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The Measurement and Influencing Factors of High-Quality Economic Development in China

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Abstract: From the perspective of economics, high-quality economic development is a concept that is not easy to grasp. How to quantify high-quality development is also a relatively complex topic. The combination of economic growth and development is high-quality economic development, reflecting the core connotation of the modern economic system. It is of great significance to measure the quality of economic development and study its influencing factors. Based on the new development concept of "innovation, coordination, green, openness, and sharing", this paper establishes an evaluation index system for the high-quality development level of China's economy. Then, the principal component analysis method was used to measure China's high-quality economic development level and that of each province in China. Combined with high-quality development's meaning and essential features, we can correctly judge the regional economy's specific situation of high-quality development and analyze the results of high-quality economic development from the perspective of time series and spatial evolution. Based on this, we further explore the main factors that influence the level of high-quality economic development. Finally, some feasible suggestions are put forward to improve the quality of China's economic development and promote the completion of economic transformation. The main contribution of this paper is that the use of principal component analysis can reduce the dimensional and order-of-magnitude differences between the indicators. In this way, we can better measure the high-quality development level of China's economy, analyze its main influencing factors, and provide new possible paths for China's economic transformation.

Keywords: five major development concepts; high-quality economic development; principal component analysis; Moran index

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1. Introduction

Currently, China's economy is at a critical stage, moving from a high-speed growth stage to high-quality development, and is in a critical period of transforming its development mode, optimizing its economic structure, and transforming its growth drivers. Economic growth has slowed during this period. Since 2014, except for in a few years, China's GDP growth rate has been less than 10% most of the year. While the economic growth rate has slowed down, the quality of economic development has also improved to some extent. Specifically, China's current economic development is mainly manifested in two aspects. First, the scale of innovation is unprecedented, and the digital economy is developing rapidly. Second, the rate of capital formation has decreased, and factors have flowed to emerging industries. The capital formation rates were 46.97%, 43.03%, 43.96%, and 43.12% in 2010, 2015, 2018, and 2022, respectively. China's capital formation rate has stabilized at a low level.

High-quality economic development has rich connotations. It requires sustainable development and coordinated development of urban and rural areas, and the role of government's macro-control and the role of the market mechanism should be correctly played.

Specifically, high-quality economic development is mainly reflected in five main dimensions: innovation, coordination, green, openness, and shared development. High-quality economic development is an innovative concept in the context of the new era, and it is a development and transformation of economic growth from quantity to quality. There has been an essential change in the connotation of economic growth. Specifically, high-quality economic development is guided by new development concepts. Through socialized reproduction, high-quality economic development makes the innovation of production, the efficiency of distribution, the fairness and justice of distribution, and the maturity of consumption highly closely coordinated. At the same time, we should constantly improve the total factor productivity and realize the organic development of an endogenous, ecological, and sustainable economy. High-quality development is theoretically related to economic growth, economic development, and sustainable development. Among these, sustainable development is essential to high-quality economic development. Based on sustained economic growth, sustainable development must achieve three points: first, it must not destroy the ecosystem; second, it must not sacrifice the living environment of the people; third, it must be an ecological economic development. High-quality economic development means that the economic structure of society must match social development and coexist in harmony with the ecosystem. This is also the meaning of sustainable development.

The transformation of resource allocation and the economic development mode is the only way for China's economy to achieve healthy and stable development. It also includes the transformation of the development mode, development factors, and development paths. The components of the quality of economic development are complex, and there are many influencing factors. Many studies focus on this topic in the current literature regarding the development of a high-quality economy. However, the research perspective is relatively single. Accurately measuring the quality of economic development in various regions of China is a prerequisite for promoting economic transformation and upgrading. Based on the above background, this paper takes the high-quality development of the regional economy as the research object. With the five development concepts as the theoretical basis, this paper constructs the evaluation index system. Combining temporal and spatial characteristics to analyze the temporal and spatial distribution of high-quality economic development, we use Moran's scatter plot to perform spatial autocorrelation analysis. Finally, the main factors affecting the high-quality development of the economy are also studied.

The research content of this article is arranged as follows: The second part is a summary of domestic and international literature on high-quality economic development that summarizes and systematizes the relevant literature and provides a solid theoretical foundation for the research of this article. The third part is based on the existing literature research foundation, combined with the concept of high-quality economic development in the new era, to construct an index system and measurement method for high-quality economic development. The fourth part discusses the index measurement system of high-quality economic development from time-series and spatial evolution analyses. The spatial evolution part mainly uses the Moran index to analyze the spatial correlation of China's high-quality economic development level. The fifth part uses the ordinary least squares method (OLS) to discuss the main influencing factors of high-quality economic development. The model was robustly regressed using feasible generalized least squares (FGLS). The sixth section summarizes the conclusions of this paper and puts forward feasible suggestions and future research prospects.

2. Literature Review

Since the 19th National Congress of the Communist Party of China, the academic community has conducted academic discussions on high-quality economic development. There are many related academic achievements. China's economic research has changed from the previous "quantitative" development to the current "quality" transformation. There are few foreign studies on high-quality economic development from the existing research literature but there are many articles on the quality of economic growth. For

example, Mlachila et al. (2017) [1] proposed an index for the economic growth rate in developing countries. Bernardini Papalia and Bertarelli (2013) [2] found a significant club convergence effect in the economic growth of some countries. As the center of global development, economic development has always been the focus of all nations. Previous studies on economic development or economic growth focused on "quantity". Now, scholars mainly conduct related research on the "quality" of economic development, including the evaluation system and influencing factors of high-quality economic development.

2.1. Evaluation Indicators for High-Quality Economic Development

Based on the connotative characteristics of high-quality economic growth, the academic community has begun to quantify the level of regional economic development. It is necessary to select scientific and reasonable evaluation indicators to improve the measurement results. In this regard, some scholars choose a single indicator, such as total factor productivity (Changzheng and Jin, 2010; Hua et al., 2021) [3,4], labor productivity (Chen S and Chen D, 2018) [5], GDP per capita (Ge H and Wu F, 2018) [6], or carbon emission intensity (Xiao Z, 2019) [7], to characterize high-quality economic development. Some scholars, such as Wang B et al. (2021) [8], also use multiple indicators to measure high-quality economic development from two aspects of economic growth and resident welfare. However, more scholars have comprehensively established a hierarchical evaluation index system.

This paper summarizes the relevant research on constructing a comprehensive evaluation index system. Most scholars have established a five-dimensional index system based on the new development concept of "innovation, coordination, green, openness, and sharing" (Shi D and Li P, 2019) [9]. A few scholars have also constructed an evaluation index system from the aspects of the structure, efficiency, and benefit of economic development (Yang et al., 2020) [10]. In addition, some scholars have constructed a more complex and rich evaluation index system based on their understanding of the high-quality development of China's marine economy (Li et al., 2021) [11].

2.2. Measurement and Influencing Factors of High-Quality Economic Development

Scholars have researched the measurement of high-quality economic development at various levels, such as countries, provinces, cities, and economic zones. Scholars have conducted a lot of research using statistical and econometric tools such as the entropy weight method, the coefficient of variation method, TOPSIS, principal component analysis, AHP (Wang, 2022) [12], and Delphi. Therefore, a more comprehensive and scientific judgment has been made on China's overall and regional high-quality economic development. From the perspective of national research, it is advocated that the high-quality economic development level of China's economy has the problem of unbalanced and insufficient development, showing a distribution pattern of "high in the east, flat in the central, and low in the west" (Ma et al., 2019) [13]. In terms of time, most conclude that the quality of economic development has steadily increased (Zhang X and Xu Q, 2021) [14]. Some scholars have further found that the speed of improvement is characterized by stages (Yang Y and Zhang P, 2021) [15] and the fluctuation period has gradually widened (Shi B and Ren B, 2018) [16]. From the perspective of regional research, first, the measurement of the high-quality development of the Yangtze River Economic Belt has led to a consistent conclusion that "the quality of economic development has gradually increased from upstream to downstream"(Xiaosheng Li et al., 2021) [17]. Second, Deng et al. (2021) [18] take Chengdu-Chongqing City Agglomeration as an example to analyze high-quality economic development. Pan et al. (2021) [19] prioritized the Yellow River Basin, Northeast China, and Yunnan-Guangxi regions and studied their high-quality economic development. Sun et al. (2021) [20] put forward that the overall high-quality development level of the Huaihe River Economic Zone was not high. Third, an analysis of high-quality economic development in the economically developed regions of Beijing, Shanghai, and Guangdong found the distribution characteristics of "higher in the coastal economic zone and lower in the mountainous cities" (Yang et al., 2020) [10].

Based on the high-quality economic development evaluation results, the academic community further analyzed its specific influencing factors—the impact of innovation and entrepreneurship on high-quality economic development. For example, the research conclusions of Gu et al. (2021) [21], Hong et al. (2022) [22], Ding et al. (2022) [23], and Tsaurai and Ndou (2019) [24] all support the role of technological innovation and institutional innovation in promoting the quality of economic development. Second, researchers analyzed the influence of the digital economy (W Zhang et al., 2021; Yang et al., 2022) [25,26], platform economy (Yang et al., 2022) [26], industrial structure (Wang et al., 2022; Zeng et al., 2022) [27,28], foreign direct investment (FDI) (Jahanger, 2021; Xiaosheng Li et al., 2021) [29,30], carbon emissions (Zhang et al., 2021) [31], environmental regulation (Liu et al., 2021) [32], education equity (Gu et al., 2021; Badinger, 2010; Eva et al., 2012) [21,33,34], and other factors on high-quality economic development, which reflect their important roles in improving the quality of economic development. Badinger (2010) [33] identified the causal effect of output volatility on economic growth.

