

Research on the measurement of China's common prosperity development level and the characteristics of temporal and spatial evolution

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Abstract. Combined with the connotation and extension of common prosperity, the evaluation index system of common prosperity development in China is constructed, the index data of 30 provinces and cities (excluding Hong Kong, Macao, Taiwan and Tibet) from 2013 to 2019 are collected and sorted out, and the entropy value method is used to calculate the development index of common prosperity in China, so as to quantify the development level of common prosperity in China, and the difference coefficient method and the Moran index are used to further reveal the spatio-temporal evolution characteristics of China's common prosperity development, and put forward corresponding countermeasures and suggestions for the problem deficiencies. The study found that the overall and regional common prosperity development in China continues to improve, economic development, innovative development, green development, common development, public services as a whole to maintain a steady improvement, but still have growth potential; the uneven distribution of innovation development level and common development level is the main manifestation of the development gap of common prosperity among regions, that is, technological innovation and the gap between citizens, regions, and urban and rural areas are the main sources of unbalanced development of common prosperity among regions; the development of common prosperity between regions shows a significant spatial aggregation effect, but the level of focus is low. The capacity for coordinated development of common prosperity among different regions needs to be further strengthened.

Keywords: Common prosperity; Level measurement; Entropy method; Moran index; Temporal and spatial evolution.

1. Introduction

The Fifth Plenary Session of the 19th Central Committee of the Communist Party of China proposed for the first time the long-term goal of "substantial progress for common prosperity of all people", which pointed out the struggle and direction for my country's economic and social development in the new stage. General Secretary Xi Jinping emphasized in his important speech at the 10th meeting of the Central Finance and Economics Committee, "We must promote common prosperity through high-quality development." At present, the problem of unbalanced and insufficient development in my country is still relatively prominent, the endogenous power of economic growth is insufficient, urban and rural areas There is a large gap in regional income distribution, there is a gap between urban and rural residents' access to social security and public service resources, the coordinated development of resources, environment and economy still needs to be strengthened, and the task of promoting common prosperity for all people is still arduous[1].

Therefore, common prosperity has become a hot issue in current research. Through literature review, it is found that domestic scholars' research on common prosperity at this stage mainly focuses on three aspects: one is the research on the connotation of common prosperity and its measurement index system[2]; Research on problems that need to be solved urgently for common prosperity[7]; the third is research on the realization path and mechanism of common prosperity[10].

To sum up, most of the existing studies have carried out logical sorting and theoretical exploration of the development of common prosperity through qualitative analysis methods, but lack of necessary empirical research. In order to quantitatively evaluate the development level of my country's common prosperity and find out the temporal and spatial evolution of common prosperity in my country's four

major regions and provinces and cities in recent years, based on the existing research, this paper firstly constructs the development level of common prosperity from the two dimensions of "efficiency" and "fairness" and multiple indicators by drawing on my country's common prosperity development strategy and policy experience and based on the existing mature indicator system. Second, the panel data of 30 provinces and cities in my country (excluding Hong Kong, Macao, Taiwan and Tibet) from 2013 to 2019 were collected, and the common prosperity development index was obtained by summarizing the indicators using the entropy method. Then, the 30 provinces and cities are divided into four regions according to their spatial positions, and the time series and spatial evolution characteristics of the development of common prosperity in different regions in my country are analyzed. Countermeasures and suggestions for promoting the development of my country's common prosperity in the future.

2. Construction and calculation of common prosperity development Index

2.1 Construction of common prosperity development index

2.1.1 Common prosperity index system construction model

General Secretary Xi Jinping pointed out that common prosperity is the common prosperity of all the people, the prosperity of the material and spiritual life of the people, not the prosperity of a few, nor is it uniform egalitarianism[12]. This important discussion comprehensively reveals the profound connotation of common prosperity in the new era, which implies that common prosperity refers to universal prosperity in which all people have reached the level of prosperity in material and spiritual development, but a certain gap is allowed. The unity and coordination of efficiency and fairness is the inherent requirement and the key to realizing common prosperity [13]. Without efficiency, common prosperity cannot be created, and without fairness, there is no way to talk about common prosperity development. Practice has found that the development of common prosperity in my country has shifted from low-level egalitarianism to emphasis on efficiency and then emphasis on equity, focusing on the two dimensions of efficiency and equity. Therefore, the measurement and analysis of the development level of common prosperity in this paper will also be based on the two dimensions of efficiency and fairness.

