Tourism Industry in India: An Empirical Analysis of Prospects and Potentials

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Abstract:

The paper forecasts the Foreign Tourist Arrival (FTA) for the next five years by studying the trends & patterns of foreign tourist arrivals in a different dimension. It also analyses the impact of the tourism industry on the Indian economy in terms of foreign exchange earnings, Gross Domestic Product (GDP), and employment. This follows by the growth rate trend study of foreign tourist arrivals from the year 2001 to 2018 for all states and compares it with the national average. This analysis follows a multiple regression model on foreign tourist arrivals in India and studies the factors determining it, which is followed by the State-wise data collected from various sources that helped in running a panel data regression. Based on different factors like infrastructure, socioeconomic, environment & education diversified scores were generated for different states to make a tourism index. In the end, based on results, recommendations are provided.

Keywords: India, economy, tourism industry, infrastructure, socioeconomic factors

INTRODUCTION

Tourism and Hospitality have been identified as global agents of development, an engine of socio-economic growth, and a vital source of earning foreign exchange. According to World Travel and Tourism Council, this sector contributes a 10percent share of global GDP (Bank, 2019). Every country in the world has a huge reliance on this sector. In this context, India is one of the oldest civilizations, having an area of 32, 87,263 sq. km (India at Glance, National portal of India), reaching out from the snow-shrouded Himalayan heights to the tropical jungles of the south, it has become one of the most promising tourist destinations in the world. In a report produced by The World Economic Forum, India is positioned at 34th rank in the Travel and Tourism Competitiveness Report 2019 (GoI, 2019). As per the annual report of the Ministry of Tourism, Government of India, (GOI,2019), tourism in India contributes almost 5percent of the total GDP & provides 12.4percent of employment from January 2018 to March 2019. The tourism industry is very lucrative in foreign exchange earnings, as in 2018 Foreign Exchange Earning (FEEs) from tourism was US $28.586 billion (Indian Tourism Statistics, 2019).

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Keeping in view the lucrativeness, time and again Government of India has launched many initiatives like "Atithi Devo Bhav," "Incredible India" at national and state government level to boost tourism in their respective states. They have also categorized tourism on different basis like Medical Tourism, Eco-Tourism, Adventure Tourism, Cultural Tourism, etc. A new plan to allow 100 percent Foreign Direct Investment (FDI) through the automatic route will give a boost to the hotel and tourism sector. The Ministry of Tourism launched the "Dekho Apna Desh" Project (October 2019) to enrich citizedns of the country with many destinations and the sheer depth and expanse of the culture and heritage of Incredible India. The new initiative is called SAATHI (System for Assessment, Awareness & Training for Hospitality Industry) by partnering with the Quality Council of India (QCI) in October 2020. The initiative will not only train people working in the industry but effectively implement guidelines/Standard Operating Procedures issued regarding COVID-19 for safe operations of hotels, restaurants, B&B's, and other units.

LITERATURE REVIEW

Suman Kumar Dawn & Swati Pal (2011) discusses Indian tourism at large giving an idea about medical tourism and its important for developing countries. They have compared the pricing of different health care services in India with other countries and show that price wise India has a comparative advantage over other developed-developing countries. They have also described the growth and development as well as the key issues tourism is facing. For better marketing strategies – SWOT analysis and 7Ps of marketing are also discussed. In the end, they have given a couple of suggestions, which include the Role of govt, medical visas, Holistic-dynamic hospitals, and better infrastructure with the help of private players.

Mandeep Kaur & Nitasha Sharma (2012) dwell upon the significance of the tourism industry to economic advancement which has been perceived broadly because of its commitment to the balance of payments, GDP, and employment. Since the most recent couple of years, the Indian tourism industry has been developing at a quick speed and it has tremendous potential for creating employment and procuring a large amount of foreign exchange. For the information assortment, secondary sources have been utilized, for example, sites of the Ministry of Tourism of India, Annual reports on tourists, GDP, employment, and so forth. So, it is very crucial to study the growth and development of the Indian tourism industry.

Vethirajan & Nagavalli (Nov 2014) analyzes the trends and growth of tourism in India. The author concludes that tourism is having an important role to play in employment generation. The authors further assert that it is a composite sector, generating income with various activities in the form of the sector and sub-sectors like hotel and other accommodation units, travel agents and tour operators, transport services, tourist resorts and complexes, shopping facilities including sales outlets for curios, handicrafts, and souvenirs.

Mir A L (2014) studied the economic evaluation of the Indian Tourism Industry, and for that, the author first analyzed the data of Foreign Tourists Arrivals (FTAs) in India and applied simple regression on FTAs with time and studied the values. He has also discussed Domestic tourists and explained the trend line over the years. The study also described the Foreign Exchange Earnings (FEEs) and how it increases over the years. The author concludes that tourism can be used as a catalyst for socio-economic development if the government and other people connected with

tourism obtain sustainable development of tourism in a detailed and planned manner and formulate appropriate market demanding policies.

Research conducted by Upadhyay, et.al (2017) is fundamentally based upon secondary information, which has been gathered from different sources. The research rotates around the foreign tourist's visitation in number and complete income procured from it from 2013-to 2016. The investigation additionally joined the government's initiatives for expanding the tourism industry. It says that government of India alongside different states and boards/councils is working on expanding the general picture of India into a safe-secure, reliable, and surprising brand in the tourism industry

Baishya K (2017) conducts a descriptive-based study where the whole discussion is carried out in the light of secondary information. It finds out the share of Adventure tourism in terms of total foreign tourism in India. It discusses the findings of what states are providing, and what kind of adventure activities and restrictions are t pushing back the adventure tourism in India. Weak marketing strategy at the international level and weak infrastructure and road connectivity – are found to be the main two reasons.

Welteji & Zerihun (2018) discovered that there is no economically profitable coexistence between agriculture and tourism. Agribusiness is the major monetary action of the local area. For reaching the conclusion the authors carried out a local area-based cross-sectional investigation configuration where 372 family units were chosen utilizing multistage stratified random sampling technique for quantitative and quantitative information. Quantitative information was examined with both descriptive and inferential statistics, like, as the $\chi 2$ test to see the relationship between dependent and outcome variables, and qualitative data were coded and thematically analyzed.

Sofronov, B. (2018) puts forward the idea of how recent technologies like Augment Reality and Virtual Reality (AR, VR), Internet of Things (IoT), and Artificial Intelligence (AI) are helping in shaping world tourism with collected data. It also focuses on how Safety and security are one of the essential factors in the Travel & Tourism Industry. The study is a mixture of descriptive and quantitative analysis on secondary data. It shows different data on international tourist arrivals across the globe, regional breakdown of employment in the travel and tourism industry, and the international tourism receipts.