Compared with the previous literature, the marginal contribution of this paper mainly has two points. First, a comprehensive understanding and scientific assessment of the status quo of China's inter-provincial economic growth quality is the prerequisite for improving the quality of economic growth. Unlike the relative index, entropy value, and factor analysis methods used in previous literature studies, this paper uses the principal component analysis method. From the perspective of the five development concepts, this paper builds a more complete and systematic economic development quality measurement system. It broadens the research on the high-quality economic development index system. Second, the analysis of the status quo of high-quality regional economic development in the previous literature remains in the time dimension and lacks spatial connection analysis. Based on the measurement results of high-quality regional economic development, this paper uses the global Moran index to analyze the spatial characteristics of high-quality regional economic growth in China.

3. Construction and Measurement Methods of High-Quality Economic Development Indicators

The connotation of high-quality economic development is relatively affluent. If we use a single indicator to measure it, it cannot express the meaning of high-quality economic development well. Therefore, we need to construct an indicator system to define high-quality economic development. High-quality economic development involves issues such as the economic growth system, volatility, distribution, and environmental costs. At the same time, it also involves macroeconomic stability, a reasonable industrial structure, and improving the quality of enterprise products and services. Economic construction focuses on high-quality development, which requires transformation of the mode, optimization of the structure, transformation of the driving force, improvement of the welfare level, and the realization of green development. Economic development must fully meet the people's ever-growing needs for a better life. It also includes non-material aspects such as the ecological environment, democracy, the legal system, fairness, justice, security, and stability. In 2020, the Chinese government put forward the "Proposal of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Visionary Goals for 2035". China's economic development characteristics are summarized into five development concepts: innovation, coordination, greenness, openness, and sharing. According to the new development concept of "innovation, coordination, greenness, openness, and sharing", the evaluation index system of China's high-quality economic development level constructed in this article includes 5 primary indicators, 14 secondary indicators, and 32 tertiary indicators.

3.1. Indicator System

Innovative development ranks first in the order of high-quality economic development. It can be seen that innovation development plays an essential role in high-quality economic

development. It is not an exaggeration to describe the role of innovation development as a "directional beacon". Innovation is the first driving force leading the product, and the fundamental driving force for regional economic growth is innovation. The speed and efficiency of China's economic development is more determined by innovation. Innovation leads the direction of high-quality economic development and overall economic and social development. The "Achilles heel" of China's economy must be solved through innovation to lead and drive growth, especially through the massive promotion of global core technology and global frontier technology to aid regional productivity and accelerate the transformation of new and old kinetic energy.

The status of coordination development in high-quality economic development should not be underestimated. Coordination contains the critical content of shared prosperity. China is divided into eastern, northeastern, central, and western regions. Adhering to coordinated development requires addressing the issue of unbalanced development. The focus is to promote the coordinated development of the eastern, central, and western regions, between urban and rural areas, and to promote the coordinated development of the economy and society. Traditional indicators cannot fully explain the concept of coordinated development. Therefore, based on Ren Baoping (2012) [35], the structure of the coordination index involves three sub-indices: regional, urban–rural, and development.

Greenness development is an eternal topic in high-quality economic development. At the beginning of the reform and opening, economic development was based only on GDP. The high-quality economic development in the new era should not sacrifice the environment but should pursue greenness and sustainable development to satisfy the people's aspirations for a better life. Greenness development requires that we love a natural and healthy lifestyle, insist on protecting the ecological environment, and pursue sustainable development.

Openness development plays a bridging role in high-quality economic development. Opening up also means sharing the market with other countries, so there is a gradual process in sharing and how much to share. Of course, opening up can also allow us to better learn the advanced technology and rich experience of other countries.

Shared development is a more advanced and essential stage of high-quality economic development. Therefore, it can enhance the impetus for development, strengthen the unity of the people, and make steady progress in the direction of common prosperity. The content of shared development mainly includes universal sharing, comprehensive sharing, co-construction sharing, and progressive sharing. None of the previous indicator combinations can fully represent this new development concept. Therefore, the text draws on the practice of Zhan Xinyu and Cui Peipei (2016) [36], and the calculation of the shared aspect index of each province in China involves three sub-indicators, namely, people's life and infrastructure.

Based on the above theoretical analysis, this article fully considers the availability and comparability of data, referring to the practice of relevant research by Li Xinwu et al. [37], and constructs an evaluation index system of China's high-quality economic development from the five dimensions of innovation, coordination, greenness, openness, and sharing. See Table 1 for details. It should be noted that the connotation of high-quality economic growth includes high-efficiency growth, effective supply growth, mid-to-high-end structural growth, green growth, sustainable growth, and balanced growth. In other words, high-quality economic growth includes growth on the level of economic development and further development characteristics. There is a specific correlation between high-quality economic development and economic development but measuring the level of high-quality economic development can more honestly and comprehensively reflect the characteristics of social and economic development than measuring the level of economic growth.

Table 1. The indicator system of high-quality economic development in China from 2006 to 2019.

Primary Indicators	Secondary Indicators	Tertiary Indicators	Calculation Method	Indicator Attributes
Innovation Development	Innovation input	R&D investment intensity	R&D expenditure/GDP	Positive indicators
		R&D personnel investment intensity	Number of R&D personnel/total population	Positive indicators
		Science and technology investment intensity	Science and technology budget expenditure/total financial budget expenditure	Positive indicators
	Human capital	The proportion of the number of college students	Number of students in colleges/total population	Positive indicators
	Innovation output	Number of patent applications per capita	Number of patent applications/total population	Positive indicators
		Number of invention patents granted per capita	Number of invention patents granted/total population	Positive indicators
Coordination Development	Industrial structure coordination	Industrial structure coordination	Tertiary industry/gross regional product	Positive indicators
	Urban–rural coordination	Urban–rural income ratio	Disposable income of urban residents/disposable income of rural residents	Negative indicators
		Urban–rural consumption ratio	Consumption expenditure of urban residents/consumption expenditure of rural residents	Negative indicators
	Development coordination	Price stability	Consumer price index	Negative indicators
		Employment stability	Urban registered unemployed/resident population	Negative indicators
Green Development	Resource and energy consumption	Electricity consumption intensity	Electricity consumption of the whole society/GDP	Negative indicators
		Water consumption intensity	Water consumption of the whole society/GDP	Negative indicators
	Industrial emissions	Industrial wastewater discharge intensity	Industrial wastewater discharge/GDP	Negative indicators
		Industrial waste gas emission intensity	Industrial sulfur dioxide emissions/GDP	Negative indicators
		Industrial smoke (dust) emission intensity	Industrial smoke (dust) emissions/GDP	Negative indicators
	Environmental governance	The intensity of centralized sewage treatment	Centralized treatment rate of the sewage treatment plant	Positive indicators
		The intensity of the harmless treatment of domestic garbage	Benign treatment rate of domestic garbage	Positive indicators
	Ecological environment	Per capita park and green areas in the city	Urban park green area/total urban population	Positive indicators
		Green coverage rate in a built-up area	The green coverage area of urban built-up area/area of metropolitan built-up area	Positive indicators
Openness Development	Openness level	Foreign trade dependence	Total import and export	Positive indicators
	Openness effect	Foreign capital dependence	Total actual utilization of foreign capital	Positive indicators
Shared Development	People's life	Public library collections per capita	Public library collections/total population	Positive indicators
		Number of hospital beds per capita	Number of hospital beds/total population	Positive indicators
		Doctors per capita	Number of practicing (assistant) physicians/total population	Positive indicators
		Educational funding input	Education budget expenditure/fiscal budget total expenditure	Positive indicators
		Pension insurance coverage rate for urban employees	The participation rate of basic pension insurance for urban employees	Positive indicators
		Unemployment rate	Urban registered unemployment rate	Negative indicators
		Rural residents' consumption	Per capita food consumption expenditure of rural residents	Positive indicators
		Urban residents' consumption	Per capita food consumption expenditure of rural residents	Positive indicators
	Infrastructure	Percentage of regional GDP	Regional GDP/national GDP	Positive indicators
		Mobile phone penetration rate	Number of mobile phone users/total population	Positive indicators

3.2. Evaluation Methodology

As can be seen from Table 1, there are 5 primary indicators, 14 secondary indicators, and 33 tertiary indicators to measure the level of high-quality economic development. This article uses the principal component analysis method to estimate China's high-quality economic development level in all provinces in China from 2006 to 2019. Most indicators are positive, and a few are harmful due to needles' different attributes, dimensions, and magnitudes. This article uses principal component analysis to measure the high-quality development of China's economy. The top component analysis method transforms the tertiary indicators into fewer comprehensive ones, and the changed total indicators are called main components. Each principal component is a linear combination of the original variables, and the individual principal components are independent of each other. The main components are extracted according to the size of eigenvalues and the cumulative contribution rate of variance. Additionally, the cumulative variance contribution rate of principal components in different dimensions is calculated. According to the cumulative variance exceeding 80%, the development quality of the five dimensions in 30 regions is quantitatively evaluated and ranked. The weighted calculation is carried out with the proportion of the variance contribution rate of each principal component to its cumulative contribution rate as the weight, and the calculation formula of the total score is shown in Equation (1).

$$F_{n,y} = \sum_{i=1}^{m} \frac{\lambda_i}{q} F_i \quad (1)$$

In Equation (1), λ_i is the variance contribution rate of the i principal component in the n dimension in y year, q is the cumulative variance contribution rate of all main components, and F_i is the i principal component score. The sum of all principal component scores is the composite principal component score. It should be noted that the sum of the comprehensive indicators of all evaluation objects in the same year is 0. Therefore, the comprehensive indicators of different evaluation objects are naturally positive and negative. However, the positive and negative signs cannot be used as evidence of positive or negative economic development. Still, only the numerical value can represent the degree of high-quality economic development.