(1) Efficiency dimension. Economic development and the improvement of ecological efficiency are the material basis for making the "cake" bigger. On the one hand, we must pay attention to the improvement of economic aggregate and efficiency, and doing a good job in economic development is the premise and foundation for achieving common prosperity; The ecological and environmental cost of growth is to achieve high-quality and sustainable economic development; in addition, in order to continue to make the "cake" bigger, we need a sustainable growth momentum for innovation and development. Therefore, in the dimension of efficiency, it will be measured from three aspects: economic development, innovation development, and green development.

(2) Equity dimension. Reasonably controlling the development gap to promote common development and equalizing public services is a concrete manifestation of dividing the "cake" and emphasizing equity, because controlling the development gap between citizens, urban and rural areas and regions within a reasonable range is an inherent requirement to achieve common prosperity and fair development, while public services Equalization is the external manifestation of fair sharing of common prosperity and development [14]. To this end, common development and public services will be selected as fairness metrics.

It can be seen that the construction model of the common wealth indicator system is shown in Figure 1.

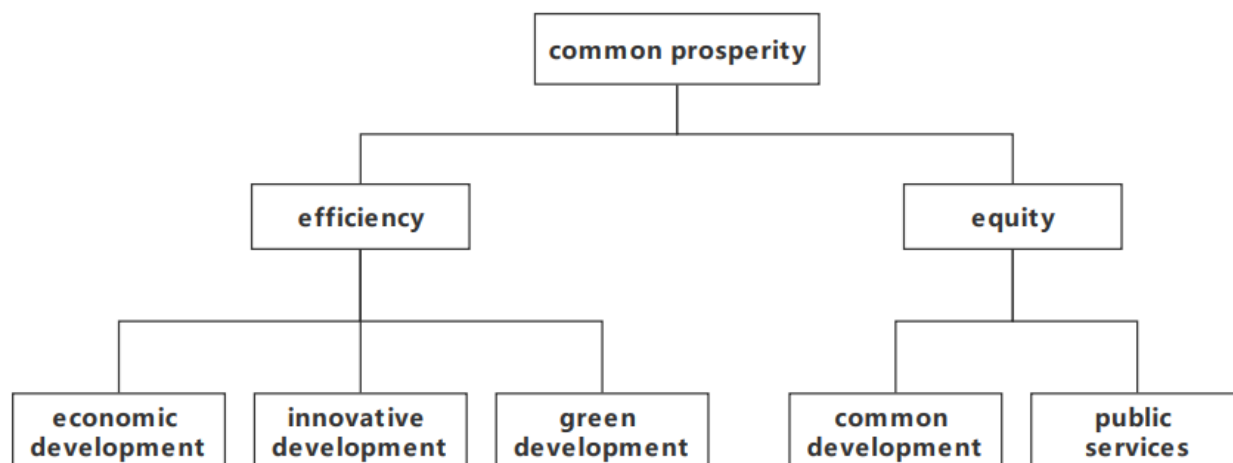


Fig. 1 Construction model of common wealth indicator system based on efficiency and equity perspective

2.1.2 Indicator selection

(1) Selection of indicators. Following the principles of scientific, availability, and operability, the specific measurement indicators of the development level of common prosperity shall be selected from the theoretical and practical levels. From a theoretical point of view, combined with the existing research results, choose an indicator system that can fully reflect the characteristics of efficiency and fairness, including: taking GDP per capita as an intuitive measure of economic development[15], taking R&D investment intensity as innovation Intuitive measurement indicators of development[16], the unit output of wastewater discharge and unit output of waste gas emissions are used as the intuitive measurement indicators of green development, the Gini coefficient is used as a quantitative indicator of whether to achieve common development[17], and the popularization of the Internet As a quantitative indicator of public services[18], etc., 32 evaluation indicators covering five aspects of economic development, innovative development, green development, common development, and public services were selected. From a practical perspective, it is found that some evaluation indicators under the same dimension have strong correlations, so these indicators are screened and revised, and the indicators with low representativeness are eliminated, and finally 23 specific indicators are obtained. Finally, the common prosperity development evaluation index system consists of 23 indicators, including four levels: system level, criterion level, element level, and index level, as shown in Table 1.

