

Quantifying Tourism Performance of Select States of India: A Comparative Study Using Composite Weighted Index

Bidyut Jyoti Bhattacharjee

Assistant Professor, Department of Commerce

B.H.College, Howly

District: Barpeta, Assam, India

E-Mail: bidyutlecturer@gmail.com

Lobokesh Nath

Ph. D. Research Scholar

Department of Commerce

Gauhati University

Assam, India

Abstract

Tourism is recognised by all major countries of the world and accepted the fact that tourism not only helps to improve the economy of the region by earning foreign exchange but also helps to less affect on environment. As the importance of tourism quality as a way of acquiring a competitive advantage grows, it is vital to examine the tourist performance of all Indian states. In this paper, an attempt has been made to evaluate and rank the Indian states using a Composite Weighted Index. Only 28 states are considered in this paper for their performance evaluation in tourism. In order to fulfil the objective of this paper, several evaluation criteria are first shortlisted based on the natural and environmental characteristics of the Indian states. However, 12 variables are chosen and categorized under three important factors of Tourist Visit, Tourist Attractiveness and Economy and Environment to measure the performance using Composite Weighted Index (CWI). The period later 2019 not considered because of influence of pandemic of Corona Virus. The Ranking of the state conclude that the infrastructure of some of the state like Tamil Nadu, Maharashtra, Uttar Pradesh are far better than other states, so government and policy maker need to give proper attention to the poor performer state and formulate strategy considering the parameter especially which become statistically significant like creating more tourist spot, organising sports and cultural event, reducing pollution index and cost of living, and by development of transportation.

Key words: Tourism, Performance, Composite Weighted Index, Tourist Facilities, Rank

1. Introduction

Tourism has grown to be a significant economic industry around the world, encompassing a diverse range of businesses, industries, and stakeholders. It is one of the world's largest and fastest-growing industries. Apart from its unique quality of being an essential employment generator, tourism is one of the most important revenue-generating sectors for all countries. It generates jobs, which boosts economic growth, and it can raise the standard of living for those who live in tourist-oriented areas. (Briedenhann & Wickens, 2003).

Tourism is an important economic and social characteristic of today's world. Because of its direct effect on national societies' social, cultural, educational, and economic sectors, as well as their

international connections, tourism was recognised as a key activity in the life of countries in the Manila Declaration on World Tourism in 1980. Many public planners have already handled tourism's function as a new source of revenue by increasing taxable amounts, currency absorption, and social infrastructure improvements that can contribute to societal progress. (Rodenburg, E.E, 1980).

Tourism is recognised by all major countries of the world and accepted the fact that tourism not only helps to improve the economy of the region by earning foreign exchange but also helps to less affect on environment. Other than tourism, almost all the establishment of business has negative impact on environment. The country like India also accepted that tourism plays a significant role in developing the economy as the country has lot of potentiality and advantages. Presently the central government of India has given lot of importance and framing the policies and strategies to improve the services of tourism industry throughout the nation. In India, tourism is now recognised as one of the biggest service industry of the country. (Formica, S, 2000).

India is a country with natural resources, historical sites, a diverse climate, hilly stations, a rich heritage, sea beaches, deserts, and deep forests, among other things. Aside from that, India boasts a pleasant environment, a growing tourism infrastructure, and a long history of hospitality. In a genuine sense, India embodies the features of 'Incredible India,' since it is a tourism paradise for all sorts of visitors. (Rajan R, Chaterjee P, Chakraborty S, 2015)

At the moment, all of India's states are working on and implementing a variety of strategies to mobilise domestic and international visitors for the state's socioeconomic growth. In its yearly budget, the Indian government also supports all states by giving financial assistance through different tourist initiatives and tourism education. As a result, assessing the competitiveness of the state's tourist infrastructure may play a significant role in prioritising measures and allocating resources to assist the whole tourism industry in the "Incredible India" response Ranjan R, Chatterjee P & Chakraborty S (2015). As the importance of tourism quality as a way of acquiring a competitive advantage grows, it is vital to examine the tourist performance of all Indian states. A state in India is required to perform a study. Thus, in this paper, an attempt has been made to evaluate and rank the Indian states using an Composite Weighted Index.

