# Spatial Impacts and Role Analysis of Long-Distance High-Speed Rail on Tourism Economic Linkages of Cities Along the Line: A Case Study of the Lanzhou-Xinjiang High-Speed Railway (Postprint)

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## Abstract

Supported by GIS technology and based on a tourism transportation accessibility perspective, a tourism economic connection model is constructed, and social network analysis methods are employed to determine the roles of cities along the corridor in the tourism economic connection network. The results indicate that the high-speed rail spatiotemporal compression effect has generally enhanced tourism transportation accessibility and tourism economic connections among cities along the corridor, though the magnitude of improvement exhibits spatial heterogeneity: cities on the eastern side of the corridor outperform those on the western side, and cities with better tourism economic foundations within each province outperform those with weaker foundations. The tourism network structure is becoming increasingly compact, inter-city tourism interactions and cooperation are growing more frequent, and regional tourism economic connections are demonstrating a coordinated development trend. Through in-depth analysis of the network roles of nine cities, recommendations are proposed for the tourism spatial development model of the Lanzhou-Xinjiang corridor: regions along the corridor should fully leverage the functions of core cities such as Urumqi and Lanzhou, simultaneously utilize the agglomeration and diffusion effects of sub-core cities like Jiuquan, capitalize on the bridging role of important tourism destinations including Jiayuguan, Zhangye, and Xining, and drive peripheral cities such as Turpan, Haidong, and Hami, thereby creating a "Tourism + High-speed Rail" Silk Road golden line in Northwest China.

## Full Text

# Spatial Effect of Long-Distance High-Speed Railway on Tourism Economic Linkages and Role Analysis of Cities Along the Railway: A Case Study of the Lanzhou-Xinjiang High-Speed Rail

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### Abstract

The Lanzhou-Xinjiang high-speed railway is one of the longest high-speed railways in the world, traversing several provinces in northwestern China. This study employs GIS-based inverse distance weighted difference techniques to measure the spatial evolution of urban tourism accessibility and tourism economic linkages along the corridor before and after the railway' s opening. The role of cities within the tourism economic network is analyzed using Ucinet 6.0 software. Results indicate that both urban tourism accessibility and economic linkages along the railway have improved, though the degree of enhancement varies spatially. Cities on the eastern side of the railway experienced greater improvements than those on the western side. At the provincial and regional level, cities with stronger tourism economic bases saw more significant accessibility gains. Moving forward, achieving coordinated regional tourism development while avoiding the marginalization of peripheral tourist cities will be critical. The Lanzhou-Xinjiang corridor should leverage Urumqi and Lanzhou as core cities, with Jiuquan functioning as a sub-core agglomeration and diffusion center. Meanwhile, key tourist destinations such as Jiayuguan, Zhangye, and Xining should serve as transfer and forwarding hubs to stimulate tourism development in marginal cities like Turpan, Haidong, and Kumul, thereby developing a "tourism + high-speed railway" Silk Road Golden Route in northwestern China. These findings provide a theoretical basis and decision-making reference for high-speed railway tourism development in the region.

**Keywords:** Lanzhou-Xinjiang High-Speed Railway; high-speed railway tourism; accessibility; tourism economic linkage; social network analysis

*Note: Figure translations are in progress. See original paper for figures.*