(2) Data sources and processing. The data in this paper mainly comes from the National Bureau of Statistics, the statistical yearbooks of various provinces and the wind database. The panel data covering the country and provinces from 2013 to 2019 is collected and sorted, and the original data are processed as follows: First, the interpolation method is used for missing values[19] performed data padding. The second is to obtain the estimated data through the calculation of the original data. For example, Tian Weimin (2012) used the calculation method of the Chinese Gini coefficient to calculate the Gini coefficient of the residents' income in the province[20], so as to reflect the income gap between the groups in the province. The formula $\sqrt{\frac{(x_i - y_i)^2}{y_i^2}}$ is calculated, where x and y are the object data and standard data, respectively. The average years of education adopts the calculation method of Zhai Bo (2006). The level of education development in each province is balanced[21].

Table 1. Common prosperity development evaluation index system

System layer	Feature layer	Criterion layer	Indicator layer	Unit	Index weight	Indicator nature	
common prosperity	efficiency	economic development	GDP per capita	Yuan / person	6.13%	positive	
			per capita disposable income of urban residents	Yuan	5.42%	positive	
			per capita disposable income of rural residents	Yuan	4.18%	positive	
			per capita disposable income as a share of per capita GDP	%	3.32%	positive	
			per capita consumption expenditure of urban residents	Yuan	5.21%	positive	
			per capita consumption expenditure of rural residents	Yuan	4.11%	positive	
			urban Engel coefficient	%	0.92%	negative	
			rural Engel coefficient	%	1.06%	negative	
		innovative development	the current equivalent of R&D personnel in industrial enterprises above designated size	person year	13.1%	positive	
			expenses for the development of new products by industrial enterprises above designated size	Million yuan	13.44%	positive	
			R&D spending intensity	%	7.46%	positive	
			reduction rate of energy consumption per 10,000 yuan of GDP	%	0.41%	positive	
		green development	wastewater discharge per unit output	ton/ million yuan	0.98%	negative	
			CO2 emissions per unit of output	ton/ million yuan	1.25%	negative	
			regional per capita GDP difference coefficient	-	6.60%	negative	
		equity	common development	regional per capita disposable income difference coefficient	-	6.99%	negative
				urban and rural per capita disposable income	-	1.81%	negative
				the difference between urban and rural per capita consumption expenditure	-	1.56%	negative
	Gini Coefficient			-	3.46%	negative	
	public services		internet penetration	%	3.63%	positive	
			average years of education	year	2.61%	positive	
			urban registered unemployment rate	%	2.47%	negative	
			the proportion of social security and employment expenditure in fiscal expenditure	%	3.89%	positive	

2.2 Calculation method

Considering that the measurement of the development level of common prosperity involves a wide range, the indicators to be measured show diverse characteristics, and the entropy method can calculate the index weight to obtain the contribution of the indicator to the development level of common prosperity, and can combine the indicator weight and post-processing. The comprehensive scoring of regional data is highly objective and scientific. Due to space limitations, the calculation steps are not explained here. To this end, this paper chooses the entropy method for comprehensive evaluation, uses the entropy method to objectively weight each indicator (the results are shown in Table 1), and then calculates the common prosperity and development index of each region.

