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Research Article

Analysis of the Influence of Economic Complexity on Regional Economic Management Based on Computer Informatization Model

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This study adheres to the principle of combining empirical analysis and normative analysis and establishes an analytical framework according to the research ideas from theoretical analysis to empirical analysis to countermeasures. Suggestions for high-quality economic growth in my country and paths for promoting coordinated regional development were made. This study will take the data from 1993 to 2020 as a unit, taking into account factors such as education, consumption, investment, and labor costs and using SAR model, SEM model, and spatial panel data model to measure the degree of economic complexity in my country. For the research on the difference of regional economic growth in my country, this study is refined to the county level to measure the degree of regional economic development and compare and analyze the regional development differences, and we strive to use empirical evidence to scientifically analyze the degree of economic complexity and regional development differences, using the spatial panel model, SAR model, and SEM model to comprehensively consider the impact of my country's economic complexity on regional economic growth differences; finally, combined with theoretical analysis and empirical test results, based on the perspective of economic complexity, coordinated development provides countermeasures and provides corresponding suggestions for the high-quality development of my country's economy, the continuous optimization of industrial structure, and the establishment of regional cooperation mechanisms.

1. Related Introduction

The continuous upgrading of industrial structure, diversification of industrial types, and increasing economic complexity enable enterprises to formulate a reasonable development direction according to social needs. Finally, China encourages enterprises to take the path of green development, strengthen the content of science and technology, reduce resource consumption, actively realize the transformation of industrial structure, and make China's industrial structure scientific and reasonable. All this means that the stability of China's economic growth has been enhanced, and the diversity and complexity of the economy are also improving. With the continuous upgrading and optimization of industrial structure, industrial diversification, and the improvement of economic complexity, higher requirements are put forward for the measurement of economic development efficiency. More comprehensive, more specific, and more complex measurement indicators are indispensable for China's economic development in the construction of modern economic system. All regions pay more and more attention to the healthy development of market economy, actively explore regional cooperation and regional mutual assistance mechanisms, and pay more and more attention to the relationship between government and market. The current situation of China's regional economic development still has the problems of large regional economic differences and unbalanced regional social and economic development. In recent decades, most of the work of quantifying the complexity of socioeconomic systems and financial markets has been done by physicists. They help promote economic research by introducing Physics related

research methods and models into economic research. Although scholars have conducted a series of studies on economic development, international economic complexity, regional development balance, and other issues, under the background of China's economic growth from high speed to medium high speed, from high speed to high quality, based on the perspective of economic complexity, there is a lack of research on the level of economic development and regional development differences in China [1–10].

This study adopts a relatively novel nonmonetary index-economic complexity index as the measurement index of China's economic development and analyzes the differences of regional economic growth in China by subdividing counties. SEM model analyzes the impact of China's economic complexity on regional economic growth differences and improves the relevant theoretical research. Finally, based on a series of research evidence, this study attempts to put forward the countermeasures to control the dynamic and coordinated development of regional economy from the perspective of economic complexity, so as to provide some reference for broadening the research field of economic complexity and regional economy and growth differences.

2. Related Research Methods and Measurement Models

2.1. Theil Index. Theil entropy standard index calculates the inequality degree of regional or individual indicators through entropy, which is abbreviated as TL index in the article. The value of the TL index ranges from 0 to 1, with a coefficient approaching 0 indicating a small amount of difference, and a coefficient approaching 1 indicating a large developmental difference in the subject variable. And the Theil index has a decomposition property, which has a fine-grained role in the analysis of the difference properties of the measured subjects. The main formula of Theil index is as follows [11–15]:

$$T = \frac{1}{n}\sum_{i=1}^{n}\frac{y_i}{\overline{y}}\ln\left(\frac{y_i}{\overline{y}}\right). \tag{1}$$

The following formula is the application formula after data grouping:

$$T = \sum_{k=1}^{k} w_k \ln\left(\frac{w_k}{e_k}\right). \tag{2}$$

The good decomposability of the index can refine the research on the differences of the subjects and, more specifically, measure the degree of inequality of the measurement subjects. When the number of subject samples is large, it can be regarded as multiple group samples, and the disassembly of the main expression of Theil formula can analyze the contribution of the gap between sample groups and the gap within the group to the total gap specifically as follows:

$$\begin{aligned} T = T_b + T_w &= \sum_{k=1}^{k} y_k \ln\left(\frac{y_k}{n_k/n}\right) \\ &+ \sum_{k=1}^{k} y_k \ln\left(\sum_{i\in g_k}\frac{y_i}{y_k}\ln\frac{y_{i/}y_k}{1/n_k}\right). \end{aligned} \tag{3}$$