Rath, K, Swagat. (2020) has described how pandemic COVID-19 has impacted the tourism industry. From that, he has tried to find opportunities by understanding the consumer's behavior and needs. He has suggested some ideas like developing the governing body for tourism, building a better technical infrastructure, and merging & diversifying the business. He has also added points to focus more on rural tourism & tribal tourism and stated the importance of educating all the stakeholders and making them aware of the situation and how to tackle it.

This paper has the following objectives: To Predict upcoming tourism trends based on past in India; To study how Covid is going to affect the future of the tourism industry in India; To study various government policies for tourism and their effectiveness; To determine the factors affecting the tourism industry and to forecast the foreign tourist arrivals (FTAs) in India; To provide policies & suggestions after assessing the results.

The study focuses on these research questions: What kind of trend is emerging in India as far as the inflow of tourists is concerned? Which country is the largest supplier of the tourists in India and the changes taking place in the country wise inflow? How much revenue and employment are generated from the tourism? How do the states in India performing in terms of attracting the foreign tourists? What are the important factors determining the tourist inflow and the expected inflow? How states in India will rank according to the tourist arrival index.

RESEARCH METHODOLOGY

The quantitative research methodology technique is applied through observation of various patterns of the tourist arrival. Further, studyanalyzes the trends in foreign exchange earnings along with the share of tourism in GDP and employment over the years. For this purpose, the trend growth rate formula is applied and accordingly, for forecasting and analysis part regression analysis is applied.

The trend in FTAs & DTAs in India from 2001-to 18

Trend Growth Rate

$\log Y = \alpha + \beta t$

Y = Number of tourists arrives in a year, T = Time in years

α = Intercept

β = Growth rate

Forecasting Analysis

$Y = a + bX$

Y = Forecasting value to be calculated

a & b = Trend line constant values

X = year

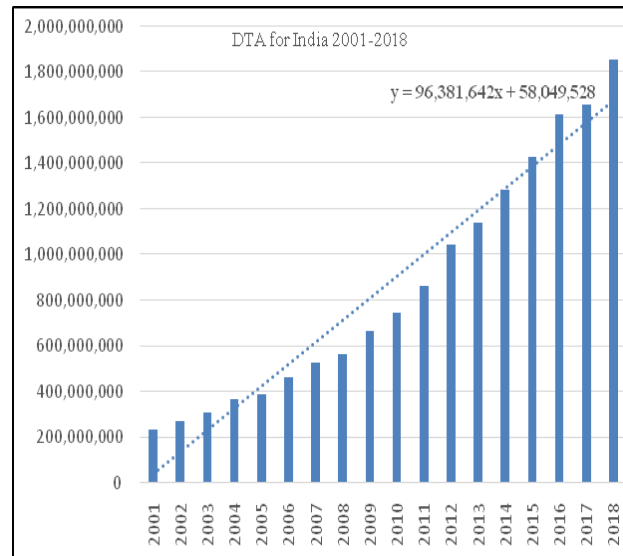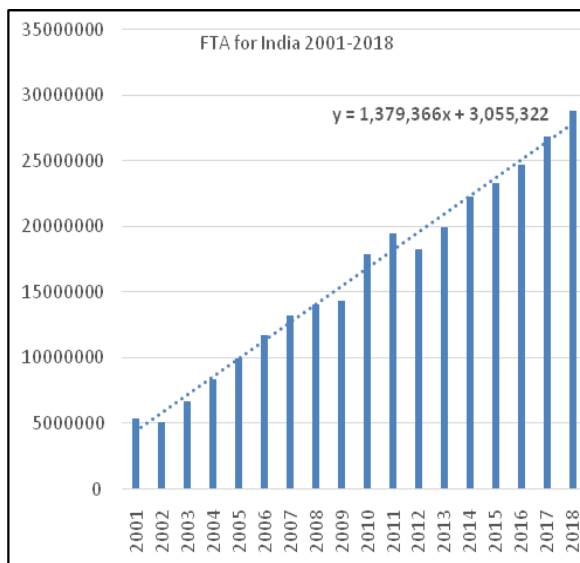To check stationary, Autocorrelation & Forecasting the tourist arrivals in India

Panel Data Regression

$Y_{it} = \beta 0 + \beta \sum X_{it} + \mu i + U_{it}$

Y=Number of tourists arrives in a year, X= Independent variables, i= states (selected 17 states), t= Year (2004 to 2018), Uit = Error Term

DATA ANALYSIS AND FINDINGS

The graph below shows the influx of foreign tourists in India from 2001 to 2018. In 2018, the number of foreign tourist arrivals was nearly 2.9 crore (Indian Tourism Statistics Report, 2019). It is observed that there has been an increasing trend in FTAs for several years. The various campaigns and projects by the Ministry of Tourism in 2002 gave a boost to the tourism industry. Here one can see that the 2008 Financial crisis, impacted foreign tourists – which led to a hindrance in the growth rate of tourist arrivals. There was only a rise of 1.8percent in tourist arrivals - which was the lowest since "Incredible India" campaign launched. In 2010 & 2011, India did a commendable job by hosting the Commonwealth Games 2010 & ICC Cricket World Cup 2011, which simply increased the influx of foreign tourists. Here in the Linear trend line equation X is the year from 2001 to 2018. The trend growth rate for FTAs is 9.82 percent and for DTAs is 12.44 percent.

FTA for India 2001-2018

$y = 1,379,366x + 3,055,322$

DTA for India 2001-2018

$y = 96,381,642x + 58,049,528$

Graph 1 FTA for India 2001-2008   **Graph 2 DTA for India 2001 – 2008**

(Source - https://tourism.gov.in/market-research-and-statistics)

Now the second graph shows the Domestic Tourist Arrivals (Month Wise) – which is based on how people are traveling from one state to another state. In 2018, the number of DTAs was 185 crores. It is noted that the increment is very exponential. After 2007-08 one can see a sudden increase in domestic tourism. Only one year shows no growth in tourists i.e., 2016 to 2017, with only 2.6 percent of increment in the number of DTAs. Demonetization can be considered a reason for this; it is subsequent years; one can see numbers on the increasing side.