3. The measure of common prosperity level and the characteristics of spatiotemporal evolution

3.1 A measure of the development level of common prosperity

Table 2. My country's common prosperity development overall index (2013-2019)

Year	2013	2014	2015	2016	2017	2018	2019
Index	0.2263	0.2478	0.2686	0.2866	0.3087	0.3499	0.3505

Table 3. Regional common wealth development index (2013-2019)

	Area	2013	2014	2015	2016	2017	2018	2019	
East	Beijing	0.4979	0.5190	0.5530	0.5613	0.6049	0.6421	0.6633	
	Guangdong	0.3545	0.3886	0.4346	0.4764	0.5031	0.6054	0.6222	
	Zhejiang	0.4150	0.4500	0.4740	0.4856	0.5117	0.5866	0.6111	
	Shanghai	0.4823	0.4834	0.5201	0.5744	0.6036	0.6117	0.6293	
	Jiangsu	0.4238	0.4421	0.4726	0.4972	0.5536	0.6046	0.6220	
	Shandong	0.2893	0.3118	0.3346	0.3604	0.3772	0.3936	0.3917	
	Fujian	0.2519	0.2821	0.3228	0.3146	0.3595	0.3976	0.4068	
	Tianjin	0.3371	0.3688	0.3658	0.3876	0.4012	0.4543	0.4539	
	Hebei	0.1938	0.2071	0.2197	0.2333	0.2681	0.2981	0.3015	
	Hainan	0.1622	0.1874	0.1962	0.2120	0.2352	0.2882	0.2787	
	Mean	0.3408	0.3640	0.3893	0.4103	0.4418	0.4882	0.4980	
Central	Hubei	0.2296	0.2296	0.2499	0.2740	0.3051	0.3590	0.3667	
	Jiangxi	0.1747	0.1923	0.2099	0.2284	0.2562	0.2839	0.2803	
	Anhui	0.1804	0.2305	0.2345	0.2579	0.2678	0.3204	0.3172	
	Hunan	0.1839	0.2291	0.2481	0.2551	0.2648	0.3136	0.3186	
	Henan	0.1680	0.1974	0.2343	0.2259	0.2569	0.2742	0.2726	
	Shanxi	0.1768	0.1728	0.1818	0.1954	0.2289	0.2626	0.2579	
	Mean	0.1855	0.2086	0.2264	0.2394	0.2633	0.3023	0.3022	
	Chongqing	0.2035	0.2215	0.2382	0.2580	0.2969	0.3441	0.3372	
	Sichuan	0.1860	0.1781	0.2153	0.2254	0.2664	0.3002	0.2901	
	Guangxi	0.1323	0.1682	0.1913	0.1898	0.2182	0.2559	0.2532	
	Shaanxi	0.1973	0.2007	0.2375	0.2520	0.2481	0.2949	0.2795	
west	Inner Mongolia	0.1961	0.2107	0.2210	0.2469	0.2549	0.2992	0.2779	
	Yunnan	0.1185	0.1338	0.1503	0.1666	0.1979	0.2437	0.2247	
	Ningxia	0.1432	0.1746	0.1905	0.1956	0.2117	0.2645	0.2522	
	Guizhou	0.0931	0.1314	0.1312	0.1620	0.1682	0.2217	0.2049	
	Gansu	0.1191	0.1383	0.1482	0.1760	0.1911	0.2109	0.2374	
	Qinghai	0.1588	0.1631	0.1587	0.1889	0.2003	0.2352	0.2299	
	Xinjiang	0.1337	0.1464	0.1835	0.2128	0.1888	0.2326	0.2214	
	Mean	0.1529	0.1697	0.1878	0.2067	0.2221	0.2639	0.2553	
	northeast	Liaoning	0.2223	0.2467	0.2873	0.3025	0.3322	0.3580	0.3438
		Heilongjiang	0.1892	0.2227	0.2314	0.2420	0.2484	0.2812	0.2917
		Jilin	0.1762	0.2062	0.2207	0.2394	0.2392	0.2575	0.2780
Mean		0.1959	0.2252	0.2465	0.2613	0.2733	0.2989	0.3045	

