Assessing the Impact of Train Connectivity on Tourism Stakeholders of Jammu

MAJOR PROJECT REPORT

SEMESTER- 2

FOUR-YEAR UNDERGRADUATE PROGRAMME
(DESIGN YOUR DEGREE)

SUBMITTED TO

UNIVERSITY OF JAMMU, JAMMU

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Submitted on: ____ September, 2024

ACKNOWLEDGMENT

We can acknowledge all those who helped and guided us during our research work.First and foremost, we thank almighty god from the depth of our hearts for generating enthusiasm and granting us spiritual strength to pass through this challenge successfully.

Words are too meager to express our esteem indebtedness and wholehearted sense of gratitude towards our research guides and supervisors Prof. Anil Gupta, Dr. Shallu Sehgal, and Dr. Sunil Kumar. It's our pleasure beyond words to express our deep sense of feelings for his/her inspiring guidance, generous encouragement, and well-versed advice. They provided us with undaunted encouragement and support despite his/her busy schedules. We feel extremely honored for the opportunity conferred upon us to work under their perpetual motivation. We are highly thankful to all respected teachers for their immense help during the conduct of our research work.

The words are small trophies to express our feelings of affection and indebtedness to our friends who helped us throughout the research, and whose excellent company, affection, and co-operation helped us in carrying out our research work with joy and happiness. We acknowledge all the people, mentioned or not mentioned here, who have silently wished and given fruitful suggestions and helped us achieve the present goal.

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CERTIFICATE

The report titled **"Assessing the Impact of Train Connectivity on Tourism Stakeholders of Jammu"**was done by Group Virasat including group members- (Narayan Choudhary, Bhoomi Samnotra, Manjot Singh, Suhani Behl, Radhey Sharma, and Mohd.Sajid). This project served as a significant undertaking for Semester 2 of their academic program. Under the supervision and guidance of **Prof.Anil Gupta, Dr. Shallu Sehgal, and Dr. Sunil Bhogal** for the partial fulfillment of the Design Your Degree, Four Year Undergraduate Programme at the University of Jammu, Jammu,and Kashmir. Thisoriginal project report has not been submitted elsewhere for academic recognition.

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Abstract

This report looks at how better train connections to Katra have affected tourism businesses in Jammu, like hotels, restaurants, tour operators, and taxi services. It focuses on how the new direct train route to Katra has influenced the number of tourists, their spending habits, and what businesses expect from a future direct rail link to Kashmir.

Since the data collected from the survey is categorical (like yes/no answers or different categories) and doesn't meet the requirements for more traditional statistical methods, the study uses nonparametric statistical methods instead. The Chi-Square Test of Independence is used to check if there's a relationship between different business types and their views on how train connectivity has impacted them. It also looks at the challenges these businesses face.

Overall, the report aims to understand how the direct train route to Katra has changed the tourism landscape in Jammu and what the future might hold with the upcoming rail link to Kashmir.

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1. Introduction

Tourism is a vital economic sector in Jammu, primarily driven by religious pilgrimage, leisure tourism, and business travel. The recent introduction of a direct train route to Katra has significantly influenced tourism dynamics in the region, affecting how various stakeholders, including hotels, restaurants, tour operators, and taxi services, operate and adapt. This research project aims to evaluate the impact of enhanced train connectivity on Jammu's tourism businesses by assessing changes in tourist arrivals, spending patterns, and business models.

To achieve this, we conducted a comprehensive survey of tourism stakeholders to understand how the new train services have influenced their businesses. The survey explored key areas such as changes in customer demographics, business revenue, and operational strategies. Additionally, stakeholders were asked about their perceptions of the upcoming direct train link to Kashmir, and how they believe it will shape the future of tourism in the region.

The collected data was analyzed using statistical methods to identify meaningful relationships and trends after the survey. Tests such as the Chi-Square Test of Independence were employed to explore differences in business types, their response to infrastructural changes, and the challenges faced in adapting to the evolving tourism landscape. This data-driven approach allows us to offer a well-rounded analysis of how improved connectivity has impacted the tourism industry.

1.1 Objective of the Study

The primary objective of this study is to statistically evaluate the impact of direct train connectivity to Katra on various business types in Jammu. This train service marks a significant infrastructure development in the region, and the study aims to assess its influence on business perceptions, customer behaviors, and the broader tourism industry. Through data analysis collected from local businesses, the study seeks to identify significant differences and relationships between various factors, such as business types, operational challenges, and tourism dynamics, before and after the introduction of the train service.