Table 1- Month-wise number & percent share of FTAs in India during 2016-18

Months	FTAs in India			Growth Rate in FTAs		%Share
	2016	2017	2018	2016-17	2017-18	2018
January	844533	964109	1045027	14.2	8.4	9.9
February	848782	931025	1049259	9.7	12.7	9.94
March	809107	885936	1021539	9.5	15.3	9.68
April	592004	717899	745033	21.3	3.8	7.06
May	527466	622408	606513	18	-2.6	5.74
June	546972	663470	683935	21.3	3.1	6.48
July	733834	779309	806493	6.2	3.5	7.64
August	652111	719129	785993	10.3	9.3	7.44
September	608177	719964	719894	18.4	0	6.82
October	741770	866976	890223	16.9	2.7	8.43
November	878280	997738	1012569	13.6	1.5	9.59
December	1021375	1167840	1191498	14.3	2	11.29
Total	8804411	10035803	10557976	14	5.2	100

(Source - https://tourism.gov.in/market-research-and-statistics)

The bar graph along the table shows the percent share of FTAs from different months. The winter season from November to March brings the highest influx of foreign tourists. It has been seen that people used to avoid traveling to India in the summer season because of the high temperature. People from all over the world love to visit and enjoy the diaspora & culture of India. Of all the countries, there are mainly 15 countries which contribute around 3/4th of the total foreign tourist arrivals. The pie chart gives an idea of the percentage of the tourist arrival from these countries. One can notice that Bangladesh is in the top position, followed by the USA & UK. These 3 top countries contribute nearly 45percent of the influx. Then there is Sri Lanka, Canada, Australia, Malaysia, China, Germany, etc. which have 2-3percent of the share.

FTAS IN INDIA ACCORDING TO PURPOSE

Indian tourism is highly dependent on the weather and the need of the hour is to overcome this problem and transform India into a 365-day destination. For this purpose, Tourism Ministry in India has taken some concrete steps of identifying, diversifying, and promoting niche tourism products and coming up with special packages highlighting the season-wise specialty of different parts of India. The Ministry derives the purpose of arrivals by clubbing various visa type categories for foreign tourists traveling to India; this initiative has been started in 2018.

Year	Business & Professional	Leisure Holiday & Recreation	Medical	Indian Diaspora	Others
2016	15.6	61.5	4.9	14.5	3.6
2017	13.8	59.0	4.9	19.3	3.0
2018	16.3	62.4	**6.1**	13.5	1.7

(Table 2- Categorization of Tourism)

Source - https://tourism.gov.in/market-research-and-statistics

From the above table, we can analyze that almost 60 percent of the tourists come to India for holidays & recreation purposes. Business Professionals & Indian Diaspora has very similar numbers around 15-20 percent. In 2018, the medical purpose itself was having around 6 percent share. This implies that in the future we can foresee India as a medical tourist destination.

Foreign Exchange Earnings from Tourism in India during 2001-18

**Graph 3- FEE from Tourism in India (2001-2018)   Graph 4- Percentage Change in FEE in India (2001-2018)**

Source- **https://tourism.gov.in/market-research-and-statistics**
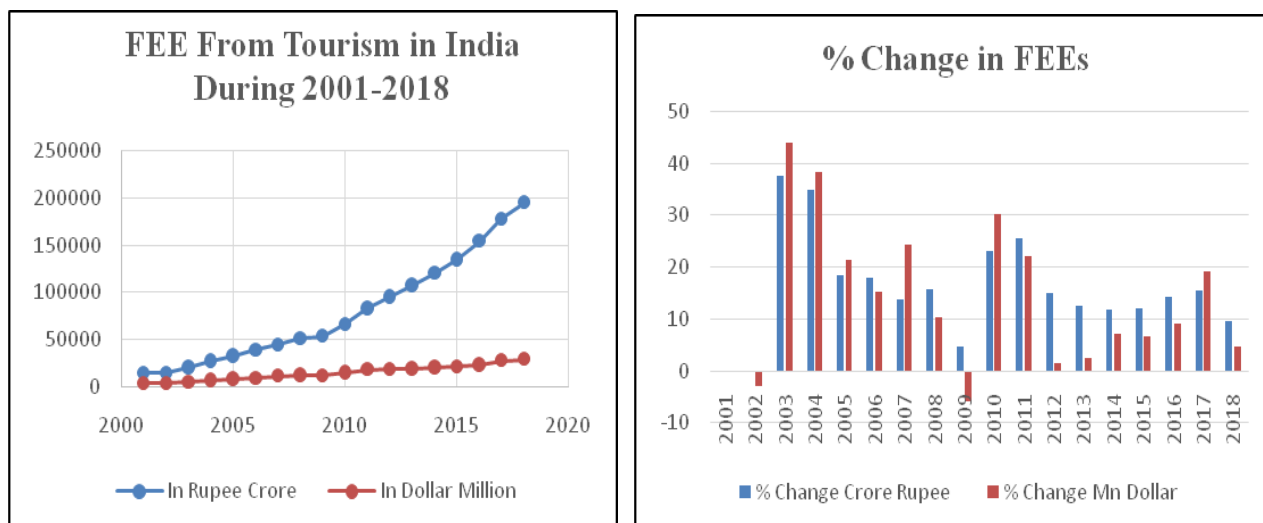
The growing tourism industry brings more foreign exchange earnings to India. In 2001 the Foreign Exchange Earnings (FEE) from tourism were Rs. 15083 cr. From 2001 to 2018, the FEEs show a CAGR of 16.24 percent with a Trend Growth Rate of 14.86 percent. FEEs from tourism in India in 2018 were Rs. 94881 crores as compared to Rs. 177874 crores in 2017 registering a growth of 9.6 percent in 2018. The line Graph, on the left side, depicts the increase in FEEs from tourism. On the right side, the bar graph shows the percent change in FEEs over the years. Considering the above-shown increases, it can be said that the schemes run by Govt. be it "Incredible India", "Atithi Devo Bhav" and many more have worked in a positive manner to cast an impact in FEE. The graph also shows a dip and growth FEE's and one can attribute this low and good phase to the ongoing bad and the good phases in the economy like Recession, Demonetization, Commonwealth games, Cricket world cup, etc.

EMPLOYMENT FROM TOURISM

Tourism contributes around 12-13 percent to the total employment. The Ministry of Tourism started releasing the numbers for employment in the tourism industry in 2013-14 and in the subsequent years. Tourism provides direct and indirect employment. Data shows that numbers are gradually increasing over the years. In 2018-19, the tourism industry had provided 87.5 million of total employment. The trend growth rate of employment is 5.13percent in the last 5 years. The bar graph shows the percentage of direct employment, indirect employment & total employment. In all
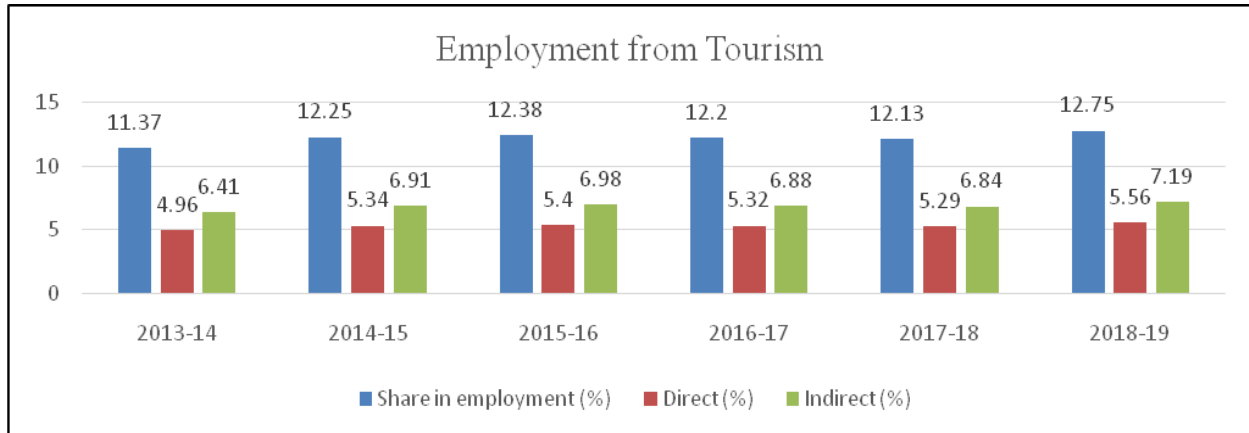
three terms, the contribution from tourism is increasing over the years.