The difference between groups T_b is expressed as

$$T = \sum_{k=1}^{k} y_k \ln\left(\frac{y_k}{n_k/n}\right). \tag{4}$$

The intragroup gap T_w is expressed as follows:

$$T_w = \sum_{k=1}^{k} \mathrm{yk}\left(\sum_{i\in g_k}\frac{y_i}{y_k}\ln\frac{y_i/y_k}{1/n_k}\right). \tag{5}$$

T is the Theil index to measure inequality; k is the grouping sample value; y_i is the value of the individual; y_k is the variable value of the k group; e_k is the population proportion; n_k is the number of individuals in the k group g_k; w_k is the proportion of k groups of values to the total value. The sum of the within-group gaps of each group constitutes the within-group gap term, and the specific calculation methods are not very different.

2.2. Moran's I. Combine spatial data and variable data to analyze the characteristics of spatial data. The highlight of spatial measurement is that relatively common panel data or cross-sectional data take into account the effect of mutual distance to take into account the spatial effects and spatial dependencies between variables. Before constructing a spatial econometric model, it is necessary to consider the spatial relationship between regions and construct a spatial weighting matrix. In this paper, a geographic weight matrix W is constructed based on the geographic adjacency relationship. W contains the regional distance spatial matrix of 31 provinces and cities in my country (excluding Hong Kong, Macao, and Taiwan). Ordinary time series are only unidirectionally correlated, while spatial series have multidirectional correlations of variables, and there is the possibility of mutual influence. Before constructing a related spatial model, it is necessary to test the dependence and correlation of geographic space. For example, if Moran's I passes the test, a spatial econometric model can be used for analysis, and a spatial econometric model can be constructed for analysis. The correlation test shows that there is no spatial correlation in the tested area, so the time series model of Putin is suitable for analysis. Moran's I is actually the coefficient between the observed variable and the spatial lag, and the equation is expressed as

$$\mathrm{Moran's\,I} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} W_{\mathrm{ij}}\left(x_i - \overline{x}\right)\left(x_j - \overline{x}\right)}{S^2\sum_{i=1}^{n}\sum_{j=1}^{n} W_{\mathrm{ij}}}. \tag{6}$$

The construction of Moran's index is based on the establishment of the spatial weight matrix W, i and j are expressed as the distance between regions, and S^2 is the sample variance, expressed as

$$S^2 = \frac{\sum_{i=1}^{n} (x_i - \overline{x})^2}{n}. \quad (7)$$

2.3. Spatial Lag Model (SAR). Spatial lag model SAR is a kind of spatial econometric model. The spatial lag model is also known as the spatial autoregressive model. The model lag process is an autoregressive process. There are many complex classifications of spatial econometric models, and there are higher-order and more complex situation settings in order. In view of the difficulty in estimating the spatial weight problem in the model, the current spatial econometric models are mostly based on the first-order model. The first-order autoregressive model and the first-order average moving model are set based on adding spatial weights to consider. The spatial lag model SAR reflects whether the correlation of the dependent variable affects the nearby area through a spatial mechanism. Formally, the space lag model is related to the ordinary time lag model, and there are similarities between the two, but the space lag model adds space factors to consider, and the multidirectionality of the space correlation makes the calculation of the space effect necessary. The expression of the spatial lag model SAR is as follows [16]: SAR model has a negative impact on my country's economic complexity and poor regional economic growth. Comprehensive consideration of the impact of different

$$y = \lambda W_y + X\beta + \varepsilon. \quad (8)$$

W is the established spatial matrix. There are various types of matrix, including geospatial weight matrix, economic distance spatial weight matrix or traffic weight matrix, etc. X is the data matrix, and λ is the spatial autoregressive coefficient, that is, the parameter of the lag term, the measurement. The significance of the influence of the spatial lag matrix on y is to measure the spatial multidirectional effect of each observation variable introduced into the model, β is the correlation coefficient, and ε is the white noise interference term.

