

Measurement of Development Level and Decomposition of Regional Differences of Rural Revitalization in China

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Abstract

A rural revitalization index system that based on the connotation of rural revitalization was constructed in this paper, and as a result the development level of rural revitalization in different regions in 2020 is measured. By using the Dagum Gini index, the development differences and sources of rural revitalization are compared in each region. It is found that: the development level of rural revitalization in China is low and the development differences between regions are large; The regional differences in rural revitalization development come mainly from inter-regional differences.

Keywords

Rural Revitalization; Dagum Gini Coefficient; Indicator System.

1. Introduction

With the accelerated urbanization process, capital, manpower, land and other factors are gathering in the cities, and the vast number of rural villages are decaying, and the problems of hollowing out of the countryside and aging of the population have become noticeable. Resolving the "agriculture, the countryside and farmer-related issues" is the top priority for China, and the comprehensive realization of rural revitalization is the goal of the next 100 years. Accordingly, it is necessary to scientifically design an evaluation system for rural revitalization to measure the level of rural revitalization in different provinces, so as to recognize the problems and shortcomings of rural revitalization in different provinces and help them break through bottlenecks and achieve high-quality development. With the advancement of urbanization, production factors such as capital and human resources are concentrated in cities, causing hollowing out and aging problems in rural areas and deterioration of rural production and living environment. The unbalanced development of urban and rural areas and the insufficient development of rural areas are critical factors restricting China's economic development at this stage. The comprehensive realization of rural revitalization is an important breakthrough to resolve this contradiction and a necessary way to achieve agricultural modernization. Therefore, it is important to construct an index system to objectively evaluate the development level of rural revitalization in China, and to clarify the differences and sources of the development level of rural revitalization in different regions in order to comprehensively promote rural revitalization to achieve common prosperity.

In recent years, many scholars have conducted multi-dimensional research on rural revitalization. Chinese scholars have accumulated a lot of theoretical researches on the connotation, policy interpretation and realization path of rural revitalization. Zhu Jinfang clarified that the path to realize rural revitalization should rely on endogenous power, and the government should play a leading role and fully mobilize farmers' enthusiasm[1]; Huang Zuhui explained the connotation of rural revitalization and clarified the logical relationship between rural revitalization strategy and new urbanization strategy[2]. Meanwhile, domestic scholars have conducted quantitative research on rural revitalization. Lu Fengying used the entropy value method to measure the development level of China's provincial rural revitalization from

2013 to 2019[3]. Zhu Zhichuan and Liu Bo used kernel density analysis, Markov chain model and Dagum Gini coefficient decomposition to investigate the dynamic evolution of the level of synchronous development and regional differences among regions in depth. The empirical results show that the overall level of synchronous development in China has been improving year by year, and most regions show year by year growth in their development levels.[4] Tian Qinggang, Che Sifang et al. accurately measured and evaluated the development level of rural revitalization in Chongqing using the improved entropy weight method using the data of Chongqing city from 2015-2019[5].

2. Measurements of Rural Revitalization Index System: Theoretical Basis, Construction and Methods

2.1. Theoretical Basis for the Construction of Rural Revitalization Index System

In the selection of indicators, based on the actual development of China's economy, this paper follows the principles of scientificity, comparability and operability, and mainly focuses on five dimensions of "prosperous industry, ecological livability, civilized countryside, effective governance and prosperous living".

"Prosperous industry" is the primary task of rural revitalization strategy and the core dynamic energy of high-quality economic development. To promote the rural revitalization strategy, agricultural supply-side structural reform and agricultural transformation and development should be unswervingly emphasized, so that to promote high-quality agricultural development, enhance the comprehensive efficiency of agriculture, and take the road of agricultural modernization.

"Ecological livability" is a key requirement of rural revitalization strategies. The ecological environment in China has been damaged, and the problem of dirty, disorderly and poor rural environment is prominent. To promote the rural revitalization strategy, it is required to adhere to green development, comprehensively improve the quality of rural habitat and perfect the ecosystem protection system, so that the rural living environment can be steadily improved.

