

# Analysis of Obstacles and Measurement of the Development Level of New Urbanization in Sichuan Province

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**Abstract:** *Sichuan is situated in the heart of Southwest China. Speeding up the advancement of new urbanization in Sichuan is not merely a matter of local development; it also carries the significant responsibility of aligning with national strategies, overcoming the constraints of western development, and fostering shared prosperity. This paper introduces an evaluation index system that assesses the development level of new urbanization in Sichuan across five key dimensions: population growth, economic progress, social governance, public services, and ecological preservation. Furthermore, it employs an obstacle model to pinpoint the challenges hindering the progress of new urbanization in Sichuan, aiming to offer valuable insights for accelerating this transformative process.*

**Keywords:** The Emergence of New Urbanization, Horizontal measurement, Obstacles.

## 1. Introduction

Since the implementation of reform and opening-up policies, China's economy has experienced remarkable high-speed growth, accompanied by a significant elevation in the level of urbanization. The urbanization rate has surged from 17.9% in 1978 to 67% by 2024. As urban areas have expanded, their comprehensive strength has also seen a marked enhancement. Nevertheless, alongside the accelerated pace of urbanization, challenges have emerged, including inadequate urbanization momentum, a pronounced urban-rural dual structure, persistent issues in rural areas (often referred to as the "three rural problems"), and uneven regional development [1]-[3]. General Secretary Xi Jinping emphasized that urbanization represents the sole pathway to modernization, serves as a crucial solution to the challenges faced by agriculture, rural regions, and farmers, and provides robust support for fostering coordinated regional development. Since the 18th National Congress of the Communist Party of China, the Party Central Committee with Comrade Xi Jinping at its core has attached great importance to new-type urbanization, and has put forward a new-type urbanization strategy centered on people and oriented toward improving quality. The 20th National Congress of the Communist Party of China also emphasized: "Advance new-type urbanization centered on people and accelerate the urban integration of agricultural migrant population." The 2024 Central Economic Work Conference further pointed out: "Promote new-type urbanization and comprehensive rural revitalization in a coordinated manner, and facilitate integrated urban-rural development." It is thus clear that accelerating the process of new-type urbanization, effectively breaking down the urban-rural dual structure, focusing on resolving fundamental issues related to agriculture, rural areas, and farmers (the 'three rurals'), and promoting integrated urban-rural development have become key tasks and central priorities in the advancement of new-type urbanization.

Sichuan, located in the southwestern heartland of China, has long enjoyed the reputation of being a "Land of Abundance" and holds an important position in the country's overall development. As of 2024, Sichuan's permanent resident

population reached 83.64 million, with an urbanization rate of 60.1%, still lagging behind the national average of 67%, indicating relatively slow progress in urbanization. As a major province in terms of grain production, population, and economy, accelerating the development of new-type urbanization in Sichuan is not merely a regional development issue—it also bears the significant responsibility of serving national strategies, overcoming bottlenecks in western development, and achieving common prosperity. Against this backdrop, this paper takes Sichuan Province as the research subject, constructs an evaluation index system for the level of new-type urbanization based on Sichuan's actual development conditions, measures the current level of new-type urbanization in the province, and employs an obstacle degree model to identify key factors hindering its advancement. The findings aim to provide policy insights for accelerating the process of new-type urbanization in Sichuan.

## 2. Literature Review

Currently, academic research on new urbanization predominantly centers around three key areas. Firstly, it delves into the connotation, characteristics, and pathways of new urbanization, proposing specific implementation strategies concerning industry, resource allocation, population, systems, spatial organization, and ecological development [1]-[3]. Second, consider research examining the impact of new urbanization. Wang Xiaoyuan and Lai Yi (2025) discovered that expediting the advancement of new urbanization can effectively boost farmers' income [4]. Yang Lianna and Fang Juan (2025) discovered that new urbanization has the potential to enhance the technical sophistication of China's manufacturing exports via two key pathways: by bolstering the labor supply and leveraging the local market effect [5]. Yan Jiajia, Wang Jinglei, along with other researchers (2025), discovered that while the digital economy has substantially propelled the progress of new urbanization, it has proven to be unfavorable for the advancement of Ecological Urbanization [6]. The third area of focus is research centered on the measurement of new urbanization. For instance, Shen Dongli (2024) constructed an evaluation index system grounded in the five new

development paradigms: innovation, coordination, green growth, openness, and sharing [7]. Fan Cunliang and Hou Zhenxing (2024) developed an evaluation index system encompassing four key dimensions—population employment, economic development, ecological environment, and social development—to assess the high-quality development of new urbanization in Henan Province. However, as indicated by existing literature, current research on the development level of new urbanization remains relatively narrow in scope, with limited studies integrating both measurement and influencing factor analyses. Building on this gap, this paper employs the barrier city model to explore the influencing factors within the context of measuring the development level of new urbanization [8].