Graph 5- Generation of employment from tourism 2013-19

Source- **https://tourism.gov.in/market-research-and-statistics**

GDP FROM TOURISM

As per World Travel & Tourism Council in 2018, the Indian tourism industry contributed US$247.29 Billion. Revenue from the tourism industry is increasing over the years and so it has a positive trend with a CAGR of 7.03percent and a trend growth rate of 7.83percent.

Graph 6- Contribution of Tourism in GDP of India from 1999-2018

Source- **https://tourism.gov.in/market-research-and-statistics**
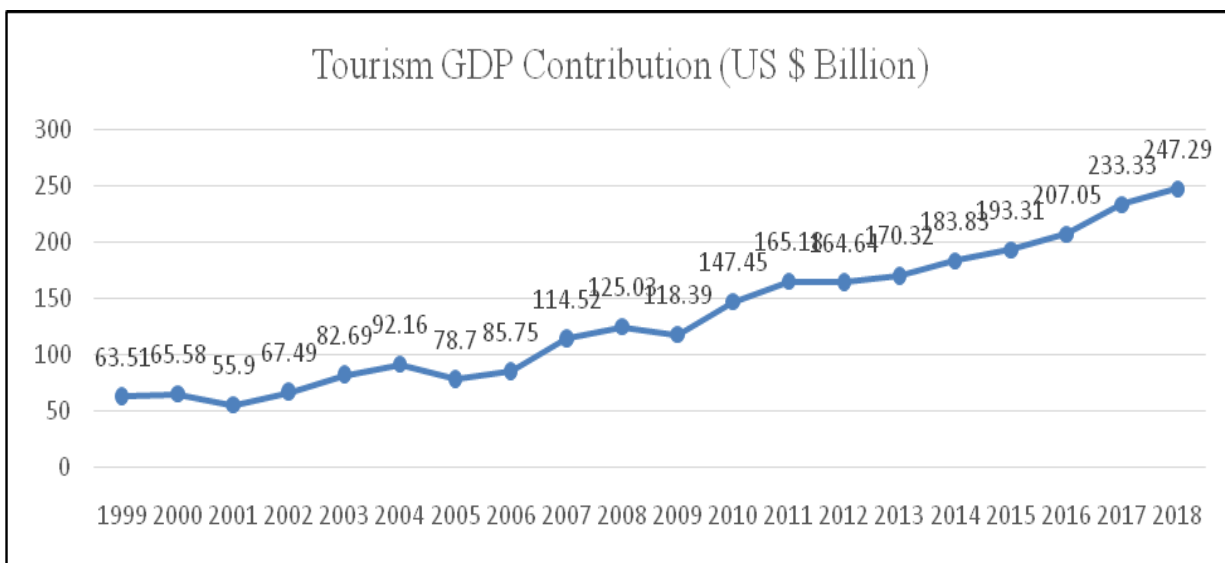
GROWTH RATE TREND

The Growth Rate Trend is very imperative in assessing the trend any variable is continuing in the long term. Growth rate trends for the year 2001 to 2018 for all the states/UTs were assessed and compared with the national growth rate trend. It gives an idea of which states are above the average value and which states are below the average value. To get the values in one similar pattern, it would be useful to take a log of values i. e, FTAs for each state/UTs and India. Regression of FTAs with time shows the value of growth rate in terms of coefficient i.e., β
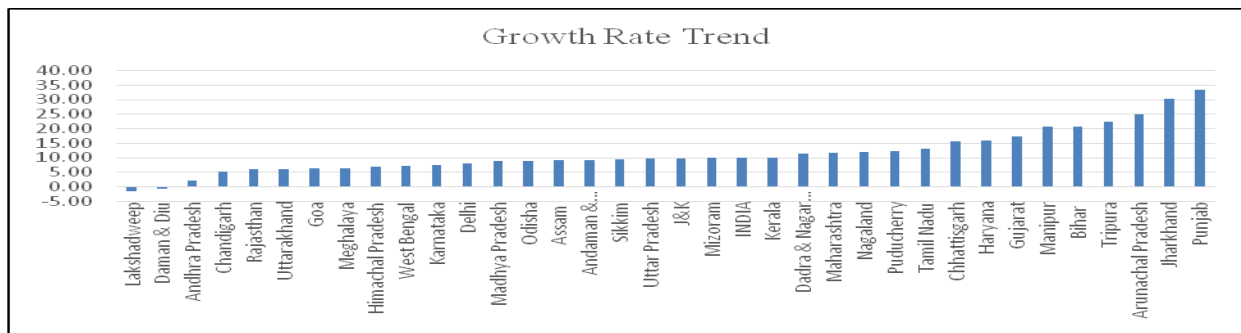
We run a regression on FTAs with time.

log Y = $\alpha + \beta$t, Y = number of tourists arriving in a year (state & national level)

α=Intercept or Constant term, β=Growth rate

T = Time

Now the β values give a growth rate for each year.

Graph 7- State wise Growth Rate Trend in India

For Foreign Tourist Arrivals (FTAs) – India's Growth rate trend is 9.82percent. Out of all the states/UTs, only Lakshadweep & Daman-Diu shows a negative growth rate trend. Punjab has the highest growth rate trend of 33.33percent.

States/UTs – below the national growth rate are Lakshadweep, Daman & Diu, Andhra Pradesh, Chandigarh, Rajasthan, Uttarakhand, Goa, Meghalaya, Himachal Pradesh, West Bengal, Karnataka, Delhi, Madhya Pradesh, Odisha, Assam, Andaman & Nicobar Island, J&K, and Mizoram.

States/UTs – above the national growth rate are Kerala, Dadra & Nagar Haveli, Maharashtra, Nagaland, Puducherry, Tamil Nadu, Chhattisgarh, Haryana, Gujarat, Manipur, Bihar, Tripura, Arunachal Pradesh, Jharkhand, and Punjab.