"Civilized countryside" is an important push to promote the revitalization of the countryside. Good rural customs are the cultural carrier for promoting rural development, which is conducive to creating a harmonious social environment. The in-depth excavation of local characteristic culture makes excellent traditional civilization rooted in the countryside and promotes the construction of rural spiritual civilization. At the same time, increase investment in the public cultural system in the countryside to enrich the lives of the villagers.

"Effective governance" is a solid foundation for the orderly promotion of rural revitalization initiatives. In the process of promoting rural revitalization, full attention should be paid to the combination of autonomy, moral governance and the rule of law. In addition, it is of great importance to establish a sound rural governance system and to improve the level of rural governance modernization.

"prosperous living" is the ultimate goal of rural revitalization. Rural revitalization emphasizes the need to make farmers the center and focus of a better life in the countryside, so that farmers can participate in the process of rural economic construction, upgrade rural infrastructure, optimize rural public services and create a better rural life.

2.2. Construction of Rural Revitalization Index System and Data Sources

The rural revitalization index system is constructed around the five dimensions of "prosperous industry, ecological livability, civilized countryside, effective governance and prosperous living". Based on this basis, 11 secondary indicators and 28 tertiary indicators are proposed based on the actual situation in China.

There are five three-level indicators to demonstrate "prosperous industry", among which unit area grain output, total output value of agriculture, forestry, animal husbandry and fishery, and irrigated arable land reflect the comprehensive efficiency of agriculture; The total power per capita of agricultural machinery reflects the degree of agricultural modernization; The proportion of the added value of the primary industry to the total regional output value reflects the level of integration of primary, secondary and tertiary industries.

Six three-level indicators are selected to represent "ecological livability", among which fertilizer use per unit arable land area, fertilizer use per unit arable land area and forest coverage rate reflect rural ecological environmental protection; The water supply penetration rate, the gas penetration rate and the proportion of administrative villages with centralized water supply reflect the optimization of the rural environment.

Five three-level indicators are selected to represent "civilized countryside", among which the proportion of education, culture and entertainment consumption to consumption expenditure and rural employment rate reflect the creation of civilization; the radio and TV coverage rate, the number of village health room personnel in 1,000 people and the number of cultural stations in 10,000 towns reflect the construction of rural infrastructure.

Seven three-level indicators are selected to represent "effective governance ", among which agricultural labor productivity, the proportion of agricultural, forestry and water expenditures to general fiscal expenditures, the proportion of village committee members to village population, and the proportion of national rural governance model villages reflect governance efficiency, and the average standard of rural residents' minimum living security, the proportion of rural minimum living security recipients, and the proportion of rural special hardship cases reflect the level of rural social security.

Five three-level indicators are selected to represent "prosperous living", among which the per capita disposable income of rural residents and the ratio of urban and rural residents' income reflect the income status of rural residents; The Engel coefficient of rural residents, per capita consumption of rural residents and total investment in rural fixed assets reflect the degree of improvement in the living conditions of rural residents.

The data in this paper comes from the China Statistical Yearbook, China Rural Statistical Yearbook, China Social Statistical Yearbook, etc.

2.3. Comparative Approach to Rural Revitalization Differences

This paper uses the Dagum Gini coefficient decomposition method to measure the overall differences in the level of rural revitalization, intra-regional differences, the net contribution of inter-regional differences, and inter-regional hypervariable density, aiming to reveal the magnitude of regional differences in the level of rural revitalization and their sources.

3. Analysis of the Results of the Level of Rural Revitalization

The results of the development level of rural revitalization in China are shown in Table 2, and the following three conclusions are obtained after analysis.

The development level of rural revitalization in China is low and uneven. The average value of the comprehensive index of rural revitalization of 31 provinces in China in 2020 is 0.3070, and the median value is 0.3138, with 16 provinces having scores above the average. Among the 31 provinces, the province with the highest comprehensive score for rural revitalization development is Jiangsu with 0.5218, and the province with the lowest comprehensive score is Liaoning province with 0.2125. The highest score is 2.46 times the lowest score, indicating that the unbalanced development of rural revitalization is prominent in China.

The development level of rural revitalization in China shows regional differences. The development level of rural revitalization among regions in China is ranked in descending order

according to the scores of eastern region (0.3571), central region (0.3120), western region (0.2831) and northeastern region (0.2584). Among them, the eastern region occupies 6 provinces in the top 10 provinces of the country, and the western region occupies 7 provinces in the bottom 10 provinces of the country, which shows obvious regional differences.