2. Literature Survey

There is practically little literature on evaluating the success of tourism destinations. Newton (2004) established a potential study technique that provides a quantitative, theoretically informed empirical analysis that can be used to influence tourist management and policy choices. Richie and Crouch (2000) establish a set of metrics that give an integrated framework for various competitiveness challenges. Buhalis (2000) and Hassan (2000) draw attention to the link between competitiveness and economic growth, as well as the provision of a more gratifying experience than other similar places. De Keyser and Vanhove (1994) propose a theoretical model that highlights the macroeconomic elements that influence the tourist sector, as well as supply, transportation, demand, and tourism regulation. Hanafia H (2019) indicates that tourist performance is influenced by core resources, complimentary conditions, globalisation, and tourism pricing. The findings revealed disparities in competitiveness levels and actual performance among countries, underscoring the present TDC model's weaknesses and the TTCI report's credibility. Insufficient funds, lack of infrastructure, transportation, lack of alternative modes of transportation, marketing, boundary issues, terror effect, and permit period were identified as the major constraints of north-east tourism development and uneven performance among states, according to Riza and Asokan (2013). Uma Devi (2013) examined the tourist industry's expansion and its influence on India's union territories' overall development. Ardakani (2014) adopted TOPSIS, simple additive weighting and taxonomy to rank around 40 different factors influencing on tourism industry in city of Yazd, Iran. Zhou et al.

(2015) employed a hybrid AHP method to evaluate West Virginia's resource-based tourism competitiveness in relation to its neighboring states. Bhattacharya (2005) argues that development of tourism sector depends on better management of local government. According to him in North East, the private sector is not coming forward for the development of tourism in this region. Ray (2005) observes that there is a question for not development of tourism in North East India despite of huge natural resources. He suggests that there is a vital need for an integrated approach to develop tourism which will ultimately help to accelerate the economic development of the North East Part of India. Yadav C.S & Devnath A. (2014) studied about the importance of visa facilitation with focus on e-visa and viewed that in order to reap the benefits of tourism travel facilitation should be taken as priority. Visa facilitation is the need of hour and e-visa is a promising tool that could increase the potential of tourism. E-visa can be more easily obtained and does not require the physical presence of the applicant as well as the presence of widespread network of embassies and consulates.

3. Research Gap

From the literature survey, it is observed that only a few attempts have been made by the past researchers on performance evaluation of tourism destinations using different models. However, no attempt has still been made to quantify the tourism potentials of all the Indian states with respect to their cultural, historical and religious importance. Hence, it is the high time to employ a statistical tool, in the form of an composite weighted Index approach, to appraise the performance of the Indian states in tourism to achieve the qualities of 'Incredible India' in a really true sense.

4. Objectives of the Study

The broad objective of the study is to evaluate the performance of the tourism sector of the different states of India. The specific objectives are set as under:

- (i) To develop a Composite Weighted Index to measure the state tourism performance
- (ii) Assess comprehensively the overall performance of Tourism in the different states of tourism by developing a Tourism Destination Performance Evaluation (TDPE) Index.
- (iii) To examine the interrelationship between presence of domestic tourist and select variables included in the study
- (iv) To examine the interrelationship between presence of foreign tourist and select variables included in the study

5. Research Questions and Hypotheses

Following research hypotheses and questions are to be answered through the study:

- (i) What could be the rating of different states tourism sector in a comprehensive multidimensional rating scale?
- (ii) How the variable jointly influenced the growth of visitors of domestic as well as foreign?
- (iii) There are no significant relationship between growth of domestic tourist and the select variables included in the study.
- (iv) There are no significant relationship between growth of foreign tourist and the select variables included in the study.

6. Research Methodology

India is the seventh largest country by area, the second most populous country in the world. Tourism is the second largest foreign exchange earner in India. Nature has gifted a variety of resources for tourism in its diverse and wide spread socio-economic regions. Although India is a rich country in culture, historical monuments, hill stations, pilgrimages etc., only a little research work has been