3.3. Data Sources

Based on the feasibility of the data, this paper estimates the panel data of 30 provinces (municipalities and autonomous regions) in China from 2006 to 2019. Considering the availability of data, Tibet, Hong Kong, Macao, and Taiwan were excluded from the scope of this study. The data in this article are obtained from the "China Statistical Yearbook", "China Statistical Yearbook on Environment", "China City Statistical Yearbook", "China Population and Employment Statistics Yearbook", and "China Statistical Yearbook on Science and Technology" and the National Bureau of Statistics website and China Economy and social development statistics database in previous years. Individual missing data are supplemented from statistical yearbooks of various provinces and cities.

4. Measurement and Analysis of the Level of High-Quality Economic Development

4.1. The Level of High-Quality Development of the National Economy

This paper uses the principal component analysis method to measure the high-quality development level of China's overall economy, which is the same as the province measurement method. It measures innovation, coordination, greenness, openness, and sharing indexes from five dimensions and then calculates the high-quality development index based on the five dimensions of the index. The measurement result is shown in Figure 1.

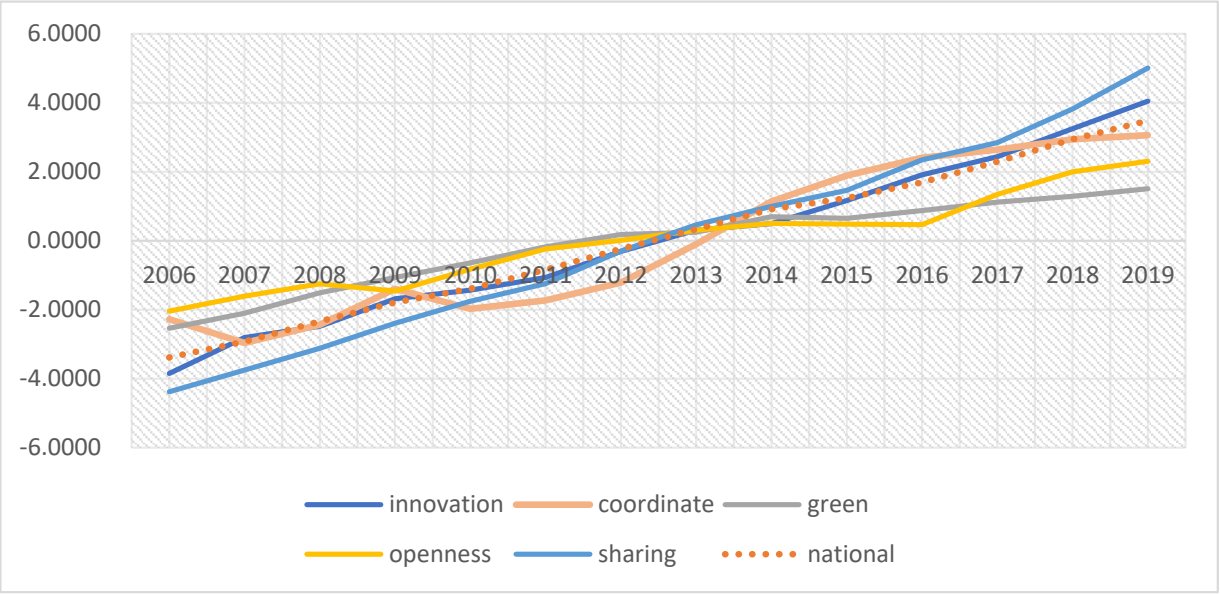


Figure 1. The sub-dimensions and comprehensive indicators of high-quality economic development in China from 2006 to 2019.

Figure 1 shows that, from the perspective of overall economic development, China's level of high-quality economic development has shown a general upward trend. The high-quality composite index increased from −3.3840 in 2006 to 3.4798 in 2019. Specifically, it took seven years for the comprehensive development index to rise from negative to positive, from 2006 to 2013. The negative value of the high-quality development index means that the high development level of China's economy was common during this period. However, the quality of economic development was still improving at this time. From 2013 to 2019, the economy grew faster.

On the whole, during the 13 years from 2006 to 2019, the high-quality economic development in China maintained a stable, balanced, and rapid state of development, with minor fluctuations and linear development characteristics. However, this also proves that China's economic development is not dynamic enough. It only grows steadily rather than exponentially. It is also a problem that needs to be solved in future economic development.

From the perspective of the sub-dimensions, the innovative and shared development speeds are relatively fast. The innovation development index increased from −3.8487 in 2006 to 4.0479 in 2019, and the shared development index rose from −4.3794 in 2006 to 5.0094 in 2019, representing a relatively high growth rate. In particular, the shared development index had the lowest value in 2006 and ranked first in the five dimensions in 2019. Compared with the innovation and shared development indexes, the growth rate of coordinated development, greenness, and open development is relatively slow. The effect of these three aspects started late, while innovation and shared development started early. Since the start of the 21st century, the government has provided more financial support for innovative action and shared stories. Innovation development has also made a more significant contribution to the growth of China's high-quality economic development index. However, there is still a particular gap in between.

China's innovation development and shared development have grown, and there is more room for growth.

4.2. Timing Evolution Analysis

4.2.1. Overall

After estimating the five indicators of innovation, coordination, greenness, openness, and sharing for each province in China, these five indicators were combined through the principal component analysis method to obtain China's inter-provincial economic

high-quality development index from 2006 to 2019. Due to space limitations, Table 2 only presents indicator data for odd-numbered years and 2006. It is shown in Table 2.

Table 2. China's inter-provincial high-quality development index from 2006 to 2019.

Province	2006	2007	2009	2011	2013	2015	2017	2019
Beijing	2.1242	2.3702	3.5098	4.1651	4.9379	5.8555	7.0244	9.6481
Tianjin	−0.2658	−0.2778	0.3640	1.2930	2.2539	2.6866	3.1911	3.0861
Hebei	−2.2638	−2.1011	−1.5375	−0.9368	−0.4028	−0.0668	0.3863	0.9666
Shanxi	−2.4751	−2.2796	−1.5924	−1.1713	−0.5329	−0.1345	0.0817	0.6072
Inner Mongolia	−2.2499	−2.1379	−1.2750	−0.8332	−0.1405	0.2134	0.7709	0.9469
Liaoning	−1.3528	−1.2715	−0.7416	−0.0910	0.4271	0.6556	0.9761	1.3060
Jilin	−2.0781	−1.9383	−1.3808	−0.9075	−0.3271	0.1073	0.4551	0.8641
Heilongjiang	−2.3800	−2.2090	−1.5933	−0.9414	−0.3993	0.0159	0.5804	0.6932
Shanghai	0.7851	1.0509	2.3230	2.5543	3.1596	3.8061	5.1776	5.5777
Jiangsu	−0.6224	−0.2475	0.3693	1.3591	2.2552	2.7820	3.4846	4.1408
Zhejiang	−0.6220	−0.2962	0.4041	1.1400	1.9553	2.6186	3.2718	4.1926
Anhui	−2.7117	−2.3956	−1.8308	−1.1386	−0.3448	0.2364	0.7652	1.6259
Fujian	−1.7459	−1.4940	−0.8293	−0.2426	0.5348	0.9286	1.5518	2.2586
Jiangxi	−2.5168	−2.2510	−1.5597	−1.0095	−0.4435	−0.0956	0.3658	0.9472
Shandong	−1.4394	−1.1866	−0.5519	0.1469	0.9380	1.1723	1.6023	2.1492
Henan	−2.6499	−2.3730	−1.8684	−1.4117	−0.6653	−0.1623	0.3633	0.9637
Hubei	−2.1136	−1.8365	−1.3538	−0.8364	−0.0778	0.5532	1.0794	1.7984
Hunan	−2.3924	−2.1892	−1.5715	−1.1060	−0.4837	0.1189	0.6905	1.3650
Guangdong	−0.6811	−0.4017	0.3582	1.2738	2.4825	2.8317	4.4153	5.4626
Guangxi	−2.7115	−2.6430	−2.1853	−1.6422	−0.9990	−0.5508	−0.0406	0.6074
Hainan	−1.9131	−1.7455	−1.2658	−0.5734	−0.0060	0.7564	0.9328	1.5072
Chongqing	−2.5649	−2.0658	−1.4405	−0.7107	−0.0146	0.6986	1.1347	1.7725
Sichuan	−2.4404	−2.2091	−1.6448	−1.1522	−0.5180	0.2279	0.8270	1.5917
Guizhou	−3.2812	−3.0773	−2.4984	−1.8172	−1.2009	−0.6071	0.1019	0.6265
Yunnan	−3.0475	−2.6201	−2.1651	−1.7153	−1.0949	−0.7380	−0.2063	0.6022
Shanxi	−2.4121	−2.2672	−1.5647	−0.9972	−0.2448	0.1740	0.6276	1.0212
Gansu	−3.0863	−3.0429	−2.5432	−2.1767	−1.3851	−0.8551	−0.2741	0.1749
Qinghai	−2.7098	−2.5773	−2.1962	−1.6699	−1.2350	−0.7691	−0.2931	0.2455
Ningxia	−2.4721	−2.2512	−1.8086	−1.2197	−0.5295	−0.2100	0.3548	0.7614
Xinjiang	−2.3905	−2.2351	−1.7362	−1.2369	−0.7121	−0.2142	−0.0666	0.4346

