# "An investigation of the demand pulled factors of foreign tourist inflows to India"

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**BUSINESS PERSPECTIVES**

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# AN INVESTIGATION OF THE DEMAND PULLED FACTORS OF FOREIGN TOURIST INFLOWS TO INDIA

## Abstract

This study aims to examine the demand-driven factors that attract foreign tourists to India. This study used an advanced gravity model to examine the factors that drew demand from 15 major foreign tourist destination countries from 1995 to 2018. Descriptive statistics, correlation, OLS, and panel GMM are the statistical tools used in data analysis. The results indicate that the per capita income of India and the countries of origin, the size of the Indian population, and a favorable visa policy all contribute to attracting foreign tourists to India. Meanwhile, the high cost of living in India compared to foreign tourist countries, terrorist incidents, and long distances between India and these countries are some of the factors that discourage foreign tourists from visiting India. The results of the study are robust and compelling and have significant implications for policymakers and the industry. Based on the findings, the study suggests that the Indian government should reduce the cost of living, especially for foreign tourists, by exempting them from paying goods and services tax and other taxes at the departure airport by showing the bill. In addition, security is an issue where the government should ensure the safety of foreign tourists.

| Keywords | tourism, factors, gravity model, cross-sectional data, GMM |
|---|---|
| JEL Classification | Z30, L83, C23 |

## INTRODUCTION

Tourism is a key contributor to worldwide economic growth and development (De Vita & Kyaw, 2016; Von Schuckmann et al., 2018). Tourism is also regarded as a "smokeless industry" as it contributes to society's long-term and environmentally friendly socio-economic development (Kapera, 2018; Shahbaz et al., 2018; Lee & Jan, 2019). Tourism generates jobs, investment opportunities, and foreign exchange for the host country (Dritsakis, 2004; Xu et al., 2019). Among the various benefits of the tourism industry, its ability to generate foreign exchange earnings places it ahead of and comparable to other forms of export income (Karaman, 2016).

India is the largest tourism market in South Asia and has been a driving force in the region's tourism industry. The country offers various appealing tourism-related products, including medical, sports, wellness, cruises, film, eco-tourism, rural and religious tourism, etc. The country is one of the most popular spiritual tourism destinations, attracting domestic and international visitors (IBEF, 2020). Indeed, the country's tourism industry has performed remarkably over the years, with a compounded annual growth rate (CAGR) of more than 20% between 2013 and 2018 15 countries for foreign tourists to India accounted for approximately 75.33% of the total foreign tourist inflows into India.

Tourism contributes significantly to India's GDP, jobs, and foreign exchange earnings, but tourism research in India is still in its infancy. There is little empirical research on the determinants of international visitor arrivals in India. Dhariwal (2005), Barman and Nath (2019), Altaf (2021), and Tiwari et al. (2019) have studied foreign tourist arrivals to India using different variables. However, these studies did not consider the impact of variables such as linguistic similarity, terrorism incidence, and visa policies on India's ability to attract foreign tourists. Thus, this study is one of the first attempts to use the gravity model to study demand-side factors influencing the flow of foreign tourists to India.

# 1. LITERATURE REVIEW

Tourism is traveling for leisure, recreational, or business purposes. It involves visiting new destinations, staying in accommodations, experiencing local culture, and engaging in activities. Several studies have investigated the determinants of international tourism, focusing on economic and non-economic factors. These factors include per capita income, exchange rate, globalization, consumer price index, violence or terrorism, family debt, bilateral distance, and local factors such as income, relative prices, weather, natural amenities, infrastructure, and leisure activities.

Ulucak et al. (2020) looked into the reasons that drew foreign tourists to Turkey between 1998 and 2017 using an extended gravity model. They discovered that higher income in both origin and destination countries, exchange rates, and globalization raised tourism demand. At the same time, factors such as inflation, terrorism, household debt, and distance had a negative effect. Additionally, Alvarez-Diaz et al. (2020) found that local factors such as income, prices, weather, natural resources, infrastructure, and leisure options significantly impact domestic tourism demand in Spain and must be considered when analyzing demand at the provincial level. Similarly, Ghani (2016) revealed fewer tourists from Islamic countries than inbound tourists from non-Muslim countries. The study attributes this discrepancy to a combination of factors, including lower per capita incomes in many Muslim countries, which can make it more difficult for citizens of these countries to travel. Furthermore, the study suggests that Muslim countries with higher per capita incomes tend to have smaller populations, which could also lead to lower tourist arrivals. Additionally, the study noted that the geographic distance between Malaysia and many Muslim countries can make travel more complex and less attractive to potential tourists.

Altaf (2021) suggests that the tourism industry in India is sensitive to prices and that a stable political situation positively impacts tourism. Additionally, the study revealed that a higher proportion of exports positively correlates with the number of tourists, while a higher proportion of imports negatively correlates with tourist arrivals. According to Barman and Nath (2019), the key drivers of tourism in India are the tourist experience, the per capita income of the tourist's country of origin, and the level of infrastructure development in India. The study used data from 2001 to 2015 for 18 major tourist countries and found that these factors significantly influenced the decision to visit India. The study highlights the importance of developing and improving infrastructure in India to attract more international tourists.

