

# Impact of Agra: Lucknow Expressway on Tourism Industry in Agra and Lucknow City

Prof. Arvind Mohan<sup>1</sup> Ms. Ayushi Tandon<sup>2</sup>

<sup>1,2</sup>Department of Economics, University of Lucknow

## Abstract

Expressways use effective roadway designs to cut down on travel time and provide a far more pleasant experience, providing access to locations that was previously impossible. The Agra-Lucknow Expressway is the ideal illustration of an expressway that significantly benefited the tourist sectors of the towns of Agra and Lucknow. Due to this, local companies in these cities as well as those in the tourism sector have been able to gain from an increase in tourists from adjacent cities. In addition, several tourism-related enterprises grew in both cities as a result of the Agra-Lucknow Expressway's improved accessibility. The Agra-Lucknow Expressway has been a boon to the tourist industries of both Agra and Lucknow. All these aspects make it imperative to assess the impact of Agra- Lucknow expressway on tourism industry in Agra and Lucknow city.

The present research is quantitative research wherein data has been collected via survey strategy. For testing the hypothesis Multivariate analysis has been conducted. SPSS 23.0 has been used for conducting the statistical analysis. The present research also found that there is a significant impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city.

**Keywords:** Expressway, Agra- Lucknow Expressway, Profitability, Revisit Intention, Word of Mouth, Tourism Industry

## 1. Introduction

### Impact of expressways on Tourism

Expressways, which provide more effective and practical routes to move between cities, states, or even nations, have had a significant influence on tourism. Expressways use effective roadway designs to cut down on travel time and provide a far more pleasant experience, providing access to locations that was previously impossible (Xu & Xie, 2022).

The Agra-Lucknow Expressway is the ideal illustration of an expressway that significantly benefited the tourist sectors of the towns of Agra and Lucknow. With a distance of more than 300 kilometers, it has shortened the distance between the two cities' travel times and made it possible to visit locations in a matter of hours rather than days or weeks (Kadbhane Digambar & Mahendrakar Avinash, 2018). This highway has not only made commuting simpler and quicker, but it has also made it possible for more tourists and business travellers to access Lucknow and Agra, increasing the number of visitors to both cities.

Tourists may now visit both cities in a single day thanks to the Agra-Lucknow Expressway. This has given both cities' tourist industries a significant boost. Due to the expressway's accessibility, visitors who had already made plans to visit Agra, for instance, were more inclined to add Lucknow to their

itinerary (Anand et al., 2019). Due to this, local companies in these cities as well as those in the tourism sector have been able to gain from an increase in tourists from adjacent cities.

In addition, several tourism-related enterprises grew in both cities as a result of the Agra-Lucknow Expressway's improved accessibility. For instance, as a result of the increasing demand, several travel agencies, vehicle rental companies, hotels, and restaurants expanded. Due to the increase in population and new economic prospects, more jobs and companies were created in both cities.

### **Tourism Industry in Lucknow and Agra**

The Mughal architecture present in Agra and Lucknow makes them two of India's most known and significant historical towns. One of the Seven Wonders of the World, the Taj Mahal, is located in Agra, whereas Lucknow, popularly known as the City of Nawabs, has housed several kings and emperors from all over the nation (Moid & Alam, 2016). Both cities are significant tourist attractions in India since they draw a variety of visitors from all over the globe.

The tourist sector in Lucknow has grown tremendously in recent years. The Bara Imambara complex, Rumi Darwaza, Chhota Imambara, and Hussainabad Clock Tower are all popular tourist destinations. The culinary traditions of the city, particularly the well-known Awadhi cuisine, are the centerpiece of the cultural experience (Dash & Sharma, 2021). More than 4 million visitors visited the annual Lucknow Mahotsav, a cultural and traditional event, last year, which is another significant increasing draw.

Agra, however, is well known for its ties to the Mughal dynasty and its abundance of Islamic landmarks. The Taj Mahal, a well-known tourist destination that draws tourists from all over the globe, is located there. The Agra Fort, Fatehpur Sikri, Itmad-ud-daulah, and the Tomb of Akbar are further noteworthy sites. A number of historic Hindu temples may be found near to the city (Kapur & Jain, 2016).

Overall, the Agra-Lucknow Expressway has been a boon to the tourist industries of both Agra and Lucknow. For simpler access and quicker journey times for visitors, the highway has increased transportation and access to both cities. This has made it possible for more tourists to go to both cities and enjoy their distinctive cultures, cuisines, and architectural styles.

## **2. Need of Research**

It is crucial to assess the effect for the benefit of both cities since the Agra-Lucknow Expressway has had a significant influence on both cities' tourist industries. Since it was built, the expressway has made it simpler and faster for travelers to see both cities, which has resulted in an increase in visits to both locations. While this has given the cities' companies, particularly those in the tourism sector, the opportunity to gain from more tourists and consumers, it's also critical to consider how this has affected the cultures and environments of both cities.