carried out to explore its huge potentiality in the field of tourism. Only 28 states are considered in this paper for their performance evaluation in tourism. Union territories and other states are not considered here because of non-availability of pertinent data. In order to fulfil the objective of this paper, several evaluation criteria are first shortlisted based on the natural and environmental characteristics of the Indian states. The major attributes which contribute to the performance evaluation of tourism destinations are price, economic openness, technological developments, structure, human development in tourism, social development, environment and human resources, situational conditions, management of the destination, attractions and natural resources, climate, ecology, culture, architectural heritage, museums, festivals, local traditions, hotels, transport and entertainment Gooroochurn, N., Sugiyarto, G (2004), Kozak, M., Rimmington, M (1999), Melián-González, A., García-Falcón, J.-M (2003). Based on the available information in various Indian tourism related websites, the evaluation of 28 Indian states is performed with respect to 12 criteria, as enlisted in Table 1. The data relating to tourist visit collected from the Indian Tourism Statistics 2019, respective websites are consulted to collect the information relating to number of airports, sanctuaries, hotels for the year 2019 as the figure remain same for last five years, highest pollution index day of the year 2019 recorded for capital city of every study state from the source of web site of Air Quality Index. Again average Cost of Living Index (CLI) of capital city of the every state considering the study period from 2016 to 2019 collected from Council for community and Economic Research, Census Report 2011 has been taking to collect the information of pollution density of study states for the period 2016-2019 and the source of National Crime Records Bureau is been considered to collect the crime rate of states. Moreover 12 variables are categorized under three important factors of Tourist Visit, Tourist Attractiveness and Economy and Environment. Moreover, the period later 2019 not considered because of influence of pandemic of Corona Virus.

Table 1: Select Variables with their Measurement

	Parameters	Measurement of Parameters
1.	No of Foreign Tourists	Average foreign tourist arrivals during 2016 to 2019
2.	No of Domestic Tourists	Average domestic tourist arrivals during 2016 to 2019
3.	No of Airports	No of Airports during 2019 / Area of the state
4.	No of Sanctuaries and Zoos	No of Sanctuaries and Zoos during 2019
5.	No of Hotels	No of hotels during 2019
6.	Pollution Index	PM2(Average) (Air Quality Index)
7.	No of Historical Monuments	No of historical monuments during 2019
8.	Cost of Living Index	CLI of Capital city of the states
9.	Railway Track and Road Distance	Measured by KM covered by railway and Road/ Total Area of the State
10.	No of Railway Stations	No of railway stations during 2019 / Total Area of the State
11.	Population Density Per Sq. Km.	Population density of the state
12.	Crime Rate	Crime Occurrence/ Number of Population

Source: Literature Support

7. Methodology to Compute the Composite Weighted Index to Rank the States

- **State Ranking Methodology**

To develop the methodology to rank the various states of India we consult the methodology developed by Ram and Shekar (2006) and Bhattacharjee (2012). Altogether 12 indicators are included in our study to rank the states. At the very outset we normalized the indicators. Some indicators have a positive dimension for example, higher the tourist

rate or higher the number of historical monuments indicates better is the performance. Such indicators are normalized using the formula-

$$I_{jk} = \frac{x_{jk} - \min_j(x_{jk})}{\max_j(x_{jk}) - \min_j(x_{jk})} \quad \dots(1)$$

Where x_{jk} represents the value of the k^{th} indicator in the j^{th} state, $\max(x_{jk})$ and $\min(x_{jk})$ represents the maximum and minimum value of the k^{th} indicator across all the states and I_{jk} is the normalized value of the k^{th} indicator in the j^{th} state.

However, in some cases the indicator may be of negative dimension like rate of crime or pollution index. Here lower the value of the indicator better is the performance of the state. In such cases the normalized value of the indicator is given by,

$$I_{jk} = \frac{\max_j(x_{jk}) - x_{jk}}{\max_j(x_{jk}) - \min_j(x_{jk})} \quad \dots(2)$$

This type of normalization converts all the normalized indicators to positive dimensions, i.e. higher the value of the normalized index of a state corresponding to a particular indicator, better is the performance of the state in that indicator. Also all the values of the normalized index lies between 0 and 1, with the best state having an index value 1 and the worst state have a index value 0. In other words

$$0 \leq I_{jk} \leq 1 \quad \text{for all values of } j \text{ and } k$$

Also, $\max_j I_{jk} = 1$ and $\min_j I_{jk} = 0$ for all k

Where, $k = 1, 2, 3, \dots, n$ are the indicators related to tourism for example, availability of Hotels ($k = 1$), Availability of historical monuments ($k = 2$), Number of Airports ($k = 3$) and so on.

Now, for combining this normalized indicators, we used the method of weightage defined by the Iyengar and Sudarshan (1982) and then the normalized indicators are aggregated using a positive model. Precisely, the weights corresponding to the k^{th} indicator is

$$W_k = \frac{C}{\sqrt{\text{Var}(I_{jk})}} \quad \dots(3)$$

where C is a normalizing constant that follows

$$C = \left[\sum_{k=1}^n \frac{1}{\sqrt{\text{Var}(I_{jk})}} \right]^{-1} \quad \dots(4)$$

The choice of the weights in this manner would ensure that large variation in any one of the indicators would not unduly dominate the contribution of the rest of the indicators and distort the inter district comparisons (Iyengar and Sudarshan, 1982).