Song et al. (2010) use a general-to-specific modeling approach to study tourism demand in Hong Kong among residents of Australia, the UK, and the USA. The study's findings indicate that tourist income and word of mouth/habits are the primary drivers behind the number of tourists visiting Hong Kong. It was also discovered that comparing the tourist prices in Hong Kong to the tourists' country of origin has the most significant impact on their spending in Hong Kong. Sharma and Pal (2020) showed that tourism demand in India reacts negatively to fluctuations in exchange rates, both nominal and real, on a long-term basis compared to short-term. Habibi (2017) found that recommendations, income, accessible and low-priced accommodations, and political stability positively impacted tourism demand in Malaysia. Wamboye et al. (2020) discovered that tourists' income and infrastructure development are crucial in determining international tourism demand in Tanzania. Rojas et al. (2020). found that tourist visits are associated with the host country's GDP, exports, and better air connectivity. They also discovered that fluctuations in exchange rates impact travel choices and expenses.

Ibragimov et al. (2022) studied the factors affecting tourism in different regions, including economic and non-economic factors. They found that Central Asia has high distance and low price sensitivity, with travelers from the Americas being more cost-conscious than those from Asia and the Pacific. The presence of a shared language and borders were significant boosters of tourism in Central Asia, while political instability in Pacific countries led to more outflows to Central Asia. Chasapopoulos et al. (2014) found that distance, trade, and income were critical drivers of Greek outbound tourism, with political stability also playing a role. Vietze (2012) found that religious factors influenced tourist inflows to the US, with Christians and English-speaking tourists more likely to visit. These studies show that distance, trade, income, political stability, and religion can significantly impact tourism demand. Okafor et al. (2022) showed that higher immigration rates lead to more international tourism, especially when the destination country has a vast language network. This supports the idea that language is a critical factor for tourists, as it helps with communication and understanding the local culture, resulting in greater comfort and satisfaction.

Visa restrictions can hinder cross-border travel and decrease tourism. However, looser visa policies, like visas upon arrival, can increase tourism in participating countries. For instance, Karaman (2016) found that visa restrictions in some nations decreased the number of tourists by 29% on average, while the absence of visa requirements led to a 90% boost in tourists in Turkey. Ireland's visa-free policy raised travel from related countries by 21%, while Egypt's implementation of visas upon arrival attracted more tourists, according to the OECD (2014). Neumayer (2010) found that visa restrictions can reduce bilateral travel by 52-63%. These restrictions can discourage foreign tourists from affected nations and result in less travel for tourists, business people, and other travelers. This underlines the significance of visa policies in promoting international travel and tourism and the growth potential for countries that ease their visa regulations. This also highlights the positive relationship between the ease of visa application process and the number of tourists,

which can have substantial economic benefits for the host nation.

Terrorism and insecurity can harm tourism. Muryani et al. (2020) and Neumayer and Plümper (2016) discovered that terrorism and cross-border attacks by terrorists from Muslim nations could reduce Western tourist visits. These findings indicate that terrorist messages aimed at Western citizens can discourage tourism to Muslim countries. Socio-political issues, such as sectarianism, terrorism, and international tensions, can also have a negative impact on tourism. These factors can generate a sense of insecurity or danger, dissuading people from traveling to a specific region or nation. As a result, tourism in these areas may not reach its full potential. Dhariwal (2005) also highlights that socio-political factors like sectarianism, terrorism, and tensions between India and Pakistan can negatively impact the tourism industry, deterring future tourists and limiting the industry's potential profits.

In conclusion, demand-pull factors are the various elements that attract tourists to a particular destination, such as natural and artificial attractions, cultural and social experiences, overall experience, climate, and cost of travel. These factors can significantly impact whether or not tourists decide to visit a particular destination and can also influence their overall satisfaction with their experience.

This paper aims to investigate the effect of demand-pull factors on foreign tourists' arrival to India and provide recommendations to policymakers on attracting foreign tourists.

## 2. METHODS

Anderson (1979), Bergstrand (1985, 1989, 1990), and Helpman and Krugman (1985) developed the theoretical framework for the gravity equation. The model is extensively used to analyze interactions between economic variables such as bilateral trade flows of a local country and its trade partners, tourism demand, migration determinants, FDI, etc. (Brainard, 1997; Stone & Jean, 1999; Karemera et al., 2000). The basic gravity equation for trade flows is:

$$T_{i,j} = \alpha_0 \frac{Mi\beta 1 Mj\beta 2}{D_{ij}} \beta_3 \varepsilon ij, \qquad (1)$$

where $T_{i,j}$ are the trade flows between the target country and its trading partner, j represents the relevant economic mass of the target country or trading partner, $D_{i,j}$ is the distance between the target country and the trading partner, $\varepsilon_{i,j}$ is the residual term. The relevant economic variables used by empirical studies are the economic well-being of countries as a proxy for GDP per capita or real GDP, openness to trade, index of globalization, exchange rate and regime, etc. (Tinbergen, 1962; Anderson & Van Wincoop, 2003; Singh, 2008; Neumayer, 2010). Over time, several studies have revised the basic trade gravity model, called the augmented trade gravity model, by including non-economic factors such as population, culture, language, cross-border relationships, extreme events such as terrorist attacks, earthquakes, etc. (Vietze, 2012; Yang & Wong, 2012). Researchers have used the trade gravity model to explain flows other than trade, such as migration flows, tourism flows, tourism demand, and domestic travel determinants (Alvarez-Diaz et al., 2020; Porto et al., 2018). This study used the general form of the augmented gravity model for the tourists coming to India from the top 15 countries. It included all potential variables that could affect tourist arrivals in India. These variables include trade openness, political stability index, population, real exchange rate, and relative price. The estimation process used the general-to-specific approach, estimating the model after removing irrelevant variables and finally adopting the following version of the model:

