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Research on the Measurement of China's Urban-rural Integration Development Level

Wang Xiaodan

School of Economics and Management, Xidian University
798067286[at]qq.com

Abstract: ***This paper takes China's urban-rural integration development as the main line, constructs an urban-rural integration development index system to measure the urban-rural integration development index, and tests the spatial autocorrelation of the calculation results to analyze the temporal evolution and spatial distribution characteristics of China's urban-rural integration development from 2008 to 2018 , Draw the conclusion: First, although the development level of my country's urban-rural integration fluctuates, it still shows a growth trend as a whole.In terms of different regions, there are obvious regional differences in the level of urban-rural integration development.Second, there is an obvious positive spatial correlation in the level of urban-rural integration in my country, which shows that the regional differences of urban-rural integration are not generated randomly, but are caused by the positive spatial correlation.Implementing policy support, standardizing government behavior, optimizing fiscalexpenditures, and improving the inclusive financial system can effectively promote urban-rural integration.***

Keywords: Urban-rural integration, Index system, Spatial measurement, policy suggestion

1. Introduction

The urban-rural integration was first proposed by Engels, who believed that the urban-rural integration is the disappearance of the difference between the workers and peasants, and the disappearance of the imbalance between urban and rural areas.

[1] Urban-rural integration is an advanced stage of the development of urban-rural relations, [2]and there is no obvious urban-rural boundary at this stage. [3] Urban-rural integration is the process of promoting the organic unification of the economy, social life, and ecological environment between urban and rural areas based on the development of productive forces,[4] enable the free flow of elements between urban and rural areas, and the integrated development of industry to achieve a state of coordinated development of lifestyle and living standards.[5] Urban-rural integration is essentially a process of complementary and coordinated development of urban and rural advantages. Therefore, the integrated development of urban and rural areas cannot only rely on the one-way drive of the city, but requires the two-way joint promotion of urban and rural areas.

At the same time, in understanding the connotation of urban-rural integration, the following points should be grasped, the following key points should be grasped: First, urban-rural integration means that cities and villages have equal status in economic development, and the two are only different in function and no difference in status.Second, [6] From the perspective of development economics theory, the key to urban-rural integration is the two-way flow of urban and rural factors, and the heterogeneous dual structure becomes a homogeneous unary structure.Third, the system theory believes that the concrete manifestation of urban-rural integration is the multi-dimensional "two-way interaction" and "mutual integration" of population, space, society, and environment.Fourth, from the perspective of economic geography, only by considering the spatial correlation of urban-rural integration can we objectively explain and reflect the true face of urban-rural integration.

In summary, the integration of urban and rural areas is an advanced stage of the relationship between urban and rural areas. To achieve the integrated development of urban and rural production factors, public services, living standards, economy, and ecological environment, the core is to achieve symbiosis and co-prosperity on the basis of equality.

Based on the combing of relevant domestic and foreign literature, this paper constructs an urban-rural integration development level indicator system to measure the urban-rural integration development level of China's 31 provinces in the past 11 years, and further uses the Moran index to test the spatial autocorrelation of China's urban-rural integration development. Finally, Analyze the temporal evolution and spatial distribution characteristics of China's urban-rural integration development level, and put forward policy recommendations to promote the development of urban-rural integration, in order to provide theoretical and practical guidance for promoting the development of China's urban-rural integration and realizing rural revitalization.

At the same time, the theoretical significance of this article is to enrich the theoretical basis of urban-rural integrated development, and to introduce spatial measurement to consider the level of urban-rural integrated development from the geographical dimension is more realistic. The practical significance is reflected in the calculation of the national urban-rural integrated development level, in-depth analysis of the temporal evolution and spatial distribution characteristics of urban-rural integrated development, and relevant policy recommendations, which will help narrow the urban-rural gap and accelerate the urban-rural integrated

development.

2. Literature Survey

In fact, since the 21st century, the Chinese government has been paying attention to and addressing the long-standing urban-biased development strategy. In 2002, the 16th National Congress of the Communist Party of China proposed "balancing economic and social development between urban and rural" and in 2012, the 18th National Congress of the Communist Party of China proposed "promotion. Urban-rural integration", the 19th National Congress of the Communist Party of China in 2017 clearly proposed a series of policies such as "urban-rural integration", and the No. 1 Central Document in 2021 proposed to accelerate the development of urban-rural integration in the county and promote a new type of urbanization centered on people. The context of this policy evolution reflects the Chinese government's continuous deepening of the understanding of urban-rural relations, and academic research on urban-rural relations has gradually shifted from urban-rural antagonism and urban-rural division to urban-rural integration.