In addition to significantly increasing air and noise pollution, the highway has also contributed to traffic congestion in several regions. The local economy has been affected, and this has placed a pressure on law enforcement and other services. The fast expansion in tourist regions brought on by more tourists has also raised inhabitants' expenses of living and put additional strain on the infrastructure.

It is crucial to comprehend how the Agra-Lucknow Expressway would affect both the local ecology and the tourist sector in Agra and Lucknow. Both cities need to assess the advantages this highway has brought to their respective tourist industries as well as any possible issues it may have created for the local populace.

### 3. Literature Review

#### **The relation between expressways and Tourism - Work done so far**

The examination of the transportation network has garnered significant attention from several scholarly viewpoints, with expressways serving as a focal point of analysis by scholars. Numerous scholarly investigations have elucidated a correlation between expressways and tourism, underscoring their significance in the advancement and usage of tourism in contemporary society. The study conducted by Chen et al., (2020) focused on analysing the intricate transportation network and its potential for tourist use. Specifically, the researchers analysed the spatial arrangement of expressways in Guizhou, China, using complex network theory, social network analysis, kernel density analysis, and bivariate autocorrelation techniques. The research revealed a significant positive correlation of 0.22 between the geographical centrality and passenger flow within the Guizhou expressway transportation network. Additionally, the study put forth various models for tourism development targeting different cluster types. These findings serve as a foundation for the transformation of the expressway transportation network and the promotion of diverse tourism activities.

The paper by Xing & Sheng, (2021) examines the theoretical innovation and design method of integrating highway and tourism. Through a comprehensive review, the authors analyze the advantages and disadvantages of integrating expressway and tourism. Additionally, they propose the application values of relevant theories such as point-axis theory, circle theory, and tourism flow theory. This paper presents an overview of the main concepts related to the integration of highway traffic, including the fundamental components and essential design considerations. Specifically, it discusses the design aspects of routes, interchanges, service areas, sightseeing and recreation areas, and also explores the traffic volume forecasting method for tourism expressways. The objective of this study is to establish a theoretical foundation for the integration and development of expressways in the context of tourism.

In a study conducted by Michniak et al., (2015), the researchers examined the influence of certain planned motorways and expressways on the potential accessibility of the Polish-Slovak borderland in relation to the development of tourism. This study investigated the influence of specific motorways and expressways on the prospective accessibility of the Polish-Slovak border region in relation to tourism development. The findings indicate that the anticipated completion of the D1 motorway, as well as the R1, R3, and S7 expressways, along with the D3 motorway and S69 expressway, are expected to enhance cross-border connectivity in the area.

The research conducted by Ma et al., (2022) focuses on analyzing the distribution of hourly traffic volume on suburban expressways and proposes modifications to the design hourly volume in light of the tourism economy. The present study examines the suitability of using design hourly volume (DHV) as a metric for suburban expressways within the context of the tourist industry. The research gathered yearly traffic volume data over a span of 8760 hours along the Xi'an Ring Expressway in order to examine the distribution patterns of traffic demand, peak hours, and the traffic factor during the design hour within the context of the tourist industry. The study's findings indicate that the distribution of peak hourly traffic volume (HV) demonstrates polarization characteristics in the context of the tourism economy and travel patterns. Furthermore, it is recommended that the design hour traffic factor specified should correspond to a duration exceeding 200 hours, with the 30 HV factor being 25% higher than the recommended value.

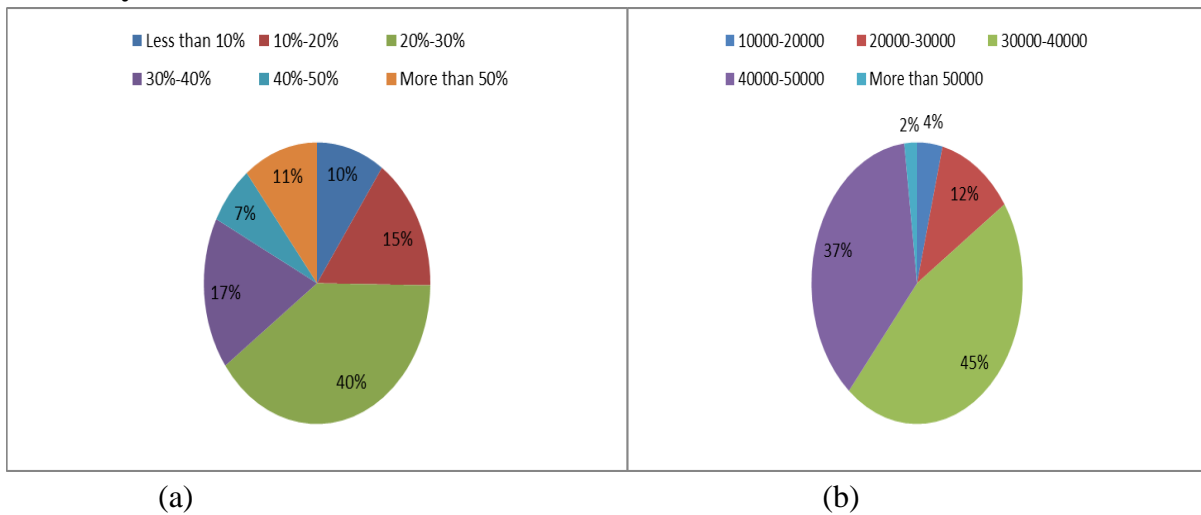
The study conducted by Michniak et al., (2014) examined the influence of investment in road infrastructure, specifically the construction of motorways and expressways, on the development of

tourism in the Polish-Slovak borderland. The findings revealed that the construction projects resulted in significant changes in potential accessibility values between 2010 and 2030. These changes primarily impacted short-term and medium-term tourism, leading to an increase in weekend tourism or multi-day visits.