$$\ln(ARRIV_{i,t}) = \alpha \cdot Ln(percapita_{it}) \ +$$
$$+\beta_1 \ln(percapita_{dt}) \ + \beta_2 \ln(pop_{it}) \ +$$
$$+\beta_3 (Relative\ Price_{d,i}) \ + \beta_4 (distance_{i,d}) \ + \qquad (2)$$
$$+\beta_5 language\ dummy +$$
$$+\beta_6 \ln(Trade\ to\ GDP) \ +$$
$$+\beta_7 Terrordummy + \beta_8 Visa\ Policy_{dt} + \varsigma io.$$

where in the per capita income of a host country, the per capita income of the destination country, the population of the host country, the distance between India and the host country, the CPI of India, the CPI of the visitors country, the ratio of trade to GDP, a dummy variable for visa-free, language and terror are the main variables used for estimation purposes. The type of data used in the study is cross-sectional, so the panel regression techniques are considered appropriate for the estimation. The study used the least squares panel model and found promising and robust results. To further verify the robustness of the results, a panel GMM estimation was performed, and the results confirmed the panel's OLS output.

Most international tourism studies, including Zaman et al. (2011), Song et al. (2010), Wang (2010), and Salleh et al. (2011), use time series data, while some studies, such as Ghani (2016) and Yucel (2021), used cross-sectional data and analyzed tourism shocks for the 25 most visited countries. In general, the gravity model relied on cross-sectional and panel data. On the other hand, the panel data approach is superior because the cross-sectional data analysis is limited to a single time period. In contrast, the panel data approach can capture the relevant associations over time while avoiding the risk of selecting an unrepresentative year (Saray & Karagöz, 2010). In addition, panel data can help control for country heterogeneity. As a result, this study uses panel data and incorporates more variables from the augmented gravity model to explain tourist arrivals in India. The paper also used basic ordinary least squares and correlation methods in data analysis.

Data were collected on foreign tourist flows to India from 15 major tourist origin countries between 1995 and 2018. The availability of data is the most critical factor in sample selection. Population per capita income data is collected from World Bank Development Indicators (WDI), distance data from CEPII, and arrival data from India's Ministry of Tourism Statistics (ITS). Figure 1 shows that tourists from Bangladesh, Germany, Japan, Malaysia, the United States, and the United Kingdom outnumber tourists from other countries. After 2006, all country charts show an upward trend. Significant fluctuations in tourist arrivals during the study period reflected changes in global economic conditions.
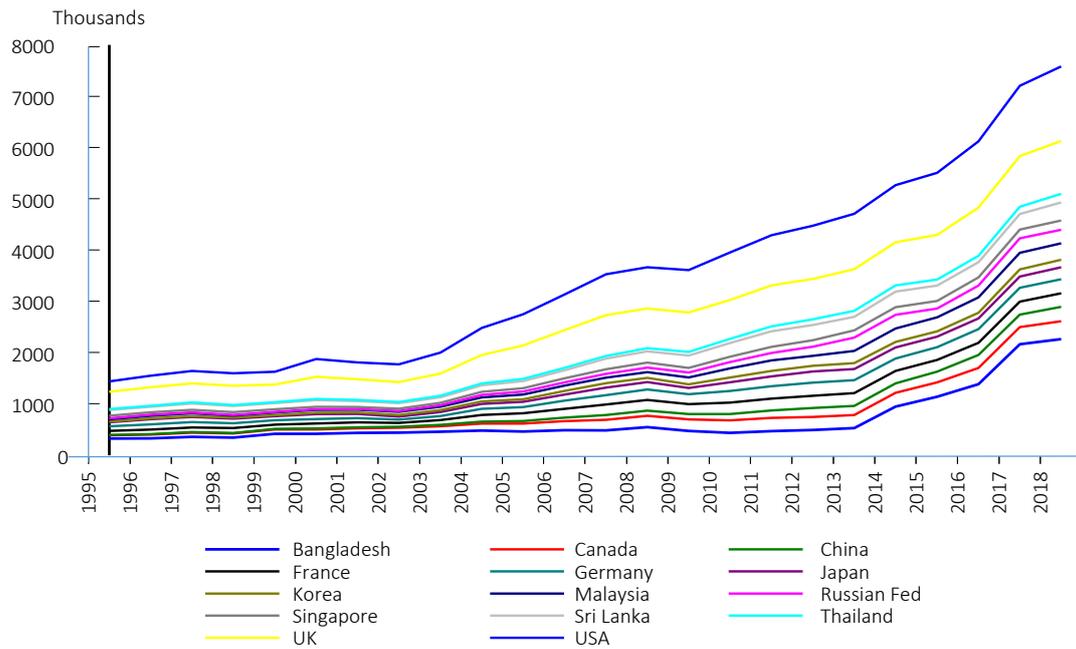
**Figure 1.** Foreign tourists from selected countries visited India

## 3. RESULTS

Table 1 provides basic statistics about the model's variables. The calculation demonstrates that the number of arrivals ranged from 4312 to 2256675 during the sample period, indicating a significant variation in the data. The per capita incomes for India and tourist countries remained between $1482 and $28962, exhibiting a mix of low and high-income sample countries for the study. Similarly, the distance variable shows a similar pattern. It means that per capita income for countries has substantially increased over the period, increasing the number of arrivals to India. Around 40% of the trade-to-GDP ratio demonstrates that sample countries experienced openness over the sample period. According to the skewness coefficients, all variables are normally distributed, and the total number of panel observations is 360.

