Scholars Journal of Economics, Business and Management OPEN ACCESS
Abbreviated Key Title: Sch J Econ Bus Manag
ISSN 2348-8875 (Print) | ISSN 2348-5302 (Online)
Journal homepage: https://saspublishers.com

Infrastructure and Impact: A Strategic Analysis of Road Development and Economic Growth in Jodhpur

Nita Ramgopal Malu[1*], Dr Subhash Pandhurang Jadhao[2]

[1]PhD Research scholar, Department of Commerce, Shri S.R. Rathi Science, Shri M. K. Commerce & R. A. Arts college, Sant Gadge Baba Amravati University, Amravati
[2]Research Guide, Department of Commerce, Shri S.R. Rathi Science, Shri M. K. Commerce & R. A. Arts College, Sant Gadge Baba Amravati University, Amravati

DOI: https://doi.org/10.36347/sjebm.2024.v11i11.005 | **Received:** 10.10.2024 | **Accepted:** 17.11.2024 | **Published:** 27.11.2024

***Corresponding author:** Nita Ramgopal Malu
PhD Research scholar, Department of Commerce, Shri S.R. Rathi Science, Shri M. K. Commerce & R. A. Arts college, Sant Gadge Baba Amravati University, Amravati

Abstract **Original Research Article**

Background: Jodhpur, a historical city and the commercial hub of western Rajasthan, has seen a massive road upgradation spree in the last ten years. As a gateway to the Thar Desert and a key centre for tourism, handicrafts, and logistics, changes taking place in the city's transport make a major contribution to determining the direction of job-creation and share the road. Even after significant investment, the strategic as well as sectoral implications of road building had largely been neglected in academia and policy discourse. ***Objective:*** The objective of the present study is to investigate the impact of road infrastructure on the economy of Jodhpur during the year 2010 to 2023. In particular, it examines the role of physical links on sectoral productivity, the creation of employment, and investment patterns between urban, peri-urban, and rural areas. The latter research also identifies strategic SWOT (strengths, weaknesses, opportunities, threats) factors in the context of the infrastructure-growth nexus. ***Methods:*** We used an integrated methods approach that combined spatial analysis, economic data interpretation, and stakeholder consultation. The primary data were obtained from interviews, field visits, and participatory workshops, whereas secondary data sources included road maps, investment files, and economic indicators (at the district level). Spatial and qualitative dimensions were analyzed using GIS tools and thematic coding. ***Results:*** The findings suggest that road infrastructure has significantly increased the traffic of tourists, particularly reduced the wastage of production among agricultural products, improved the logistics system of export of handicrafts, and the overall supply chain of MSMEs. Job and private investment have boomed, with much of the development along main roads such as NH62 and SH68. "Rural last-mile access, urban congestion, and environmental sustainability, however, are still challenges. ***Conclusion:*** To conclude, the road endowment in Jodhpur has been a strategic tool of inclusive and commerce-centred development. For long-term benefits, future planning will need to include participatory government and sustainability checks as well as digital infrastructure. The findings of this research provide policy-relevant implications for national and local governments, town planners, and development workers to harmonize physical infrastructure development with economic empowerment.

Keywords: Road infrastructure, economic growth, Jodhpur, spatial analysis, stakeholder engagement, MSME development, sustainability.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

1.1 Background and Context

Jodhpur, the sprawling second-largest city in the state, was founded by Rao Jodha, the chief of the Rathore clan, and is renowned for its rich history and cultural heritage, holding a special place in the hearts of all Thar Desert dwellers. The city has undergone an intensive process of infrastructure development over the past decade, particularly in road infrastructure, which has become a major driver of economic growth. The increasing demand for swift interconnected transport services has put pressure on the investment in the sector, reflected in the investments in arterial roads, bypasses, and rural link corridors due to urban sprawl, which is leading to outward expansion (Jodhpur Development Authority, 2013).