The ultimate index for Tourism Development (TDI) corresponding to the j^{th} state is given by,

$$TDI_j = W_1 \times I_{j1} + W_2 \times I_{j2} + W_3 \times I_{j3} + \dots + W_k \times I_{jk}, \text{ with } \sum_{k=1}^3 W_k = 1 \quad \dots(5)$$

The value of the TDI can indicate the status of development/deprivation in the tourism sector for the states under consideration. A TDI score of a state near 0 is an indicator of a poor state in terms of the tourism facility/infrastructure and a value of TDI near 1 is an indication of a high level of tourism facility/infrastructure.

Such an index shall supports the comparison amongst the states in terms of tourism related facility/infrastructure.

8. Analysis and Discussion

The objective of this research paper is to find the gap and to improve the branding strategy of already successful centralized campaign, "Incredible India" so as to maximize the possibilities of foreign tourist arrivals in India. The purpose of this research paper is to identify the gaps in "Incredible India" centralized campaign vis-à-vis state wise campaign to promote tourism in India. The Table 2 comprises of three main factors indices and overall rank of the state based on overall indices. The variables of domestic and foreign tourist presence are included in making the tourist presence indices, where as the variables like no of airports, no of zoos, no of historical monuments, railway track and road distance, no of railway stations are considered in formulating the indices of tourist attractiveness. Similarly, economic and environment factor indices calculated based on the variables of pollution index, cost of living index and crime rate. The indices value near no 1 is giving signal for "good performance" and the indices value near 0 implies "poor performance". On the basis of tourist presence, the state like Tamilnadu (1st Rank), Uttarpradesh (2nd Rank) and Maharashtra (3rd Rank) occupies first three position and the state of Manipur (26th Rank), Nagaland (27th Rank) and Mizoram (28th Rank) occupies last three position. It implies more tourist are showing the keen interest to visit Tamil Nadu, Uttar Pradesh and Maharashtra. The visitors chooses other states after these three states and least importance to the state of Manipur, Mizoram and Nagaland might be because of far away from the capital city of India, poor transportation and insurgency problem and lack of promotional camping.

Regarding the tourist facility factor, the state of Uttar Pradesh (1st Rank), Maharashtra (2nd Rank) and Kerala (3rd Rank) secured first three position because of availability facilities like airports, hotel, historical monuments, and railway station on the other hand Mizoram (26th Rank), Sikkim (27th Rank) and Nagaland (28th Rank) because of having less number of facilities. Although the state Sikkim is renowned for tourist spot but the rank shows the state need to adopt strategic decision to enhance the number of facilities like improving the transportation, number of hotels and manmade tourist spots. The tourist always consider the factors like economy of the visit, air pollution and especially crime before selection of tourist state. The state like Arunachal Pradesh (1st Rank), Himachal Pradesh (2nd Rank) and Nagaland (3rd Rank) secured first three position basically because of less air pollution, less cost of living, although crime becomes significant variable, whereas, the state of Haryana (26th Rank), Maharashtra (27th Rank) and Uttar Pradesh (28th Rank) are placed on downstream. By considering the 12 variables, the state of Tamil Nadu (1st Rank), Uttar Pradesh (2nd Rank) and Maharashtra (3rd Rank) placed first three position but the state of Bihar (26th Rank), Tripura (27th Rank) and Haryana (28th Rank) placed last three position.

Table 2: Rank Based on Performance of Tourism Parameters

Name of State	Tourist Index	Facility Index	Environment Index	Overall Index and Rank
Andhra Pradesh	(7)	(10)	(10)	(6)
	0.24419	0.27765	0.71799	0.42018
Arunachal Pradesh	(25)	(25)	(1)	(14)
	0.00107	0.04296	0.95931	0.34688
Assam	(21)	(12)	(16)	(18)