Since the founding of the People's Republic of China, the development of China's urban-rural relationship has gone through four stages: the formation and consolidation of the urban-rural dual system from 1949 to 1978; the segmentation and adjustment stage of the urban-rural dual structure from 1978 to 2002; the urban-rural integrated development stage from 2002 to 2017; 2017 Up to now, the development stage of the comprehensive integration of urban and rural areas. With the promulgation of a series of relevant policies by the party and the state, the urban and rural structure has been continuously optimized.

3. Problem Definition

At present, the main contradiction in our society has been transformed into the contradiction between the people's growing needs for a better life and the unbalanced and insufficient development. The most intuitive manifestation of the unbalanced and insufficient development is the unbalanced urban and rural development and the unbalanced regional development. To this end, the party put forward a series of major strategic deployments on the integration of urban and rural development at the 19th National Congress of the Communist Party of China. The No. 1 Central Document in 2021 proposes to accelerate the development of urban-rural integration within the county, promote a new type of urbanization centered on people, comprehensively promote rural revitalization, and accelerate agricultural and rural modernization. Urban-rural integration has always been a national development goal. Therefore, in order to completely solve the problem of urban-rural development imbalance and realize urban-rural integration and symbiosis, it is necessary to conduct research on the subject of urban-rural integration development. In this way, we can reduce the urban-rural gap, promote urban-rural integration, and realize rural revitalization.

4. Methodology/Approach

In order to solve the uneven development of urban and rural areas and realize the integration of urban and rural areas.This paper measures the level of urban-rural integration development by constructing an urban-rural integration development index system, and uses the Moran index to test the spatial autocorrelation of the level of urban-rural integration development. Finally, it analyzes the temporal evolution and spatial distribution characteristics of urban-rural integration development and proposes relevant policy recommendations.Provide a theoretical basis for realizing the integration of urban and rural development.

This article mainly uses the following two research methods. First, the literature research method. Read domestic and foreign literature on the integration of urban and rural development. Understand the connotation, development process, measurement, path and other aspects of the research progress of the integration of urban and rural development.Classify the relevant literature, and clarify the innovative aspects of the research on the integration of urban and rural development. And then lay the foundation for constructing the overall framework of the thesis. Second, the empirical research method. Collect and find relevant index data to measure the development level of our country's urban-rural integration. And use the spatial measurement method to test the spatial autocorrelation of China's urban-rural integration development level.

5. Results & Discussion

Table 1: Measured values of urban-rural integrated development in 31 provinces from 2008 to 2018

region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Beijing	0.434	0.445	0.447	0.427	0.431	0.410	0.420	0.408	0.403	0.412	0.416
Tianjin	0.375	0.370	0.362	0.381	0.386	0.393	0.405	0.413	0.405	0.429	0.406
Hebei	0.321	0.313	0.323	0.342	0.358	0.362	0.377	0.366	0.334	0.346	0.350
Shanxi	0.311	0.293	0.262	0.269	0.294	0.314	0.295	0.298	0.282	0.291	0.310
InnerMongolia	0.222	0.207	0.204	0.228	0.226	0.265	0.285	0.267	0.266	0.276	0.276
Liaoning	0.268	0.259	0.257	0.267	0.281	0.284	0.291	0.288	0.287	0.284	0.279
Jilin	0.215	0.206	0.206	0.222	0.236	0.230	0.240	0.248	0.248	0.246	0.261
Heilongjiang	0.219	0.209	0.200	0.210	0.221	0.237	0.233	0.235	0.237	0.230	0.232
Shanghai	0.436	0.459	0.462	0.458	0.476	0.474	0.476	0.468	0.484	0.479	0.523
Jiangsu	0.366	0.363	0.375	0.391	0.410	0.390	0.389	0.390	0.407	0.401	0.397