From Table 2, China's provinces' high-quality economic development indexes showed an upward trend from 2006 to 2019. The five provinces with the highest economic high-quality development indexes in 2006 were Beijing, Shanghai, Tianjin, Zhejiang, and Jiangsu, which had 2.1242, 0.7851, −0.2658, −0.6220, and −0.6224, respectively. It can be seen that, even for the five provinces with the highest comprehensive index, this value was still deficient, indicating that China's economic development level was indeed inadequate at that time, with almost all provinces having negative values. By 2011, the five provinces with the highest economic high-quality development indexes were Beijing, Shanghai, Jiangsu, Tianjin, and Guangdong, with 4.1651, 2.5543, 1.3591, 1.2930, and 1.2738, respectively. After the reform and opening up, the speed and quality of economic development in coastal cities made significant progress. However, it can be seen that the national economic development level was still relatively low, and most provinces were negative. In 2015, the five provinces with the highest economic high-quality development index were Beijing, Shanghai, Guangdong, Jiangsu, and Tianjin, with 5.8555, 3.8061, 2.8317, 2.7820, and 2.6866, respectively. It can be seen that there was no significant change in the high-quality ranking. Still, the overall economic quality was dramatically improved, and the composite indexes of most provinces became positive. By 2019, the five provinces with the highest economic high-quality development index were Beijing, Shanghai, Guangdong, Zhejiang, and Jiangsu, with 9.6481, 5.5777, 5.4626, 4.1926, and 4.1408, respectively. The three provinces with the lowest economic high-quality development index were Xinjiang, Qinghai, and Gansu, with a composite index of 0.4346, 0.2455, and 0.1749, respectively. It shows that the composite

index was positive for all provinces, and the country's high economic growth has also considered the quality of economic development. The high-quality development index of almost all provinces from 2006 to 2019 showed a fluctuating upward trend, supporting this characteristic. In addition, we can also see that the economic quality of provinces in the eastern region improved significantly faster than provinces in the central and western areas, with significant regional differences. The regional differences between provinces are discussed in detail below.

4.2.2. Five Dimensions

This article uses the principal component analysis method to calculate China's inter-provincial five-dimensional high-quality index from 2006 to 2019 and synthesize a comprehensive index to measure the quality of China's economic growth. Due to space limitations, Table 3 only lists the high-quality, comprehensive index and rankings in 2019 and the index scores and scales in the five dimensions of innovation, coordination, greenness, openness, and sharing in 2019. To further analyze the strengths and weaknesses of different provinces, in Table 3, the top five regions in each dimension are marked with *, and the bottom five regions in each are marked with # to distinguish driving factors and weaknesses.

It can be seen from Table 3 that the five provinces with the highest comprehensive index of high-quality economic development in 2019 are Beijing, Shanghai, Guangdong, Zhejiang, and Jiangsu. These provinces or municipalities are located in coastal areas, except for the capital, Beijing, with fast economic development, free flow of factors, and a high degree of trade development. Because of their high degree of openness and marketization, they bring high-quality economic growth and more balanced development, ranking top in all five dimensions of development. However, Guangdong is slightly weaker in coordination development, mainly because Guangdong has a high degree of population mobility and many employment opportunities. It is more challenging to maintain price stability and employment stability. Greenness development in Jiangsu is slightly inadequate, mainly because industrial development in Jiangsu is relatively mature, with large-scale and many small- and medium-sized enterprises, which will inevitably bring higher greenness efficiency costs.

The provinces ranked in the bottom 5 of the comprehensive index of high-quality economic development in 2019 are Shanxi, Yunnan, Xinjiang, Qinghai, and Gansu. Most of these provinces are located in underdeveloped western regions. Yunnan Province has a well-developed tourism industry with a high greenness development index, ranking 6th among all areas. However, other aspects of the index are low, with shared development especially as the weakest. There are many soft factors in Shanxi, Xinjiang, Qinghai, and Gansu. The weak link in Shanxi is shared development; the weak link in Xinjiang is innovative development and greenness development; the weak link in Qinghai is creative development, greenness development, and open development; the weak link in Gansu is coordination development and greenness development. The geographical location limits the development of the region to a certain extent. For such provinces, it is necessary to formulate more appropriate economic policies according to local conditions.

Table 3. China provincial high-quality development index scores and rankings in 2019.

Province	High-Quality Development		Innovation Development		Coordination Development		Green Development		Openness Development		Shared Development	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Beijing	9.6481	1	11.6483	* 1	5.8516	* 1	15.3584	* 1	1.3776	6	7.7493	* 1
Shanghai	5.5777	2	5.7357	* 2	4.3918	* 2	2.5330	* 4	3.6489	* 3	7.4037	* 2
Guangdong	5.4626	3	4.9939	* 4	1.6382	14	3.3713	* 2	9.0114	* 1	4.2661	* 4
Zhejiang	4.1926	4	5.0005	* 3	2.9063	* 5	2.0779	8	2.2120	* 4	5.7538	* 3
Jiangsu	4.1408	5	4.4394	* 5	2.2419	7	1.8704	12	4.9864	* 2	4.0584	* 5
Tianjin	3.0861	6	3.1665	6	3.8312	* 3	2.0333	9	0.5905	9	3.3538	7
Fujian	2.2586	7	1.4462	8	1.5499	20	2.5348	* 3	0.6794	8	3.5539	6
Shandong	2.1492	8	1.0046	10	1.7009	12	2.0043	10	2.1263	*5	2.2659	16
Hubei	1.7984	9	1.4208	9	2.1126	8	1.7226	17	−0.0571	12	2.4416	12
Chongqing	1.7725	10	0.5407	12	1.8084	11	2.4829	* 5	−0.2104	16	3.0055	8
Anhui	1.6259	11	1.7714	7	1.6810	13	1.8326	14	−0.0862	13	1.7568	20
Sichuan	1.5917	12	0.0705	15	1.9111	10	1.6768	18	0.4197	10	2.6514	10
Hainan	1.5072	13	−0.9544	24	3.0253	* 4	1.7662	16	−0.4248	20	2.8037	9
Hunan	1.3650	14	0.2183	14	1.6041	15	1.8129	15	−0.1029	14	2.2938	15
Liaoning	1.3060	15	0.0702	16	1.5578	19	0.9285	# 26	0.8590	7	2.0528	17
Shanxi	1.0212	16	0.5980	11	0.7223	# 28	1.6538	20	−0.2681	17	1.7693	19
Hebei	0.9666	17	−0.5460	19	1.5802	17	1.6074	21	−0.0028	11	1.4040	22
Henan	0.9637	18	−0.1402	17	1.5906	16	1.6670	19	−0.1534	15	1.0728	# 28
Jiangxi	0.9472	19	0.2903	13	1.4868	21	1.4863	22	−0.3447	19	1.0747	# 27
Inner Mongolia	0.9469	20	−1.2612	# 28	1.5723	18	1.9242	11	−0.5533	24	2.3427	14
Jilin	0.8641	21	−0.6547	20	2.0772	9	1.1523	23	−0.5385	23	1.4892	21
Ningxia	0.7614	22	−0.1721	18	1.1757	23	1.0140	25	−0.7021	# 29	1.9438	18
Heilongjiang	0.6932	23	−0.8818	23	2.2824	6	0.7959	# 27	−0.5746	25	1.0954	# 26
Guizhou	0.6265	24	−0.6768	21	0.7062	# 29	2.1140	7	−0.6263	# 27	1.2514	25
Guangxi	0.6074	25	−1.0089	# 26	1.3690	22	1.0677	24	−0.3030	18	1.3786	23
Shanxi	0.6072	26	−0.8501	22	1.0917	24	1.8419	13	−0.5090	22	1.0140	# 29
Yunnan	0.6022	27	−1.1034	# 27	1.0322	# 26	2.1414	6	−0.4828	21	0.9970	# 30
Xinjiang	0.4346	28	−1.4721	# 30	1.0352	25	0.4028	# 29	−0.5990	# 26	2.4564	11
Qinghai	0.2455	29	−1.3079	# 29	0.8922	# 27	−0.2382	# 30	−0.7705	# 30	2.4341	13
Gansu	0.1749	30	−0.9900	25	0.5521	# 30	0.6239	# 28	−0.7008	# 28	1.2794	24

Note: The regions marked with * are the top five provinces in each dimension, and the regions marked with # are the last five provinces in each dimensions.

