emphasis and stressed that studies should not be limited to exploring its impact on the economic growth only. However, the multidimensional impact via various channels in an economy on human development, poverty, income inequality still remains a very interesting aspect of the current research, which is not confined to economic growth. Some researchers used the general equilibrium framework, while others used vector autoregressive (VAR) and autoregressive distributed lag model (ARDL) to analyze the relationship between tourism and poverty.

For example, few researchers (Blake, Arbache, Sinclair, & Teles, 2008; Croes & Vanegas 2008; Saayman, Rossouw, & Krugell, 2012; Vanegas 2014) have attempted to study the impact of tourism on income distribution and poverty reduction. Rather than focusing solely on GDP growth and the indirect effect tourism may have via growth, the direct impact has been considered on the developmental parameters such as poverty, income distribution. However, there is mixed evidence on the impact of tourism on poverty and income distribution. For instance, Uzar and Eyuboglu (2019), analyzing the impact of tourism on income distribution in Turkey, found that the growing tourism sector adversely affects income distribution. On the contrary, Shahbaz, Solarin, Azam, & Tiwari (2019) found that the tourism sector improves Malaysia's income distribution. Likewise, analyzing an unbalanced panel of 60 countries using annual data from 1995-2014, Rodríguez-Llorca, Garcia-Fernandez, & Casas-Jurado (2020) found that tourism reduces absolute poverty. However, domestic tourism played an important role in reducing poverty vis-a-vis inbound tourism.

Similarly, in a broader perspective, some studies analyze the Dutch effect, based on the possible negative externalities the tourism sector can have over the economy (Forsyth, Dwyer & Spurr, 2014; Ghalia and Fidrmuc, 2018; Holzner, 2011). However, a study in Spain using the CGE model finds that the overall tourism sector's positive effects overcome the negative externalities (Inchausti-Sintes, 2015).

Some researchers have emphasized the dynamic role of tourism in promoting human development. For instance, Croes, (2012) examined the long-run and short-run shocks from tourism to human development for two central American economies, namely, Nicaragua and Costa Rica, using the cointegration test and Granger causality for the period 1990-2009. The author discovered the overall positive influence of the tourism sector on human development. Further, the author advocated using tourism tax revenue for redistribution purposes to check income inequality and poverty. Also, the use of growth is not comprehensive as it pictures only income effects. The paper further argued that welfare and wellbeing should not be solely limited to the income criteria.

Similarly, Cárdenas-García, Rivero, & Pulido-Fernandez, (2013) explored the tourism and development linkage in 144 developed and developing countries. The study found that the tourism sector plays an important role in promoting human development, especially in developed nations. However, the authors argued for a threshold level of minimum development before tourism can play a development role. Moreover, the study also favors proper policy intervention to reap the fruits from the tourism sector. Likewise, Mehregan, Kordbacheh, & Akbari, (2013) also emphasized the importance of tourism in promoting human development in Iran for the period 1967 to 2007 using ARDL techniques.

Rivero and Cárdenas-García (2014) examined the empirical linkage between tourism and human development for a panel of 144 countries for the duration 1991 to 2010 using Simultaneous Equation Modelling (SEM). They found that tourism is relatively more effective in developed economies in promoting development in contrast to developing economies. Biagi et al., (2017) examined the empirical linkage between tourism and human development for in a panel of 63 countries for the period 1996 to 2008. The study also decomposed the human development index in individual indicators. The findings revealed a positive impact of tourism on human development. Further, education comes out to be the most affected variable from tourism sector growth among the individual components. The study also stressed the need to explore more the dynamics between tourism and economic development by using different economic development proxies. In a conceptual framework, Croes, Redderstaat, and Shapoval (2020) advocated the possible feedback effect between tourism and human development, emphasizing the fact that tourism competitiveness and human capital can have bidirectional linkage.

However, in the Indian context, previous studies have focused mostly on analyzing the tourism-growth linkage. For instance, Ohlan (2017) and Mishra, Rout, and Mohapatra, (2011) find support for the tourism-led growth hypothesis. However, Georgantopoulos (2013) fails to establish any linkage between tourism and economic growth in India. In this

backdrop, the present study attempts to fill the research gap in tourism sector growth and human development literature. After going through the existing literature, it is found that only a few researchers have explored the tourism and human development linkage. Most of the studies have focused on tourism and growth relationship. Thus, in this context, the present study seeks to find the empirical linkage between tourism sector growth and human development for India.

