From Boom to Bust: Analyzing Footfall Decrease in Bihar Tourism during COVID-19

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Abstract

This paper discusses about the irresistible approach of COVID-19 pandemic on the tourism sector of Bihar. COVID-19 majorly influenced Bihar's tourism sector, leading to the disruption in the plans for growth and development in one of India's richest historical state. With restrictions in travel, important destinations like Bodh Gaya, Nalanda, and Rajgir saw significant fall in tourist inflow, leading to temporary closure of hotels, guesthouses, and travel agencies. Bihar, known for its cultural and religious importance, saw a significant withdrawal in revenue and employment opportunities in the tourism industry, affecting local communities that are dependent on tourist footfall. The current paper analyses the immediate effects of COVID-19 on Bihar tourism particularly, losses incurred in terms of tourist footfall in 2020 and 2021. Some immediate effects of COVID-19 on Bihar tourism such as Loss of Livelihoods, Decline in Revenue, loss through cancellation of Bookings and Reservations, Impact on Hospitality Industry, Closure of Tourist Sites, Adaptation and Innovation etc., are briefly discussed. The losses incurred in terms of tourist footfall in 2020 and 2021 is shown through scatter plot whose insights are discussed. This paper also forecasts the arrival of tourists from the year 2018 to 2023 if COVID has not happened. Based on the finding of this time-series data, the comparison is done with the actual data and the leap is found. A short discussion on UCL and LCL is also done. The forecasting is done with the help of SPSS software and MS. Excel ToolPak feature. Lastly the paper discusses some insights and provides for the knowledge to take notes for the policymakers which will help in making recovery strategies.

Keywords: COVID-19, Forecasting, SPSS, time-series data, UCL & LCL

7.1 Introduction

COVID-19 is the abbreviation of Coronavirus disease of 2019, which led to impact each and every sector of the economy worldwide. It started in December 2019 in the city of Wuhan, China. From then and there it rapidly spread out, leading to a total of approximately 704 million people infected till 2024. India being a no exception, saw huge detriment in every economic industry. Tourism sector of Bihar being one of them. From a high of 34 million visitors in 2018 to a low of 2 million in 2021. This loss in the number of visits is understood through graphs, plots and tables in this paper. The early trends, boom periods and pandemic impact is studied well. Forecasting is done to understand what would have been the scenario if COVID-19 has not happened. Comparison between the actual data and forecasted data is done to understand the degree of leap. To summarize the study results, the impact of COVID-19 on the travel tourism industry of Bihar is found incomparable to anything similar to it which happened before like SARS 2002 and H1V1 2009. The impact of COVID-19 is humongous among other pandemics. The result shows that the arrival percentage dropped from 1.86% in 2018 to 0.37% in 2021. Based on all the findings the discussion is done to help the policymakers draw the insights and do further research work.

7.2 Understanding the losses incurred due to COVID-19

Let's understand the deprivation through graphical representation. The following line graph shows the total tourist arrivals from 2001-2021 who visited Bihar with the focus on the steep drop in arrivals for 2020 and 2021 years primarily.

Figure 7.1 Scatter plot of number of total tourists from 2001- 2021
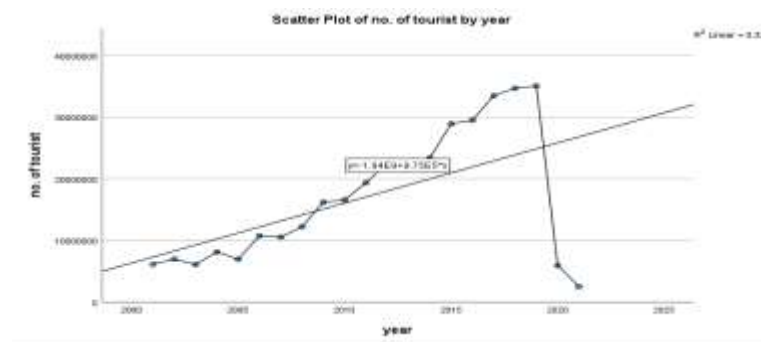
The figure 7.1 illustrates the decline in the total tourist arrivals in the year 2020 and 2021. Before the onset of COVID-19 pandemic, there is a steady growth seen after which there is a sharp downward trend which shows the shift in arrivals.