Specific Objectives Include:

- **Evaluate the Perceived Impact:**Understand how different business types perceive the impact of the new train services on their operations and the broader economic environment in Jammu.
- **Analyze Business and Tourism Dynamics:** Investigate the relationship between the new train connectivity and the outlook of Jammu's tourism industry, including potential changes in tourist behavior and business strategies.
- **Examine Operational Challenges:** Explore the challenges faced by businesses in adapting to the changing tourism landscape brought about by the train services and identify the types of support needed from local authorities.
- **Assess Stakeholder Perceptions:**Analyze the perceptions of tourism stakeholders regarding the administration's response to tourism-related concerns and their confidence in the future of Jammu's tourism landscape.
- **Identify Correlations and Associations:** Determine significant correlations between business characteristics, such as the length of operation, and their response to the train connectivity, as well as associations with changes implemented in response to the evolving tourism industry.

1.2 Overview of Hypotheses

This study is structured around the following hypotheses, designed to test specific relationships using the available dataset:

Hypothesis 1

Null Hypothesis (H_0): There is no significant difference between perceptions and insights from Jammu stakeholders.

Alternate Hypothesis (H_1): There is a significant difference between perceptions and insights from Jammu stakeholders.

Independent Variable: Business types

Dependent Variable: Perceived impact of train connectivity

Hypothesis 2

Null Hypothesis (H_0): There is no significant relationship between the length of time a business has been operating and its perception of the impact of the Katra train connection.

Alternative Hypothesis (H_1): There is a significant relationship between the length of time a business has been operating and its perception of the impact of the Katra train connection.

Independent Variable: Length of time a business has been operating

Dependent Variable: Perception of the impact of the Katra train connection

Hypothesis 3

Null Hypothesis (H_0): There is no significant association between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Alternative Hypothesis (H_1): There is a significant association between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Independent Variable: Type of business

Dependent Variable: Type of support needed from the Jammu Tourism Development Corporation

Hypothesis 4

Null Hypothesis (H_0): There is no significant association between the type of business and the changes implemented in response to the changing tourist landscape.

Alternative Hypothesis (H_1): There is a significant association between the type of business and the changes implemented in response to the changing tourist landscape.

Independent Variable: Type of business

Dependent Variable: Changes implemented in response to the changing tourist landscape

Hypothesis 5

Null Hypothesis (H_0): There is no significant difference in the opinion of tourism stakeholders regarding the administration's response to concerns about tourist footfall.

Alternative Hypothesis (H_1): There is a significant difference in the opinion of tourism stakeholders regarding the administration's response to concerns about tourist footfall.

Independent Variable: Opinion of tourism stakeholders

Dependent Variable: Administration's response to concerns about tourist footfall

Hypothesis 6

Null Hypothesis (H_0): There is no significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape.

Alternative Hypothesis (H_1): There is a significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape.

Independent Variable: Type of business

Dependent Variable: Level of confidence in the future of the business in Jammu's tourism landscape

Hypothesis 7

Null Hypothesis (H_0): There is no significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Alternative Hypothesis (H_1): There is a significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Independent Variable: Impact of the direct train connection to Srinagar

Dependent Variable: Perceptions of Jammu tourism stakeholders

CHAPTER 2 Description of Data

The dataset contains responses from a survey with 53 entries (respondents). The survey appears to focus on business operations and the impact of tourism in Jammu, particularly train connectivity.

Variables and Data Types

1. **Categorical Data**:
    - Many of the variables are likely categorical, representing different aspects of business operations,
    - perceptions of tourism, and the anticipated impact of infrastructure developments.

    Examples of such columns include:

    - "What type of business do you operate?"
    - "How long have you been operating your business in Jammu?"
    - "What is your primary target market?"
    - "Have you observed a change in the number of tourists visiting Jammu in recent years?"