2.4. Spatial Error Model (SEM). The spatial dependence of variables can also be represented by the error term. This model form reflects the effect that the regional spillover is a random outflow and is called the spatial error model SEM. The spatial error model expression is as follows:

$$y = X\beta + \mu = X\beta + (\mathrm{PMu} + \varepsilon), \quad \varepsilon \sim N\left(0, \sigma^2 I_n\right). \quad (9)$$

μ is the disturbance error term, and the regression value residual vector has spatial dependence; M is the spatial weight matrix; p is the autoregressive parameter, which means to measure the influence scale and degree of the variables in the local area on the surrounding area, etc. Spatial dependence: ε is the white noise interference term. This model is suitable for the measurement of the spatial relationship between the spatial dependence value and the variable due to the difference of the geographical relative position of the region in the presence of the spatial effect.

3. Spatial Econometric Analysis of the Impact of Economic Complexity on Regional Economic Growth Differences

3.1. Data Sources. In this experiment, the basic data of 31 provinces and cities in my country from 1993 to 2020 were selected for analysis. The reason why the study area does not include Hong Kong, Macao, and Taiwan is because the differences in the basic conditions of listing in various regions may lead to errors in model setting and parameter calculation. The data of this study come from "China Statistical Yearbook," "China County Statistical Yearbook," "China Financial Yearbook," "China Fixed Asset Investment Statistical Yearbook," "China Labor Statistics Yearbook," "China Science and Technology Statistical Yearbook," "China Education Statistical Yearbook," China Education Expenses Statistical Yearbook, China Price and Urban Residents Income and Expenditure Survey Statistical Yearbook, and provincial (municipal and autonomous region) statistical yearbooks and social statistical bulletins. The listed company data used to measure economic complexity in my country comes from the reset financial database. The selected dataset mainly uses the basic registration information and financial information of all listed companies on the Shanghai Stock Exchange and Beijing Stock Exchange since 1993 to 2020. The relevant experimental data in [17] can be viewed from the public official website, the data is authentic and reliable, and it has a certain representative significance. The relevant experimental data can be accessed from the public official website, and the data is authentic and reliable and has certain representative significance.

3.2. Spatial Autocorrelation Test of Regional Economic Growth Differences in My Country. The most common method to measure the spatial sequence and the spatial autocorrelation is Moran's I. Correlation: the Moran index I is between −1 and 0; that is, the measurement high-value area is adjacent to the low-value area. First of all, the article sets the spatial matrix of the 31 provinces and cities observed, and the 0-1 spatial weight matrix of 31×31 is used here. Table 1 shows the results of the global autocorrelation bilateral test on the Theil index of the explanatory variables in 31 provinces and cities. The global spatial autocorrelation index of my country's regional economic disparities, the Moran index, is all greater than 0, indicating that regional economic disparities have spatial correlations (Table 1). Except from 1993 to 1997 and 2004, the rest of the years passed the P test at the 5% level, and the test results are true and valid as a whole. This proves that the differences in regional economic growth in my country from 1993 to 2020 are spatially correlated, and the differences in economic growth between provinces and cities are interrelated and affect each other, rather than being single and independent [18].

Table 1: Spatial correlation test of regional economic differences from 1993 to 2020.

Years	Moran I	Z value	P value	Years	Moran I	Z value	P value
1993	0.039	2.07	0.07	2007	0.272	2.90	0.00
1994	0.039	3.07	0.07	2008	0.531	1.26	0.01
1995	0.001	2.33	0.07	2009	0.371	1.93	0.03
1996	0.039	2.06	0.07	2010	0.128	1.50	0.07
1997	0.007	3.37	0.06	2011	0.309	3.16	0.00
1998	0.038	3.06	0.05	2012	0.192	2.13	0.02
1999	0.055	3.81	0.02	2013	0.199	2.07	0.02
2000	0.055	2.20	0.04	2014	0.199	2.15	0.02
2001	0.061	2.86	0.02	2015	0.233	2.61	0.00
2002	0.064	2.91	0.02	2016	0.352	3.30	0.04
2003	0.028	1.57	0.03	2017	0.298	-2.86	0.02
2004	0.121	1.43	0.08	2018	0.179	1.99	0.02
2005	0.161	1.80	0.03	2019	0.228	3.48	0.02
2006	0.105	1.30	0.04	2020	0.164	1.93	0.03