3. Data and Methodology

The study uses annual series from 1980 to 2018, and the data for the present study is obtained from various government and international organizations such as the Ministry of Tourism, India (MOT), World Development Indicators, World bank (WDI), and United Nations Development Program (UNDP) reports. Further explanation regarding the definition and units of the variables is given, such as government expenditure (GOV), taken as a percentage to GDP. Similarly, trade openness (TOP) is the sum of total exports and imports of goods and services and taken as a percentage to GDP. Also, per-capita GDP (PGDP) denotes gross domestic product at constant local currency value divided by the country's population. Tourism receipts (TR) are annual tourism earnings from the tourism sector in local currency. Also, another proxy for tourism sector is tourist arrivals (TA), which indicate the number of foreign tourist arrivals in a given year. The human development index (HDI) is calculated using the UNDP formula, which encompasses three important measures: income, health, and education. As the variables are in different units, all the variables are transformed in logarithms form, and represented as LN.

3.1. Cointegration with ARDL

In the present study we make use of ARDL bounds testing approach for testing long-run cointegrating relationship. Before proceeding for the cointegration test, a stationarity check is required. Hence, Augmented Dickey-Fuller (ADF) is used for checking the degree of integration (Dickey & Fuller, 1979). There are certain advantages of the ARDL bounds testing approach over the other cointegration test, namely, the procedure is simple. It can also be performed with different degrees of integration, i.e., I (0) and I (1). Also, it performs efficiently, even when the sample size is small. Further, it takes care of the endogeneity issue among the variables. (Pesaran, Shin, & Smith, 2001)

Furthermore, with this approach short-run and long-run coefficients can be computed simultaneously (Pesaran et al., 2001). However, the ARDL model has one limitation: the technique does not give efficient results when any series is of I (2) order. Hence, it is important to make sure the integration degree is not higher than the I (1) order.

The relationship in the functional form can be represented in the following way.

Model (1): LNHDI=f (LNGOV, LNPGDP, LNTOP, LNTA)

Model (2): LNHDI=f (LNGOV, LNPGDP, LNTOP, LNTR)

However, the ARDL specification is given below for both models.

For model (1)

$$\begin{aligned}\Delta LNHDI_t = {} & \alpha A_0 + A_1 LNHDI_{t-1} + A_2 LNGOV_{t-1} \\ & + A_3 LNPGDP_{t-1} + A_4 LNTOP_{t-1} + \beta_5 LNTR_{t-1} \\ & + \sum_{i=1}^{m} a_{1i} \Delta LNHDI_{t-i} + \sum_{i=0}^{n} a_{2i} \Delta LNGOV_{t-i} \\ & + \sum_{i=0}^{o} a_{3i} \Delta LNPGDP_{t-i} + \sum_{i=0}^{p} a_{4i} \Delta LNTOP_{t-i} \\ & + \sum_{i=0}^{q} a_{5i} \Delta LNTR_{t-i} + \mu_t \end{aligned} \quad (1)$$

For model (2)

$$\begin{aligned}\Delta LNHDI_t = {} & \alpha A_0 + A_1 LNHDI_{t-1} + A_2 LNGOV_{t-1} \\ & + A_3 LNPGDP_{t-1} + A_4 LNTOP_{t-1} + \beta_5 LNTR_{t-1} \\ & + \sum_{i=1}^{m} a_{1i} \Delta LNHDI_{t-i} + \sum_{i=0}^{n} a_{2i} \Delta LNGOV_{t-i} \\ & + \sum_{i=0}^{o} a_{3i} \Delta LNPGDP_{t-i} + \sum_{i=0}^{p} a_{4i} \Delta LNTOP_{t-i} \\ & + \sum_{i=0}^{q} a_{5i} \Delta LNTA_{t-i} + \mu_t \end{aligned} \quad (2)$$