#### 4. Methodology

The present research is quantitative research wherein data has been collected via survey strategy. The type of data collected is primary in nature. Herein deductive approach has been adopted. The respondents of this research are various travel agents operating in Agra and Lucknow. In order to assess the impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city, inferential analysis has been conducted wherein hypothesis testing has been adopted. For testing the hypothesis Multivariate analysis has been conducted. SPSS 23.0 has been used for conducting the statistical analysis.

#### 5. Data Analysis



**Figure 1: (a) Profit percentage of the year 2022 (b) Approx. tourist footfall via Agra Lucknow Expressway in the year 2022**

It can be inferred from Figure 1(a) that maximum travel agents (40%) earned a profit percentage of 20%- 30% while only 7% of the travel agents earned less than 10% profit in the year 2022.

Further, 45% of the travel agents witnessed a tourist footfall of approximate tourist footfall of 30000-40000 tourists via Agra Lucknow Expressway in the year 2022.

The hypothesis tested for impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city is as below-

*H<sub>01</sub>: There is no significant impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city*

*H<sub>A1</sub>: There is a significant impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city*

Effect		Value	F	Hypothesis df	Error df	Sig.
Agra Lucknow Expressway Infrastructure	Pillai's Trace	1.102	14.362	12.000	297.000	.000
	Wilks' Lambda	.004	144.002	12.000	256.929	.000
	Hotelling's Trace	198.914	1585.788	12.000	287.000	.000
	Roy's Largest Root	198.796	4920.206 <sup>b</sup>	4.000	99.000	.000
a. Design: Agra Lucknow Expressway Infrastructure						
b. The statistic is an upper bound on F that yields a lower bound on the significance level.						

**Table 1: Multivariate Tests**

It can be inferred from Table 1 above that there is a significant impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow City as a significant value was obtained (.000>0.05) for all four tests. Thus, null hypothesis has been rejected and alternate hypothesis has been accepted.

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
Model	Profitability	1706.901 <sup>a</sup>	4	426.725	2257.999	.000
	Word Of Mouth	1900.645 <sup>b</sup>	4	475.161	4911.805	.000
	Revisit Intention	1505.261 <sup>c</sup>	4	376.315	629.488	.000
Agra Lucknow Expressway Infrastructure	Profitability	1706.901	4	426.725	2257.999	.000
	Word Of Mouth	1900.645	4	475.161	4911.805	.000
	Revisit Intention	1505.261	4	376.315	629.488	.000
Error	Profitability	18.709	99	.189		
	Word Of Mouth	9.577	99	.097		
	Revisit Intention	59.183	99	.598		
Total	Profitability	1725.610	103			
	Word Of Mouth	1910.222	103			
	Revisit Intention	1564.444	103			
a. R Squared = .989						
b. R Squared = .995						
c. R Squared = .962						

**Table 2: Tests of Between-Subjects Effects**

It can be inferred from above a Table 2 that Agra Lucknow Expressway has a significant impact on the individual factors of tourism industry that is Profitability (p-value= 0.000<0.05), Word Of Mouth (p-value= 0.000<0.05) and Revisit Intention (p-value= 0.000<0.05). Also, 98.9% (R Squared = .989) changes taking place in Profitability of tourism industry can be attributed to Agra Lucknow Expressway Infrastructure. Similarly 99.5% (R Squared = .995) changes in word of mouth and 96.2% (R Squared = .962) changes in revisit intention of the tourists can be attributed to Agra Lucknow Expressway Infrastructure.

## 6. Conclusion

It is evident that expressways play a crucial role in the growth of tourism. The present research also found that there is a significant impact of Agra Lucknow Expressway on tourism industry in Agra and Lucknow city. Expressways have the capacity to enhance accessibility and provide essential infrastructure for facilitating tourist endeavors, such as vacation-related travel. The design of expressways should include the specific attributes of the tourist sector, including factors such as the distribution of high-value (HV) periods, operational hours for traffic management, and accurate forecasting of traffic flow. Additionally, the implementation of a well-designed investment strategy for highways and expressways is of paramount importance in facilitating the prosperous and enduring growth of tourism in the border region between Agra and Lucknow. The people of Agra and Lucknow can safeguard the long-term growth of their tourist businesses and maximize the expressway's advantages.

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