According to the trend chart of Moran index drawn in Table 1, it can be found that, with the continuous development of the economy, the spatial relationship of regional economic growth differences in my country has shown a trend of fluctuation as a whole (Figure 1). The spatial correlation curve has been fluctuating and rising since 1993, reaching a peak in 2009, and then decreasing slightly. The curve change is relatively stable. This is because with the continuous development of social economy and the continuous improvement of transportation and communication construction, the connection in regional space has become closer, and the spatial correlation has been continuously strengthened. The economic development of a certain area will directly affect the economic situation radiating to the surrounding areas, coupled with population mobility and policy influence, resulting in a positive spatial correlation of economic growth differences.

3.3. The Spatial Impact of My Country's Economic Complexity on Regional Economic Growth Differences

3.3.1. Construction and Selection of the Spatial Econometric Model. In order to better construct a spatial econometric model and choose whether there is a spatial effect between the variables to be diagnosed. In order to conduct a more accurate spatial econometric analysis of my country's economic growth differences, it is necessary to perform a Lagrange multiplier test (LM test for short) on the estimated results of the spatial model to select a better spatial econometric model. After the spatial weight matrix is set, the reference items need to be tested for Spatial error and Spatial lag. The spatial effect test is set based on the ordinary linear model OLS test. Before the spatial effect test, it is assumed that there is no spatial autocorrelation in the level of economic growth differences between 31 provinces and cities in my country from 1993 to 2020. As can be seen from Table 2, among the three tests on spatial error, Moran's index, LM test, and RL test all rejected the hypothesis that there is no spatial autocorrelation in my country's economic development level, and the P values were all significant at the level of 0.05, and the statistical RL test was passed, and the LM test results were relatively good in the two tests after the space, and the above results all rejected that there is no space for the differences in economic growth levels of 31 provinces and cities in China from 1993 to 2020. The relevant null hypothesis shows that spatial econometric analysis is needed to measure the influencing factors of the differences in the level of economic development in my country (Table 2) [19, 20].

In the spatial econometric model, the spatial lag model (SAR) and the spatial error model (SEM) play an important role. Both of them take into account the spatial multidirectional effects between the variables in the model. The biggest difference between the two is the disturbance term constitute. The SAR model pays more attention to spatial dependence, and the key error items in the spatial error model are the product of the dependent variable and the corresponding spatial weight matrix. The SEM reflects the spatial dependence between variables through the error term. The components of the spatial lag item are the product of the corresponding spatial weight matrix and the error term. The SEM model lag term interprets the error term rather than the dependent variable of the model reference. In order to better explain the impact of my country's economic complexity on regional economic growth differences, the SAR model and the SEM model are now constructed to measure and analyze it.

3.3.2. Analysis of the Impact of My Country's Economic Complexity on Regional Economic Differences. In order to more accurately measure and evaluate the differences in my country's economic growth, it is necessary to conduct a comprehensive analysis of the geographic space of our city's Theil index. This paper divides my country's geographical space into eastern, central, western, and northeastern regions and analyzes the economic development and economic growth differences of cities located in different geographical locations. Specifically, each region has its own local economic characteristics, so the selected regions include both the eastern and central regions, as well as the western and northeastern regions.

The difference in economic growth in the eastern region of my country is generally high. As an important region for

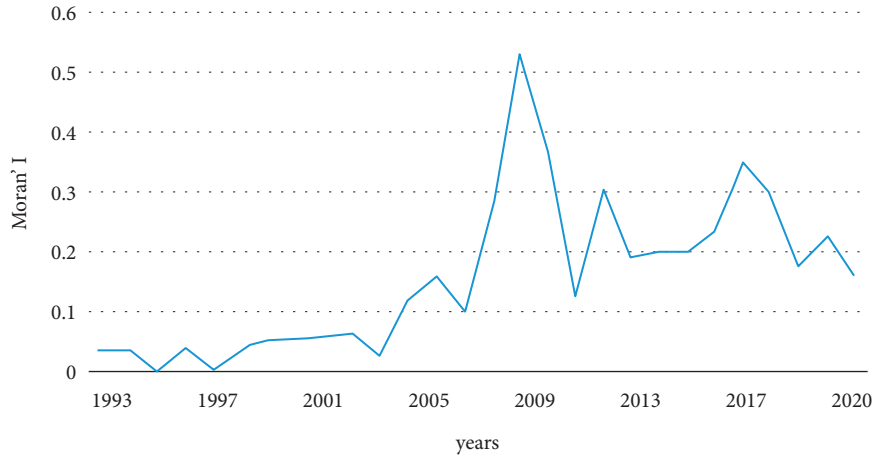

Figure 1: Spatial correlation test of regional economic differences from 1993 to 2020 (Moran I index).