2. **Non-Normality of Data**:

- **Non-normal distribution**: The dataset likely doesn't follow a normal distribution due to the wide variety of categorical responses (e.g., "agree," "disagree," and "neutral").
- **Presence of categorical variables**: The data contains categories rather than continuous numerical values, which suggests that standard parametric methods (e.g., ANOVA) may not be suitable.
- **Examine numerical variables**: Numerical variables, such as business revenue or customer volume, can be further assessed to check for outliersor irregularities.
- **Use visual tools**: Visual methods like histograms, box plots, or Q-Q plots can be used to identify non-normal patterns in the data.
- **Statistical tests for normality**: Tests like the Shapiro-Wilk or Kolmogorov-Smirnov tests can confirm whether the data deviates from a normal distribution.
- **Guide for method selection**: Confirming non-normality helps in choosing the right statistical tests, such as nonparametric tests (Chi-Square), which do not require data to be normally distributed.

CHAPTER3 Methodology

3.1 Choice of Statistical Tests - Reason for Nonparametric Testing

In the analysis of the survey data regarding the impact of train connectivity on tourism stakeholders in Jammu, nonparametric statistical tests have been selected for the following reasons:

1. **Nature of Data**: The data from the survey is predominantly categorical, which includes responses such as "Agree," "Disagree," and "Neutral." Nonparametric tests are well-suited for analyzing categorical data, as they do not require assumptions about the underlying distribution of the data.
2. **Distribution Assumptions**: Parametric tests often assume that the data follows a normal distribution. Given that the survey data may not adhere to these assumptions due to skewed distributions or outliers, nonparametric tests provide a more robust alternative that does not rely on these assumptions.
3. **Sample Size**: Nonparametric tests are advantageous when dealing with small sample sizes or when the data is not sufficiently large to validate the assumptions required for parametric tests. They offer flexibility in handling such scenarios without compromising the validity of the results.
4. **Robustness**: Nonparametric methods are less sensitive to outliers and can handle various types of data distributions, making them ideal for analyzing responses that may be irregular or skewed.

3.2 Hypothesis Tests - Chi-Square Test of Independence

The Chi-Square Test of Independence is utilized to assess whether there is a significant association between two categorical variables in the survey data. This test helps determine if the distribution of one categorical variable is independent of the distribution of another categorical variable.

1. **Purpose**: To evaluate if there are significant relationships between categorical variables, such as the type of business and their perceptions of the impact of train connectivity.
2. **Procedure**:
    - **Data Collection**: Gather data in a contingency table format where each cell represents the frequency of occurrences for a combination of categories.
    - **Significance Level**: Use a significance level (alpha) of 0.05. Compare the Chi-Square statistic to the critical value from the Chi-Square distribution with the calculated degrees of freedom or use the p-value to determine significance.
3. **Assumptions**:
    - **Independence**: Each observation should be independent of others.
    - **Expected Frequency**: Generally, expected frequencies should be 5 or more in each cell to ensure the validity of the test.
4. **Application**:
    - **Hypothesis Testing**: Test hypotheses such as whether there is a significant association between business types and their perceptions of the impact of train connectivity or other categorical variables.
    - **Interpretation**: A significant result (p-value < 0.05) would indicate that there is a relationship between the variables, suggesting that the perceptions of train connectivity impact differ across business types or other categories.

CHAPTER4-Results and Interpretation: Hypothesis Testing

Hypothesis 1:

Null Hypothesis (H_0): There is no significant difference between perceptions and insights from Jammu stakeholders.

Alternate Hypothesis (H_1): There is a significant difference between perceptions and insights from Jammu stakeholders.

Chi-Square Test of Independence Result Interpretation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.884[a]	15	.390
Likelihood Ratio	19.316	15	.200
Linear-by-Linear Association	.212	1	.645
N of Valid Cases	53		

Chi-Square Statistics:

- **Chi-Square Value:**15.884
- **Degrees of Freedom (df):**15
- **p-value (Asymp. Sig.):**0.390

Interpretation

P-value: The p-value of 0.390 is greater than 0.05, indicating that we failed to reject the null hypothesis. This suggests that there is no significant relationship betweenperceptions and insights from Jammu stakeholders.

Conclusion

Null Hypothesis(H_0): There is no significant relationship betweenperceptions and insights from Jammu stakeholders.

Hypothesis 2:

- **Null Hypothesis (H_0):** There is no significant relationship between the length of time a business has been operating and its perception of the impact of the Katra train connection.
- **Alternative Hypothesis (H_1):** There is a significant relationship between the length of time a business has been operating and its perception of the impact of the Katra train connection.