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	0.00917	0.25631	0.65311	0.32753
Bihar	(10)	(16)	(25)	(26)
	0.14294	0.17257	0.44261	0.25758
Chattishgarh	(20)	(20)	(7)	(13)
	0.02674	0.12956	0.84263	0.34754
Goa	(14)	(18)	(11)	(16)
	0.07489	0.16045	0.71722	0.32926
Gujarat	(13)	(9)	(22)	(17)
	0.09974	0.30443	0.53157	0.32852
Haryana	(18)	(14)	(26)	(28)
	0.04365	0.19816	0.36496	0.21474
Himachal Pradesh	(15)	(15)	(2)	(7)
	0.07216	0.19679	0.91936	0.41228
Jharkand	(16)	(21)	(12)	(21)
	0.06884	0.12613	0.71013	0.31175
Karnataka	(6)	(5)	(17)	(5)
	0.24893	0.3972	0.6362	0.44025
Kerala	(12)	(3)	(24)	(10)
	0.12151	0.43059	0.51465	0.37798
Madhya Pradesh	(4)	(8)	(20)	(8)
	0.27197	0.32757	0.57257	0.39712
Maharashtra	(3)	(2)	(27)	(3)
	0.63723	0.53517	0.32521	0.48992
Manipur	(26)	(23)	(9)	(25)
	0.00035	0.05144	0.81294	0.29971
Meghalaya	(24)	(24)	(6)	(22)
	0.00195	0.0433	0.84934	0.30944
Mizoram	(28)	(26)	(4)	(20)
	0.43005	0.02851	0.88382	0.31498
Nagaland	(27)	(28)	(3)	(19)
	0.00023	0.0087	0.90868	0.31580
Odisha	(19)	(11)	(15)	(15)
	0.02745	0.27571	0.66971	0.34567
Punjab	(11)	(13)	(14)	(12)
	0.12487	0.21608	0.67302	0.34908
Rajasthan	(8)	(4)	(13)	(4)
	0.21229	0.41707	0.67603	0.45208
Sikkim	(22)	(27)	(5)	(23)
	0.00741	0.01192	0.88016	0.30916
Tamil Nadu	(1)	(7)	(21)	(1)
	1.0000	0.33447	0.54101	0.58096
Telangana	(9)	(19)	(18)	(24)
	0.16578	0.13935	0.59562	0.30315
Tripura	(23)	(22)	(19)	(27)
	0.00398	0.07784	0.59417	0.23583
Uttar Pradesh	(2)	(1)	(28)	(2)
	0.6399	0.59889	0.29771	0.50618
Uttarakhand	(17)	(17)	(8)	(11)
	0.05921	0.17222	0.8172	0.36411
West Bengal	(5)	(6)	(23)	(9)
	0.26563	0.34074	0.52346	0.38374

Source: Self calculation using CWI, the figure within parenthesis indicates Rank Value

Table 3 exhibits the performance of select states of India in respect of tourism. In this study, the value of indices are divided into three layer like 0-0.5 indicates poor performing states, 0.5-0.75 indicates moderate performer state and 0.75-1.00 indicates good performing state. Regarding the tourist inflow, the state of Uttar Pradesh becomes moderate performer state and Tamil Nadu is good performer state and other states are poor performer states which implies highest number of tourist prefer to visit the state of Tamil Nadu. In respect of tourist facilities, the state of Maharashtra and Uttar Pradesh are moderate performer but including Tamil Nadu other states are poor performer implying that it is necessary for the states to improve the facilities to attract the tourist presence. The state like Haryana, Maharashtra and Uttar Pradesh are in back foot position in respect to economy and environment; particularly these three states need to reduce the cost of living as well as pollution resulting into more attendance of tourist. The calculated overall indices shows although the state of Tamil Nadu secured rank 1 but fail to achieve the good performer state indices layer. Except the state of Tamil Nadu and Uttar Pradesh, other states tourism performance are not good. The state government of all the state need to improve work on facilities and economy and environment to become "Incredible India". The tourism performance of the states help to improve the rank of India in the scenario of world rank, presently the rank of India is 25th as per The World Tourism Organisation.