Where Δ represents the differenced form of the series. Also, α represents the trend coefficient. Further, A_1, A_2, A_3, A_4, A_5 are the long run coefficients, while a_{1i}, a_{2i}, a_{3i}, a_{4i}, a_{5i} are the short run coefficients. Lags lengths are denoted by m, n, o, p, q. Here in our equation, the null hypothesis implies H_o: $A_1 = A_2 = A_3 = A_4 = A_5 = 0$ on the other hand, alternative hypothesis H_A: $A_1 \neq A_2 \neq A_3 \neq A_4 \neq A_5 \neq 0$. The rejection of the null hypothesis implies cointegration among the series. Three outcomes are possible in bounds testing procedure. The first one, when we fail to reject the null and conclude no cointegration among the variables. Second, when the calculated F-value lies between critical I (0) and I (1) value, our result remains inconclusive. In the last case, the calculated F-value is higher than the critical value of the upper bound I (1) (Narayan, 2004).

The short run unrestricted error correction model can be represented as follows.

Model (1)

$$\Delta LNHDI_t = \alpha + \sum_{i=1}^{m} S_{1i}\Delta LNHDI_{t-i} + \sum_{i=0}^{n} S_{2i}\Delta LNGOV_{t-i} + \sum_{i=0}^{o} S_{3i}\Delta LNPGDP_{t-i} + \sum_{i=0}^{p} S_{4i}\Delta LNTOP_{t-i} + \sum_{i=0}^{q} S_{5i}\Delta LNTR_{t-i} + \Phi ECT_{t-1} + \nu_t \quad (3)$$

Model (2)

$$\Delta LNHDI_t = \alpha + \sum_{i=1}^{m} S_{1i}\Delta LNHDI_{t-i} + \sum_{i=0}^{n} S_{2i}\Delta LNGOV_{t-i} + \sum_{i=0}^{o} S_{3i}\Delta LNPGDP_{t-i} + \sum_{i=0}^{p} S_{4i}\Delta LNTOP_{t-i} + \sum_{i=0}^{q} S_{5i}\Delta LNTA_{t-i} + \Phi ECT_{t-1} + \nu_t \quad (4)$$

In the equation (3) and (4) short run unrestricted error correction model is calculated. Here in the equation $S_{1i,}$ S_{2i}, S_{3i}, S_{4i}, S_{5i} denotes short run coefficients. Further, Φ represents the pace of the adjustment. For instance, the adjustment speed denotes the required time to get back to the equilibrium path if any deviation comes. Furthermore, the lag length is depicted by m, n, o, p, q. for the robustness check, various diagnostics, and CUSUM and CUSUMSQ have been employed (Brown, Durbin &Evans, 1975).

3.2. Causality test

After establishing long run equilibrium relationship between the variables, it is still not clear what is the causal direction of the relationship. In this pursuit, the study employs Toda-Yamamoto, non-causality test (1995). The advantage of the methodology is it performs well irrespective of the level of integration of the series. Since we have a mixed order of integration, it an appropriate method for us. The VAR specification for causality is given below.

Model (1)

$$LNHDI_t = C_0 + \sum_{i=1}^{k} C_{1i} LNHDI_{t-i} + \sum_{j=k+1}^{dmax} C_{2j} LNHDI_{t-j} + \sum_{i=1}^{k} B_{1i} LNTR_{t-i} + \sum_{j=k+1}^{dmax} B_{2j} LTR_{t-j} + \varepsilon_i \quad (5)$$

$$LNTR_t = C_0 + \sum_{i=1}^{k} B_{1i} LNTR_{t-i} + \sum_{j=k+1}^{dmax} B_{2j} LNTR_{t-j} + \sum_{i=1}^{k} C_{1i} LNHDI_{t-i} + \sum_{j=k+1}^{dmax} C_{2j} LNHDI_{t-j} + \varepsilon_i \quad (6)$$

Model (2)

$$LNHDI_t = C_0 + \sum_{i=1}^{k} C_{1i} LNHDI_{t-i} + \sum_{j=k+1}^{dmax} C_{2j} LNHDI_{t-j} + \sum_{i=1}^{k} B_{1i} LNTA_{t-i} + \sum_{j=k+1}^{dmax} B_{2j} LNTA_{t-j} + \varepsilon_i \quad (7)$$

$$LNTA_t = C_0 + \sum_{i=1}^{k} B_{1i} LNTA_{t-i} + \sum_{j=k+1}^{dmax} B_{2j} LNTA_{t-j} + \sum_{i=1}^{k} C_{1i} LNHDI_{t-i} + \sum_{j=k+1}^{dmax} C_{2j} LNHDI_{t-j} + \varepsilon_i \quad (8)$$