Chi-Square Test of Independence Result Interpretation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.138[a]	9	.206
Likelihood Ratio	12.399	9	.192
Linear-by-Linear Association	1.568	1	.211
N of Valid Cases	53		

a. 12 cells (75.0%) have an expected count of less than 5. The minimum expected count is .02.

Chi-Square Statistics:

- **Chi-Square Value:**12.138
- **Degrees of Freedom (df):** 9
- **p-value (Asymp. Sig.):**0.206

Interpretation

P-value: The p-value of 0.206 is greater than 0.05, indicating that we failedto reject the null hypothesis. This suggests that there is no significant relationship between the length of time a business has been operating and its perception of the Katra train connection's impact.

Conclusion

- **Null Hypothesis (H_0):** There is no significant relationship between the length of time a business has been operating and its perception of the impact of the Katra train connection

Hypothesis 3

Null Hypothesis (H0): There is no significant association between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Alternate Hypothesis (H1): There is a significant association between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Chi-Square Test of Independence Result Interpretation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	41.027[a]	20	.004
Likelihood Ratio	33.892	20	.027
Linear-by-Linear Association	3.093	1	.079
N of Valid Cases	53		

Chi-Square Statistics:

- Chi-Square Value: 41.027
- Degrees of Freedom (df): 20
- p-value (Asymp. Sig.): 0.004

Interpretation

The p-value of 0.004 is less than 0.05, indicating that we reject the null hypothesis.

This suggests that there is a significant relationship between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Conclusion

- **Alternative Hypothesis (H_1)**: There is a significant relationship between the type of business and the kind of support needed from the Jammu Tourism Development Corporation.

Hypothesis 4

Null Hypothesis (H0): There is no significant association between the type of business and the changes implemented in response to the changing tourist landscape.

Alternate Hypothesis (H1): There is a significant association between the type of business and the changes implemented in response to the changing tourist landscape.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.048[a]	15	.107
Likelihood Ratio	27.146	15	.028
Linear-by-Linear Association	2.534	1	.111
N of Valid Cases	53		

a. 24 cells (100.0%) have expected count less than 5. The minimum expected count is .47.

Chi-Square Statistics:

- Chi-Square Value: 22.048
- Degrees of Freedom (df): 15
- p-value (Asymp. Sig.): 0.107

Interpretation

- The p-value of 0.107 is greater than 0.05, indicating that we failed to reject the null hypothesis.
- This suggests that there is no significant relationship between the type of business and the changes implemented in response to the changing tourist landscape

Conclusion

- **Null Hypothesis (H_0):** There is no significant relationship between the type of business and the changes implemented in response to the changing tourist landscape.

Hypothesis 5

Null Hypothesis (H0): There is no significant difference in the opinion of tourism stakeholders regarding the administration's response to concerns about tourist footfall.

Alternate Hypothesis (H1): There is a significant difference in the opinion of tourism stakeholders regarding the administration's response to concerns about tourist footfall.

Chi-Square Test of Independence Result Interpretation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	58.058[a]	20	.000
Likelihood Ratio	53.292	20	.000
Linear-by-Linear Association	1.373	1	.241
N of Valid Cases	53		

a. 30 cells (100.0%) have an expected count of less than 5. The minimum expected count is .28.

Chi-Square Statistics:

- Chi-Square Value: 58.058
- Degrees of Freedom (df): 20
- p-value (Asymp. Sig.): 0.000

Interpretation

- The p-value of 0.000 is less than 0.05, indicating that we reject the null hypothesis.
- This suggests that there is a significant difference in the type of support needed by businesses from the Jammu Tourism Development Corporation.

Conclusion

Alternative Hypothesis (H_1): There is a significant difference in the type of support needed by businesses from the Jammu Tourism Development Corporation.

Hypothesis 6

Null Hypothesis (H0): There is no significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape.

Alternative Hypothesis (H1): There is a significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.656[a]	20	.017
Likelihood Ratio	44.776	20	.001
Linear-by-Linear Association	6.743	1	.009
N of Valid Cases	53		

a. 26 cells (86.7%) have expected countless than 5. The minimum expected count is .19.

Chi-Square Test Results

Pearson Chi-Square:

- Value: 35.656
- df: 20
- p-value (Asymp. Sig.): 0.017

Interpretation

- The p-value of 0.017 is less than 0.05, indicating that we reject the null hypothesis.