Correlation analysis is performed to understand the relationship among variables (Table 2). The number of tourist arrivals is positively related to the per capita income of other countries and India's per capita income. This indicates that the higher the income of tourists, the more visits would be expected. Similarly, the consumer price index is expected to have a negative relationship between the number of arrivals and the cost of living. However, the signs in the correlation of distance and net CPI variables contradict the signs of the regression, and according to Falk and Miller (1992), there could be three reasons for this phenomenon. They called it suppressor effects. The first reason could be that the original relationships are close to zero, two or more variables contain similar information, and the third is that the vital predictor variable suppresses the other variables. Per capita income and population all have positive relationships.

**Table 1.** Descriptive statistics

| Variables | Mean | Median | Maximum | Minimum | Skewness | Observation |
|---|---|---|---|---|---|---|
| Arrivals | 241616.0 | 142704.0 | 2256675 | 4312.000 | 0.0799 | 360 |
| Distance | 7273.933 | 5511.902 | 16180.32 | 886.1407 | 0.4808 | 360 |
| Per capita income | 28962.50 | 32614.20 | 90091.42 | 1481.791 | −.1968 | 360 |
| Indian per capita income | 3968.555 | 3739.191 | 6888.188 | 2211.969 | 0.4734 | 360 |
| Net CPI | −2.984224 | −7.739395 | 62.61686 | −63.37712 | −0.3566 | 360 |
| Population | 24000000 | 65011403 | 1390000000 | 3524506 | 0.6064 | 360 |
| Trade to GDP ratio | 38.71068 | 41.32286 | 55.79372 | 21.92949 | −0.112 | 360 |

**Table 2.** Correlation results

| Variables | Arrivals | Distance | Per capita income | Indian per capita | Net CPI | Population | Trade to GDP |
|---|---|---|---|---|---|---|---|
| Arrivals | 1 | 0.0368 | 0.0334 | 0.0422 | 0.2801 | 0.2201 | 0.0146 |
| Distance | 0.031 | 1 | 0.0338 | 0.0603 | 0.0355 | 0.0169 | 0.0126 |
| Per capita income | 0.033 | 0.0338 | 1 | 0.2141 | 0.4236 | 0.3511 | 0.1790 |
| Indian per capita | 0.042 | 0.0603 | 0.2141 | 1 | 0.7827 | 0.0445 | 0.7651 |
| Net CPI | 0.280 | 0.0355 | 0.4236 | 0.7827 | 1 | 0.0184 | 0.3615 |
| Population | 0.22 | 0.0169 | 0.3511 | 0.0445 | 0.0184 | 1 | 0.0361 |
| Trade to GDP | 0.014 | 0.0142 | 0.1790 | 0.7651 | 0.3615 | 0.0361 | 1 |

The study estimated the gravity of tourists' arrival equation, stated earlier, using the panel least squares model. The estimated results are reported in Table 3. The estimated results are robust, fulfill the normality check, and correct heteroscedasticity and autocorrelation. The population variable also has a significant positive relationship with the dependent variable, confirming a natural phenomenon where a larger population resulted in more tourists visiting other countries. Relatively low inflation in India attracted more foreign tourists in India as it reflects the low cost of living, and this finding is consistent with Chasapopoulos et al. (2014). Though this impact is significant at the 10% significance level, the magnitude of the coefficient is also minimal, demonstrating that the inflow of tourists to India does not take inflation into account when traveling to India.

The study estimated the model using the Panel GMM/Dynamic data method to overcome the problem of endogeneity and sample bias issues. The reported results reinforce the results obtained by OLS. Tables 3 and 4 show that the estimated results are consistent with Durbarry (2000), Gil-Pareja et al. (2007), Santana-Gallego et al. (2010), Salleh et al. (2008), Kosnan et al. (2013), Xu et al. (2019), and Ulucak et al. (2020). The high coefficient of determination of 0.9874 indicates that the independent variables explain the model well. The language dummy is also used in the model to capture the effect of a common language. The study used English as a common language for countries. Language has a significant positive impact on arrivals, according to the coefficient. This also confirmed the theoretical model's expected sign. English-speaking countries' tourists preferred to visit India due to the widespread use of the language. The visa-free policy also plays a significant role in attracting foreign visitors to a domestic country. India has pursued a visa-free policy for many developed countries, so visitors have in-