4.3. Spatial Evolution Analysis

4.3.1. High-Quality Spatial Distribution

According to China's high-quality economic development indicator, this article uses ArcGIS 10.6 software to draw a map. The darker the color, the greater the comprehensive index. Figure 2 reports the high-quality development indexes of 30 provinces in 2006, 2011, 2015, and 2019 to analyze the spatial dependence and heterogeneity of the high-quality development in Chinese regions.

The gradient of high-quality development is relatively evident from the spatial distribution, with a large gap between high-quality and low-quality regions with significant ranks. Specifically, the development quality of coastal cities is significantly higher than inland towns, and the development quality of eastern regions is higher than that of central and western regions. Only Sichuan and Chongqing have a higher index of high-quality economic development in the western regions. During the sample period, provinces with high economic high-quality development were concentrated in the Pearl River Delta urban agglomeration, the Yangtze River Delta urban agglomeration, and the Beijing–Tianjin Hebei urban agglomeration. The high-quality economic development zone has prominent tiered characteristics, which, to a certain extent, coincides with the dividing line of China's three significant tiers, indicating that the level of high-quality economic development is likely to be related to the natural geographic environment.

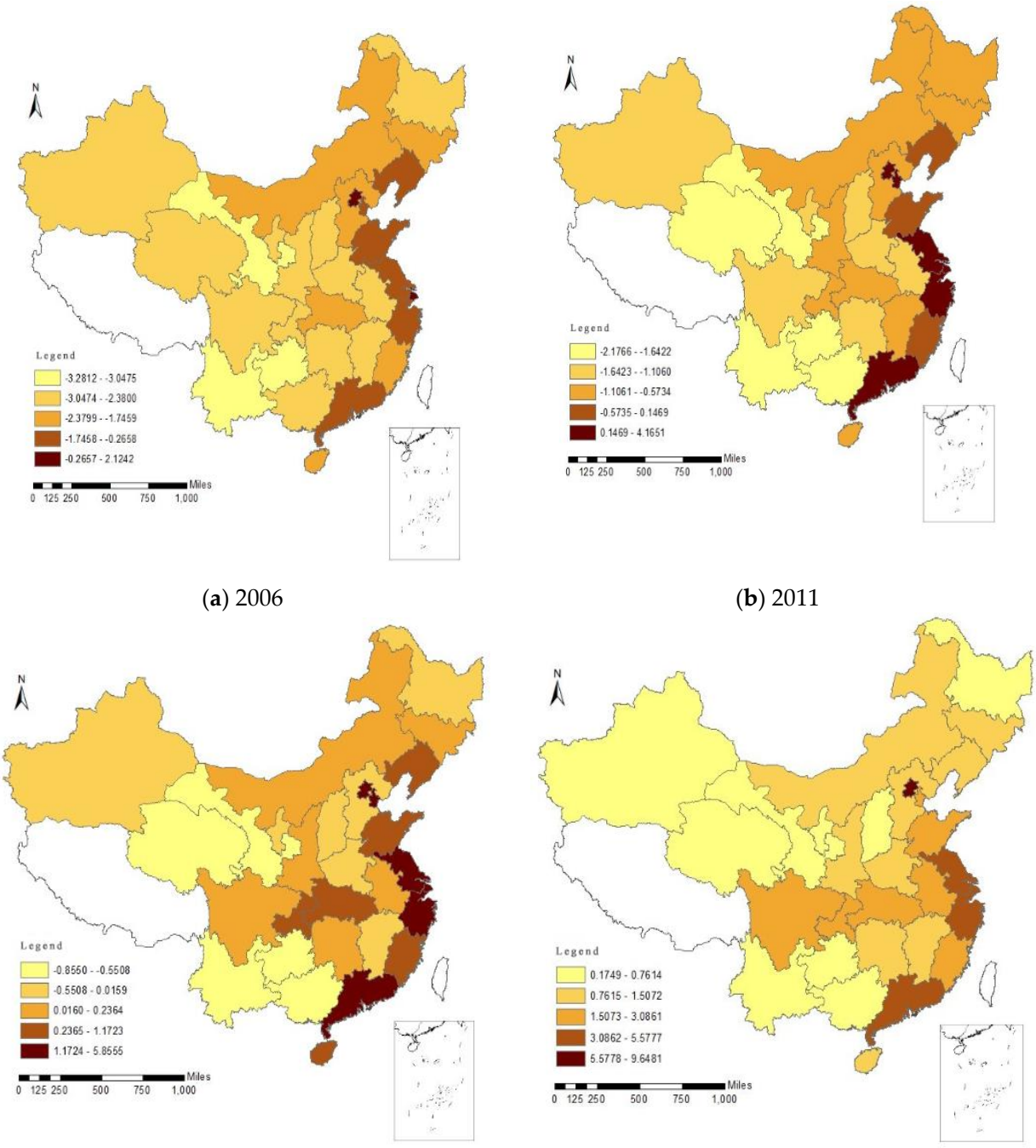


Figure 2. Spatial evolution of high-quality economic development in China in (**a**) 2006, (**b**) 2011, (**c**) 2015, and (**d**) 2019.

From the perspective of geospatial patterns, high-quality economic development shows spatial evolution characteristics from southeast to northeast. The economy of the coastal areas has always maintained a high-quality development trend. These areas have unique geographical conditions and resource endowments, a solid ability to gather factors, and high-quality economic development. The rankings of the western regions have been decreasing, especially that of Xinjiang. Although the quality of economic growth has continued to increase, the overall ranking in the country has declined. The economic development of the western region started late, with insufficient industrial support, low innovation capability, and openness, so it is not as fast as other regions. The rankings of the

three northeastern provinces and Inner Mongolia are also declining. Judging from the figure, the color of the northeast region is becoming lighter. The three northeastern provinces maintained rapid economic development before 2006. Still, it is difficult to optimize and upgrade the industrial structure in the Northeast region, the tertiary industry is backward, and economic development is gradually slowing down. The economic development of the central area has maintained a steady rise, with relatively minor fluctuations in rankings. The strategy for promoting the central region focuses on enabling the central region to maintain a good development environment.

4.3.2. Spatial Correlation Analysis

The global Moran index reflects the overall characteristics of the degree of spatial correlation of the research variables. Table 3 shows the Moran Index of China's high-quality economic development from 2006 to 2019.

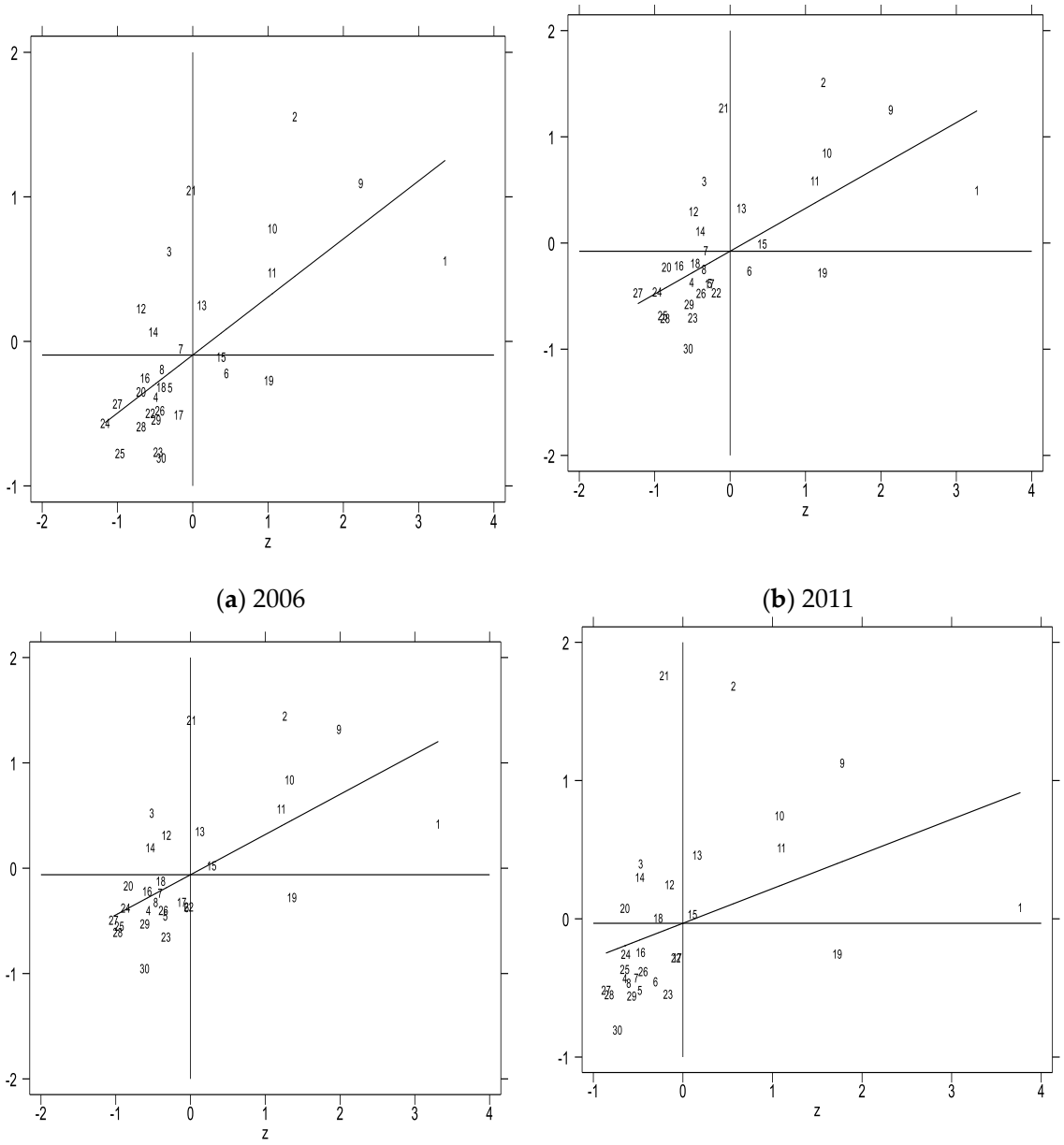
The data in Table 4 show that the spatial auto-correlation of high-quality development from 2006 to 2017 was above 0.32 and exceeded 0.4 for individual years. The Moran index for all years was positive at a significant level of 1%. This shows an apparent spatial auto-correlation in China's high-quality economic development; the correlation is relatively high, with a significant spatial agglomeration effect between high-value and low-value areas. Judging from the global Moran index trend, the spatial auto-correlation generally weakened from 2006 to 2019. The highest auto-correlation was in 2011, and the lowest was in 2018 and 2019. Different provinces have different development speeds, coupled with regional differences and policy influences, which have led to a gradual decrease in the degree of spatial correlation of geographic areas.