Table 3: State Categorised Based on Indices

	Poor Performer State (0- 0.5)	Moderate Performer State (0.5-0.75)	Good Performer State (0.75-1.00)
Tourist Inflow	Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattishgarh, Goa, Gujrat, Haryana, Himachal Pradesh, Jharkand, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Maharashtra, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Telangana, Tripura, Uttarakand, West Bengal	Uttar Pradesh	Tamil Nadu
Tourist Facilities	Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattishgarh, Goa, Gujrat, Haryana, Himachal Pradesh, Jharkand, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Telangana, Tripura, Uttarakand, West Bengal, Tamil Nadu	Maharashtra, Uttar Pradesh	Nil
Economy and Environment	Haryana, Maharashtra, Uttar Pradesh	Goa, Jharkand, Rajasthan, Punjab, Odisha, Karnataka, Telangana, Tripura, Madhya Pradesh, Tamil Nadu, West Bengal, Assam, Bihar, Kerala	Arunachal Pradesh, Himachal Pradesh, Nagaland, Mizoram, Sikkim, Meghalaya, Chattishgarh, Uttarakand, Manipur
Overall	Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattishgarh, Goa, Gujrat, Haryana, Himachal Pradesh, Jharkand, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Telangana, Tripura, Uttarakand, West Bengal,	Tamil Nadu, Uttar Pradesh	Nil

Source: Self compiled

• **Result of Multivariate Regression Equation**

The study also used multiple regression to identify the significant variables which influence the increase of the number of domestic and foreign tourist. Table 4 (A) shows the beta coefficient of each variable where domestic tourist is dependent variable and others are independent variable. Similarly, Table 4 (B) shows the beta coefficient of each variable where foreign tourist is dependent variable and others are independent variable. The value of R^2 of both the equation signifies that the select variables have combined effect on the presence of domestic and foreign tourist. The value of F for both the equation is statistically significant at 1% level implying that all the states are different in respect of overall tourism performance; some state are performing well but some are not performing well where as the government of India has been focusing for even performance of all the states. It has been observed that presence of domestic tourist are influenced by pollution, population density, crime rate, hotels and historical monuments, all are statistically significant at 5% level. Whereas, the presence of domestic tourist are influenced by pollution, historical monuments and Airports and hotels, all are again statistically significant at 5% level. Therefore, the study signifies that some of the select variables influenced the presence of domestic and foreign tourist.

Table 4: (A) Result of Coefficients: Domestic Tourist Dependent Variable						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.335	.528		2.528	.022
	Pollution	.386	.158	.410	2.445	.026
	cost_living	.039	.272	.033	.143	.888
	Poll_Density	-.692	.353	-.659	-1.959	.047
	Crime	-1.100	.429	-1.178	-2.567	.020
	Airports	.247	.256	.236	.966	.348
	Zoos	.128	.127	.140	1.008	.328
	Hotel	-.896	.534	-.604	-1.678	.112
	Monuments	.591	.317	.429	1.862	.040
	Track	.103	.220	.110	.467	.646
	Stations	-1.145	.818	-1.024	-1.400	.180
R ² =0.752, F= 5.143 (P=.002)						

Table 4: (B) Result of Coefficients: Foreign Tourist Dependent Variable						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.025	.764		.033	.974
	Pollution	-.290	.230	-.361	-1.262	.023
	cost_living	-.518	.398	-.508	-1.300	.210
	Poll_Density	.496	.517	.555	.960	.350

	Crime	.305	.626	.383	.487	.632
	Airports	-.430	.374	.482	1.151	.045
	Hotel	.748	.782	.591	.956	.042
	Monuments	-.428	.461	.364	.927	.036
	Track	.140	.314	.176	.446	.661
	Stations	.573	1.196	.601	.479	.638
R2= .622, F=4.572 (0.003)						

9. Conclusion

The Index is used to develop outranking relationships while also providing a complete list of the 28 states considered in India. The identification of the best performing Indian state in tourism would encourage state and federal governments to deploy even better promotional and strategic decisions in order to attract more tourists to that state. The state's ranking will aid in identifying the criteria for which some Indian states score poorly in tourism. As a result, poor-performing/under-performing states may request specific aid and support from their respective governments in order to improve and survive.

After rigorous survey of existing literature, the present study used 12 parameters to measure the performance of tourism of the state. The parameters like no of domestic and foreign tourists are included under the visitors presence categories, the parameters like no of airports, no of sanctuaries and zoos, no of hotels, no of historical monuments, railway track and road distance, no of railway stations considered in the tourist facilities categories and pollution index, cost of living index, population density per sq km have been taken under the category of environment and economy. By using composite weighted index the study observed that from the point of view of visitors presence Maharashtra ranked number 1 whereas the state of Nagaland stood at last position i.e. 28th rank. If we consider the tourist facilities criteria, the state of Uttar Pradesh, Maharashtra and Kerala secured first three position and the state of Mizoram (26th Rank), Sikkim (27th Rank) and Nagaland (28th Rank) secured last three position. As per the criteria of environment and economy the state of first three position secured by Arunachal Pradesh (1st Rank), Nagaland (2nd Rank) and Himachal Pradesh (3rd Rank) respectively, on the other hand the state of Haryana (26th Rank), Maharashtra (27th Rank) and Uttar Pradesh (28th Rank) secured last three position from bottom of the table. Therefore, the study concludes with the statement that the infrastructure of some of the state are far better than other states, so government and policy maker need to give proper attention to the poor performer state like North eastern State, Bihar etc., and formulate strategy considering the parameter especially which become statistically significant in our study.