Table 2: Spatial effect test of factors influencing my country's economic growth differences.

	Statistic	d*f*	*P*
Moran's I (spatial error)	6.403	1	0.02
Lagrange multiplier (error)	6.099	1	0.03
Robust Lagrange (error)	9.811	1	0.01
Lagrange multiplier (lag)	4.521	1	0.05
Robust Lagrange (lag)	7.233	1	0.02

my country's reform and opening up, the economic development level of the eastern region ranks high. In addition, the establishment of special economic zones has greatly promoted the social and economic development of the eastern region. As shown in Figure 2, Shijiazhuang, Shanghai, Fuzhou, Quanzhou, Huizhou, Shenzhen, Wenzhou, and other cities have relatively high Theil indices. These cities are the representatives of my country's economic and trade development and the development of the tertiary industry. Due to the successful transformation of foreign trade and some industries, the economic situation of some people in the city is good. At the same time, the social and economic developed areas are attractive to talents. Such areas are easy for most people to flow, and the quality and quantity of labor force are improved. It will counteract the development of the regional economy, strengthen the development of local industries, and add icing on the cake for the regional economy. The development of transportation and roads in such areas is convenient for the development of trade and the improvement of the economic level, but the rapid growth of economic development will accelerate the silence and elimination of other industries, causing outdated and technologically backward industries to stop developing and accelerate their elimination. However, the development of regions without excellent enterprises and convenient transportation is easy to be ignored, so that the economic growth rate of some regions is slow, and the economic development is lagging. Compared with some regions with ultra-high economic growth, the Theil coefficient increases, and the level of interregional economic development appears different. Compared with Shanghai and Shenzhen, the difference in economic growth in Beijing is not very high, first, because Beijing occupies a relatively small area in terms of geographical location; secondly, Beijing is the capital of my country, and its political significance is greater than its economic significance; Beijing pays attention to the grasp of macro-control. The eastern region is an important economic development region in my country and has made outstanding contributions to the high-quality social and economic development and industrial optimization and upgrading in China. Therefore, when formulating regional development strategies, it is more important to adjust measures to local conditions and formulate scientific development policies.

The economic growth differences in the western regions of my country are generally large, and the Theil index of some cities is more prominent. As can be seen in Figure 3, Lhasa, Nyingchi, Shigatse, Shannan, Yushu Tibetan Autonomous Prefecture, Xilingol League, Yulin, Zunyi, and other regions are regions with relatively unbalanced economic development and large differences in economic growth. There are many cities with unbalanced economic development in Tibet, Gansu, and Inner Mongolia, and there are some common reasons for the high Theil index in the western region: first, the provinces and cities in western my country generally have problems of being deep in the inland and difficult to build traffic roads; secondly, due to the geographical characteristics and development mode of the west, it is difficult to optimize and upgrade industries in some areas, and the backward productive forces cannot promote the improvement of social and economic levels; finally, due to the lack of education and the loss of talents, the