Table 4. Moran index of high-quality development of Chinese provinces from 2006 to 2019.

Variable	Moran Index	Z(I)	*p*-Value
2006	0.402	3.810	0.000 ***
2007	0.389	3.698	0.000 ***
2008	0.383	3.629	0.000 ***
2009	0.362	3.495	0.000 ***
2010	0.377	3.601	0.000 ***
2011	0.404	3.789	0.000 ***
2012	0.394	3.682	0.000 ***
2013	0.393	3.655	0.000 ***
2014	0.380	3.580	0.000 ***
2015	0.382	3.604	0.000 ***
2016	0.344	3.4	0.000 ***
2017	0.325	3.107	0.001 ***
2018	0.273	2.677	0.004 ***
2019	0.273	2.614	0.004 ***

Note: *** means the variable passed the significance test at the 1% level, respectively.

The global spatial auto-correlation Moran index cannot account for the heterogeneity between regions. Therefore, this article analyzes the spatial correlation of China's high-quality economic development through Moran scatter plots over four years. The number codes in Figure 3 refer to the following: 1—Beijing, 2—Tianjin, 3—Hebei, 4—Shanxi, 5—Inner Mongolia, 6—Liaoning, 7—Jilin, 8—Heilongjiang, 9—Shanghai, 10—Jiangsu, 11—Zhejiang, 12—Anhui, 13—Fujian, 14—Jiangxi, 15—Shandong, 16—Henan, 17—Hubei, 18—Hunan, 19—Guangdong, 20—Guangxi, 21—Hainan, 22—Chongqing, 23—Sichuan, 24—Guizhou, 25—Yunnan, 26—Shaanxi, 27—Gansu, 28—Qinghai, 29—Ningxia, and 30—Xinjiang. We can further measure the local spatial correlation, the degree of spatial difference, and the spatial distribution pattern between each region and the surrounding area.



(**a**) 2006 (**b**) 2011

(**c**) 2015 (**d**) 2019

Figure 3. Moran scatter plots of China's high-quality economic development in (**a**) 2006, (**b**) 2011, (**c**) 2015, and (**d**) 2019.

Figure 3 shows Moran scatter plots of China's high-quality economic development in 2006, 2011, 2015, and 2019. Table 5 shows the distribution of provincial quadrants based on the Moran scatter plot. Most of the provinces are in the L.L. quadrant during the sample period, followed by the H.H. quadrant, and fewer provinces are in the H.L. quadrant. Most of those in the H.H. quadrants are eastern provinces, indicating that the regions with high-quality economic development are concentrated in the east region. Almost all western areas are in the L.L. quadrant, indicating that regions with a low level of high-quality economic development are clustered in the west, reflecting the current situation of two-level aggregation of high-quality economic growth in China. It is consistent with the previous conclusions and, to a certain extent, indicates that China's economic development has shown the "Matthew Effect". Provinces that are developing fast are clustered together and growing faster while developing areas are creating more slowly, which causes the

spatial correlation between regions to weaken. In addition, the eastern provinces have the same development trend, which also verifies the conclusion of the previous discussion—the rapid development of the Pearl River Delta urban agglomeration, the Yangtze River Delta urban agglomeration, and the Beijing-Tianjin-Hebei urban agglomeration has an enhancing effect on the high-quality economic development of the province. Sichuan and Chongqing in the western region have unique geographical advantages and resource endowments, so the quality of economic growth is higher than that of the surrounding provinces. However, they are still in the L.L. quadrant from the perspective of spatial correlation. Compared with different years horizontally, most regions did not fluctuate greatly, indicating that the high-quality development of China's economy is generally relatively stable.

Table 5. Provincial quadrant distribution of Moran scatter plots in 2006, 2011, 2015 and 2019.

Year	H.H. Quadrant	L.L. Quadrant	H.L. Quadrant	L.H. Quadrant
2006	Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian	Shanxi, Inner Mongolia, Heilongjiang, Henan, Hubei, Hunan, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang	Liaoning, Shandong, Guangdong	Hebei, Jilin, Anhui, Jiangxi, Hainan
2011	Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong	Shanxi, Inner Mongolia, Jilin, Heilongjiang, Henan, Hubei, Hunan, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang	Liaoning, Guangdong	Hebei, Anhui, Jiangxi, Hainan
2015	Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Hainan	Shanxi, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Henan, Hubei, Hunan, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang	Guangdong	Hebei, Anhui, Jiangxi
2019	Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong	Shanxi, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Henan, Hubei, Chongqing, Sichuan, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang	Guangdong	Hebei, Anhui, Jiangxi, Hunan, Guangxi, Hainan

Generally speaking, there is spatial auto-correlation and spatial heterogeneity in the high-quality economic development in China. The spatial distribution is highly uneven, and a relatively stable spatial pattern formed in different regions. The formation of this pattern is closely related to China's geographical and historical characteristics. We should pay more attention to the unbalanced spatial distribution and drive regions with low-quality economic development through areas with high-quality economic development to improve China's overall level of high-quality economic growth.

5. Empirical Analysis of the Influencing Factors of High-Quality Economic Development

5.1. Model Design and Variable Selection

Many factors affect high-quality economic development. Because the characteristics of economic growth are closely related to factor endowments and have regional characteristics, the current regional economic development is unbalanced in China. The factors affecting the high-quality economic development in different regions are also various. Based on summarizing the existing factors affecting high-quality economic growth, data availability is also taken into account. This paper selects six variables, including industrial structure, technological innovation, infrastructure, government support, energy structure, and the digital financial inclusion index, as explanatory variables that affect high-quality economic development. Indicators such as industrial structure include social and macroeconomic characteristics, which are difficult to measure comprehensively. At the same time, to avoid endogenous impact on the empirical results with the measurement of high-quality economic development, the empirical variables select specific and relevant indicators to replace these six variables.

It should be noted that these specific indicators are not fully macro-variable measures but only serve as surrogate indicators for empirical testing.

(1) Industrial structure (*is*). The upgrading of industrial structure is a process in which the status and relationship of various industries in the industrial structure are transformed into a higher and more coordinated direction. The relative scale changes among sectors can characterize the upgrading of industrial structure. This paper uses the ratio of the added value of the tertiary sector to that of the secondary industry to measure the upgrading of the industrial structure. The larger the indicator is, the more reasonable and advanced the industrial structure is.

(2) Technological innovation (*rd*). Advanced technology can directly affect production efficiency and the degree of utilization of resources and talents. At present, China is in a period of economic transformation. Extensive industries are transformed into intensive industries; labor-intensive and resource-intensive industries are transformed into technology-intensive sectors. The core of these reforms is technological innovation. This paper adopts the full-time equivalent of R&D personnel as the level of technological innovation in a region. The higher the indicator, the higher the level of technological innovation in this region.

(3) Infrastructure (inf). The foundation of regional economic development is infrastructure; a convenient life can bring higher production efficiency. The level of infrastructure construction in a region can also reflect the governance capacity of the local government. This paper uses per capita urban road area (square meters) as an infrastructure indicator. The higher the index value, the better the urban infrastructure construction.

(4) Government Support (*gov*). To a certain extent, the government's strengthening macro-control over the market will help promote coordinated regional development. However, strengthening government intervention in the market may lead to monopoly and industry discrimination. It is not conducive to the coordinated development of the industry and the coordinated development of regions. The final impact on the high-quality economic growth depends on the combined effect of the two. This paper uses the proportion of fiscal general public budget expenditure to GDP to represent government support. The larger the indicator, the stronger the economic support from the government.