**Table 3.** Estimated coefficients for OLS

| Variables | Coefficients | Std. Error | P-values | Expected signs | Actual signs |
|---|---|---|---|---|---|
| Constant | −3.8265 | 3.5162 | 0.2773 | Positive | Negative |
| Ln (Per capita income) | 1.0447 ** | 0.2501 | 0.0000 | Positive | Positive |
| Ln (Indian per capita income) | 0.0002** | 0.000006 | 0.0005 | Positive | Positive |
| Net CPI | −0.0038** | 0.00200 | 0.0555 | Negative | Negative |
| Ln (Population) | 1.0382** | 0.3748 | 0.0059 | Positive | Positive |
| Language (Dummy) | 0.0233** | 0.0112 | 0.0388 | Positive | Positive |
| Trade to GDP ratio | 0.00087** | 0.0022 | 0.0001 | Positive | Positive |
| Visa Policy | 0.0926*** | 0.04986 | 0.0642 | Positive | Positive |
| Terror | −0.0408 | 0.0367 | 0.2671 | Negative | Negative |
| Distance | −0.1305 | 0.3781 | 0.7320 | Negative | Negative |
| AR(1) | 0.9817 | 0.0053 | 0.0000 | | |
| R-squared | 0.9874 | Mean dependent var | 11.8820 | Durbin-Watson stat | 1.9616 |
| Adjusted R-squared | 0.9870 | S.D. dependent var | 1.0864 | F-statistic | 2621.642 |
| S.E. of regression | 0.1236 | Akaike info criterion | −1.3111 | Prob(F-statistic) | [0.0000]† |
| Sum squared resid | 5.1078 | Schwarz criterion | −1.1885 | Normality Test | |
| Log-likelihood | 237.1689 | Hannan-Quinn criteria. | −1.2623 | Jareque-Bera | [0.0000]† |
| | | | | Skewness | −0.2050 |

*Note*: t-values are in parentheses. ** indicates a 5% level of significance. *** indicates a 10% of significance. †, Significance of P-values at 1%.

**Table 4.** The estimation results: Panel GMM/Dynamic panel data method

| Variable | Coefficient | Std. Error | P-values |
|---|---|---|---|
| C | 8.8737 | 5.9455 | 0.1366 |
| Ln (Per capita income) | 0.9148** | 0.4253 | 0.0160 |
| Ln (Indian per capita) | 0.0002** | 0.0000783 | 0.0030 |
| Net CPI | −0.0003** | 0.0001158 | 0.0052 |
| LPOP | 0.6476*** | 0.347149 | 0.0630 |
| Language | 0.0288* | 0.017340 | 0.0969 |
| Trade to GDP ratio | 0.01612** | 0.004661 | 0.0006 |
| Terror | −0.0711 | 0.055812 | 0.2030 |
| Distance | −0.0320 | 0.314803 | 0.9190 |
| AR(1) | 0.9695 | 0.0098 | 0.0000 |
| R-squared | 0.985459 | Mean dependent var | 11.92031 |
| Adjusted R–squared | 0.985003 | S.D. dependent var | 1.068961 |
| S.E. of regression | 0.130908 | Sum squared resid | 5.466681 |
| Durbin-Watson stat | 2.067629 | J-statistic | 21.73685 |
| Instrument rank | 20 | Prob(J-statistic) | 0.009751 |

*Note*: ** indicates a 5% level of significance. *** indicates a 10% level of significance. Dependent Variable: Arrivals.

creased over time. Though the variable turned statistically insignificant for the model, the positive sign of the visa-free coefficient validates the theoretical justification.

# 4. DISCUSSION

Most of the gravity variables in the model explain the dependent variable. Per capita income significantly impacts foreign tourist arrivals for the study period. The increase in India's per capita income also encouraged the arrival of foreign tourists. Hence, there is a direct correlation between Indian per capita income and foreign tourist arrivals, indicating India's high standard of living. A country's GDP comprises many factors, such as household consumption, government spending, and manufacturing. However, India's per capita income coefficient is lower than other countries. Likewise, tourist countries' high per capita income does more to attract tourists to India. Outbound tourism is extremely sensitive to global GDP and GDP per capita changes. According to economic theory, vacations abroad are standard goods; therefore, an increase in income is expected to increase demand (Chasapopoulos et al., 2014).

The population variable also has a significant positive relationship with the dependent variable, confirming a natural phenomenon where a larger population resulted in more tourists visiting other countries. Relatively low inflation in India attracted more foreign tourists in India as it reflects the low

cost of living, and this finding is consistent with Chasapopoulos et al. (2014). Though this impact is significant at the 10% level of significance, the magnitude of the coefficient is also minimal, demonstrating that the inflow of tourists to India does not take inflation into account when traveling to India.

The language dummy is also used in the model to capture the effect of a common language. One used English as a common language for countries in this study. Language has a significant positive impact on arrivals, according to the coefficient. This also confirmed the theoretical model's expected sign. It could be inferred that English-speaking countries' tourists preferred to visit India due to the widespread use of the language. The visa-free policy also plays a significant role in attracting foreign visitors to a domestic country. India has pursued a visa-free policy for many developed countries, so visitors have increased over time. Though the variable turned statistically insignificant for the model, the positive sign of the visa-free coefficient validates the theoretical justification.

Most pull factors for international tourists visiting India are consistent with the literature and previous empirical studies. In contrast, the fear of terror attacks in India and the distance between India and source countries are negative and insignificant for foreign tourists to India. A dummy variable for terrorism is introduced in the study to capture the impact of terrorism over the sample period. This is in line with Sandle and Enders (2008).

Ibragimov et al. (2022) and Altaf (2021) have used the absence of terrorism as a variable to examine the terrorism effect on tourist arrival. The finding on terrorism is consistent with Parida et al. (2015). Population density, proximity to other regions, and countries with similar cultures and languages all positively impact foreign tourist flows. One appealing aspect for foreign tourists visiting India is its population. The data show that most of India's top foreign tourist destinations, such as Malaysia, Nepal, and Bangladesh, have historically shared similar cultures and religions.