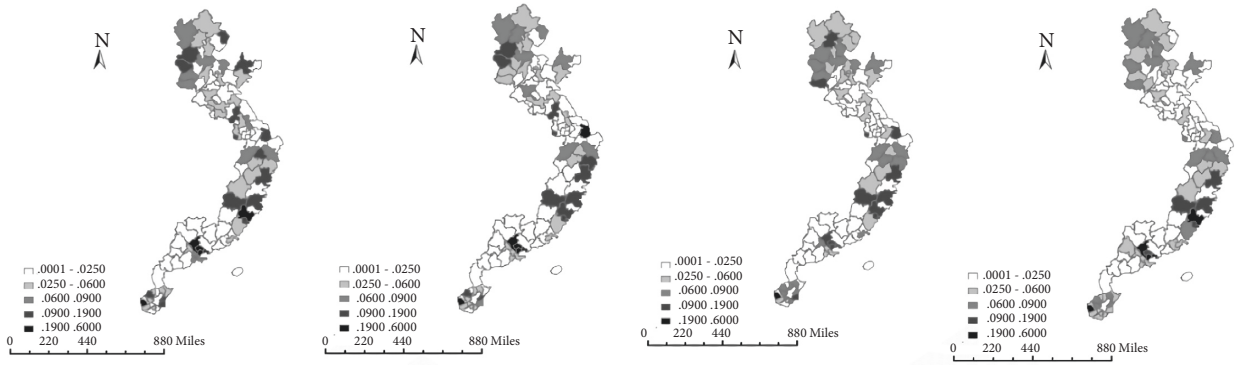

Figure 2: Differences in economic growth among cities in eastern region in 1993, 2002, 2011, and 2020.

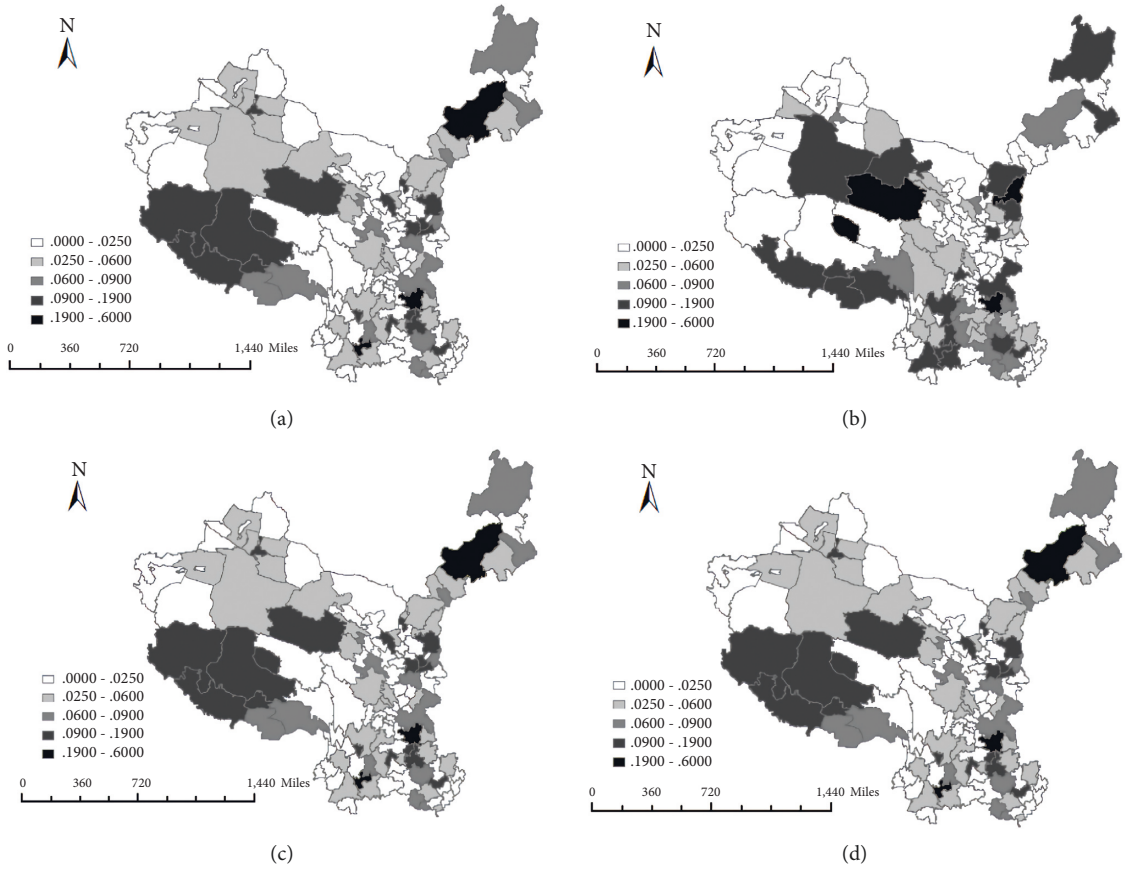

Figure 3: Differences in regional economic growth in western my country in 1993 (a), 2002 (b), 2011 (c), and 2020 (d).