The development level of rural revitalization of each region is correlated with its economic development level. From the results of the comprehensive score in Table 2, it can be seen that the comprehensive score of rural revitalization development level in economically developed regions is also higher, such as Jiangsu Province and Zhejiang Province; The comprehensive score of the level of rural revitalization development in regions with less economic development, such as Gansu Province and Qinghai Province, is relatively lower. This indicates that urban development has an obvious driving effect on rural revitalization, and the coordinated development of urban and rural areas should be included in the consideration of rural revitalization policy.

Table 1. Overall score and sub-score of the development level of rural revitalization by regions in China in 2020

| | Overall Score | Industrial prosperity | Ecological Livability | Countryside Civilization | Effective governance | Living well |
|------------------|---------------|-----------------------|-----------------------|--------------------------|----------------------|-------------|
| National | 0.3070 | 0.3929 | 0.3262 | 0.2162 | 0.2343 | 0.3651 |
| Eastern Region | 0.3571 | 0.3584 | 0.5117 | 0.1319 | 0.2070 | 0.5112 |
| Central Region | 0.3120 | 0.5005 | 0.3098 | 0.1908 | 0.1936 | 0.3266 |
| Western Region | 0.2832 | 0.3356 | 0.2021 | 0.3213 | 0.2827 | 0.2577 |
| Northeast Region | 0.2584 | 0.5144 | 0.1336 | 0.1902 | 0.2380 | 0.2690 |

4. Analysis of the Difference in the Development Level of Rural Revitalization

The overall Gini coefficient of rural revitalization in China is 0.1366, the coefficient of variation within subgroups is 0.0318, the contribution of variation within subgroups is 23.272%, the contribution of variation between subgroups is 0.08185, the contribution of variation between subgroups is 59.9082%; The contribution of super-variable density is 0.0229.

The overall Gini coefficient is 0.13663 and the contribution rate of super-variable density is 16.8198%. The overall gap in the development level of rural revitalization in China is mainly due to the difference in development levels between regions.

In terms of the intra-regional differences, the intra-regional difference in the eastern region is 0.1069, the intra-regional difference in the central region is 0.0864, the intra-regional difference in the western region is 0.1085, and the intra-regional difference in the northeastern region is 0.1030, which shows that the internal difference in the development level of rural revitalization in the western region is the largest.

In terms to the inter-regional differences, the difference value of rural development level between central and eastern regions is 0.1315, that between eastern and western regions is 0.1764, that between eastern and northeastern regions is 0.2079, that between western and central regions is 0.1124, that between northeastern and central regions is 0.1321. It can be seen that the difference in the development level of regional rural revitalization between the northeastern region and the eastern region is the largest.

In terms to the source and contribution of regional differences, the contribution rate of inter-regional differences reaches 59.9082%, and inter-regional differences are the most important factors leading to regional differences in rural revitalization. The factors leading to inter-regional differences are mainly based on the following reasons: first, resources. The innate difference in resource endowment is the fundamental reason for the difference in rural revitalization development. Secondly, human resources. Rural development cannot be achieved without the support of human resources. The eastern region is economically developed and attracts a large influx of population with abundant human resources, while other regions are facing the dilemma of population loss. In addition, financial and fiscal support. The financial strength of the eastern region is strong and the infrastructure is perfect, which provides strong support for rural revitalization. The profit-seeking nature of capital determines that capital will flow to the developed eastern region, thus promoting the development of the eastern region.

5. Recommendation

Give full play to the enthusiasm of farmers. Talent is the key to rural revitalization, and the endogenous motivation of farmers should be fully stimulated. Carefully understand farmers' demands and listen to their opinions. With the interest-driven mechanism such as entrepreneurship fund, activate the motivation of returning to the countryside for entrepreneurship and employment, and fully explore and cultivate rural talents.

Fully activate land elements. Improve rural land property rights transfer system, release land management rights, revitalize collective construction land assets and deepen the reform of residential base system.

Fully activate capital elements. Increase financial and taxation support, establish an effective incentive mechanism for social capital, and stimulate the enthusiasm of social capital and the financial system to support rural revitalization.

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