4. Results and Discussion

Following the ARDL estimation prerequisite, the integration level should not be greater than I (1). We proceed to identify the stationarity of the variables. For this purpose, the Augmented Dicky-Fuller test (ADF) with constant and trend has been employed. The result of the unit root test is depicted in Table 1. Further, we discover that HDI, PGDP, TOP, and TA are not stationary at level while TR and GOV are stationary. Given the small sample size and mixed order of integration, the ARDL bounds test was deemed suitable for the data analysis. The procedure is easy to follow and offers certain advantages over the conventional tools of cointegration. For example, it takes care of the endogeneity, which might arise in the econometric estimation. Further, the procedure helps to calculate short-run and long-run coefficients simultaneously. However, the order of integration needs to be confirmed, and it should not be greater than I (1). For I (2) series, the ARDL model is not suitable since the F-value with the help of which we find the cointegration level becomes void. Therefore, for ARDL bounds test estimation, the level of integration should be ascertained before.

Table 1: Unit root test with ADF (with constant and trend)

Series	t-stat	1%	5%	10%
LNHDI	-1.902	-4.219126	-3.5331	-3.1983
LNGOV	-3.504*	-4.234972	-3.5403	-3.2024
LNPGDP	-0.686	-4.219126	-3.5331	-3.1983
LNTOP	-1.382	-4.219126	-3.5331	-3.1983
LNTR	-3.227*	-4.219126	-3.5331	-3.1983
LNTA	-1.815	-4.219126	-3.5331	-3.1983
ΔLNHDI	-6.088***	-4.219126	-3.5331	-3.5331
ΔLNPGDP	-5.090***	-4.323979	-3.5806	-3.2253
ΔLNTOP	-4.895***	-4.226815	-3.5366	-3.2003
ΔLNTA	-5.009***	-4.226815	-3.5366	-3.2003

Note: Δ denotes variables in first difference form. ***, **, * denote 1%, 5%, 10% level of significance, respectively.

Table 2: Bounds test results

F-Bounds Test	Null Hypothesis: No levels relationship			
Test Statistic	**Value**	**Significance level**	**I (0)**	**I (1)**
F-statistic (1)	8.52509***	10%	3.03	4.06
k	4	5%	3.47	4.57
F-statistic (2)	7.1314***	2.50%	3.89	5.07
k	4	1%	4.4	5.72

Note: ***, **, * denote 1%, 5%, 10% level of significance, respectively. Values in the parenthesis () denote p-value.

Table 3: Long-run and short-run results for Model (1) : ARDL (2, 3, 0, 4, 0)

	Long run results			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LNGOV	0.001	0.0339	0.041	0.967
LNPGDP	0.259***	0.032	7.906	0.000
LNTOP	0.004	0.010	0.461	0.649
LNTR	0.020***	0.006	2.905	0.008
	Short run results			
∆LNGOV	0.001	0.027	0.067	0.947
∆LNPGDP	0.317***	0.062	5.101	0.000
∆LNTOP	0.002	0.012	0.180	0.858
∆LNTR	0.024**	0.010	2.355	0.028
ECT	-1.225***	0.171	-7.152	0.000
Diagnostics				
Auto-correlation	1.719524	(0.201)		
Hetero-scedasticity	1.045943	(0.452)		
Adjusted R-squared	0.998604			
S.E. of regression	0.005554			
SSR	0.000617			
Log likelihood	141.893			
F-statistic	1738.54	(0.00)		

Note: ***, **, * denote 1%, 5%, 10% level of significance, respectively. Values in the parenthesis () denote p-value.