MULTIPLE REGRESSION MODEL

Researcher carried out a multiple regression model on 30 years of data at the national level. Multiple regression models are used to analyze the relationship between Foreign Tourist Arrivals and the various factors affecting or influencing it.

Foreign Tourist Arrivals = a + β1Crime_Rate + β2 GDP in Billions + β3Inflation_Rate + β4Terrorism_incidents + β5Govt_spending+ β6Capital_Inv +μ

Dependent Variable:

FTAs in India – Number of tourist arrivals in India per year from 1989-2018

Independent Variables:

Crime Rate – Incidence of crime per 100,000 population. The increase in crime in tourist destinations is connected to deeper socio-economic problems. These give an image of insecurity that directly or indirectly affects the decision-making process and the destination choice.

GDP in billions – GDP and tourism are related to each other in a unique way. Countries that have a higher GDP tend to be more developed and tourists prefer to come to countries that are more developed and have better infrastructure facilities etc.

Inflation Rate – Since inflation means an increase in the value of money, that might affect the cost of domestic things, which can negatively affect tourism.

Terrorist Incident – Terrorist activities are again a threat to life and tourists prefer not to go to places where there are frequent terrorist activities taking place. Example: Kashmir has a lot of terrorist activities going on and tourists will not want to risk their lives to visit Kashmir

Government Spending on Tourism – Government spending has a direct relationship with tourism. If the government spends more on tourism, advertisement, marketing, and campaigns, etc., it can have a positive impact on FTAs.

Capital Investment in Tourism – This also has a direct relationship with FTAs. As capital investment increases, it helps in enriching the infrastructure – which attracts tourists from all over the world.

μ – The random error term, also known as disturbance, captures the unobservable effect of variables. This error term is normally distributed with a 0 mean and has a constant variance.

Before running a regression on the data, first, there was a need to check for heteroskedasticity in the model.

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Chi(2)	6.48
Prob>Chi2	0.3718

The null hypothesis in the Breusch-Pagan test is that there is a constant variance. Test results conclude that the P-value is more than 5percent. This states that one cannot reject the null – so there is no heteroskedasticity in the model.

The result of multiple regression model is:

No. of observation = 30   R-Squared = 0.9940

Prob > F = 0.0000   Adj R-Squared = 0.9924

Table 1 Multiple Regression Model Output

	Coeff	Std Error	t	P>t	[95percent Conf. Interval]	
Crime rate	202044.3	195604	1.03	0.312	-202593	606681.9
GDP in Billions	2434.269	424.1269	5.74	0	1556.896	3311.642
Inflation rate	-33723.7	18677.99	-1.81	0.084	-72362.1	4914.686
Terrorist incident	-857.393	405.666	-2.11	0.046	-1696.58	-18.209
Govt. spending on tourism	100295.3	41532.45	2.41	0.024	14378.91	186211.8
Capital investment in tourism	469.166	188.8662	2.48	0.021	78.46646	859.8656
_cons	-38628.8	931359.8	-0.04	0.967	-1965293	1888036

The result has a high R-squared value of 99.40 percent. Overall joint significance is present in the model with an overall P-value of 0 percent. The inflation rate & terrorist incidents have a negative coefficient – which shows the negative relationship between them and is significant at 10 percent & 5 percent p-value. Crime rate is the only variable with a p-value of more than 5 percent - which shows that it is insignificant in the model. GDP in billions, Government spending on tourism & capital investment in tourism – are positively correlated with the FTAs in India and are significant at a p-value of 5 percent.

FORECASTING FTAS

From the last 30 years of data, researcher forecasted the influx of foreign tourists for the next 5 years. First, make a Correlogram, a visual way to show the summary of correlation in data at a different point in time. The gray areas are confidence bands (e.g., tell you whether the correlation is statistically significant). Autocorrelation coefficient values are decreasing with an increment in lag. The autocorrelation coefficient for lags 1 & 2 is so high & it shows that year by year FTAs are highly correlated. There are two instances where the bar is out of the 95 percent CI, which shows that the data is not random. Initially, there were high values & with successive lags, it decreases and goes to zero, which shows that the data has a trend. The next step is to check stationary in the model & it turns out that the data is not stationary at the initial leveland it becomes stationary at lag 1.

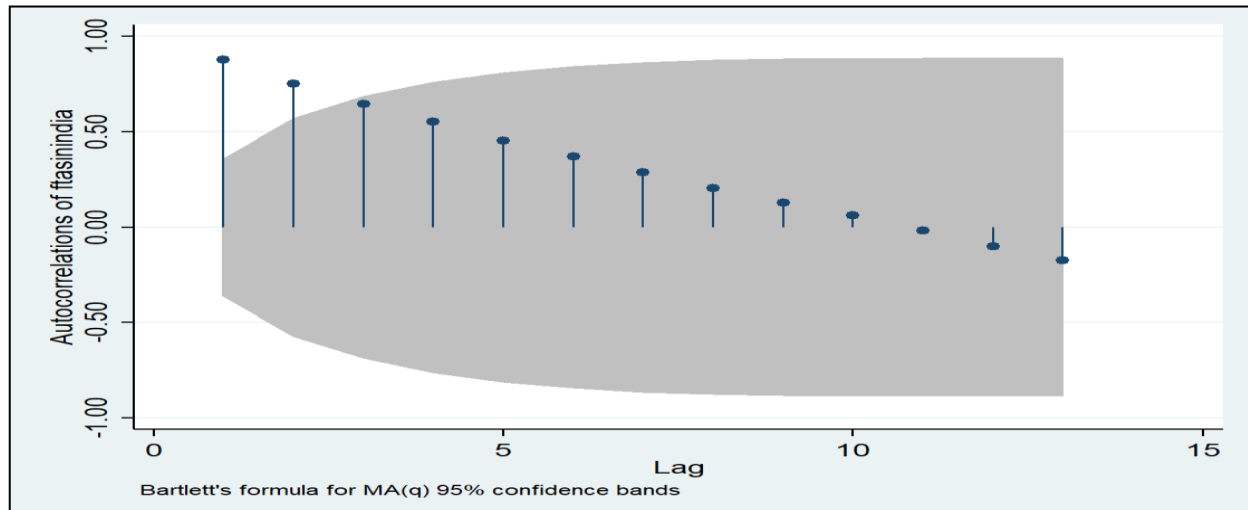Dicky-Fuller test for unit root   Number of observations =28

	Test Statistics	1percent Critical Value	5percent Critical Value	10percent Critical Value
z(t)	-2.889	-3.73	-2.992	-2.626

Mackinnon approximate p-value for Z(t) = 0.0467, Dicky fuller test used to check stationary.

Null hypothesis: Data is not stationary, P-value = 0.0467, which is less than 0.05 – so we can reject


the null.