## CONCLUSION

This paper aims to investigate comprehensively the factors affecting tourism inflow to India using the gravity model from the top 15 major foreign destinations between 1995 and 2018. The study demonstrates that the GDP per capita of India and originating foreign countries, population, relative costs of living between India and foreign destination countries, trade to GDP ratio, and English as the common language are the significant factors that pull and push foreign tourists to India. The findings are valuable to policymakers and the Indian economy as the tourism sector is India's most significant contributor to GPD, jobs, and foreign exchange earnings. In particular, the results show that the positive and most impactful variables for tourist arrival in India are per capita income and population in foreign countries. English as a common language is also a positive and significant factor for tourist arrival to India because English as a common language helps foreign tourists communicate and lessens the fear of being in a foreign land.

The study's findings are robust and compelling, with significant implications for policymakers and industry. Based on the findings, the Indian government should promote English-speaking services in India's prime tourist destinations as that will boost the comfort level of foreign tourists, resulting in increased tourist inflow. The government can reduce the cost of living for foreign tourists by exempting them from paying GST and other taxes. Trade to GDP is also a significant factor; therefore, the Indian government should promote bilateral trade to boost inbound tourist flow in India. The tourism ministry of India should also target countries with high bilateral trade with India as the businesspeople coming to India to fulfill commercial activities will also help promote inbound tourists through positive word-of-mouth publicity. Understanding all these variables will help policymakers build more effective strategies to boost bilateral destination competitiveness and appeal. The government should also safeguard foreign tourists' safety.

Despite using a wide range of demand-pull factors for tourists' arrival in India with significant results, there are some limitations. The number of source countries and the period used in this study are limited. Secondly, a much more advanced methodology can also be used to increase the robustness of the results. Future research on Indian inbound tourism can be based on factors like political stability, cleanliness, expertise in managing pandemics, crime rate, and hospitality in the Indian states.

## AUTHOR CONTRIBUTIONS

Conceptualization: Bashir Fida.
Data curation: Dharmendra Singh.
Formal analysis: Dharmendra Singh.
Methodology: Bashir Fida.
Resources: Dharmendra Singh.
Software: Bashir Fida, Dharmendra Singh.
Supervision: Umar Ahmed.
Validation: Umar Ahmed.
Visualization: Umar Ahmed.
Writing – original draft: Bashir Fida, Dharmendra Singh.
Writing – review & editing: Umar Ahmed.

# REFERENCES

1. Altaf, N. (2021). Modelling the international tourist arrivals in India. *Tourism Planning & Development, 18*(6), 699-708. https://doi.org/10.1080/21568316.2021.1887346

2. Alvarez-Diaz, M., D'Hombres, B., Ghisetti, C., & Pontarollo, N. (2020). Analysing domestic tourism flows at the provincial level in Spain by using spatial gravity models. *International Journal of Tourism Research, 22*(4), 403-415. https://doi.org/10.1002/jtr.2344

3. Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review, 69*(1), 106-116. Retrieved from http://www.jstor.org/stable/1802501

4. Anderson, J. E., & van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review, 93,* 170-192. Retrieved from https://www.aeaweb.org/articles?id=10.1257/000282803321455214

5. Barman, H., & Nath, H. K. (2019). What determines international tourist arrivals in India? *Asia Pacific Journal of Tourism Research, 24*(2), 180-190. https://doi.org/10.1080/10941665.2018.1556712

6. Bergstrand, J. H. (1985). The gravity equation in international trade: Some microeconomic foundations and empirical evidence. *Review of Economics and Statistics, 67*(3), 474-481. https://doi.org/10.2307/1925976

7. Bergstrand, J. H. (1989). The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. *Review of Economics and Statistics, 71*(1), 143-153. https://doi.org/10.2307/1928061

8. Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson model, the Linder Hypothesis, and the determinants of bilateral intra-industry trade. *Economic Journal, 100*(403), 1216-1229. Retrieved from https://ideas.repec.org/a/ecj/econjl/v100y1990i403p1216-29.html

9. Brainard, S. L. (1997). An empirical assessment of the proximity-concentration trade-off between multinational sales and trade. *The American Economic Review, 87*(4), 520-544. Retrieved from https://ideas.repec.org/a/aea/aecrev/v87y1997i4p520-44.html

10. Calderwood, L. U., & Soshkin, M. (2019). *The Travel & Tourism Competitiveness Report 2019.* World Economic Forum. Retrieved from https://www3.weforum.org/docs/WEF_TTCR_2019.pdf

11. Chasapopoulos, P., den Butter, F. A., & Mihaylov, E. (2014). Demand for tourism in Greece: A panel data analysis using the gravity model. *International Journal of Tourism Policy, 5*(3), 173-191. https://doi.org/10.1504/IJTP.2014.063105

12. De Vita, G., & Kyaw, K. S. (2016). Tourism development and growth. *Annals of Tourism Research, 60*(9), 23-26. http://dx.doi.org/10.1016/j.annals.2016.05.011

13. Dhariwal, R. (2005). Tourist arrivals in India: How important are domestic disorders? *Tourism Economics, 11*(2), 185-205. https://doi.org/10.5367/0000000054183522

14. Dritsakis, N. (2004). Cointegration analysis of German and British tourism demand for Greece. *Tourism Management, 25*(1), 111-119. https://doi.org/10.1016/S0261-5177(03)00061-X

15. Durbarry, R. (2000). *Tourism expenditure in the UK: Analysis of competitiveness using a gravity-based model* (Discussion Paper Series 2000/1). Christel DeHaan Tourism and Travel Research Institute, University of Nottingham, British Library Publication.

16. Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling.* Ohio: University of Akron Press.