After conducting the stationarity test, we proceeded to the bounds test to find the variables' long-run equilibrium relationship. There are three cases of the outcome possible. For example, if the computed F-value is lower than the tabulated I (0) values, we fail to reject the no-level relationship's null hypothesis. Thus, in that case, there is no cointegration among the variables. If the calculated F-value remains between the tabulated value of I (0) and I (1), the cointegration result remains inconclusive. However, if the computed F-value is greater than the tabulated I (1) value, we conclude the cointegration among the variables. In this paper, two models have been used to analyze tourism's impact on human development (HDI). Thus, model 1 uses tourism receipts, and model 2 uses tourist arrivals to proxy for the tourism sector. Both measures have different implications. One assesses the monetary aspect (TR) while the other weighs the physical aspect (TA) of the tourism sector. Table 2 shows the result of the bounds test. As it is clear, cointegration is evident for both models. To be specific, for the model (1), the calculated F-value is 8.525, which is greater than the tabulated F-value at a 1% level of significance that is 5.72 at I (1). Similarly, for the model (2) the calculated value is 7.13 greater than the tabulated F-value at I (1) implies the existence of the cointegration.

Thus, we conclude there is a long-run equilibrium relationship between human development, government consumption, per capita GDP, trade openness, and tourism sector (TA, TR) after knowing the cointegration between the variables. In the next step, the size of the coefficients and the direction of the relationship needs to be discovered in our models. In this direction, the long-run and short-run estimates are depicted in Table 3 for model 1 (TR). Our finding indicates a positive and significant relationship between per-capita GDP (PGDP) and human development. Hence, a one-percent increase in the per-capita GDP leads to a 0.25% increase in human development. The finding implies that rising economic growth positively impacts human development (Sehrawat & Giri, 2014). It also validates that the indirect channel of tourism induced growth also positively influences human development.

Further, our findings also suggest a positive and significant relationship between tourism receipt and human development. As indicated by the results, a one-percent increase in tourism receipts leads to a .02% increase in human development. Likewise, in the short run, findings depict that PGDP and TR positively influence human development (HDI). Thus, the short-run results substantiate the long-run estimates' earlier findings (Biagi et al., 2017; Croes, 2012).

Table 4: Long run and short run results for Model (2) : ARDL (2, 1, 4, 2, 0)

	Long run results			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LNGOV	-0.063***	0.021	-2.954	0.007
LNPGDP	0.043	0.050	0.868	0.395
LNTOP	-0.019**	0.007	-2.627	0.016
LNTA	0.066***	0.019	3.381	0.003
	Short run results			
ΔLNGOV)	-0.008	0.025	-0.340	0.737
ΔLNPGDP)	0.018	0.064	0.294	0.771
ΔLNTOP)	-0.023**	0.010	-2.162	0.042
ΔLNTA)	0.059***	0.018	3.267	0.003
ECT	-1.213	0.185	-6.541	0.000
Diagnostics				
Auto-correlation	1.510978	(0.2474)		
Hetero-scedasticity	0.899593	(0.5721)		
Adjusted R-squared	0.998511			
S.E. of regression	0.005737			
SSR	0.000658			
Log likelihood	140.7568			
F-statistic	1629.159	(0.00)		

Note: ***, **, * denote 1%, 5%, 10% level of significance, respectively. Values in the parenthesis () denote p-value.

The long-run and short-run estimates for the model (2) are presented in Table 4. We find government consumption expenditure has a negative and significant relationship with the human development index (Biagi et al., 2017). To be specific, a one-percent increase in government consumption expenditure decreases human development by 0.06%. Similarly, model (2) also shows a positive relation of per-capita GDP with human development. Furthermore, results indicate trade openness has a negative impact on human development. A one-percent increase in trade openness leads to a 0.01% decrease in human development. Trade openness is significant in both the short and long run (Biagi et al., 2017). However, tourist arrivals positively and significantly influence human development in both the short and long run. It validates the model (1) findings wherein the tourism receipt is used as a proxy for the tourism sector. Notably, a one-percent increase in tourism arrivals brings about a 0.06% improvement in human development.

Table 5: Granger non-causality test

Causal Direction	**X^2-value**	**p-value**
Model (1)		
LNTR to LNHDI	6.227824	0.0126
LNHDI to LNTR	0.242087	0.6227
Model (2)		
LNTA to LNHDI	5.961584	0.0146
LNHDI to LNTA	2.861068	0.0907

The error correction term is negative and significant for both models. The error correction term (ECT) in both models (1) and (2) is -1.22 and -1.21, respectively. The model may seem over adjusted for some econometricians since they consider ECT's range should lie between 0 to -1. However, according to Narayan and Smyth (2006), when the range of ECT lies between -1 to -2, it indicates that if any shocks come, convergence happens back to the equilibrium path but in a dampening style. However, once the period is over, the convergence is swift.