Using the entropy method to calculate the overall level of my country's common prosperity and the common prosperity development index of each province and city, as shown in Table 2 and Table 3, it can be seen that the overall level of my country's common prosperity has increased year by year from 2013 to 2019, and the common prosperity development index has maintained a high level. The top five provinces and cities are Beijing, Shanghai, Zhejiang, Jiangsu, and Guangdong, and the regions with lower indices are Guizhou, Xinjiang, Yunnan, and Gansu. From the perspective of regional characteristics, it is calculated that the average annual growth rates of the common prosperity development index in the eastern, central, western, and northeastern regions are 6.53%, 8.47%, 8.92%, and 7.63%, respectively. The western region has the fastest growth rate, followed by the central region. , and the growth rate in the eastern and northeastern regions is relatively slow. Comprehensive analysis of Tables 2 and 3 can be obtained. Taking the overall level of common prosperity in my country as the standard, there were only 9 regions that were higher than the overall level in 2013, and remained at about 9 for many years, and increased to 10 in 2018. In 2019 It fell back to 9 in 2017, indicating that although the development level of common prosperity in my country is constantly improving, the development gap between provinces and cities has not improved, and it is still in a state of "averaged", and the phenomenon of unbalanced development among regions is more obvious.

3.2 The temporal and spatial evolution characteristics of common prosperity development

On the basis of the analysis of the development level of common prosperity in the above provinces and cities, in order to further obtain the development law of the four major regions and the five elements of common prosperity, the overall development level of the four regions of my country and the time-series changes of the five elements of common prosperity are analyzed by descriptive statistical methods. , and used the coefficient of variation method to explore the development gap and time-series evolution characteristics of the five elements of common prosperity in the four regions. Finally, the Moran index was used to analyze the spatial distribution characteristics of common prosperity in 30 regions in my country.

(1) The temporal evolution characteristics of the common prosperity and development of the four major regions in my country

Through the calculation of the average value of the common prosperity development index of the provinces and cities under the jurisdiction of the four regions, the time trend of the common prosperity development level of the four regions in my country is shown in Figure 2. It can be seen that from 2013 to 2019, the development level of common prosperity in the four major regions has shown an upward trend, similar to the overall level of common prosperity in China. The Northeast region is the first of the large regions, but its development level of common prosperity has slowed down, showing a spiral upward trend. The central region has risen steadily, constantly catching up with the Northeast region, and the common prosperity development level of the western region is relatively backward. According to the above analysis, it can be concluded that there is a large gap in the development of common prosperity in the four regions, and there is still a large growth potential.

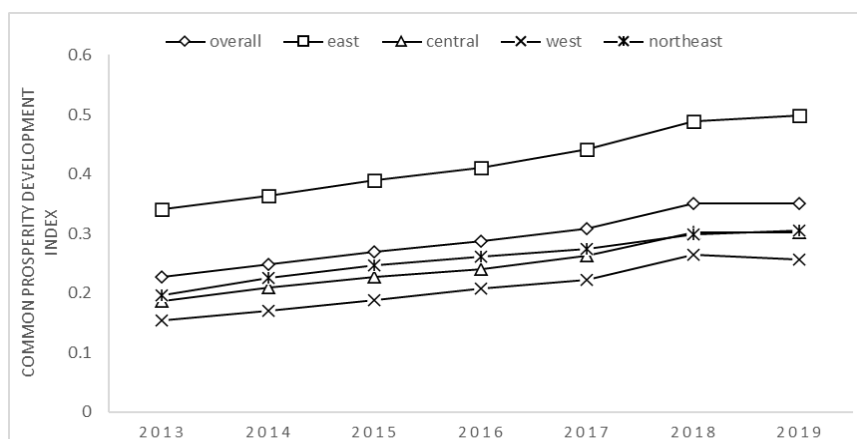


Fig. 2 Time trend of development level of common prosperity in my country's four major regions

(2) The temporal evolution characteristics of the five elements of common prosperity and development

The entropy method is used to calculate the five factor development indices, and based on this, the time series change chart of the five factors of common prosperity is drawn. In addition to the decline in 2018, the development indexes of the other three factors have shown an upward trend year by year, and the "economic development" index has always been at the top of the five elements since 2014, and the "common development" index has maintained the second place for many years, the "green development" index ranked third, while the "public service" index and "innovative development" index both continued to improve, but the growth rate was slow. As of 2019, the index of each factor in descending order is: economic development, common development, green development, public service, and innovative development, the development gap has been improved, the living environment has been further improved, the level of equalization of public services has been steadily improved, and people's lives have been basically guaranteed. But at the same time, it should be noted that the development indexes of the four factors are far behind the "economic development" index, and there is still a lot of room for growth, and the "common development" index and "green development" index decreased in 2019. This shows that the gap between citizens, regions, and urban and rural areas has increased, and the problem of unbalanced development is still prominent.