(5) Energy structure (*ene*). The energy structure directly affects the final energy consumption of various sectors of the national economy and reflects people's living standards. This paper uses the ratio of regional coal consumption to total energy consumption to measure the energy structure of different regions. The larger the indicator is, the more unreasonable the energy structure of the area.

(6) Digital financial inclusion index (dfi). This is a comprehensive index synthesizing the availability, coverage, and benefits after integrating digital technology and traditional financial services. The Digital Finance Research Center of Peking University in China and the Ant Group Research Institute used Ant Group's massive data on digital financial inclusion to compile the Peking University Digital Financial Inclusion Index. This paper uses this indicator to represent the development level of the digital economy. The larger the indicator, the higher the development level of the digital economy.

Based on the above situation, this paper uses the ordinary least squares method (OLS) and feasible generalized least squares method (FGLS) to analyze the impact of the six explanatory variables on high-quality economic development. The specific model is shown in Equation (2):

$$hqd_{i,t} = \alpha + \beta_1 \cdot is_{i,t} + \beta_2 \cdot rd_{i,t} + \beta_3 \cdot inf_{i,t} + \beta_4 \cdot gov_{i,t} + \beta_5 \cdot ene_{i,t} + \beta_6 \cdot dfi_{i,t} + \mu_i + \varepsilon_{i,t} \quad (2)$$

In Equation (2), *hqd* is the explained variable of high-quality economic development and β_i is the influence coefficient of the six explanatory variables. α is the constant term, i represents the region, t donates the year, μ is the unobservable solid effect of the high-quality development of the inter-provincial economy, and ε is the random disturbance term of the model.

The explained variable of this paper is high-quality economic development (*hqd*), which was measured above. A total of 30 interprovincial panel data were obtained from 2011 to 2019. Data sources for other variables are the same as above. The data are, respectively, from "China Statistical Yearbook" (calendar year), "China Information Yearbook" (Calendar year), and "China Industrial Statistics Yearbook" (Calendar year). A total of 30 provincial panel data from 2011 to 2019 are obtained. Table 6 presents the results of the descriptive statistical analysis.

Table 6. Descriptive statistical analysis.

Variable Name	Variable Meaning	Mean	Std. Dev.	Min	Max
hqd	High-quality economic development	0.748	1.802	−2.177	9.648
is	Industrial structure	1.174	0.667	0.520	5.170
rd	Technological innovation	12.672	14.162	0.401	80.321
inf	Infrastructure	15.592	4.686	4.040	26.200
gov	Government Support	0.249	0.103	0.110	0.628
ene	Energy structure	0.936	0.442	0.020	2.460
dfi	Digital financial inclusion index	203.358	91.567	18.330	410.280

5.2. Empirical Results and Analysis

Based on the model's fixed-effects and random-effects regression, a robustness regression of the model was also performed using feasible generalized least squares (FGLS). In addition, the 30 provinces are divided into eastern, central, and western regions by geographical location. In this paper, FGLS regression is conducted to analyze the impact gap of these six influencing factors on the high-quality economic development of different regions. The regression results are shown in Table 7. Overall, the estimated coefficients and signs of the effects of other explanatory variables on high-quality economic development are consistent, and the regression results are more robust.

Table 7. Regression results of factors influencing high-quality economic development.

Sample Area	Nationwide			Eastern Region	Central Region	Western Region
Empirical Method	**OLS (fe)**	**OLS (re)**	**FGLS**	**FGLS**	**FGLS**	**FGLS**
is	0.9472 ***	1.0514 ***	1.254 ***	1.24 ***	0.5474 ***	0.0586
	(2.86)	(13.09)	(9.81)	(10.31)	(4.93)	(0.32)
rd	0.0570 ***	0.0552 ***	0.0507 ***	0.0415 ***	−0.0015	0.0379 ***
	(5.29)	(13.45)	(11.21)	(8.92)	(−0.12)	(3.33)
inf	0.0197 *	0.0062	0.0194 *	−0.0475 ***	0.0456 ***	0.0309 ***
	(1.75)	(0.63)	(1.65)	(−2.63)	(5.14)	(3.35)
gov	−2.844 **	−2.902 ***	−3.242 ***	−8.762 ***	−3.4986 ***	−1.693 ***
	(−2.47)	(−4.80)	(−8.96)	(−5.73)	(−3.12)	(−4.92)
ene	−0.5511 *	−0.4803 ***	−0.1604	−1.5868 ***	−0.081	−0.1409 *
	(−1.93)	(−3.35)	(−1.39)	(−3.85)	(−1.04)	(−1.76)
dfi	0.0048 ***	0.0049 ***	0.0049 ***	0.0053 ***	0.006 ***	0.0067 ***
	(6.93)	(14.82)	(10.80)	(9.06)	(10.56)	(11.19)
Constant term	−1.165 ***	−1.107 ***	−1.0877 ***	1.655 ***	−1.428 ***	−1.4615 ***
	(−3.64)	(−4.37)	(−4.64)	(3.60)	(−4.46)	(−4.80)
Number of provinces/units	30	30	30	12	9	9

Note: ***, **, * means the variable passed the significance test at the 1%, 5%, and 10% level, respectively.

Specifically, according to the regression results in Table 7, it can be found that:

(1) The upgrading of industrial structure has a significant positive impact on high-quality economic development. From the OLS regression results of fixed and random effects, the influence coefficients of the industrial structure are 0.9472 and 1.0574, respectively, which are significant at the 1% level. According to the FGLS regression of the eastern,

central, and western regions, the coefficients of the industrial structure are 1.24, 0.5474, and 0.0586, respectively. The regression of the central and east regions passed the 1% significance level test, and the structure of the western region was not significant. The proportion of the added value of the tertiary industry increased, and the optimization and upgrading of the industrial structure can improve the utilization rate of resources. The most important thing is to improve the efficiency of green development and reduce the level of environmental pollution to drive high-quality economic development. From a regional perspective, the impact of industrial structure in the eastern region is higher than that in the central region, and the effect in the western area is uncertain. The economic development level of the central and east regions is high, and the optimization and upgrading of the industrial structure significantly impacts high-quality economic development.

(2) The level of technological innovation has a significant positive impact on high-quality economic development. From the OLS regression results of fixed and random effects, the influence coefficients of technological innovation are 0.0570 and 0.0552, respectively, and are significant at the 1% level. According to the FGLS regression of the east, central, and west regions, the coefficients of technological innovation are 0.0415, −0.0015, and 0.0379, respectively. The regression results for the eastern and western areas are significant at the 1% level. The essence of high-quality economic development is the improvement of social production efficiency brought about by technological progress. Developed regions invest more in technological innovation, and their economic infrastructure and talent pool are higher than those in less developed regions. Therefore, the role of technological innovation in promoting high-quality economic development in the eastern region is significantly higher than that in the western region.

(3) Infrastructure investment has a significant positive impact on high-quality economic development. From the OLS regression results of fixed and random effects, the influence coefficients of the industrial structure are 0.9472 and 1.0574, respectively, which are significant at the 1% level. According to the FGLS regression of the east, central, and west regions, the coefficients of the infrastructure level are −0.0475, 0.0456, and 0.0309, respectively, all of which pass the 1% significance test. The better the infrastructure construction in a region, the faster the economy will operate, and it can also attract talents to settle down and increase the happiness of its residents. The capital investment in infrastructure construction is relatively significant, and different regions are heterogeneous. The infrastructure in the eastern region is already good enough and a large amount of capital investment will inhibit high-quality economic development. Infrastructure investment in the central and western areas can promote high-quality economic development.

(4) Government support significantly negatively impacts high-quality economic development. From the OLS regression results of fixed and random effects, the influence coefficients of government support are −2.844 and −2.902, significant at the 5% and 1% levels, respectively. From the FGLS regression of the eastern, central, and western regions, the influence coefficients of government support were −8.762, −3.4986, and −1.693, respectively, all of which passed the 1% significance level test. Increased government support strengthens the government's intervention in the market, which may lead to monopoly and industry discrimination, and reduce coordination between industries and regions—the more developed the area, the more significant the negative impact. The market operation of developed regions relies more on their efficient adjustment capabilities, so the inhibitory effect of government support is also higher.

(5) The energy structure significantly negatively impacts high-quality economic development. From the OLS regression results of fixed and random effects, the influence coefficients of energy structure are −0.5511 and −0.4803, significant at the 10% and 1% levels, respectively. According to the FGLS regression results of eastern, central, and western regions, the influence coefficients of energy structure are −1.5868, −0.081, and −0.1409, respectively. The east region passed the 1% significance test and the western region passed the 10% significance test. The higher the energy structure, the less clean energy is used. The more significant the proportion of coal used in energy, the greater the negative impact

on environmental pollution, inhibiting high-quality economic development. As the result of different regional heterogeneities, the degree of inhibition of the energy structure in the eastern region is much higher than that in the western region. High-quality economic development in developed regions requires coordinated action at all levels, and the negative impact of an unsuitable energy structure is more significant.