speed of economic development is not easy to improve. There is a general problem in the west that productivity restricts the development of talent education, and the lack of high-quality labor will lead to a decline in social productivity. The western region has a wide geographical coverage, and the ecological environment in some regions is relatively fragile, which means that if the production mode of other regions is copied, the blind development of the primary and secondary industries will increase ecological pressure and pose a threat to green development. Within the western region, Xinjiang, Chongqing, and Guangxi do not have particularly prominent differences in economic growth among cities. Xinjiang, Inner Mongolia, Guangxi, and other regions are vast and sparsely populated, and their economic level is relatively average. Chongqing, as a municipality directly under the Central Government, has made some achievements in economic development, constantly strengthening foreign exchanges and industrial upgrading, and its social development level and per capita income are relatively considerable. The western region has a large area, uneven levels of economic development, a large number of poor people and regions, and an obvious gap between the

rich and the poor. This poses challenges and requirements for the government's scientific regulation and control policies. In formulating development strategies and economic development guidance, it is even more necessary. Adjust measures to local conditions and strengthen the grasp of regional economic and geographical features.

Compared with other regions, the difference in social and economic growth in the central region of my country is relatively small. Except for some provincial capital cities and transportation hub cities, the Theil index of other cities has little difference (Figure 4). Hefei, Nanchang, Changsha, and Wuhan, as provincial capitals, have a significantly higher degree of difference in economic growth compared with surrounding cities. This is due to the fact that such cities are the economic and political concentration points of a province, and the diversification of industries and scientific development of technology is more convenient. Provincial capital cities are more attractive to talents and labor, and at the same time, the infrastructure is more complete. As an important area connecting the north, south, and east of my country, the central provinces play an important role in transportation development. This is also the central urban area. We also explained one of the reasons for the relatively low Theil index. Jiujiang City, Yichang City, Zhuzhou City, Shiyan City, and other cities due to their excellent geographical location and traffic conditions have led to an increase in the economic development speed of some counties, and the difference in economic growth with the surrounding regions has increased, which shows that the city's Theil index is relatively high. The central region is linked to the whole country in terms of geographical location and has a vast territory; in terms of transportation development, water, land, and air transportation have huge innate development advantages, and the flat terrain and developed river channels can help speed up regional economic development; in terms of labor force, Henan, as the most populous province in my country, provides high-quality labor for regional development. Generally speaking, the development potential of the central region is huge. With the continuous construction of infrastructure and the continuous increase of investment, the economic development of the central region will continue to improve. However, in the process of development, it is still necessary to pay attention to the development caused by regional natural and human factors. With the steady improvement of the social economy, the economic growth differences between regions are continuously narrowed, and the social and economic development model is optimized.

Observing the differences in economic growth in Northeast China from 1993 to 2020 through Figure 5, it can be found that, except for Changchun City, Dalian City, Shenyang City, Daqing City, Anshan City, Yanbian Korean Autonomous Prefecture, and other cities, the economic growth of other regions as well as the growth differential is relatively stable, and the Theil index is on the small side. However, these regions with high Theil indices and large differences in economic growth often have their own characteristics and reasons for the differences in economic development levels.

Through a series of verification and consideration of the model, this study chooses to construct spatial lag model (SAR) and spatial error model (SEM) to analyze the spatial impact of China's economic complexity on the level of regional economic growth difference. Through the study of Table 3, it can be found that, in the spatial lag model, China's economic complexity is negatively correlated with the difference of regional economic growth, and the coefficient is −0.069. It shows that the improvement of China's economic complexity plays a catalytic role in narrowing the difference of regional economic growth. The economic complexity index can explain China's economic development. In the spatial lag model for studying the impact of China's economic complexity on regional economy, the Z value is −1.29, and the results pass the P test, which is significant at the level of 5%, indicating that the SAR coefficient is effective in the model results. The estimated value Rho of spatial autoregressive coefficient is 0.054, and the estimated value shows significant results at the level of 1%, indicating that there is a spatial effect on the impact of China's economic complexity on regional economic differences, and the model result is more significant. From the perspective of spatial measurement, Moran I index proves that there is spatial correlation between provinces and cities in China in terms of regional economic growth differences. The degree of regional economic growth difference in China does not exist independently but is closely related to the surrounding areas. Adding economic complexity to measure, through the spatial lag model, it can be concluded that if the economic complexity index of a province and city changes, the degree of economic growth difference between adjacent regions will also change, which is reflected in the good economic development and the improvement of economic complexity index, which will not only reduce the difference of regional economic growth, but also reduce the difference of economic growth in surrounding regions, and vice versa. This influence is bidirectional, even multidirectional. The result of the model means that when formulating the regional development strategy, the government needs to consider not only the actual development of the region, but also the policy implementation of surrounding provinces and cities and the actual situation of the region, so as to formulate strategies in line with the actual situation of the region. Science policy: by comparing the results of OLS panel regression test with those of SAR spatial lag model, it can be found that there are differences in variable regression coefficients between the two. The spatial error model is used to analyze the spatial characteristics of the impact of China's economic complexity on regional economic growth differences. Looking at Table 3, it can be found that the regression coefficient of SEM error term of spatial error model λ is shown as 0.049, and the regression coefficient is significant at the level of 1%. This shows that the spatial error model is reasonable, and the model results are true and effective. In the spatial error model, the spatial impact value of economic complexity index ECI on regional economic growth difference TL is −0.061, which is significant at the level of 5%. The Z value is −1.93, and the standard error is 0.05328. This result also verifies that there is a negative correlation between China's