### 3. Construction of Index Systems and Research Methodologies

#### 3.1 Development of a Comprehensive Evaluation Index System for New Urbanization

Drawing upon the actual development landscape of Sichuan and adhering to the principles of systematization, scientificity, and operability, this paper employs the methodologies outlined by Chen Deng and Wang Yaowu (2022), as well as Liu Zhenzhen and Tang Bo (2025), to construct a comprehensive evaluation index system [9]-[10]. This system is designed to measure development across five key dimensions: population development, economic growth, social governance, public services, and ecological protection. The evaluation system for new-type urbanization consists of one objective level, five criterion-level dimensions, and multiple indicator-level variables with corresponding descriptions, attributes (positive “+” or negative “-”), and assigned weights.

At the objective level, the overall focus is on New-Type Urbanization Development Level. Under this, the first criterion is Population Development (12.71%), which includes three indicators: Population Size, measured by the natural population growth rate (positive attribute, weight: 4.76%); Population Structure, assessed by the ratio of urban to rural population (positive, 4.16%); Employment Structure, defined as the number of employees in secondary and tertiary industries divided by total employment (positive, 3.79%). The second criterion is Economic Development (22.63%), composed of five indicators: Economic Scale, represented by per capita GDP (positive, 5.78%); Industrial Structure, measured by the ratio of output value of the tertiary industry to that of the secondary industry (positive, 3.49%); Investment Scale, indicated by the growth rate of fixed asset investment (positive, 5.01%); Income Structure, calculated as the per capita disposable income of urban residents divided by that of rural residents (negative attribute, meaning lower disparity is better, 4.20%); Urban Construction, reflected by the urbanization rate (positive, 4.15%). The third dimension is Social Governance (8.95%), including: Public Security, evaluated by the number of public security cases handled (negative, higher numbers indicate worse performance, 6.70%); Litigation Cases, measured by the number of filed lawsuits (negative, 2.25%). The fourth criterion is Public Services (27.43%), covering five indicators: Education Investment, defined as education expenditure as a share of

general public budget expenditure (positive, 8.06%); Medical Development, indicated by the number of hospital beds (positive, 4.28%); Cultural Development, measured by radio broadcast coverage rate (positive, 7.25%); Transportation Infrastructure, represented by the length of expressways (positive, 4.67%); Social Security, expressed as expenditure on social security and employment relative to general public budget expenditure (positive, 3.17%). Finally, the fifth criterion is Ecological Protection (28.28%), consisting of five indicators: Fertilizer Use, measured by the amount of agricultural fertilizer used (negative, 6.97%); Cultivated Land Area, referring to the actual cultivated land area (positive, 3.00%); Wastewater Pollution, indicated by total wastewater discharge (negative, 7.29%); Exhaust Emissions, measured by sulfur dioxide (SO<sub>2</sub>) emissions (negative, 2.99%); Environmental Management, represented by total investment in environmental pollution control (positive, 8.03%). This comprehensive framework evaluates new-type urbanization through balanced consideration of population, economy, governance, public services, and ecological sustainability, with each indicator contributing according to its assigned weight and directionality.

#### 3.2 Research Methodology

There exist two primary approaches for assessing an evaluation index system: the subjective weighting method and the objective weighting method. The fundamental principle of the subjective weighting method is to assign greater weights to indicators deemed more significant, with experts determining the weight of each indicator based on their experience and the specific context. This approach mainly encompasses methods such as expert consultation and the analytic hierarchy process. Conversely, the objective weighting method relies on specific indicator data to calculate weights, employing techniques such as the variation coefficient method, entropy weight method, and principal component analysis. To minimize the impact of subjective factors and accurately reflect objective realities, this paper employs the entropy weight method for comprehensive evaluation.

The Entropy Weight Method is an objective weighting approach grounded in information entropy theory. Information entropy serves as a metric to gauge the dispersion level of each index's data within the system. A smaller entropy value indicates a greater degree of variation in the index across samples, implying that it offers more information and thus should be assigned a higher weight. Conversely, a larger entropy value signifies less change in the index, a weaker differentiating impact on evaluation outcomes, and consequently, a lower weight. The Entropy Weight Method effectively circumvents subjective randomness, ensuring that the evaluation results align more closely with the actual characteristics of the data.