This suggests that there is a significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape

Conclusion

Alternative Hypothesis (H_1): There is a significant relationship between the type of business and the level of confidence in the future of the business in Jammu's tourism landscape.

Hypothesis 7

Null Hypothesis (H_0):

There is no significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Alternative Hypothesis (H_1):

There is a significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.254[a]	20	.762
Likelihood Ratio	16.033	20	.715
Linear-by-Linear Association	.193	1	.661
N of Valid Cases	53		

Chi-Square Statistics:

- Chi-Square Value: 15.254
- Degrees of Freedom (df): 20
- p-value (Asymp. Sig.): 0.762

Interpretation

- The p-value of 0.762 is greater than 0.05, indicating that we failed to reject the null hypothesis.

This suggests that there is no significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Conclusion

Null Hypothesis (H_0): There is no significant difference in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders.

Conclusion

This study analysed how direct train connectivity to Katra has affected tourism stakeholders in Jammu, including hotels, restaurants, tour operators, and taxi services. Using nonparametric methods like the Chi-Square Test of Independence, we found that the new train service had a relatively uniform impact across different types of businesses. While stakeholders reported changes in customer demographics and business operations, the overall effect on tourism was consistent. The study also highlighted challenges in adapting to the evolving landscape and the need for support from local authorities. These insights will help guide future tourism policies for sustainable growth in the region.

Findings of Study:

1.**Perceived Impact Across Business Types:**No significant difference was observed in the perceived impact of train connectivity across different business types. This suggests that, at present, the direct train route to Katra has a relatively uniform impact on various sectors within the tourism industry.

2.**Anticipated Impact on Jammu Tourism Outlook:**There is no significant relationship between the anticipated impact of the direct train connection to Kashmir and the outlook for Jammu tourism over the next five years. This indicates that stakeholders may not yet be able to predict or align their expectations with the broader tourism forecast.

3.**Length of Business Operation:**The length of time a business has been operating does not significantly affect its perception of the Katra train connection's impact. This could imply that the new train service's effects are perceived similarly regardless of a business's longevity.

4.**Support from Jammu Tourism Development Corporation:**A significant association was found between the type of business and the kind of support needed from the Jammu Tourism Development Corporation. This suggests that different types of businesses may have distinct requirements and expectations from the tourism development authorities.

5.**Changes Implemented in Response to Tourist Landscape:**There was no significant association between the type of business and the changes implemented in response to the evolving tourist landscape. This may indicate that businesses are either uniformly responding to changes or that the changes are not yet significant enough to affect all business types differently.

6.**Opinion on Administration's Response to Tourist Footfall:**A significant difference was found in the opinions of tourism stakeholders regarding the administration's response to concerns about tourist footfall. This indicates varying levels of satisfaction or dissatisfaction with how the authorities are addressing tourism-related issues.

7.**Confidence in the Future of Tourism:**There is a significant relationship between the type of business and the level of confidence in the future of the tourism landscape in Jammu. This suggests that businesses may have differing levels of optimism based on their type and role in the tourism sector.

8.**Impact of Direct Train Connection to Srinagar:**No significant difference was observed in the impact of the direct train connection to Srinagar on Jammu tourism stakeholders. This might indicate that the direct train service to Srinagar has yet to make a substantial impact on the perceptions of stakeholders in Jammu.

Recommendations for Improvement:

1. **Enhanced Data Collection**: Collect more granular data on specific business types and their unique challenges to better understand the differential impact of train connectivity.

2. **Longitudinal Study:** Conduct a longitudinal study to track changes over time and better understand how train connectivity impacts tourism and business operations in the long term.

3.**Detailed Stakeholder Surveys:**Design more detailed surveys to capture stakeholders' specific needs and expectations from the Jammu Tourism Development Corporation and assess their impact more precisely.

4.**Broaden Scope:**Expand the scope to include a larger sample size and consider including additional variables that may influence tourism dynamics, such as seasonal trends and regional marketing efforts.

5. **Focus on Specific Impacts:**Examine the specific impacts of train connectivity on different tourism sectors in more detail to identify particular areas of benefit or concern.

6.**Stakeholder Engagement:** Increase engagement with tourism stakeholders to better understand their perspectives and gather qualitative insights that complement quantitative data.