Graph 8- Future prediction regarding Influx of Tourism in India from 2019-2023

The graph above shows the influx of tourist arrivals from 2019 to 2023. And it shows that the trend of increasing FTAs will continue.

PANEL DATA REGRESSION

For Spatial-Temporal analysis, a panel regression model has been used. Panel regression is a modeling method adapted to panel data, also called longitudinal data or cross-sectional data. Here, the analysis is about the foreign tourist arrivals in Indian states for the last 15 years. Out of all the Indian States/UTs, some do not contribute much & they might not help in creating a model. There are top 17 States/UTs that contribute more than 95 percent of tourism. Those States/UTs are Tamil Nadu, Maharashtra, Uttar Pradesh, Delhi, Rajasthan, West Bengal, Punjab, Kerala, Bihar, Goa, Andhra Pradesh, Karnataka, Gujarat, Madhya Pradesh, Himachal Pradesh, Jharkhand, and Uttarakhand.
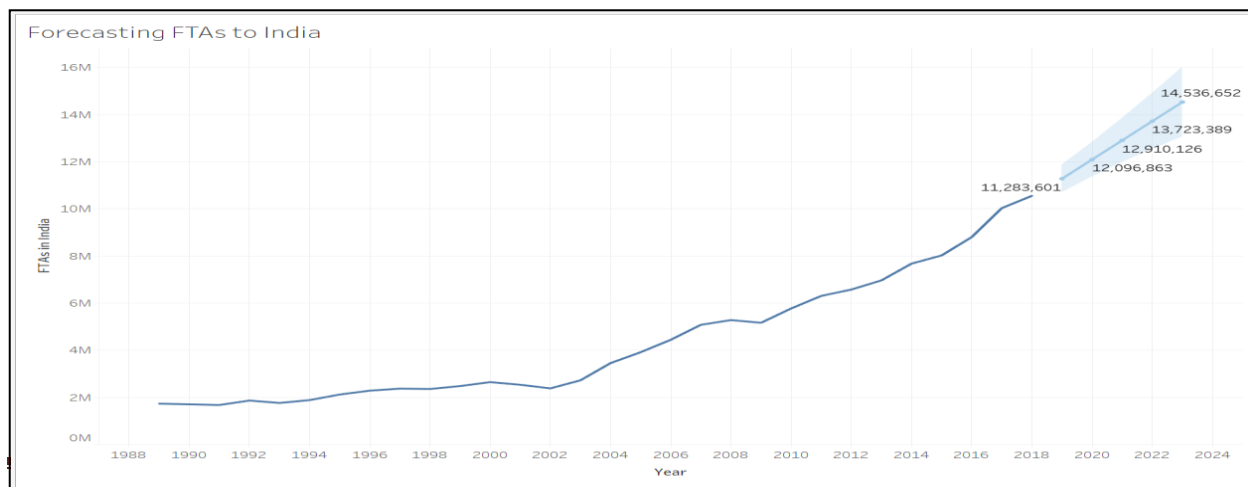
Graph 9- Forecasting Foreign Tourist Arrival in India

Data Description:

Dependent Variable:

State-wise FTAs – State-wise FTAs – number of tourist arrivals in states per year from 2004-2018.

Independent variable:

GDP – GDP and tourism are related to each other in a unique way. States that have a higher GDP tend to be more developed and tourists prefer to come to states that are more developed and have better infrastructure facilities etc.

Crime Rate – Incidence of crime per 100,000 population. The increase in crime in tourist destinations is connected to deeper socio-economic problems. These give an image of insecurity that directly or indirectly affects the decision-making process and the destination choice.

Length of Roads – Better infrastructure can attract more tourists. More highways and roads make travel easy. So, the length of roads is a proxy for infrastructure.

Invested Capital – This also has a direct relationship with FTAs. As capital investment increases, it helps in enriching the infrastructure – which attracts tourists from all over the world.

The proportion of Urban Population – States which are developed, might have more urban population. More urban population mean high-level facilities & ease of living – that can positively impact tourist arrivals.

Social Sector Expenditure – The expenditure from the government for social upliftmentis defined as the total public expenditure incurred under the headings of 'social services' and 'rural development.

Panel Regression Model

$Y_{it} = \beta 0 + \beta \sum X it + \mu_i + U_{it}$
Y=Number of tourists arrives in a year
X= Independent variables
i= States (selected 17 states)
t= Year (2004 to 2018)
U_{it} = Error Term
Selected data has 17 states and 15 years of data which is 255 observations. There are different methods to deal with Panel data regression like First difference, Fixed effects & Random effects. For this, fixed effects and random effects are taken into consideration, and then with the help of the Hausman test, the best result has been selected. Fixed effects are constant across variables; they are estimated using least squares or maximum likelihood. While random effects are not constant, rather vary. These are estimated using linear unbiased prediction. The below table shows the output of Panel data regression with a fixed-effect model.

Prob>F=0.000		Observation=255		Groups=17		
	Coefficient	Std. Err.	t	P>|t|	[95percent	Conf.

					Interval]	
GDP	0.035002	0.00512	6.84	0	0.024915	0.045089
Crime Rate	-0.22265	0.1288	-1.73	0.085	-0.47642	0.031125
Capital Expenditure	11.1426	5.267639	2.12	0.035	0.763836	21.52135
Length of Roads	3.180164	0.752859	4.22	0	1.696815	4.663512
Social Sector Expenditure	13.118	4.00416	3.28	0.001	5.22865	21.0073
Invested Capital	0.02098	0.00585	3.59	0	0.00945	0.03251
Urban Population Proportion	1847.88	7617.085	0.24	0.809	-13160	16855.72
_cons	-628373	281721.2	-2.23	0.027	-1183444	-73301.5

Fixed effects Results show that the P-value is 0.00, which says that the model is jointly significant. It has 255 observations and is grouped by 17 states. Variables like GDP, Capital expenditure, length of roads & social sector expenditure & invested capital is positively correlated with FTAs. In addition to this, all the variables are significant at a 5 percent p-value. The variable crime rate has a negative coefficient which shows that there is a negative relationship between Crime rate & FTAs, and it is significant at a 10percent p-value. Urban population proportion is the only variable that is not significant at any level.

Below table shows the output of Panel data regression with Random Effects:

Prob>Chi2=0.000		Observation=255		Groups=17		
	Coefficient	Std. Err.	Z	P>|z|	[95percent Conf. Interval]	
GDP	0.032619	0.004858	6.71	0	0.023097	0.04214
Crime rate	-0.21643	0.124897	-1.73	0.083	-0.46122	0.028363
Capital expenditure	9.560795	5.314266	1.8	0.072	-0.85498	19.97657
Length of roads	2.713388	0.751308	3.61	0	1.240851	4.185926
Social sector expenditure	10.6844	3.881011	2.75	0.006	3.07773	18.291
Invested capital	0.02098	0.005695	3.68	0	0.00981	0.03214
Urban Population Proportion	8279.624	5579.281	1.48	0.138	-2655.57	19214.81
_cons	-731276	266777.5	-2.74	0.006	-1254150	-208402

Table 2 - Output of Panel Data Regression (Random Effects)

Random effects results show that the model has joint significance with a p-value less than 5 percent. A positive sign on the coefficient of GDP, length of roads, social sector expenditure, and invested capital shows a positive correlation with FTAs at a 5 percent significance level. The crime rate is correlated negatively with FTAs and it is significant at a 10percent significance level.

