Analysis of Spatiotemporal Pattern Evolution and Influencing Factors of Basic Public Services Mismatch Degree in the Urumqi-Changji Region: Postprint

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Abstract

By conceptualizing basic public services as a livelihood resource, this study examines their allocation issues from a mismatch perspective, utilizing the entropy method and health distance model to analyze the spatiotemporal patterns of basic public service mismatch degree and its influencing factors in the Wuchang region from 2007 to 2016, thereby providing a decision-making basis for promoting the equalization of basic public services in the Wuchang region. The research findings reveal that the average mismatch degree of basic public services across the eight cities and counties in the Wuchang region gradually decreased from 0.759 in 2007 (classified as high mismatch) to 0.573 in 2016 (classified as low mismatch). In 2007, the proportion of cities and counties with high mismatch reached 87.5%; by 2016, the proportion of cities and counties with relatively high or high mismatch in basic public service allocation had declined to only 25%. Although the overall status of basic public services in each city and county improved, the proportion of cities and counties with mismatched basic public services remained as high as 75% in 2016, indicating that many cities and counties in the Wuchang region still suffer from uncoordinated basic public services. Temporally, the evolution of basic public service mismatch degree primarily experienced three stages: a high mismatch dominance stage (2007–2011), a mismatch degree decline transition stage (2012–2014), and a moderate mismatch dominance stage (2015–2016). Spatially, the basic public service mismatch degree evolved from balanced high mismatch to unbalanced moderate-low mismatch, exhibiting a "core and two wings" pattern. The "two wings" mostly remained in states of high or relatively high mismatch, while the "core" consistently maintained good or excellent status. In terms of changing trends, the mismatch degree gradually shifted from the "core" toward the "two wings", with cities and counties closer to the "core" demonstrating an earlier

decline in basic public service mismatch degree.

Full Text

Spatiotemporal Evolution and Influencing Factors of Basic Public Service Mismatch in the Urumqi-Changji Region

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Abstract

Basic public services are fundamental necessities for citizens' survival and development. As the core area of Xinjiang, China, and an important node along the Silk Road Economic Belt, the Urumqi-Changji region serves as a critical gateway for China' s western economic development and a window for foreign cultural exchange. Accelerating the construction of basic public services that align with regional socioeconomic development levels is crucial for promoting coordinated development in the Urumqi-Changji region and achieving the overarching goals of social stability and long-term peace in Xinjiang.

This study conceptualizes basic public services as living resources and examines their allocation challenges through a mismatch perspective, employing the entropy method and a healthy distance model to analyze the spatiotemporal evolution and influencing factors of basic public service mismatch in the Urumqi-Changji region from 2007 to 2016. The findings can provide a basis for further promoting the equalization of basic public services in the region.

The results show that the average degree of basic public service mismatch decreased significantly over the study period, from 0.759 (indicating a high mismatch) in 2007 to 0.573 (indicating a low mismatch) in 2016. In 2007, 87.5% of cities and counties exhibited high mismatch, whereas by 2016, only 25% of cities and counties had high basic public service levels but still suffered from higher mismatch. Overall, while the status of basic public services across cities and counties has improved, the proportion of mismatches remained as high as 75% in 2016, indicating that many areas still lack coordination in basic public service provision.

Temporally, the mismatch evolution can be divided into three phases: (1) a high-mismatch dominance stage (2007–2011) characterized by a high proportion of cities and counties with severe mismatch; (2) a mismatch decline stage (2012–2014) featuring a mixture of various mismatch statuses including high, higher, moderate, and low mismatch; and (3) a moderate-mismatch stage (2015–2016)

where moderately mismatched cities and counties constituted a relatively large proportion. While basic public service configuration has gradually improved, the overall mismatch situation remains concerning.

Spatially, the pattern shifted from a balanced high-mismatch distribution to an unbalanced low-to-medium mismatch distribution, gradually forming a "Bird" pattern. In this configuration, the "Wings" represent areas where basic public services predominantly suffer from high or higher mismatch, while the "Core" demonstrates good or excellent mismatch conditions. The mismatch degree transitions gradually from the "Core" to the "Wings," with areas closer to the "Core" experiencing earlier declines in mismatch.

Regarding influencing factors, key indicators include the proportion of general education schools, number of hospitals per 10,000 people, number of health technicians in health centers, per capita public vehicles, per capita natural gas supply, number of internet users per million people, and actual macro development conditions. These factors reflect that improvements in public service facilities are closely related to macro-level drivers of urbanization and economic development.

Keywords: Urumqi-Changji region; basic public services; mismatch; spatiotemporal pattern; influencing factors

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