(6) The digital financial inclusion index has a significant positive impact on high-quality economic development. From the OLS regression results of fixed and random effects, the impact coefficients of the digital financial inclusion index are 0.0048 and 0.0049, respectively, both of which are significant at the 1% level. The regression results of the eastern, central, and western regions are not significantly different from nationwide ones. The integration and innovation of emerging digital industries such as "digital payment", "artificial intelligence", and "e-commerce" with traditional sectors is an excellent impetus for high-quality economic development. The digital economy has intense penetration and diffusion. When industrial digitization and digital industrialization are taking shape, their influence is no longer limited to the circle of information transparency. Instead, it will innovate on the original business models of various industries and greatly promote high-quality economic development.

6. Conclusions and Policy Recommendations

6.1. Conclusions

Based on the five development concepts of innovation, coordination, greenness, openness, and sharing, this article constructs a comprehensive evaluation system for high-quality economic development, including five dimensions and 15 secondary and 33 tertiary indicators. These five dimensions measure the high-quality economic development index from 2006 to 2019. Then, this paper studies the influencing factors of high-quality economic development using the panel data of 30 provinces from 2011 to 2019. The following conclusions are obtained: China's regional economy's overall high-quality development level has shown an upward trend. Additionally, it maintains a stable, balanced, and rapid development state with small fluctuations and has the characteristics of linear development. It maintains a sound, balanced, and fast development state with small volatility and has the features of linear development. From the perspective of different dimensions, there are significant differences between regions and the development of regional economic quality is extremely unbalanced. The quality of economic development of the provinces in the eastern region is much higher than that in the central and western regions. From the perspective of spatial distribution, high-quality development has obvious ladders, and the phenomenon of two-level differentiation is more severe. From the perspective of spatial correlation, there is obvious spatial autocorrelation in the high-quality development level of China's economy, and the correlation is relatively high. The spatial clustering effect of high-value and low-value regions are more obvious.

First, regarding overall economic development, high-quality economic development has shown a general upward trend in China from 2006 to 2019. The comprehensive index of high-quality economic development increased from −3.3840 in 2006 to 3.4798 in 2019. In these 13 years, China's high-quality development maintained a stable, balanced, and rapid development state, with minor fluctuations and linear development characteristics.

Second, from the perspective of regional economic development, high-quality economic development in China's provinces has shown an upward trend from 2006 to 2019. There was no significant change in the ranking of the regions in the economic quality development index, but the overall economic quality improved substantially. While the national economy was developing rapidly, the quality of economic development was also considered.

Third, there are significant differences between regions from different dimensions, and overall development is relatively fast. Provinces with balanced economic development are located in coastal areas, except for the capital, Beijing, with fast economic growth, free flow of factors, and a high degree of trade development. Because of their high degree of

openness and marketization, they bring high-quality economic development and more balanced development. However, provinces with low high-quality economic development indexes, such as Shanxi, Xinjiang, Qinghai, and Gansu, have more weak factors. Their geographical location limits the region's development to a certain extent.

Fourth, the gradient of high-quality development is relatively evident from the spatial distribution, with a large gap between high-quality and low-quality regions with significant rank. The high-quality economic development zone has prominent tiered characteristics, which, to a certain extent, coincides with the dividing line of China's three essential tiers, indicating that the level of high-quality economic development is likely to be related to the natural geographic environment. From the perspective of geospatial patterns, high-quality economic development shows spatial evolution characteristics from southeast to northeast. The coastal economy regions have always maintained a high-quality development trend, and the ranking of the western part has been decreasing.

Fifth, from the perspective of spatial correlation, there is an apparent spatial auto-correlation in the level of China's high-quality economic development. The correlation is relatively high, with a significant spatial agglomeration effect between high-value and low-value areas. Judging from the global Moran index trend, the spatial auto-correlation generally weakened from 2006 to 2019. Different provinces had different development speeds, coupled with regional differences and policy influences, which led to a gradual decrease in the degree of spatial correlation of geographic areas.

Based on the measurement of high-quality economic development, this paper tests the factors affecting high-quality economic growth using the ordinary least squares method (OLS) and the feasible generalized least squares method (FGLS). The research results show that: the optimization and upgrading of industrial structure, technological innovation level, infrastructure investment, and digital financial inclusion index have a significant positive impact on high-quality economic development and have regional heterogeneity. However, government support and energy structure can inhibit high-quality economic growth.

6.2. Policy Recommendations

Combined with the above analysis and discussion, we propose the following recommendations for improving high-quality economic development and realizing kinetic energy conversion.

6.2.1. Promote Technological Innovation and Improve the Innovation Mechanism

To achieve high-quality economic development, it is necessary to improve the independent innovation capabilities of universities and research institutes, especially the research institutions of enterprises. Only technological innovation is the new driving force for enterprise development and the source of power for high-quality economic development.

First, from the perspective of enterprises, it is necessary to fully play the role of new-generation digital technologies such as artificial intelligence, blockchain, and 5G mobile communications. We also apply digital technology to product development, project development, operation management, and other aspects of enterprise. Guided by consumer demand, with corporate research and development as the main body, a technological innovation system integrating production, learning, research, and production will be established. Technological innovation provides a source of power for enterprises. Integrating digital technology with the traditional economy has given inexhaustible impetus to high-quality economic development.

Second, from the government's point of view, it is necessary to establish a more reasonable cooperation mechanism to transform technological innovation achievements. We can connect universities, third-party R&D institutions, corporate R&D institutions, and corporate entities. Let the important innovation achievements be transformed and implemented in enterprises, industrial parks, science and technology parks, and other incubation bases and put into production applications, and get more profits to support more technology research and development and innovation. The government should also

encourage enterprises to carry out R&D and innovation in digital technology and strive to achieve certain breakthroughs in critical areas and core technologies, for example, the direction of artificial intelligence in the digital economy, the direction of data mining, and striving for more financial investment and talent introduction. According to the actual situation of the development of digital technology, we will focus on introducing high-end talents in the fields of "stuck neck" and "bottle neck" and continuously improve the ability of technological innovation.

6.2.2. Strengthen Inter-Provincial Cooperation and Narrow the Development Gap

The unbalanced high-quality economic development has seriously affected the collaborative and healthy development of China's economy. In particular, the slow improvement of high-quality economic development in the western region has restricted the high-quality economic development of the central and eastern regions to a certain extent. Therefore, it is necessary to strengthen inter-provincial cooperation and narrow the development gap.

First, areas with a high economic development quality drive the development of sites with a low economic development quality. The government should promote the integrated development of urban agglomerations, continuously promote intra-city exchanges and cooperation, and increase urban openness. It should establish a sound and efficient institutional mechanism to allow elements to flow flexibly and smoothly in different regions, coordinate the industrial division of labor among cities, and give full play to the advantages of resource endowments, thereby improving regional coordinated development. Strengthening interregional cooperation requires government departments to provide full freedom to the effects of technology spillovers, management spillovers, and knowledge spillovers, thereby promoting the flow of talents and improving the green channel for inter-regional enterprise exchanges.

Second, it should formulate economic policies following local conditions. Because different regions have different natural conditions and factor endowments, the speed of economic development varies greatly. From the measurement of the five dimensions, we can see that other regions have their strengths and weaknesses. Therefore, the government should adopt measures to local conditions and formulate a system that meets the regional economic development director. While maintaining its development advantages, the eastern region will compensate for its shortcomings and assist the development of the central and western areas. The west region can cooperate with the Belt and Road economic policy and actively integrate into global marketization. For example, led by the government, high-tech company headquarters, R&D departments, and design and other high-end service departments are placed in the eastern region. Because the talent gathering in the east part has the advantage of innovation, the processing and manufacturing industry can be placed in the central and western areas because the west and major regions have labor advantages. In this way, according to the regional economic characteristics, the benefits of regional factor resources can be brought into play, and an integrated development of the industrial chain can be formed in China.

6.3. Future Research

This paper establishes a relatively large index system to measure the quality of China's regional economic development. However, due to the lack of data at the prefecture level or city level for many indicators, the paper only measures the total score of the quality of economic development at the inter-provincial level. Additionally, the local data are too rough to study China's regional economic development. Other data collection software and methods can be used in future academic research. The data must not be sourced entirely from the Bureau of Statistics. With time, future statistical and third-party data will also be more and more perfect. We can obtain relevant data that more directly reflect the quality of economic development. Then, the indicator system for the quality of economic development can be perfect, and the use of prefecture-level city data for measurement can be more realistic and systematic.

After conducting a series of measurements, analyses, and discussions, we have scientifically evaluated the level of overall and inter-provincial economy high-quality development in China. The next direction of our research should be to determine the influencing factors to address the high level of high-quality economic development. Based on the analysis of the current state of economic development, we will continue to study the impact of different factors on high-quality economic development and give appropriate suggestions and supplements to the economic policies implemented in China.

However, due to data availability, we cannot exhaustively list all the factors affecting the quality of economic development. There are still some shortcomings in this study. In the future, high-quality economic development can be studied from the perspective of rural economic development. It is also possible to use prefecture-level city data or urban agglomeration data to learn high-quality economic development measurements and influencing factors. They can further improve the study of China's economic transition period. In addition, the digital economy can allow for conducting more in-depth research on high-quality regional economic development. Every scientific and technological revolution and industrial change proposed by the state requires corresponding infrastructure support. In future research, we can conduct more in-depth research from the perspective of urban agglomerations, the perspective of prefecture-level cities, the perspective of manufacturing, the perspective of the service industry, the perspective of industry, and the perspective of enterprise digital transformation.

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