Zhejiang	0.378	0.370	0.377	0.384	0.399	0.387	0.389	0.378	0.374	0.372	0.363
Anhui	0.284	0.284	0.286	0.319	0.338	0.338	0.333	0.327	0.344	0.334	0.341
Fujian	0.303	0.299	0.304	0.309	0.330	0.327	0.339	0.341	0.328	0.327	0.333
Jiangxi	0.273	0.261	0.276	0.300	0.318	0.284	0.285	0.291	0.295	0.306	0.315
Shandong	0.405	0.398	0.401	0.424	0.442	0.406	0.423	0.413	0.404	0.409	0.412
Henan	0.311	0.306	0.310	0.335	0.352	0.354	0.364	0.352	0.354	0.359	0.364
Hubei	0.272	0.275	0.273	0.275	0.305	0.304	0.314	0.308	0.321	0.322	0.328
Hunan	0.273	0.271	0.274	0.289	0.322	0.324	0.329	0.331	0.330	0.336	0.343
Guangdong	0.382	0.369	0.383	0.408	0.443	0.360	0.378	0.356	0.363	0.371	0.389
Guangxi	0.224	0.217	0.217	0.238	0.259	0.263	0.278	0.287	0.283	0.286	0.293
Hainan	0.213	0.211	0.220	0.250	0.271	0.272	0.279	0.263	0.262	0.272	0.272
Chongqing	0.241	0.241	0.250	0.270	0.290	0.279	0.281	0.281	0.286	0.293	0.309
Sichuan	0.233	0.234	0.239	0.270	0.289	0.270	0.273	0.278	0.281	0.284	0.288
Guizhou	0.170	0.168	0.177	0.204	0.230	0.263	0.267	0.270	0.273	0.279	0.290
Yunnan	0.194	0.186	0.194	0.205	0.227	0.233	0.244	0.246	0.250	0.255	0.259
Xizang	0.157	0.176	0.163	0.185	0.201	0.237	0.237	0.250	0.233	0.242	0.254
Shaanxi	0.240	0.255	0.280	0.283	0.303	0.301	0.288	0.290	0.284	0.290	0.291
Gansu	0.212	0.206	0.204	0.204	0.247	0.251	0.257	0.234	0.249	0.256	0.252
Qinghai	0.208	0.208	0.178	0.213	0.226	0.224	0.256	0.243	0.272	0.241	0.264
Ningxia	0.278	0.225	0.236	0.227	0.244	0.302	0.350	0.278	0.322	0.274	0.306
Xinjiang	0.213	0.225	0.204	0.221	0.222	0.247	0.260	0.242	0.243	0.245	0.251
nationwide	0.278	0.275	0.276	0.291	0.309	0.309	0.317	0.311	0.313	0.314	0.321
east	0.353	0.350	0.356	0.367	0.384	0.370	0.379	0.371	0.368	0.373	0.376
midland	0.270	0.263	0.261	0.277	0.298	0.298	0.299	0.299	0.301	0.303	0.312
west	0.216	0.212	0.212	0.229	0.247	0.261	0.273	0.264	0.270	0.268	0.278

The entropy weight method[7]is used to evaluate the level of urban-rural integration development on Matlab software. First, the urban-rural integration development of 31 provinces across the country from 2008 to 2018 is measured, and the overall urban-rural integration development measurement value is obtained, as shown in Table 1.

Figure 1 compares the development level of urban-rural integration across the country, east, central, and west[8]. It can be seen that the development level of urban-rural integration presents obvious regional differences, showing that the eastern, central, and western regions are decreasing in sequence, and the level of urban-rural integration in the eastern region is much higher than that of the central and western regions. On the whole, the three regions have shown a gentle growth trend. The eastern region increased from 0.353 in 2008 to 0.376 in 2018, an increase of 6.52%. The central region increased from 0.270 in 2008 to 0.312 in 2018, an increase of 15.6%. The western region increased from 0.216 in 2008 to 0.278 in 2018, an increase of 28.7%.

From 2008 to 2018, Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Shandong, Henan, and Guangdong have always been in the top 10 in terms of urban-rural integration development level, and the urban-rural integration measures are all above 0.306, of which the urban-rural integration measures of Shanghai in the past 11 years are all greater than 0.47. In the eastern region, except for Liaoning and Hainan, the urban-rural integration development level in the 11 years has exceeded the national average. In the central region, only Henan and Anhui's urban-rural integration development level over the past 11 years has exceeded the national average. Among them, Heilongjiang has the lowest level, fluctuating around 0.224. The urban-rural integration development level of all provinces in the western region is basically below the national average.[9]In general, although the level of urban-rural integrated development in China fluctuated from 2008 to 2018, it still showed an overall growth trend, increasing from 0.278 in 2008 to 0.321 in 2018, with an increase of 15.47%. However, the overall level is still low, and there is still a long way to go to achieve coordinated development among regions.