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Annexure 1: Indices and Rank Value based on Tourist Presence

Name of State	Norm_Foreign	Norm_Domestic	Tourist Index	Rank
Andra Pradesh	0.007039557	0.445391388	0.244191353	7
Arunachal Pradesh	0.001198042	0.000953289	0.001065629	25
Assam	0.002487378	0.014843224	0.009171988	21
Bihar	0.213849037	0.082785741	0.14294276	10
Chhattisgarh	0.001753429	0.047930444	0.026735558	20
Goa	0.143981321	0.016267096	0.074886918	14
Gujarat	0.072613299	0.122746796	0.099735916	13
Haryana	0.069973836	0.021308296	0.043645395	18
Himachal Pradesh	0.095705265	0.052187203	0.07216165	15

Jharkhand	0.035691319	0.096962029	0.068839256	16
Karnataka	0.097607813	0.377317306	0.248932854	6
Kerala	0.219756215	0.03815039	0.121506032	12
Madhya Pradesh	0.076731675	0.437615441	0.271972637	4
Maharashtra	0.989000508	0.338781639	0.637226974	3
Manipur	0.000449478	0.000268971	0.000351822	26
Meghalaya	0.001595836	0.002247853	0.001948582	24
Mizoram	0	2.6356E-05	1.42588E-05	28
Nagaland	0.000490994	0	0.000225362	27
Odisha	0.015975095	0.037191071	0.027453105	19
Punjab	0.139544371	0.112420864	0.12487034	11
Rajasthan	0.320435387	0.120542332	0.212291669	8
Sikkim	0.013782992	0.002004819	0.007410907	22
Tamil Nadu	1	1	1	1
Telangana	0.035082978	0.276658852	0.16577743	9
Tripura	0.00759113	0.000908905	0.003975994	23
Uttar Pradesh	0.668427438	0.61569834	0.639900581	2
Uttarakhand	0.024605616	0.088572538	0.059212225	17
West Bengal	0.323606513	0.216439725	0.265628436	5

Annexure 2: Indices and Rank Value based on Tourist Facilities

Name of State	Norm_airport	Norm_Sanctuary	Norm_Hotels	Norm_Hist	Norm_Track	Norm_Rail	Facility Index	Rank
Andra Pradesh	0.25	0.155555556	0.044733045	0.036585366	1	0.404405286	0.277646	10
Arunachal Pradesh	0.125	0.111111111	0.005772006	0.009485095	0.042023218	0.001762115	0.042956	25
Assam	0.25	0.577777778	0.033189033	0.006775068	0.65663924	0.26784141	0.256307	12
Bihar	0.125	0.022222222	0.005772006	0.02303523	0.339885607	0.605286344	0.172572	16
Chhattisgarh	0.125	0.333333333	0.031746032	0.059620596	0.208553579	0.117180617	0.129558	20
Goa	0	1	0.066378066	0.036585366	0.02499497	0.015859031	0.160448	18
Gujarat	0.5	0.555555556	0.134199134	0.01897019	0.416059386	0.4	0.304428	9
Haryana	0.75	0.2	0.050505051	0.027100271	0.080056543	0.185022026	0.198157	14
Himachal Pradesh	0.25	0.777777778	0.106782107	0.054200542	0.098945174	0.049339207	0.196785	15
Jharkhand	0.375	0.111111111	0.005772006	0.012195122	0.045004533	0.273127753	0.126132	21
Karnataka	0.625	0.777777778	0.054834055	0.147696477	0.728838803	0.356828194	0.3972	5
Kerala	0.25	0.511111111	1	0.020325203	0.583128003	0.155947137	0.430593	3
Madhya Pradesh	0.5	0.777777778	0.017316017	0.027100271	0.470985088	0.459911894	0.32757	8
Maharashtra	1	0.777777778	0.148629149	0.382113821	0.636485967	0.518061674	0.535168	2
Manipur	0	0.244444444	0.002886003	0.062330623	0.042046734	0.000881057	0.051437	23
Meghalaya	0	0.288888889	0.001443001	0.006775068	0.022896814	0.000881057	0.043297	24
Mizoram	0	0.2	0	0.001355014	0.012317195	0	0.028511	26
Nagaland	0	0	0	0.001355014	0.058722241	0.002643172	0.008696	28
Odisha	0.125	0.511111111	0.018759019	0.291327913	0.613727637	0.263436123	0.275712	11
Punjab	0.5	0.377777778	0.124098124	0.025745257	0.124467949	0.251101322	0.216079	13
Rajasthan	0.625	0.777777778	0.108225108	0.216802168	0.487480305	0.525110132	0.417069	4
Sikkim	0	0.066666667	0.011544012	0	0	0.003524229	0.011919	27
Tamil Nadu	0.25	0.777777778	0.112554113	0.112466125	0.515456591	0.46784141	0.334467	7
Telangana	0	0.488888889	0.015873016	0.006775068	0.294682494	0.181497797	0.139351	19
Tripura	0.25	0.177777778	0.001443001	0.001355014	0.085823206	0.023788546	0.07784	22
Uttar Pradesh	0.125	0.622222222	0.10966811	1	0.812819917	1	0.598889	1
Uttarakhand	0.25	0.777777778	0.028860029	0.016260163	0.112576656	0.037004405	0.172222	17
West Bengal	0	0.911111111	0.101010101	0.176151762	0.603283889	0.495154185	0.340743	6