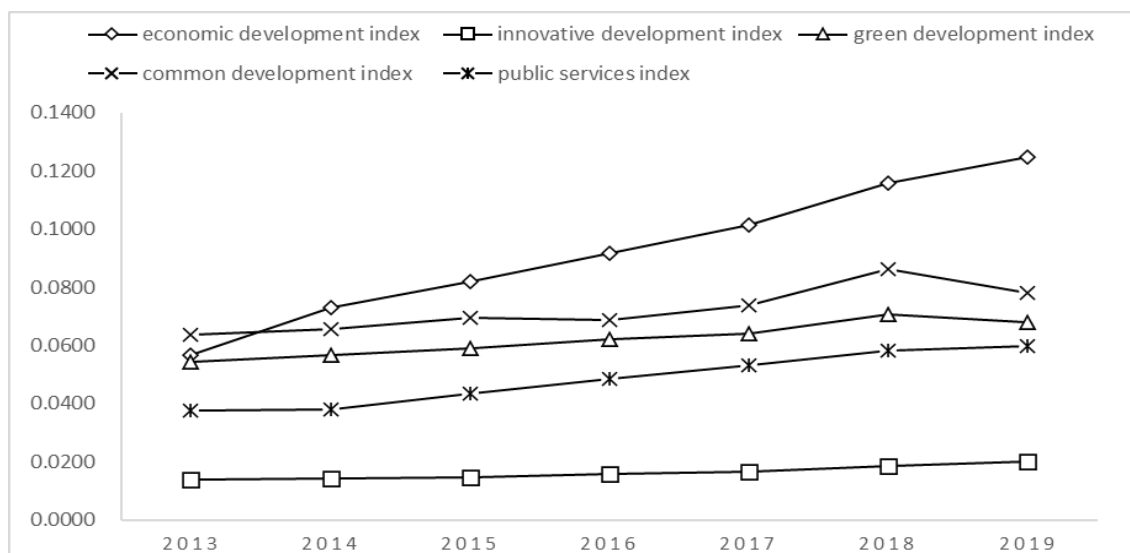


Fig. 3 Time series changes of the development index of the five elements of common prosperity in my country from 2013 to 2019

(3) Time series evolution characteristics of the development gap of the five elements of common prosperity among the four regions

In order to further analyze the development differences of common prosperity among the four regions, the variation coefficient of the five elements of common prosperity among the eastern, central, western and northeastern regions was explored using the coefficient of variation method, and the variation of the five elements of common prosperity among the four regions was tested. Whether developmental differences are decreasing over time.

The formula for calculating the coefficient of variation is:

$$CV_i = \frac{\sigma_i}{\mu_i} \quad (1)$$

Among them, CV_i represents the coefficient of variation of the i factor, σ_i represents the standard deviation of the development index of the i factor of the four regions, μ_i represents the average value of the development index of the i factor of the four regions, i represents the economic development, innovation development, green development, Five elements of common development and public service. Through the analysis of the coefficient of variation, it can be judged whether the development index of each element of common prosperity among regions tends to diverge or converge, and then

it can be judged whether the development gap of the five elements among regions is widening or narrowing.

According to the coefficient of variation method, the variation trend of the coefficient of variation of the four regions of common prosperity in each dimension is shown in Figure 4. It can be seen that the coefficient of variation of "innovative development" was the highest from 2013 to 2019, and it has shown a steady downward trend since 2015, the coefficient of variation of "public service" is the lowest, reaching the lowest value in 2019. The coefficient of variation of "economic development" has always maintained a downward trend, which is basically the same as the change of the coefficient of variation of "common development", and the coefficient of variation of "green development" has maintained a small decrease except for the sharp increase in 2019.