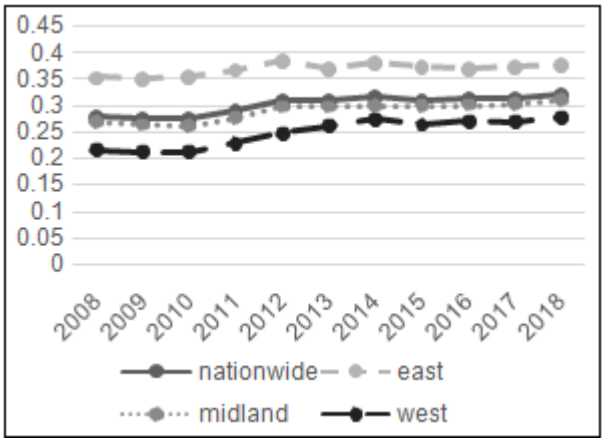

Figure 1: Comparison of urban-rural integration development levels across the country, eastern, central, and western regions

Table 2: Moran's I index and P value of urban-rural integration

Urban-rural integration				
year	Moran's I	E(I)	sd(I)	P
2008	0.481	-0.033	0.109	0.000***
2009	0.464	-0.033	0.108	0.000***

2010	0.478	-0.033	0.109	0.000***
2011	0.504	-0.033	0.109	0.000***
2012	0.499	-0.033	0.109	0.000***
2013	0.524	-0.033	0.108	0.000***
2014	0.478	-0.033	0.109	0.000***
2015	0.522	-0.033	0.109	0.000***
2016	0.480	-0.033	0.108	0.000***
2017	0.488	-0.033	0.108	0.000***
2018	0.437	-0.033	0.105	0.000***

Note: The superscripts ***, **, and * are significant at the level of 0.01, 0.05, and 0.1, respectively

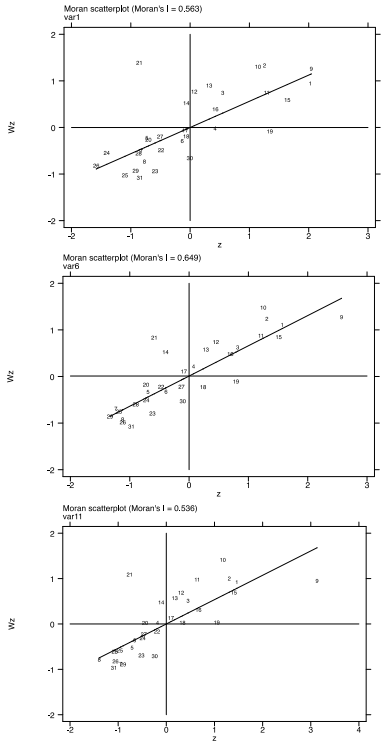

Figure 2: Moran scatter plot of urban-rural integration development in 2008, 2013, and 2018

Using Stata software to measure the Moran's I index of the level of urban-rural integration development, the results are shown in Table 2.

The Moran's I index of the development level of urban-rural integration in Table 2 is positive. From 2008 to 2018, our country's urban-rural integration passed the 1% significance test[10], indicating that there is a spatial correlation in the development level of urban-rural integration in our country, and integration of regional differences between urban and rural areas and not random, is because of the space is relative, showing spatial dependence on the overall situation, its spatial characteristics are: cities with a higher level of urban-rural integration and development show a spatial distribution structure adjacent to each other.

The results of global Moran index analysis show that there is spatial correlation of urban-rural integrated development on the whole, but the particularity of the local area is ignored, so it is difficult to clarify the location of spatial correlation of each province. Therefore, the Moran scatter chart is further used to analyze the local spatial characteristics of urban-rural integrated development, and the results are shown in Figure 2.It can be seen that the Moran Sperm plot of urban-rural integrated development in a representative year presents two agglomeration areas that are positively correlated, namely, high-high agglomeration in the first quadrant and low-low agglomeration in the third quadrant. In other words, provinces with a higher level of urban-rural integrated development are adjacent to higher provinces, while provinces with a lower level of development are adjacent to lower provinces.By above knowable, 2008-2018 in 31 provinces are mostly located in the urban and rural integration development moran scatter plot quadrant of the first and third quadrants, space is related attributes of urban and rural integration development, it has stability, thus, furtherconfirmed that China's urban and rural integration development of the regional difference, and regional difference between provinces is a major cause of lead to regional differences, and urban and rural integration has strong spatial correlation.