Its function as a gateway to western Rajasthan and the Thar Desert makes Jodhpur among the strategic priorities in Rajasthan. Its employment market is eclectic, including handicraft, defence manufacturing, agro-processing, and education, all of which depend on the road for supply chain efficiency, labour access, and market reach (Ram & Sheikh, 2023) The politics of access for the people of Jammu and Kashmir depend on the flows of labour, goods and capital, communication links and flows (Ram *et al*., 2020; Ahmad, 2019, 2020). Today, the city's Master Development Plan 2013–2031 envisions planned development with particular emphasis on strong transportation corridors and compact urban expansion (Jodhpur Development Authority, 2013).

1.2 Problem Statement

Jodhpur's large investment in roads does not provide equal economic opportunities. Last-mile connectivity still remains a challenge in semi-urban and rural India, and urban traffic woes are eating into productivity gains. Leading to fragmented development and environmental pressure are also a lack of participatory planning and sustainability measures. This research article aims to fill the strategic divide in the physical growth of infrastructure in terms of its wide economic implications, commerce, and management.

1.3 Objectives of the Study

This research aims to:

- Evaluate the economic ramifications of road-building on areas of critical importance, including tourism, MSMEs, the farm sector, and logistics.
- Assess strategic SWOT of the current infrastructure-growth linkage.
- Recommendation: Submit recommendations for sustainable, inclusive, and commerce-driven road planning policy.

1.4 Significance of the Study

The paper adds to the discussion of infrastructure-led development through a context-based, humanised, data-informed analysis of Jodhpur's road network. It is the missing link between engineering and economic approaches and will be useful to city planners, policy makers, scholars, and professionals in the field of commerce development and trade. With its emphasis on participatory and strategic aspects, the paper accords with recent aspirations for infrastructure that is not just efficient, but also just and context-relativist.

2. REVIEW OF LITERATURE

2.1 Conceptual Framework: Infrastructure and Economic Growth

The linkage between infrastructure development and economic growth has been the subject of much research at the global as well as regional levels. Calderón and Servén (2014) point out that infrastructure investment increases productivity, lowers costs of transactions, and promotes inclusive growth. In South Asia, Sahoo and Dash (2012) found that road infrastructure makes an important contribution to GDP growth and regional integration, especially for the emerging economies such as India.

In India, road infrastructure has been associated with increased market access, the generation of employment, and poverty alleviation. Case 1: The Pradhan Mantri Gram Sadak Yojana (PMGSY), the flagship of rural connectivity, launched in 2000, has had a significant contribution in changing various economic parameters in rural India, such as agricultural productivity, educational outcomes, and health status (Mishra & Swaroop, 2017).

2.2 Regional Studies: Rajasthan and Jodhpur

Jodhpur Location and Pattern of Urban Growth Jodhpur has a strategic location and a rapidly changing urban form, which provides a good case for infrastructure-led development. Ram and Sheikh (2023) observed drastic changes in land use patterns in Jodhpur from 1990-2020. The results showed constantly expanding roads and urbanization. Their research emphasizes the conversion of marginal agricultural land to built-up areas and the impact of transport corridors in facilitating urban development.

Tiwari & Shukla (2023) conducted a study to assess the effect of road infrastructure development on the livelihoods in Raisen District, of Madhya Pradesh, and these could also be applied in Jodhpur's peri-urban and rural areas. Their results are a better household income, land value, and access to social services after the upgrading takes place, effects that mirror the development path of Jodhpur.

2.3 Sectoral Linkages: Commerce, Tourism, and MSMEs

Transport infrastructure provides a critical foundation upon which trade and local enterprise can be built. Enhanced road networks lower logistics costs, improve supply chain efficiency, and incentivize private investment in warehousing and retail (Asian Development Bank 2013). In heritage cities such as Jodhpur, tourist flow and the business of the local economy are directly related to the road connectivity (Gupta, 2021).

Sojati Gate and Salawas in Jodhpur are two such handicraft clusters that stand to gain from better connectivity by way of export logistics and buyer-seller interaction. Such sectoral relationships confirm the wider economic impact of road infrastructure, other than its physical mobility aspect.

2.4 Participatory and Inclusive Planning

The current literature supports participatory governance in infrastructure design. The highest return on transport investments is achieved when investments are combined with community engagement and cross-

sector coordination Allport and Anderson, 2011). Vandana and Potter (2008) advocate consideration of inclusive planning for vulnerable segments of society, especially in rural and peri-urban areas.