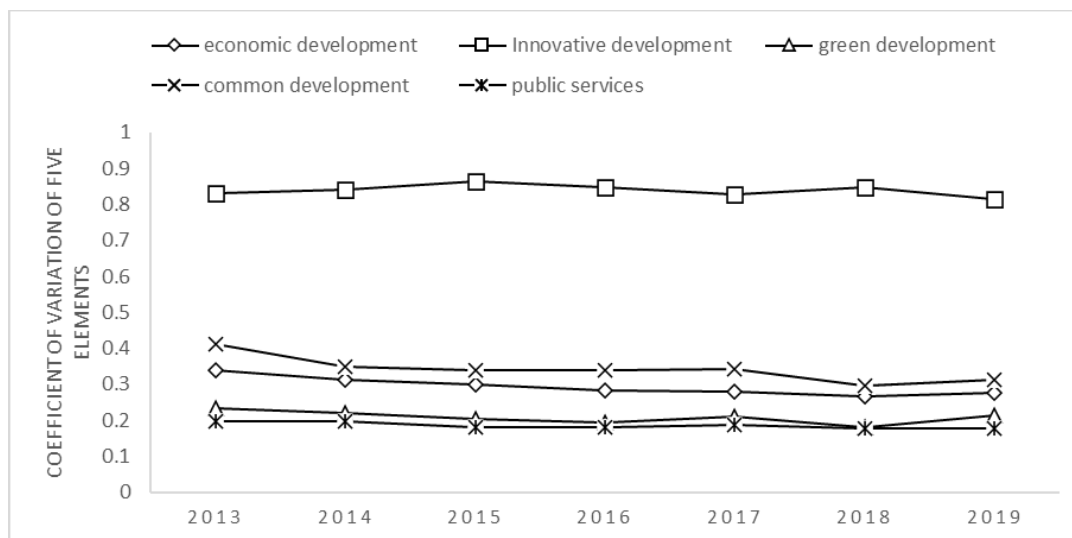


Fig. 4 The changing trend of the coefficient of variation of each factor of common prosperity in the four major regions of my country

(4) Analysis of the spatial distribution characteristics of my country's common prosperity and development

In order to analyze the spatial distribution characteristics of my country's common prosperity development, the spatial autocorrelation test was carried out on the common prosperity development index of 30 provinces and cities from 2013 to 2019, and the global Moran index was calculated using Stata15, as shown in Table 5. It can be seen from the table that the Moran index is significantly positive at the level of 1% in each year, indicating that the regional distribution of my country's common prosperity and development presents a significant spatial agglomeration effect. Specifically, the Moran index distribution showed a "sawtooth" trend, indicating that the agglomeration effect in this period of time increased and sometimes weakened, and there were large fluctuations.

Table 4. The global Moran index of my country's common prosperity and development

Year	I	sd(I)	z	p-value*
2013	0.332	0.107	3.412	0.000
2014	0.375	0.108	3.792	0.000
2015	0.343	0.108	3.492	0.000
2016	0.328	0.108	3.358	0.000
2017	0.339	0.108	3.460	0.000
2018	0.318	0.108	3.250	0.001
2019	0.326	0.108	3.328	0.000

4. Summary

Through the construction of the common prosperity development evaluation index system, this paper quantitatively measures the common prosperity development index of my country as a whole and each province and city.

First, the development index of common prosperity in my country as a whole and the provinces and cities is on the rise. The eastern region has developed more rapidly, much higher than the other three regions. The northeast region has gradually risen, moving closer to the overall development level of my country's common prosperity, and the central and western regions have common prosperity. Development is relatively backward.

Second, from the perspective of five specific elements, the five indexes of economic development, innovative development, green development, common development, and public services rose from 2013 to 2019, and the common development index and green development index in 2019 increased significantly from the previous year. The downward trend of economic development, innovation and public services shows that the three development factors of economy, innovation and public services are constantly improving, but the development gap between the common prosperity of various regions (the development gap between nationals, urban and rural areas, and regions) has increased, and the driving force for green development has decreased.

Third, the development of common prosperity in my country shows a significant spatial agglomeration effect, but at this stage, the level of spatial agglomeration in the development of common prosperity in most regions in my country is relatively low, and the agglomeration effect is still unstable. The coordinated development of common prosperity has great growth potential.