The Hausman Test: It is also depicted as a test for model misspecification in panel data analysis. The Hausman test helps in picking between fixed effects models or a random-effects model. The null hypothesis is that the model is random effects that the favored model is random effects, and the alternate hypothesis is Fixed effects. The tests hope to check whether there is a correlation between the unique errors and the regressors in the model. The null hypothesis is that there is no connection between the two.

Table 3- Hausman Test for choosing between FE & RE

	(b) FE	(B) RE	(b-B) Difference	sqrt(diag(V_b -V_B)) S.E.
Crime Rate	-0.22265	-0.21643	-0.00622	0.031468
Capital Expenditure	11.1426	9.560795	1.5818	.
Length of roads	3.180164	2.713388	0.466775	0.048296
Social sector expenditure	13.118	10.6844	2.43362	0.985421
Invested Capital	0.02098	0.02098	3.14E-06	0.001339
Urban Population Proportion	1847.88	8279.624	-6431.74	5185.712

Prob > Chi2 = 0.2238

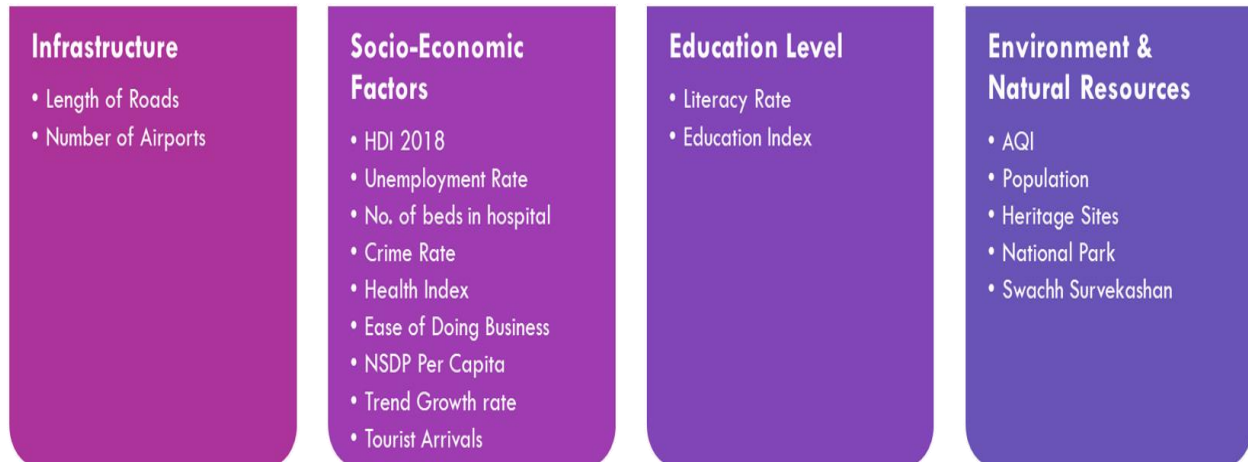b= Consistent under H0 and Ha; obtained from xtreg

B= inconsistent under Ha, efficient under Ho; obtained from xtreg

P-value is not significant at even a 10percent level. That means, researcher cannot reject the null. So, the preferred model is the Random-effects model.

TOURISM ARRIVAL INDEX

Tourism Arrival Index (TAI) provides a mean to measure a state's performance and utilizes four sub-indices and their parts to represent the overall quality, future potential & long-term sustainability of the tourism sector within each state assessed.

Tourism Arrival Index (TAI) analyzed 17 states covering more than 95percent of total tourism and scored each according to four metrics: Infrastructure; Socio-Economic Factors; Education level; and Environment & Natural Resources. These metrics are, in turn, composed of eighteen "pillars" of the Tourism Arrival Index (TAI).

Infrastructure
• Length of Roads
• Number of Airports

Socio-Economic Factors
• HDI 2018
• Unemployment Rate
• No. of beds in hospital
• Crime Rate
• Health Index
• Ease of Doing Business
• NSDP Per Capita
• Trend Growth rate
• Tourist Arrivals

Education Level
• Literacy Rate
• Education Index

Environment & Natural Resources
• AQI
• Population
• Heritage Sites
• National Park
• Swachh Survekashan

Data for these topics come from the website of different ministries of GOI, and publications of RBI and WEF. While variable Trend growth rate was calculated in the study initially.

Steps for calculating TAI:

FORMING INDICES FOR EACH OF THE FOUR METRICS

Values of each of the eighteen topics are first normalized to an index value of 0 to 1. To do this, "goalposts" of the maximum and minimum limits on each topic are taken as the global maximum and minimum. With the actual value of a given state, the indices value for each topic is calculated by:

$$Dimension\ Index = \frac{Actual\ Value - Minimum\ Value}{Maximum\ Value - Minimum\ Value}$$

The dimension index is therefore 1 in a state that achieves the maximum value & is it 0 for a country that is at the minimum value.

After getting the Dimension index for all the topics, take the arithmetic mean of topics for each metric, i.e., the Dimension Index of Infrastructure will be equal to the average dimension index of the Length of roads variable & dimension index of several airports.

AGGREGATING THE FOUR METRICS TO PRODUCE THE TAI

Once each of the individual indices has been calculated, they are aggregated to calculate TAI.

To calculate the TAI, first, the different weightage is provided for each of the metrics.

Table 4 - Weightage for metrics

Metric	Weightage
Infrastructure	0.30

Socio-Economic Factors	0.25
Education Level	0.25
Environment & Natural Resources	0.20

Here, Infrastructure has the highest weightage (0.30) which shows that people would like to visit such states having better connectivity in terms of transportation. Socio-Economic factors and Education level have a weightage of 0.25 each. Tourists will feel safe visiting states having lower crime rates, high health indexes, better standards of living, etc. Education level will help in getting the future potential of Tourism, high level of education might lead to better growth of the states which may increase the tourism arrivals. Environment & Natural resources have a weightage of 0.20.

The Tourism Arrival Index is calculated as

(0.30 * Infrastructure) + (0.25 * Socio-Economic Factor)
+ (0.25 * Education level) + (0.20 * Environment & Natural resources)

TAI =
This will provide the Index value between 0 to 1 and multiply it by 100 to get the score of each state out of 100.