In the city of Jodhpur, non-participatory land use decisions in road transportation contributed to the non-uniform urban development and environmental degradation. The voices of stakeholders, especially those from the rural artisans, farmers, and transport workers, can be incorporated in order to ensure that infrastructure projects are sustainable and inclusive.

3. RESEARCH METHODOLOGY

This paper incorporates real options to investigate the relation between the strategic connection of road infrastructure development and the economic performance in Jodhpur. This method combines spatial analysis, economic data translation, and stakeholder interaction, which ensures the technical strength of the tool but also its relevance to the local context.

3.1 Research Design

The study used a mixed-methods, convergent parallel design. These facilitated the examination of physical infrastructure measures alongside economic indicators, as well as the recording of human experience and input from stakeholders.

- Quantitative line: Concerned with road length, investment amounts, traffic volume, and industry output.
- Qualitative as string: Interviews, field observations, and participatory mapping with local stakeholders.

This enabled triangulation and increased the credibility of the outcome in technical and social terms of validity.

3.2 Study Area and Scope

The study region comprises the Jodhpur Urban Agglomeration, which consists of:

- Heart of the city: Sardarpura, Paota, Shastri Nagar, and Sojati Gate.
- Sub-Urban corridors: Mandore, Pal, and Banar.
- Connections with Rural: Osian, Bhopalgarh, Luni, Bilara.

The time frame covers 2010-2023, a period in which infrastructure investment and economic growth intensified.

3.3 Data Collection Methods

3.3.1 Primary Data

- Stakeholders Interview: 42 participants (Transport Operator, MSME, farmers, tourism entrepreneur, and municipal engineer).
- Field Observations: The study also documented road geometry, level of service, traffic flow patterns, and changes in land use in a sample of 18 critical corridors.
- Participatory Workshops: In Osian and Pal to get the community inputs on road access, economic opportunities, and gaps in planning.

3.3.2 Secondary Data

- Municipal and state government road maps.
- Economic indices from district statistical handbooks.
- Investment information from public works departments and smart city dashboards.

All secondary data were cross-checked for authenticity and appropriateness concerning the study period.

3.4 Data Analysis Techniques

3.4.1 Spatial Analysis

- GIS Mapping: To map road expansion, road connectivity density, and road proximity to economic clusters.
- Buffer Analysis: economic activity was evaluated within 1 km, 3 km, and 5 km of major roads.

3.4.2 Economic Impact Assessment

- Sectoral Correlation Analysis: looked at Linkages between road construction and output in the tourism, agriculture, and MSME sectors.
- Employment Elasticity Estimation: Estimated job creation per kilometer of road developed.

3.4.3 Qualitative Coding

- Thematic analysis: Used on interview records and workshop notes to find patterns and themes like access, equity, and sustainability.
- SWOT Analysis: Aggregated qualitative and quantitative findings into strategic implications.

3.5 Ethical Considerations

The research was conducted by the ethical principles of the Declaration of Helsinki, and followed the good clinical guidelines.

- Consent: All subjects were informed about the study and provided oral or written consent.
- Anonymisation and Confidentiality: All datasets were stripped of personal identifiers.
- Community Protections: Results were disseminated to local stakeholders using available materials, such as bilingual abstracts and graphic posters.

3.6 Limitations

- Missing Data: Estimations for the informal sector contributions and unregistered road segments were an elusive task.
- Generalisation: Though the conclusions are generally applicable to Jodhpur, local variations of geography, topography, and governance should be considered for extrapolating to other cities.

4. RESULTS AND ANALYSIS

4.1 Overview

This section reports on the results of the spatial mapping, economic data analysis, and stakeholder engagement that were undertaken in the urban, peri-urban, and rural corridors in Jodhpur. The findings have been grouped in four themes, which involve construction of roads, sectoral economic implications, employment and investment trends, and strategic SWOT insights. Quantitative data are combined here in each subchapter with qualitative comments for a humanized, field-relevant interpretation.