17. Ghani, G. M. (2016). Tourist arrivals to Malaysia from Muslim countries. *Tourism Management Perspectives, 20,* 1-9. https://doi.org/10.1016/j.tmp.2016.06.003

18. Gil-Pareja, S., Vivero, R., & Martinez-Serrano, J. A. (2007). The impact of embassies and consulates on tourism. *Tourism Management, 28*(2), 355-360. https://doi.org/10.1016/j.tourman.2006.04.016

19. Habibi, F. (2017). The determinants of inbound tourism to Malaysia: A panel data analysis. *Current Issues in Tourism, 20*(9), 909-930. https://doi.org/10.1080/13683500.2016.1145630

20. Harb, G. (2019). The impact of terrorism on inbound tourism: Disentangling the cross-spatial correlation. *Economics Bulletin, 39*(1), 686-700. Retrieved from https://ideas.repec.org/a/ebl/ecbull/eb-19-00168.html

21. Helpman, E., & Krugman, P R. (1985). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy.* Cambridge: MIT Press.

22. Ibragimov, K., Perles-Ribes, J. F., & Ramón-Rodríguez, A. B. (2022). The economic determinants of tourism in Central Asia: A gravity model applied approach. *Tourism Economics, 28*(7), 1749-1768. https://doi.org/10.1177/13548166211009985

23. India Brand Equity Foundation (IBEF). (2020). *Indian tourism and hospitality industry analysis, September 2020.* Retrieved from https://www.ibef.org/archives/-2020

24. Kapera, I. (2018). Sustainable tourism development efforts by local governments in Poland. *Sustainable Cities and Society, 40,* 581-588. https://doi.org/10.1016/j.scs.2018.05.001

25. Karaman, A. S. (2016). The pernicious impact of visa restrictions on inbound tourism: The case of Turkey. *Turkish Studies, 17*(3), 502-524. http://dx.doi.org/10.1080/14683849.2016.1170602

26. Karemera, D., Oguledo, D. L., & Davis, B. (2000). A

gravity model analysis of international migration North America. *Applied Economics, 32*(13), 1745-1755. https://doi.org/10.1080/000368400421093

27. Kim, J., Lee, C. K., & Mjelde, J. W. (2018). Impact of economic policy on international tourism demand: The case of Abenomics. *Current Issues in Tourism, 21*(16), 1912-1929. https://doi.org/10.1080/13683500.2016.1198307

28. Kosnan, S. S. A., Ismail, N. W., & Kaniappan, S. R. (2013). Demand factors for international tourism in Malaysia. *Jurnal Ekonomi Malaysia, 47*(1), 131-138. Retrieved from https://www.ukm.my/jem/article/determinants-of-international-tourism-in-malaysia-evidence-from-gravity-model/

29. Lee, T. H., & Jan, F.-H. (2019). The low-carbon tourism experience: A multidimensional scale development. *Journal of Hospitality and Tourism Research, 43*(6), 890-918. https://doi.org/10.1177/1096348019849675

30. Ministry of Tourism. (2019). *India tourism statistics*. Retrieved from https://tourism.gov.in/

31. Montes-Rojas, G., & Barroso, R. Ch. (2020). *What are the empirical determinants of international tourist arrivals and expenditures? An empirical application to the case of São Tomé and Príncipe* (World Bank Policy Research Working Paper No. 9189). Retrieved from https://ssrn.com/abstract=3556242

32. Mosbah, A., & Al Khuja, M. S. A. (2014). A review of tourism development in Malaysia. *European Journal of Business and Management, 6*(5), 1-9. Retrieved from https://iiste.org/Journals/index.php/EJBM/article/view/10907

33. Muryani, M., Permatasari, M. F., & Esquivias, M. A. (2020). Determinants of tourism demand in Indonesia: A panel data analysis. *Tourism Analysis, 25*(1), 77-89. https://doi.org/10.3727/108354220X15758301241666

34. Neumayer, E. (2010). Visa restrictions and bilateral travel. *The Professional Geographer, 62*(2), 171-181. https://doi.org/10.1080/00330121003600835

35. Neumayer, E., & Plümper, T. (2016). Spatial spillovers from terrorism on tourism: Western victims in Islamic destination countries. *Public Choice, 169*(3), 195-206. Retrieved from https://www.prio.org/publications/10553

36. OECD. (2014). *OECD Tourism Trends and Policies 2014*. Paris: OECD Publishing. https://doi.org/10.1787/tour-2014-5-en

37. Okafor, L. E., Khalid, U., & Burzynska, K. (2022). The effect of migration on international tourism flows: The role of linguistic networks and common languages. *Journal of Travel Research, 61*(4), 818-836. https://doi.org/10.1177/00472875211008250

38. Parida, Y., Bhardwaj, P., & Chowdhury, J. R. (2015). Impact of terrorism on tourism in India. *Economics Bulletin, 35*(4), 2543-2557. Retrieved from https://ideas.repec.org/a/ebl/ecbull/eb-15-00592.html

39. Porto, N., Garbero, N., & Espinola, N. (2018). Spatial distribution of touristic flows in a gravity model in South America. *Journal of Tourism Analysis: Revista de Análisis Turístico, 25*(1), 39-53. https://doi.org/10.1108/JTA-02-2018-0005

40. Salleh, N. H. M., Siong-Hook, L., Ramachandran, S., Shuib, A., & Noor, Z. M. (2008). Asian tourism demand for Malaysia: A bound test approach. *Contemporary Management Research, 4*(4), 351-368. http://dx.doi.org/10.7903/cmr.1178