After identifying the coefficient magnitude and the direction on human development, we examine the causal relationship between tourism and human development. Also, the negative ECT reaffirms cointegration and causation. However, the causal direction is not clear from ECT. Hence, block-exogeneity Wald test is performed to find the causal direction. Toda-Yamamoto augmented VAR specification is followed for the causal inference between the variables.

Further, the test offers freedom in terms of the order of integration. The VAR model can still be used if there is a mixed order of integration, i.e., I (0) and I (1). Table 5 depicts the results for the Toda-Yamamoto Granger non-causality test. Notably, the study discovers unidirectional causality running from tourism receipts to the model's human development index. Similarly, for model (2), bidirectional causality between tourist arrivals and human development is discovered. Thus, model (2) result states that a feedback relationship exists between tourist arrivals and human development. Thus, findings demonstrate that the rising tourism sector can promote human development; similarly, rising human development will also help the tourism sector prosper in India. To check the stability of the model relationship, CUSUM and the CUSUMSQ tests proposed by Brown et al. (1975) have been applied. The results suggest parameter consistency under both tests as the plots are within the critical bounds of 5-percent level of significance.

5. Conclusions and Policy Implication

The existing research on tourism is primarily focused on discovering the impacts of tourism on economic growth. Various studies have unearthed the economic significance of tourism in many economies with the help of various econometric techniques. However, the impact of tourism on economic development have been given lesser attention in the existing literature. Further, there are very few studies in Indian context to address the relationship with the help of modern econometric techniques. Further, we observed that in India, economic growth and human development are showing two different trends. Furthermore, economic growth can not measure economic development of the economy. For welfare and development aspects, other non-economic dimensions ought to be considered. In this backdrop, the main purpose of the present study is to find the relationship of the tourism sector development with other important variables, namely, government expenditure, GDP per-capita, and trade openness, which may have a possible impact over on human development. For this purpose, the present study made use of annual time series data from 1980 to 2018 and modern econometric methodologies to estimate the above mentioned relationship.

The study also utilized two proxies for tourism, namely, tourism receipt and tourist arrivals, and auto regressive distributive lag (ARDL) approach of cointegration and Toda-Yamamoto Granger non-causality test to check the findings' robustness and consistency. The study using the ARDL bounds test concluded the long-run equilibrium relationship among the variables. Further, by using Toda-Yamamoto Granger non-causality test, the study discovers unidirectional causality running from tourism receipts to the human development. Further, the test also confirms bidirectional causality between tourist arrivals and human development. Thus, the results state that a feedback relationship exists between tourist arrivals and human development. Hence, findings demonstrate that the rising tourism sector can promote human development; similarly, rising human development will also help the tourism sector prosper in India.

The study offers few insights for policymakers. The rising GDP per-capita and tourism sector are having a favorable impact on human development. Possible measures should be taken to sustain the growth of the GDP and tourism sector in India. Also, rising government expenditure is crowding out the possible private investment. One plausible explanation for the negative impact over HDI can be rising government expenditure is negatively impacting the GDP growth of the economy; thus, in turn, having a negative influence over human development. Thus, our study also highlighted that the government should restrain from excess spending and follow fiscal restraint.

Hence, tourism development has played an important role in the socio-economic development of Indian economy in recent years. In the future, with the orientation of developing tourism into a key economic sector, as well as developing Indian to become a tourism center of the Asian region, requiring the tourism industry in Indian must build and develop in the direction of sustainable development. The present study in this attempt also encourages more research on understanding the linkage between tourism and human development studies in different contexts. Also, it highlights the need to explore more socio-dynamic impacts of the tourism sector. However, as the data constraint persisted in our case, there is a need for making a single dynamic index for measuring tourism for a more comprehensive picture. Other proxies for tourism sector development should be utilized, and a tourism development index should be formed to arrive at more concrete and significant results.

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