Tourist Arrivals Overview:

1. Early 2000s Trends (2001-2009):
   - 2001-2003: The number of tourists fluctuated slightly, with a peak in 2002 (6,973,080) and a subsequent dip in 2003 (6,105,530).
   - 2004-2008: There was a noticeable increase in tourist arrivals. The numbers grew significantly, reaching 8,135,574 in 2004 and 12,235,183 in 2008. This indicates a period of growth and increasing interest in the destination.
2. Boom Period (2009-2019):
   - 2009-2010: This period saw a remarkable surge in tourist numbers, with arrivals jumping from 16,207,721 in 2009 to 16,583,411 in 2010.
   - 2011-2015: The growth continued robustly, peaking at 28,952,855 in 2015. This reflects a strong upward trend in tourism.
   - 2016-2019: Tourist arrivals kept increasing, with a record 35,083,179 in 2019. This indicates a sustained period of high tourism activity before the pandemic.
3. Pandemic Impact (2020-2021):
   - 2020: There was a dramatic drop to 5,946,104 tourists, reflecting the severe impact of COVID-19 on global travel.
   - 2021: The number of tourists further declined to 2,502,239, indicating continued travel restrictions and reduced international movement due to the pandemic.

There was a significant upward trend in tourist arrivals from 2001 through 2019, with several years of exponential growth, particularly noticeable from 2010 onwards. The sharp decline in 2020 and 2021 clearly demonstrates the severe impact of COVID-19 on global tourism. The numbers in these years are markedly lower compared to the pre-pandemic peak. Given the dramatic drop in tourist numbers during the pandemic, future recovery will likely depend on global health conditions, travel restrictions, and the resurgence of consumer confidence in travel. The data highlights periods of high growth and subsequent downturns, providing a clear picture of the factors that can influence tourist numbers, including economic conditions, global events, and health crises.

Talking about previously held SARS (2002) pandemic and H1N1 (2009) pandemic, there has been no significant drop observed in the tourist footfall particularly for Bihar shown in fig 7.1. The impact would have been there but not as much as the damage done by the COVID-19 pandemic.

7.3 Forecasting the arrival from the year 2018 to 2023 if COVID has not happened
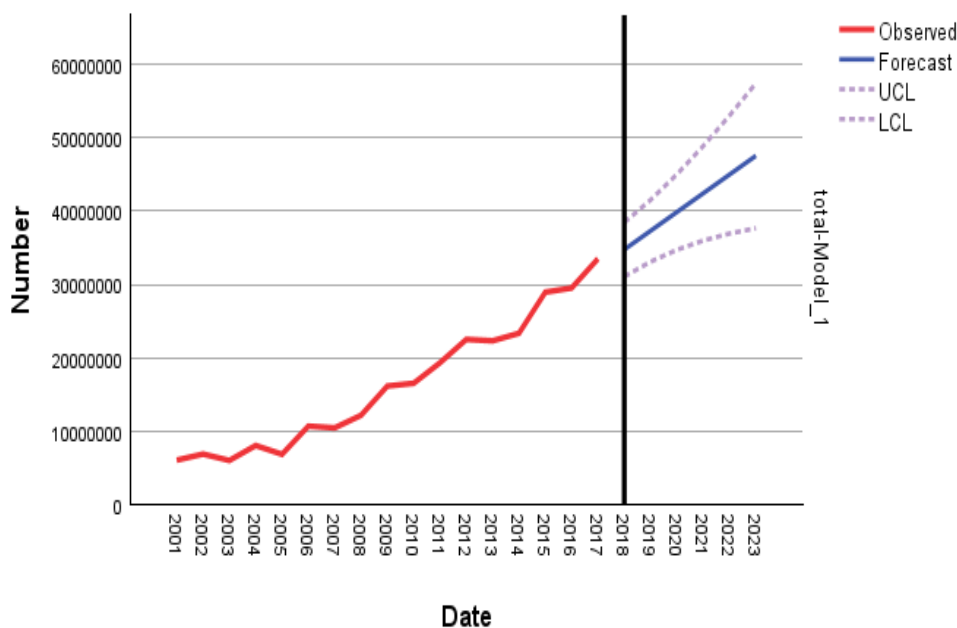