Table 5 Tourism Arrivals Index Score

Index	States	Score
1	Maharashtra	75.94
2	Tamil Nadu	58.78
3	Kerala	53.23
4	Karnataka	52.31
5	Gujarat	49.19
6	West Bengal	47.11
7	Uttar Pradesh	47.00
8	Andhra Pradesh	44.64
9	Madhya Pradesh	42.91
10	Rajasthan	39.80
11	Punjab	38.25
12	Himachal Pradesh	36.47
13	Uttarakhand	35.07
14	Delhi	32.24

15	Goa	31.78
16	Jharkhand	25.30
17	Bihar	22.80

Out of all 17 states, Maharashtra secured the 1st position in the Tourism Arrival Index. The state is leading in Infrastructure, Socio-Economic & Environment metrics, while at 4th position in Education. Tamil Nadu, Kerala, Karnataka & Gujarat are the other 4 states which secured their position in the top 5. Jharkhand & Bihar secured the last 2 positions in this index. The lowest HDI, literacy rate & NSDP per capita made Bihar get the last position.

SUGGESTIONS

Trend analysis showcases that from 2001 to 2018 tourism has increased exponentially in India not only from foreign countries but interstate too. Government initiatives like "Atithi Devo Bhav", Brand endorsements, Magnificent Rajasthan, etc. played an important part in it. Tourism not only plays a vital role in increasing government exchequer, foreign exchange earnings but employment too. The Covid era created havoc on this industry, so post Covid-19 government should come up with some attractive campaigns (state-wise) and packages so that this industry gets a boost and again be able to play an important part in the economy as before.

 While analyzing the growth in various tourism sectors, it is very peculiar to see that medical tourism has witnessed a boost from 2016 to 2018. During covid, India was not only able to handle the situation meticulously but also been in a position of a medical export giant. All thanks to the medical fraternity and industry. The medical fraternity and the government of India should come together and take benefit from the situation and boost medical tourism and establish themselves as the medical hub for the world. For this, they need to come up with some attractive packages, stringent medical laws, and easy availability of medical visas.

India's growth trend is 9.82 percent while comparing it with states and UTs of the country Lakshadweep, Daman, and Diu even after having breathtaking scenic beauty showcase a negative growth trend. The main reason behind the same is connectivity and long traveling hours. It is suggested to come up with some direct connecting routes and attractive hospitality packages. Goa being an important destination is still not showing the growth rate as expected due to the same laxative police administration, the state being labeled as a narcotics hub, and an untidy keeping up the state. The government needs to pay heed to it.

While predicting tourism for the next 30 years researcher correlated them with various factors that play an important part in tourism influx, and government needs to pay heed to these factors for example terrorist activities in Kashmir playing a negative impact on tourism in the valley. The government needs to keep a check on the factors like terrorism, government spending GDP, and capital Investments because multiple regression model output showcases an Impact of these factors on Tourism in the country

Infrastructure, social-economic factors, education level of the state, and safeguarding of environmental and natural resources also have a role in attracting tourists, for example, Himachal Pradesh and Uttarakhand have a positive trend growth and can still be regarded as an unexplored destination. The main reason is the natural calamities due to the poor government policies like Deforestation, Industrialization, an increase in concrete infrastructure, and zero policy for waste

management. States with waste biodiversity, flora, and fauna can be endorsed as medical destinations where medical branches like Ayurveda, Yoga, and Meditation can be given a boost that is very popular in foreign countries and increase Foreign Tourist Arrival.

CONCLUSION

Graph 1 shows the influx of foreign tourist arrival from 2001-2018. In 2018 nearly 2.9 crore foreign tourist arrived in India, though Covid-19 broke this cycle abruptly and made the whole world come to a standstill. After the Covid, the countries around the world slowly and steadily uplifted the barriers and tried to bring normalcy. According to the Ministry of Tourism, FTA in March 2022 was 3,42208 crores with a growth rate of 117.9% as compared to 1,23,179 crores in March 2021. After Covid, the steps taken by the government of India to facilitate the interconnectedness of small but important places with metropolitan cities had paved way for the foreigners as well as the inmates to take a deeper look into the rich culture and heritage of India. Among all the countries in the world, 15 countries mainly contribute three fourth of the total foreign tourist arrival in the country. Among these countries Bangladesh, United States of America, United Kingdom, and Russia tops the chart followed by Sri Lanka, Canada, and Australia. Foreign Tourist Arrival not only helped in bringing the country on the world platform but also highlighted its rich and vast culture and also helps in generating employment in the country. In Graph 5, according to the data provided by the Ministry of Tourism, in 2018-19, the tourism industry provided employment to 87.5 million people in India. Covid somehow brought a break but as a market is rising post pandemic, it's obvious to increase the employment avenues too.

Government of India and the state government in collaboration are working on many schemes to boost the tourism in the country. Government of India on National level started schemes like E-Visa, Hunar se Rozgar tak, Pilgrimage Rejuvenation and Spiritual Augmentation Drives (PRASAD), Multilingual Tourism Helpline , Adarsh Smarak etc, whereas state government on their own level tried to boost the tourism of the state by initiatives like "Intzaar Khatam Hua" by Madhya Pradesh govt, "Kuchh Din to Guzaro Gujrat Maa" by Gujrat, "Hindustan Ka Dil Dekho" by Madhya Pradesh, "Unforgettable Himachal" by Himachal Pradesh etc to boost tourism in the country post Covid. The number of foreign as well as domestic tourist arrival is going to increase in the future. The Indian tourism industry has a vast potential for generating employment and earning large sums of foreign exchange besides giving a fillip to the country's overall economic and social development. Government should find ways to increase the purpose-wise tourism in India, in addition to medical, spirituality & business. Variables like GDP, Crime Rate, length of roads & invested capital, and social expenditure are the most dominating factors that affect tourism in India. Law& Order becomes a very important factor for a tourist to decide where to travel, so all states try to decrease the crime rate. Since tourism is a multi-dimensional activity, and service industry, it would be necessary that all wings of the central and state governments, private sector, and voluntary organizations become active partners in the endeavor to attain sustainable growth in tourism if India is to become a world player in the tourist industry.

In recent times, it would be great for India to win the fight against Covid 19, so that India can resume its badly impacted tourism industry. And for that India should investigate making the infrastructure more reliable and advanced for tourists. Law and order has emerged as an important factor in affecting tourism in the country. The government needs to come up with some stringent

actions to control the menace especially crime against women because these rising crime activities not only hamper tourism but also malign the image of the country on international platforms. In recent years, medical tourism has shown tremendous growth thus the country needs to invest a significant amount towards the extension and revival of medical infrastructure especially the doctors and Paramedical staff so that the challenges thrown by the epidemics and pandemics like Covid 19 can be turned into its stride. With available medical facilities, India can turn a covid challenge into an opportunity.

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