To gain a deeper understanding of the hurdles impeding the advancement of new urbanization in Sichuan Province, this paper employs the obstacle degree model for analysis. This model is instrumental in pinpointing the critical factors that constrain the enhancement of regional development standards. Through the computation of the obstacle degree for each indicator, we can quantitatively assess the extent to which

different indicators impede comprehensive development, thereby identifying the primary areas that are hindering progress.

The obstacle degree is typically determined by two key factors: the gap degree of the indicator, which represents the discrepancy between the target value and the actual value, and its respective weight. A higher obstacle degree indicates a more pronounced restrictive impact of the indicator on overall development. The application of this model facilitates the precise execution of policies and offers a scientific foundation for devising optimization strategies.

#### 4. Measurement and Analysis of the Development Level of Type I Urbanization

Overall, the development level of new-type urbanization in Sichuan has shown a steady upward trend. The index of new-type urbanization rose from 0.22 in 2014 to 0.75 in 2023, an increase of approximately 3.4 times. In terms of trends, the growth of the new-type urbanization index was relatively slow between 2015 and 2018, but significantly accelerated from 2018 to 2023. A possible explanation is that after the 18th National Congress of the Communist Party of China, the Party Central Committee with Comrade Xi Jinping at its core has placed increasing emphasis on integrated urban-rural development and coordinated regional development. It proposed and implemented a people-centered, quality-oriented strategy for new-type urbanization. Since the implementation of such a strategy requires a certain time cycle, its effects began to become evident after 2018.

Vertically, the population development index showed an upward trend between 2014 and 2019, but fluctuated after 2020. The economic development index increased steadily overall, with an average annual growth rate of 13.36%. The social governance development index experienced significant fluctuations. The public services development index demonstrated a steady upward trend and recorded the fastest growth, with an average annual growth rate of 23.86%. The ecological protection development index grew at an average annual rate of 16.77%, but also exhibited notable fluctuations, indicating a need to strengthen environmental protection and ecological management. From a temporal perspective, before 2019, the population development index was relatively higher compared to other indices; however, after 2020, the impact and effectiveness of social governance became more prominent.

In 2014, the six major factors hindering new-type urbanization development in Sichuan were environmental management, cultural development, fertilizer use, economic scale, education investment, and transportation infrastructure. In 2023, the six main constraining factors shifted to education investment, wastewater pollution, investment scale, population size, cultivated land area, and environmental management. Furthermore, as shown in the table, over the past decade, environmental management and education investment have remained key obstacles to new-type urbanization in Sichuan. Therefore, Sichuan still needs to make sustained efforts in improving environmental governance and increasing education investment in the future.

#### 5. Conclusions and Recommendations

Based on the above analysis, this paper draws the following conclusions:

**Significant development achievements.** The overall level of new-type urbanization in Sichuan has shown a clear upward trend, with the development index rising from 0.22 in 2014 to 0.75 in 2023—an increase of approximately 3.4 times—indicating remarkable progress.

**Divergent structural characteristics.** Public services and ecological protection have emerged as the main drivers of growth. Among them, the public services development index recorded an average annual growth rate of 23.86%, while the ecological protection development index grew at an average annual rate of 16.77%, making these two dimensions the fastest-growing aspects of urbanization.

**Persistent constraining factors.** From the perspective of obstacles, environmental governance and education investment have remained the primary constraints on new-type urbanization in Sichuan over the past decade.

**Recommendations:** Establish a long-term mechanism for environmental governance and implement the concept of green development. On one hand, strengthen environmental management by focusing on the control of exhaust gas and wastewater emissions. Enhance environmental regulations and raise market entry thresholds for high-pollution, high-consumption, and high-emission (“three-high”) industries. On the other hand, promote innovation, application, and widespread adoption of green technologies to support sustainable industrial transformation and ecological progress. Optimize the allocation of educational resources to promote high-quality and equitable education development. First, increase the proportion of public spending on education, with targeted investment directed toward rural and remote areas to improve access to quality educational resources. This will help ensure that children from disadvantaged families have equal opportunities to receive education. Second, implement free education policies in rural and remote regions to enhance overall literacy and educational attainment, thereby narrowing the urban-rural gap in education and fostering more inclusive social development.

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