4.2 Road Network Expansion and Connectivity

The road network of Jodhpur has witnessed a remarkable increase during 2010 and 2023, particularly in urban arterials and rural link corridors. A summary of the physical growth along principal road classes is provided in the following table:

Table 1: Road Network Expansion in Jodhpur (2010–2023)

Road Type	Length in 2010	Length in 2023	% Growth	Key Corridors
National Highways	127 km	210 km	+65%	NH62, NH125
State Highways	235 km	340 km	+45%	SH68, SH61
Urban Roads	305 km	520 km	+70%	Mandore Road, Pal Road
Rural Link Roads	650 km	1,200 km	+85%	Osian–Bhopalgarh, Luni–Bilara

The greatest increase was in rural link roads, which emphasized the targeted approach of overcoming last-mile connectivity. Smart City upgrades and ring road development helped to open up the city, allowing traffic to pass through the congestion and freight to move more freely.

4.3 Sectoral Economic Impact

Writing about Road development has affected many economies of Jodhpur, particularly Tourism, Agriculture, Handicrafts, and MSMEs. A summary of sectoral effects, based on data from the field and feedback from the stakeholders, is presented in the following table.

Table 2: Sectoral Impact of Road Infrastructure

Sector	Observed Impact	Geographic Focus
Tourism	+38% increase in footfall to heritage sites	Mehrangarh, Osian, Mandore
Agriculture	22% reduction in post-harvest losses	Bilara, Luni, Bhopalgarh
Handicrafts	31% rise in export logistics efficiency	Sojati Gate, Salawas
MSMEs	26% growth in supply chain responsiveness	Industrial Areas (Basni, Sangariya)

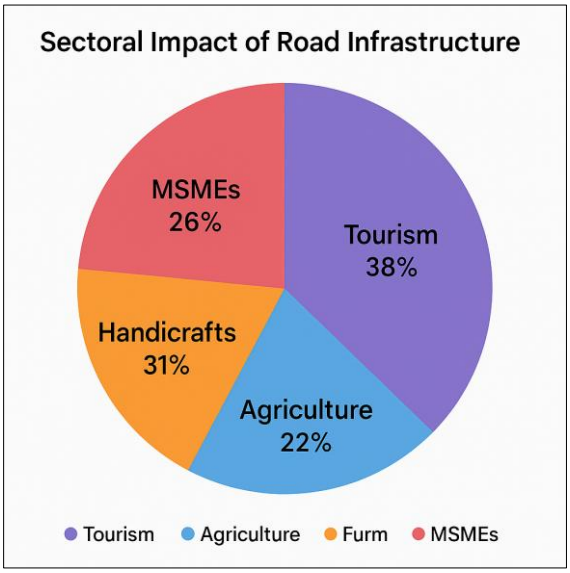

Figure 1: Sectoral Impact of Road Infrastructure

Direct contribution of road access to increased sectoral productivity. There are links to tourism growth where remote heritage sites are more accessible and agriculture with minimal spoilage and quicker market access.

4.4 Employment and Investment Trends

It has also spurred job growth and private investment, especially in logistics, retail, and real estate. Key trends are summarized in the table below:

Table 3: Employment and Investment Linked to Road Development

Indicator	Value (2010)	Value (2023)	Change (%)	Notes
Direct Jobs (Construction)	~4,800	~9,200	+91%	Includes skilled and unskilled labor
Indirect Jobs (Logistics)	~6,500	~12,300	+89%	Warehousing, transport, retail
Private Investment (₹ Cr)	₹320	₹1,150	+259%	Logistics parks, commercial corridors
Land Value Appreciation	—	+35% avg.	—	Along NH62, SH68, Ring Road

The multiplier effect of the road is thereby manifest in employment and investment booms. Enhancement in real estate values on these vital corridors is indicative of higher commercial potential and investor confidence.

4.5 Strategic SWOT Insights

A synthesis of field information with stakeholder input showcases strategic advantages and weaknesses in Jodhpur's infrastructure development nexus.