41. Salleh, N. H. M., Yang, C. C., & Othman, R. (2011). Estimating tourism demand from China market to Malaysia. *2011 IEEE International Summer Conference of Asia Pacific Business Innovation and Technology Management* (pp. 149-153). Dalian, China. https://doi.org/10.1109/APBITM.2011.5996311

42. Sandle, T., & Enders, T. S. (2008). Economic consequences of terrorism in developed and developing countries: An overview. In *Terrorism, economic development, and political openness*. New York, NY: Cambridge University Press. Retrieved from https://personal.utdallas.edu/~tms063000/website/Econ_Consequences_ms.pdf

43. Santana-Gallego, M., Ledesma-Rodríguez, F. J., & Pérez-Rodríguez, J. V. (2010). Exchange rate regimes and tourism. *Tourism Economics, 16*(1), 25-43. https://doi.org/10.5367/000000010790872015

44. Saray, M., & Karagöz, K. (2010). Determinants of tourist inflows in Turkey: Evidence from panel gravity model. *ZKU Journal of Social Sciences, 6*(11), 33-46. Retrieved from https://search.trdizin.gov.tr/tr/yayin/detay/112022/determinants-of-tourist-inflows-in-turkey-evidence-from-panel-gravity-model

45. Shahbaz, M., Nasir, M. A., & Roubaud, D. (2018). Environmental degradation in France: The effects of FDI, financial development, and energy innovations. *Energy Economics, 74*, 843-857. https://doi.org/10.1016/j.eneco.2018.07.020

46. Sharma, C., & Pal, D. (2020). Exchange rate volatility and tourism demand in India: Unraveling the asymmetric relationship. *Journal of Travel Research, 59*(7), 1282-1297. https://doi.org/10.1177/0047287519878516

47. Singh, D. (2008). Consumers' perspectives on factors affecting internet banking in India: An empirical study. *Abhigyan, 26*(2), 34-43. Retrieved from https://psycnet.apa.org/record/2009-19048-001

48. Song, H., Li, G., Witt, S. F., & Fei, B. (2010). Tourism demand modelling and forecasting: How should demand be measured? *Tourism Economics, 16*(1), 63-81. Retrieved from https://journals.sagepub.com/doi/10.5367/000000010790872213

49. Stone, S. F., & Jean, B. N. (1999). Gravity model specification for foreign direct-investment:

A case of the Asia-Pacific economies. *The Journal of Business and Economic Studies, 5*(1), 33-42. Retrieved from https://www.econbiz.de/Record/gravity-model-specification-for-foreign-direct-investment-a-case-of-the-asia-pacific-economies-stone-susan/10009895175

50. Tinbergen, J. (1962). *Shaping the world economy: Suggestions for an international economic policy.* New York: The Twentieth Century Fund.

51. Tiwari, A. K., Das, D., & Dutta, A. (2019). Geopolitical risk, economic policy uncertainty and tourist arrivals: Evidence from a developing country. *Tourism Management, 75,* 323-327. https://doi.org/10.1016/j.tourman.2019.06.002

52. Ulucak, R., Yücel, A. G., & İlkay, S. Ç. (2020). Dynamics of tourism demand in Turkey: Panel data analysis using gravity model. *Tourism Economics, 26*(8), 1394-1414. https://doi.org/10.1177/1354816620901956

53. Vietze, C. (2012). Cultural effects on inbound tourism into the USA: A gravity approach. *Tourism Economics, 18*(1), 121-138. https://doi.org/10.5367/te.2012.0100

54. Von Schuckmann, J., Barros, L. S. G., Dias, R. S., & Andrade, E.B. (2018). From slum tourism to smiley selfies: The role of social identity strength in the consumption of morally ambiguous experiences. *Journal of Consumer Psychology, 28*(2), 192-210. https://doi.org/10.1002/jcpy.1016

55. Wamboye, E. F., Nyaronga, P. J., & Sergi, B. S. (2020). What are the determinant of international tourism in Tanzania? *World Development Perspectives,* 100175. https://doi.org/10.1016/j.wdp.2020.100175

56. Wang, Z. (2010). Factors that influence the growth of Chinese domestic tourism arrivals (1985–2007) – An empirical research based on the VAR model. *Asia Pacific Journal of Tourism Research, 15*(4), 449-459. https://doi.org/10.1080/10941665.2010.520947

57. Xu, L., Wang, S., Li, J., Tang, L., & Shao, Y. (2019). Modelling international tourism flows to China: A panel data analysis with the gravity model. *Tourism Economics, 25*(7), 1047-1069. https://doi.org/10.1177/1354816618816167

58. Yang, Y., & Wong, K. K. F. (2012). The influence of cultural distance on China inbound tourism flows: A panel data gravity model approach. *Asian Geographer, 29*(1), 21-37. http://dx.doi.org/10.1080/10225706.2012.662314

59. Yucel, A. G. (2021). Are shocks to tourist arrivals permanent or transitory? A comprehensive analysis on the top 20 most-visited countries. *Current Issues in Tourism, 24*(16), 2294-2311. https://doi.org/10.1080/13683500.2020.1828311

60. Zaman, K., Khan, M. M. K., & Ahmad, M. (2011). Exploring the relationship between tourism development indicators and carbon emissions: A case study of Pakistan. *World Applied Sciences Journal, 15*(5), 690-701.