Annexure 3: Indices and Rank Value based on Economy and Environment

	Norm_poll	Norm_Cost	Norm_Density	Norm_Crime	Env_Demo_Index	Rank_Env_demo
Andra Pradesh	0.562913907	0.866972477	0.648301194	0.770491803	0.717993767	10
Arunachal Pradesh	0.947019868	0.908256881	1	0.991803279	0.959311645	1
Assam	0.476821192	0.697247706	0.650137741	0.786885246	0.653113195	16
Bihar	0.264900662	0.876146789	0	0.573770492	0.44261074	25
Chhattisgarh	0.867549669	0.821100917	0.842056933	0.844262295	0.8426256	7
Goa	0.708609272	0.564220183	0.653810836	0.991803279	0.71721726	11
Gujarat	0.476821192	0.573394495	0.732782369	0.31147541	0.531568629	22
Haryana	0.231788079	0.073394495	0.489439853	0.737704918	0.364957212	26
Himachal Pradesh	0.960264901	0.862385321	0.902662994	0.967213115	0.919363083	2
Jharkhand	0.529801325	0.775229358	0.635445363	0.901639344	0.710131673	12
Karnataka	0.728476821	0.403669725	0.722681359	0.737704918	0.636201254	17
Kerala	0.529801325	0.940366972	0.22681359	0.278688525	0.514650435	24
Madhya Pradesh	0.271523179	0.78440367	0.798898072	0.368852459	0.572573547	20
Maharashtra	0.470198675	0	0.680440771	0.18852459	0.325211153	27
Manipur	0.649006623	0.733944954	0.898071625	0.991803279	0.812937575	9
Meghalaya	0.927152318	0.633027523	0.894398531	0.991803279	0.849339966	6
Mizoram	1	0.628440367	0.967860422	0.991803279	0.883817655	4
Nagaland	0.761589404	1	0.906336088	0.950819672	0.908681062	3
Odisha	0.125827815	0.931192661	0.767676768	0.803278689	0.66971234	15
Punjab	0.582781457	0.724770642	0.509641873	0.885245902	0.673018121	14
Rajasthan	0.509933775	0.802752294	0.831955923	0.516393443	0.676028952	13
Sikkim	0.927152318	0.697247706	0.936639118	1	0.880161203	5
Tamil Nadu	0.715231788	0.633027523	0.505968779	0.278688525	0.541005026	21
Telangana	0.304635762	0.559633028	0.733700643	0.795081967	0.59561765	18
Tripura	0	0.688073394	0.694214876	0.991803279	0.59416904	19
Uttar Pradesh	0.105960265	0.729357798	0.2543618	0	0.297709348	28
Uttarakhand	0.635761589	0.834862385	0.842056933	0.959016393	0.817204898	8
West Bengal	0.476821192	0.816513761	0.071625344	0.704918033	0.523463056	23