Compared with previous scholars for the study of urban and rural integration, ever less using spatial econometric method on the temporal evolution and spatial characteristics of urban and rural integration development in-depth analysis, this paper use Moran index test space in urban and rural integration development in our country since the correlation, prove that the urban-rural integration development of our country exists obvious regional difference is due to the spatial autocorrelation, everything from the global and local level showed obvious spatial dependence.

6. Conclusion

From the perspective of time series evolution, in general, although the level of urban-rural integrated development in China fluctuated from 2008 to 2018, it still showed an overall growth trend, increasing from 0.278 in 2008 to 0.321 in 2018, with an increase of 15.47%, but the overall level was still low. From a regional perspective, the level of urban-rural integrated development in the eastern region is much higher than that in the central region and the western region. On the whole, the three regions all show a gentle growth trend.

In terms of spatial characteristics, on the whole, Moran's I index of the level of urban-rural integration in China is positive from 2008 to 2018, indicating that there is a strong positive spatial correlation between the level of urban-rural integration in China, which shows that cities with a high level of urban-rural integration present a spatial distribution structure adjacent to each other. In terms of regions, according to the Moran Sperm Chart of the level of urban-rural integrated development in representative years, although the high-high agglomeration areas and the low-low agglomeration areas are mainly occupied by the east and the west, however, it can be seen from the changes in the numbers of the two, that the spatial distribution of high-high agglomeration areas shifts from the eastern part

to the central part, while the spatial distribution of high-low and low-high agglomeration areas shifts from the central part to the eastern and western part, indicating that the barriers between urban and rural areas are gradually collapsing, and the ability of coordinated development is constantly enhancing.

Based on the above conclusions, the following policy recommendations are obtained: First, Policy support.Because the difference of resource endowment is the key reason for the unbalanced development among regions, therefore, the government should formulate relevant policies reasonably, concentrate superior resources to take the lead in developing the eastern region, and then lead the development of the central and western regions. Second, Standardizing government behavior.We should give full play to the positive role of government in promoting the integrated development of urban and rural areas, and formulate corresponding assessment mechanisms to regulate government behavior.Third, we will improve government expenditures.We should improve the efficiency of capital use, avoid rent-seeking behavior, and put funds into the hands of farmers.Fourth, improve the inclusive financial system and improve the efficiency of financial resource allocation.To break the financial barriers between urban and rural areas, orderly guide the flow of capital to rural areas, speed up the construction of rural financial facilities, innovate financial products, popularize financial knowledge, improve the financial supervision system, and truly let farmers enjoy the benefits brought by inclusive finance.Fifth, optimize the industrial structure and pay attention to the rationalization of the industrial structure.At the same time, attention should be paid to improving the rural human capital structure and matching the rural labor force with the upgrading of industrial structure.

7. Future Scope

This research purpose of this paper is to measure the urban-rural integration development level of China's 31 provinces in the past 11 years by constructing an index system of urban-rural integration development level, and to further use the Moran index to test the spatial autocorrelation of our country's urban-rural integration development. Finally, analyze the temporal evolution and spatial distribution characteristics of our country's urban-rural integration development level, and put forward policy recommendations to promote the development of urban and rural integration. It is expected to provide theoretical and practical guidance for promoting the integrated development of urban and rural areas in our country and realizing rural revitalization.

In summary, although an in-depth analysis of the development of urban-rural integration has been carried out from the perspective of temporal evolution and spatial characteristics, the factors affecting the development of urban-rural integration have not yet been empirically analyzed. And by combing the domestic and foreign literature on the development of urban-rural integration, there are few studies on the effect of inclusive finance on urban-rural integration from the perspective of inclusive finance. Therefore, there are still more innovations in the research on this topic.

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Author Profile

My name is **Wang Xiaodan,** from Xi 'an, Shaanxi Province. I am currently studying in the School of Economics and Management of Xidian University.