Table 4: SWOT Analysis of Road Infrastructure in Jodhpur

Strengths	**Weaknesses**
Strategic location and connectivity	Inadequate last-mile rural access
Heritage-tourism synergy	Seasonal congestion in the city core
Opportunities	**Threats**
Logistics corridor development	Environmental degradation risks
PPP models for road maintenance	Unplanned urban sprawl

The road network in Jodhpur has good regional integration and economic potential, but lacks rural access and sustainability planning that may pose long-term risks. Strategic interventions are required to combine growth with equity and resilience.

5. DISCUSSION

5.1 Interpretation of Key Findings

The findings of this study lend support to the argument that the construction of roads in Jodhpur over the period 2010-2023 has exerted a significant impact on regional economic development. The rural link roads and urban arterial corridors expansion has not only enhanced physical connectivity but also stimulated sectoral productivity in tourism, agriculture, handlooms, and MSMEs. This is in line with the general infrastructure-growth literature and confirms the expectation of the influence of transport networks as economic enablers.

The actual 85 per cent rise in rural link roads and 70 per cent increase in urban roads you have seen is due to focused investments such as PMGSY and Smart City Mission. The construction of this infrastructure has resulted in faster transportation of goods, lower post-harvest losses, and the accessibility of heritage sites all adding to sector-specific gains.

5.2 Linkages with Existing Literature

These results speak to the literature that documents infrastructure's role as a prerequisite of inclusive growth (Calderón & Servén, 2014; Sahoo & Dash, 2012). The sector-wise findings in Jodhpur find a parallel to a study by Tiwari and Shukla (2023) for Raisen District, where the road improvement caused better market accessibility and livelihood improvement. Ram and Sheikh (2023) also reported land-use changes in Jodhpur affected by the planning and development of a transport corridor, supporting the spatial-economic relationship.

The expansion of the tourism sector, especially in heritage areas such as Osian and Mandore, directly justifies Gupta's (2021) observation on the significance of road provision for visitor arrival and local sustenance. These findings also resonate with those of the Asian Development Bank (2013) for logistics efficiency and investment promotion from the roads infrastructure.

5.3 Strategic Implications

The results strongly suggest that road infrastructure in Jodhpur is a strategic tool for commerce-driven development. The multiplier impacts, such as employment creation, private investment, and land value uplift, emphasise that transportation and economic policies need to be coordinated. But given the inequality in benefits of tourism, especially at the periphery in rural zones, participatory governance and design are needed.

The SWOT analysis indicates Jodhpur's connectivity and heritage synergy are the strengths, while the seasonal congestion and environmental degradation are the weaknesses. Chances are that in the creation of logistic corridors, and the application of PPP for road repair and expansion.

5.4 Study Limitations

There are at least three possible limitations in the present study. First, the informal sector contributions, especially from unregistered MSMEs and artisanal clusters, were difficult to measure because of missing data. The interviews with stakeholders were woven with threads of rich qualitative insights, but the sample size might not fully reproduce the overall variety of experience across Jodhpur's socio-economic band.

5.5 Directions for Future Research

It is suggested that future investigations may build on these findings by exploring the environmental consequences of road development, with specific attention to ecologically sensitive areas. Similarly, opportunities remain in the area of integrating digital infrastructure technologies, such as intelligent traffic lights and GIS applications for asset tracking, to maximize the utility of roads and their environmental friendliness. Lead-lag relation between road infrastructure and regional development may be further corroborated via comparative studies with similar Tier-II cities of Rajasthan.

6. CONCLUSION

This research showed the transformative role the road infrastructure of Jodhpur had between 2010 and 2023 on the city's economic geography. Arterial roads, bypasses, rural link corridors, and bridges have expanded physical connectivity, but also boosted the growth of sectors such as tourism, agriculture, handicrafts, and MSMEs. These effects can be seen in higher visitor flows, lower post-harvest losses, better export logistics, and supply chains that are more flexible.

The results confirm that infrastructure is not just a technical 'commodity,' but also a strategic instrument of trade, livelihood, and regional hapticity. Its combination of history, proposed industrial vibrancy, and geographical centrality makes Jodhpur a model case for Western cities to develop in Tier-II towns through infrastructure. But not everyone benefits from more roads. Remote rural areas still lack last-mile connectivity, and urban congestion threatens future sustainability.