Figure 7.2 Forecasted trend line of total tourist arrivals from 2018 to 2023

From the figure 7.2 we can conclude the Historical Growth Trend (2001-2017). The data shows a significant and consistent increase in the total number of tourists over the years from 2001 to 2017. Here's a detailed look at this trend:

- Early 2000s Fluctuations: From 2001 to 2004, there were fluctuations in the number of tourists, with a peak in 2004 (8,135,574) followed by a decrease in 2005 (6,944,006). This period was characterized by variable growth.
- Rapid Growth Phase: Starting in 2006, there is a notable surge in tourist arrivals. The increase is sharp and continuous, peaking in 2017 with 33,496,768 tourists. This indicates a strong upward trend in the tourism sector, with growth accelerating particularly after 2009.
- Exceptional Growth Post-2009: The period from 2009 onwards is marked by exceptional growth, with a jump from 16,207,721 tourists in 2009 to 33,496,768 in 2017. This represents a near doubling of tourist numbers in just eight years, highlighting a booming tourism sector.

For the forecasted Trends (2018-2023), the data suggests that the upward trend in tourist arrivals is expected to continue, though at a slightly moderated pace compared to the previous decade:

- Steady Increase: The forecasted numbers for 2018 to 2023 show a continued increase in tourist arrivals each year. For instance, the forecasted number for 2018 is 34,742,350, which is a modest increase from 33,496,768 in 2017. By 2023, the forecasted number reaches 47,479,800.
- Growth Rate: The annual growth rate in the forecast period seems to be consistent but not as steep as the historical growth seen from 2009 to 2017. This suggests that while tourism continues to grow, the rate of increase may be stabilizing, potentially due to market saturation, economic conditions, or other limiting factors.

Figure 7.2 shows the observed trend for the arrivals of tourist from 2001 to 2017 through red marker. Till half way of 2019, everything was going smooth after which COVID pandemic vigorously started impacting the trend in visits. With the help of SPSS tool forecasting is done to see what changes has been seen in the arrivals of tourist in Bihar. If we compare both the above mentioned figures we could find that there has been a huge leap in the actual happenings. Loss is huge and sector should implement certain programs and plans to compensate the losses occurred. The above mentioned figure shows the trend for year 2020 onwards to get the idea of numerals of how it would have been if COVID pandemic has not taken place. The table which is mentioned below on the other hand shows the numerals of arrivals. If one compares the data of actual arrivals for the year 2019-2021 to the forecasted value of arrivals from 2019-2021 they can have the idea of losses occurred.

If the calculation is done based on the total tourist visits of India for 2018 and 2021, we could easily understand the extent of loss faced by Bihar. For 2018, India witnessed a total of 1.86 billion visitors and Bihar got 34 million among them, which sums up to a total of 1.86% while in 2021, India welcomed a total of 679 million of which Bihar got 2.5 million, which comes out to be 0.37%. So, COVID-19 pandemic altogether dragged the visitor percentage point to -1.49 in three years span.

Table 7.1 Forecasted value of arrivals with UCL and LCL

Model	Column1	2018	2019	2020	2021	2022	2023
total-Model_1	Forecast	34742350	37289840	39837330	42384820	44932310	47479800
	UCL	38418180	41485864	44964109	48806978	52944052	57319323
	LCL	31066521	33093816	34710551	35962662	36920568	37640277

For each model, forecasts start after the last non-missing in the range of the requested estimation period, and end at the last period for which non-missing values of all the predictors are available or at the end date of the requested forecast period, whichever is earlier (Cleophas et al., 2014).

Upper Confidence Limit (UCL): The UCL indicates that, under the best-case scenario, the number of arrivals could be as high as 57,319,323 by 2023. The UCL increases progressively each year, suggesting a positive outlook for growth. While the lower Confidence Limit (LCL): The LCL shows the minimum expected arrivals, starting from 31,066,521 in 2018 and increasing to 37,640,277 in 2023. The LCL is also on an upward trend, reflecting a consistent growth expectation even in less optimistic scenarios

7.4 Comparison between actual and forecasted values of arrivals

Table 7.2 Table of Actual and forecasted data from 2018- 2023

Year	Actual arrivals	Forecasted arrivals
2018	34709584	34742350
2019	35083179	37289840
2020	5946104	39837330
2021	2502239	42384820
2022	25417200	44932310
2023	82140000	47479800

Source: INDIA TOURISM STATISTICS YEARBOOK (2019-2024)

The table 7.2 compares the actual and forecasted arrivals over a series of years.