Fourth, the development gap of common prosperity among regions in my country is mainly derived from development momentum and economic development, that is, the gap between scientific and technological innovation and economic development level is the main manifestation that affects the development gap of common prosperity among regions.

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References

- [1] Gao Fan. The new government-market relationship and the mechanism for achieving China's common prosperity goals [J]. Journal of Northwest University (Philosophy and Social Sciences Edition). Vol. 51 (2021) No. 06, p. 5-17.
- [2] Li Juan. Comprehensively grasp the connotation of common prosperity[J]. Theoretical exploration. Vol. 04 (2007), p. 86-88.
- [3] Li Zequan. Unswervingly follow the road of common prosperity[J].Red Flag Manuscript.Vol. 22 (2011), p. 14-15.
- [4] Liu Peilin, Qian Tao, Huang Xianhai, Dong Xuebing. The connotation of common prosperity, the path to achieve and the measurement method [J]. Managing the world. Vol. 37 (2021) No. 08, p. 117-129.
- [5] Yang Yiyong, Wang Mingji. Common prosperity: evolutionary process, stage goals and evaluation system[J], Jianghai Academic Journal. Vol. 05(2021), p. 84-89.
- [6] Chen Lijun, Yu Jianxing, Xu Yina. Construction of common prosperity index model[J]. Governance Research. Vol. 37 (2021) No. 04, p. 5-16+2.
- [7] Wang Yiming. A century of great changes, high-quality development and the construction of a new development pattern[J]. Managing the world. Vol. 36 (2020) No. 12, p. 1-13.
- [8] He Wenjong, Pan Xuhua. Deepening reform of the social security system based on common prosperity[J]. Jianghuai Forum. Vol. 03 (2021), p. 133-140.
- [9] Li Haijian, Du Shuang. Analysis on some issues of promoting common prosperity[J]. Reform. Vol. 12 (2021), p. 1-15.

- [10] Jiang Yongmu, Xie Qiang. Solidly promoting common prosperity: the logical path and the path to realization[J]. Economic Vertical and Horizontal. Vol. 04 (2021), p. 15-24+2.
- [11] Zhang Laiming, Li Jianwei. The connotation, strategic objectives and policy measures of promoting common prosperity[J]. Reform. Vol. 09 (2021), p. 16-33.
- [12] Xi Jinping. Solidly promote common prosperity[J]. Qiushi. Vol. 20 (2021).
- [13] LI Junpeng. Common prosperity: conceptual analysis, centennial exploration and modernization goals[J]. Reform. Vol. 10 (2021), p. 12-21.
- [14] Ryder Sheng. Promoting common prosperity in high-quality development[J]. Journal of Beijing Technology and Business University (Social Science Edition). Vol. 36 (2021) No. 06, p. 10-16.
- [15] Chen Shaohui. Evaluation system, actual measurement and optimization path of coordinated regional development in the new era[D]. Zhejiang University.2020.
- [16] Cheng Jingjing, Xia Yongxiang. Measurement and comparison of the high-quality development level of China's provincial economy based on the new development concept[J]. Industrial technology economy. Vol. 40 (2021) No. 06, p. 153-160.
- [17] Deng Chuang, Cao Ziwen. Measurement of China's high-quality development level and regional heterogeneity analysis[J/OL]. Journal of Xi'an Jiaotong University (Social Science Edition). Vol. 42 (2022) No. 02, p. 31-39.
- [18] Guo Yun, Fan Bonai, Long Jian. Research on the actual measurement and spatio-temporal evolution characteristics of regional high-quality development in China[J]. Research on quantitative and technological economy. Vol. 37 (2020) No. 10, p. 118-132.
- [19] Zhang Wentong. SPSS11 Statistical Analysis Tutorial (Advanced Part) [M]. Beijing: Hope Electronics Press,2002, p. 321-330.
- [20] Tian Weimin. Calculation of Gini coefficient in China and its trend analysis[J].Journal of Humanities. Vol. 02 (2012), p. 56-61.
- [21] Zhai Bo. Balanced Development of Education: Theory, Index and Calculation Method[J]. Educational Research. Vol. 03 (2006), p. 16-28.