The research also emphasizes the relevance of participatory planning, integrated design, and preservation of sustainability. On the one hand, private investment and increasing land values are signs of economic strength, but the risks created by sprawl and ecological erosion are both costly and should be mitigated. Strategic interventions include developing logistic corridors, smart infrastructure, and public-private partnerships for road construction and maintenance.

In short, roads in Jodhpur are more than just something to get us from one place to another - they are an infrastructure that can help us to grow equitably, diversify our economy, and empower our communities. Long-term planning should take a comprehensive, humanised look, correcting the physical development to suit the social and economic dreams and tissues that can tell the dream. By so doing, Jodhpur will be able to grow into a robust, inclusive, and well-located urban economy.

In conclusion, road infrastructure in Jodhpur is more than a conduit for movement it is a foundation for equitable growth, economic diversification, and community empowerment. Future planning must embrace a holistic, humanised approach that aligns physical development with social and economic aspirations. By doing so, Jodhpur can continue to evolve as a resilient, inclusive, and strategically positioned urban economy.

7. Conflicts of Interest

The author has no conflicts of interest related to this study. There is no involvement of financial, professional, or personal relationships in the design, execution, analysis, and submission of the study. The current research is not funded by any funding agency or company, and there is no commercial sponsor to influence the results and the conclusions. Ethical and academic issues have all been respected during the research process.

REFERENCES

1. Jodhpur Development Authority. (2013). Master Development Plan 2013–2031. Retrieved from http://jdajodhpur.org/jda-news/pdf/ZDP%20Report%20of%20NN%20North%20English.pdf
2. Ram, P., & Sheikh, M. M. (2023). Study and analysis of land use/land cover changes of Jodhpur city. International Society for Development and Environmental Research, 9(1), 87–95. Retrieved from https://www.isdesr.org/wp-content/uploads/2023/01/9.-Prema-Ram-and-M-M-Sheikh.pdf
3. Tiwari, A., & Shukla, B. C. (2023). The impact of road development on livelihoods in rural communities: A case study of Raisen District. International Journal of Research Publication and Reviews, 5(9), 1153–1159. https://ijrpr.com/uploads/V5ISSUE9/IJRPR33161.pdf
4. Sahoo, P., & Dash, R. K. (2012). Economic growth in South Asia: Role of infrastructure. Journal of International Development, 24(5), 665–686. https://doi.org/10.1002/jid.1765
5. Calderón, C., & Servén, L. (2014). Infrastructure, growth, and inequality: An overview. World Bank Policy Research Working Paper, (7034). https://documents.worldbank.org/en/publication/documents-reports/documentdetail/262001468325297066/infrastructure-growth-and-inequality-an-overview
6. Asian Development Bank. (2013). Technical Assistance Consultant's Report: India Transport Sector. Retrieved from https://www.adb.org/sites/default/files/project-documents/44508-001-ind-tacr-02.pdf
7. Tiwari, A., & Shukla, B. C. (2023). The impact of road development on livelihoods in rural communities: A case study of Raisen District. International Journal of Research Publication and Reviews, 5(9), 1153–1159.

https://ijrpr.com/uploads/V5ISSUE9/IJRPR33161.pdf

8. Sahoo, P., & Dash, R. K. (2012). Economic growth in South Asia: Role of infrastructure. Journal of International Development, 24(5), 665–686. https://doi.org/10.1002/jid.1765
9. Mishra, J., & Swaroop, A. (2017). Review of literature on rural road improvement. International Journal of Engineering and Applied Sciences, 4(12), 1–6. https://www.academia.edu/71662451/Review_of_Literature_on_Rural_Road_Improvement
10. Gupta, A. (2021). Heritage tourism and urban infrastructure in Jodhpur. Journal of Tourism and Hospitality Management, 9(2), 45–58.
11. Allport, R., & Anderson, G. (2011). Transport and poverty reduction: A review of the evidence. World Bank Transport Papers, TP-10.
12. Vandana, S., & Potter, R. B. (2008). Participatory planning and infrastructure development in India. Development in Practice, 18(2), 217–229.