- In 2018, the actual number of arrivals was 34,709,584, which was slightly lower than the forecasted value of 34,742,350.
- In 2019, the actual arrivals increased to 35,083,179, but this was notably below the forecasted figure of 37,289,840.
- In 2020, there was a significant drop in actual arrivals to 5,946,104, falling well short of the forecasted 39,837,330. This substantial deviation is the result attributed to exceptional circumstance, the COVID-19 pandemic.
- In 2021, the actual arrivals further decreased to 2,502,239, continuing the trend of falling short of the forecast, which was 42,384,820.

- For 2022 and 2023, the forecasted values are 44,932,310 and 47,479,800, respectively. These forecasts suggest a trend of gradual increase in arrivals that would have occurred if the pandemic has not taken place.

Overall, the actual arrivals in 2021 and 2022 were significantly lower than the one forecasted, reflecting a deviation from anticipated trends, due to COVID-19 pandemic affecting the arrival numbers. The forecast for 2023 indicates expectations of recovery or growth in arrivals.

7.5 Discussions

Sustained Growth: The sustained growth in the number of tourists reflects a strong and expanding tourism industry, with increasing appeal and accessibility. The sector has been resilient and attractive to a growing number of international visitors. Impact of Economic and Social Factors: The steep rise in tourists in the post-2009 period could be attributed to various factors such as global economic recovery, increased disposable incomes, improved travel infrastructure, and more effective marketing strategies. Forecast Accuracy and Trends: The forecasted data aligns with the historical trend of growth, suggesting that past growth patterns are a reliable indicator for future expectations. However, it is essential to consider external factors such as geopolitical events, travel restrictions, and economic fluctuations that might influence these projections.

Talking about the Infrastructure and Services, with the continued increase in tourist numbers, there will be a growing need for enhanced infrastructure, including transportation, accommodation, and tourist services, to accommodate the rising demand. Sustainability Considerations on the other hand has significant growth in tourist arrivals underscores the importance of sustainability in tourism practices to prevent environmental degradation and ensure that the tourism industry remains viable in the long term. For Market Diversification, to sustain growth, it may be beneficial for tourism boards and businesses to explore new markets and diversify their offerings to cater to different demographics and preferences.

The drastic drop in tourist arrivals in 2020 and 2021 compared to forecasts underscores the significant impact of the COVID-19 pandemic. Policymakers should consider this when planning future tourism strategies, incorporating flexibility to adapt to unforeseen global events. Given the current and potential ongoing impact of the pandemic or similar disruptions, there is a need for robust recovery plans. These plans should include strategies for crisis management and rapid adaptation to changing conditions.

The significant deviation in 2020 and 2021 suggests that current forecasting models may need adjustments to account for extreme global disruptions. Enhanced models that include risk factors and contingencies could improve accuracy. It might be beneficial to employ scenario planning in forecasting. This approach involves developing multiple forecasts based on different potential future scenarios, including economic downturns, health crises, or other disruptions.

Support for the tourism sector, particularly during and after major disruptions, is crucial. This could include financial aid, incentives for domestic tourism, and support for businesses impacted by reduced international arrivals. Emphasizing health and safety in tourism policies can help in recovery. Ensuring robust protocols and clear communication about safety measures can build traveller confidence. Investing in diversifying tourism offerings and destinations can reduce reliance on a single market or region. Building resilience into the tourism sector can help mitigate the effects of future disruptions.

Improved data collection and monitoring can help in adjusting forecasts and understanding trends more accurately. Real-time data on tourist arrivals, market conditions, and other relevant factors can provide valuable insights for timely decision-making. Regularly reviewing and updating forecasts based on the latest data and trends ensures that policy measures remain relevant and effective.

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