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Transport Geography and Regional Connectivity: A Comparative Case Study of Dhar and Alirajpur Districts, Madhya Pradesh, India

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Abstract: This paper examines transport geography and its role in regional development in two adjacent districts of western Madhya Pradesh — Dhar and Alirajpur. Using district industrial profiles, census documents and recent transport project reports, the study compares road and rail availability, modal access, and recent investments (2010–2025). Results show Dhar has historically greater road network coverage and strategic industrial-logistics investment (e.g., Pithampur / Multi Modal Logistics Park initiatives), whereas Alirajpur has been transport-poor until recent railway link additions (rail station opened 2019). The analysis highlights how transport accessibility correlates with industrial opportunity, market access, and socio-economic indicators, and suggests targeted investment to reduce spatial inequality in connectivity.

Introduction - Transport geography explores the spatial distribution of transport networks, connectivity, and their socio-economic effects. In India, transport infrastructure has long been recognized as a backbone of economic growth and regional integration, with disparities in access shaping development outcomes. In Madhya Pradesh, western districts present contrasting transport endowments: Dhar (a larger district with historic road links and proximity to industrial zones) and Alirajpur (a tribal-majority, hilly, and previously transport-isolated region).

This paper compares these two districts to understand how transport infrastructure (roads, rail, and logistics investments) affects regional development paths. By examining both historical patterns and recent initiatives, the study highlights the significance of connectivity in bridging economic gaps between industrially advanced and socially marginalized regions.

Objectives:

1. Compare road and rail infrastructure endowments of Dhar and Alirajpur.
2. Identify recent transport investments and changes (2010–2025).
3. Analyze implications of transport patterns for regional development and policy.

Data & Methodology:

Data sources used:

1. District Industrial Profiles for Dhar and Alirajpur.
2. Census documents for demographic context.
3. Railway station opening details for Alirajpur (2019).
4. Recent logistics investment news in Dhar.

Methodology:

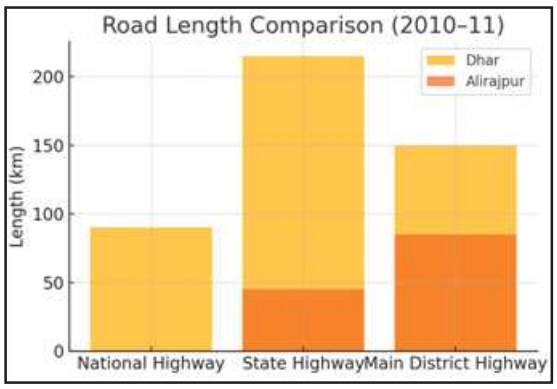
1. Comparative descriptive analysis of roads and rail.
2. Short trend synthesis combining baseline (2010–11) with later developments.
3. Implication discussion linking transport to socio-economic outcomes.

Transport Endowments: Key Comparative Data

Road Network Comparison (2010–11)

Metric	Dhar District (2010–11)	Alirajpur District (2010–11)
National Highway length (km)	90 km	Nil
State Highway length(km)	215 km	45 km
Main District Highway(km)	Data reported	85 km
Other roads	Substantial presence	Limited presence

Chart: Road Network Comparison



Analysis: Transport Geography Implications

Dhar's stronger road base and logistics investment position it for industrial growth. Its proximity to Pithampur—the "Detroit of India"—and Indore provides direct access to national highways, industrial corridors, and logistics parks. This connectivity has supported clusters in auto, pharmaceutical, and agro-processing sectors. Improved road density also enables smoother freight flows, reducing transport costs and enhancing competitiveness.

Alirajpur, by contrast, historically remained one of the most disconnected districts in Madhya Pradesh due to its hilly terrain, low state investment, and limited integration into regional trade. The absence of a national highway until recently restricted mobility, especially for agricultural producers and tribal communities. The inauguration of Alirajpur railway station in 2019 marked a turning point, offering a new linkage to Gujarat and western markets. However, without feeder roads, the rail advantage risks being underutilized, as first- and last-mile connectivity remains weak.

The contrasting cases illustrate a key principle of transport geography: infrastructure alone does not automatically guarantee development. It must align with regional economic structures, institutional support, and local social needs. While Dhar shows how transport-geography advantages reinforce industrial dynamism, Alirajpur reveals how poor connectivity entrenches marginalization, but also how new nodes of infrastructure can unlock latent potential if complemented by inclusive planning.

Recent Developments (2010–2025)

- **Dhar District:** The announcement of a Multi-Modal Logistics Park near Pithampur (2024) has the potential to transform the district into a logistics hub, integrating road, rail, and possibly air freight through Indore airport. Such facilities strengthen Dhar's comparative advantage and attract both domestic and export-oriented industries.
- **Alirajpur District:** The commissioning of rail connectivity has reduced travel time to major trade centers. There have also been targeted state schemes to improve rural road density, though coverage remains uneven. The challenge lies in aligning these investments with livelihood opportunities for tribal farmers, forest produce collectors, and small enterprises.

Policy Recommendations:

1. **Feeder-road investment for Alirajpur:** Building rural link roads and last-mile connections will determine whether the new railway benefits local producers or primarily serves long-distance freight.
2. **Leverage Dhar's logistics momentum for regional linkages:** Instead of reinforcing regional inequality, policymakers should design supply chains that extend Dhar's connectivity benefits to adjoining tribal and rural districts.
3. **Integrated multimodal planning:** Rail-road coordination, logistics hubs, and digital tracking systems can ensure seamless freight flows.
4. **Social infrastructure investment parallel to connectivity:** Roads and rails should be paired with investments in education, healthcare, and market facilities to ensure that mobility translates into human development.
5. **Monitoring and data collection for transport outcomes:** Establishing district-level transport observatories will provide evidence for adaptive planning and inclusive growth.

Conclusion: Dhar and Alirajpur illustrate two different transport-geography pathways. Dhar's stronger network supports logistics and industry, while Alirajpur's rail opening is a major step forward but requires complementary investments. Equitable regional development depends on balanced infrastructure and planning.

The comparative case study highlights that transport infrastructure is not merely a technical asset but a socio-spatial catalyst. It can reduce regional inequalities if strategically aligned with inclusive policies, or it can widen divides if concentrated only in already-advantaged areas.

Limitations and Further Research: District transport statistics are partly dated (2010–11 baseline). Future work should include:

1. Primary surveys of freight flows to measure real usage patterns.
2. Updated km-wise road and rail data for 2025.
3. Socio-economic outcome measures such as income growth, school access, and healthcare reach linked to transport corridors.
4. Comparative studies with other tribal-majority districts in central India to broaden insights.

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