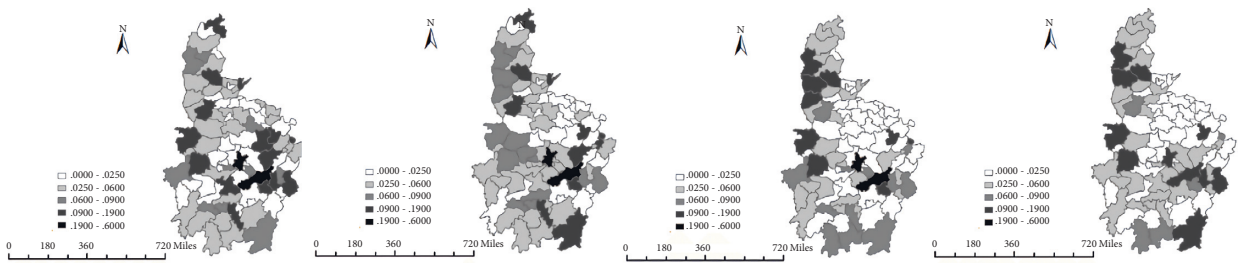

Figure 4: Differences in regional economic growth in central my country in 1993, 2002, 2011, and 2020.

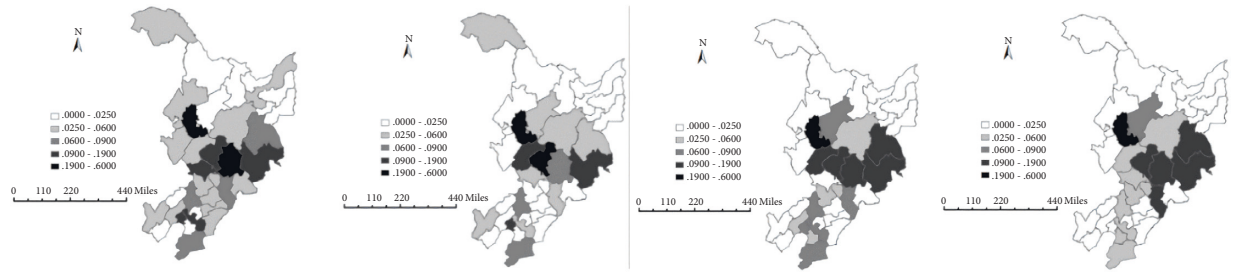

Figure 5: Differences in regional economic growth in northeastern region in 1993, 2002, 2011, and 2020.

Table 3: The impact of my country's economic complexity on regional economic growth differences—estimated results from spatial econometric models.

	Dependent variable L	
	SAR	SEM
ECI	−0.069*	−0.061*
	(−1.29)	(−1.93)
cons	0.021	0.211
n	868	868
Rho	0.054**	—
Lambda	—	0.049**

economic complexity index and regional economic growth differences. Improving the regional economic complexity index can reduce the difference of economic growth level, accelerate the balanced development of China's economy, promote the coordinated development of industrial development, and accelerate industrial transformation and upgrading.

3.4. Spatial Econometric Analysis of Other Factors Affecting My Country's Regional Economic Growth Differences. The differences in my country's economic development are not caused by a single reason, but different types of reasons of different natures lead to the differences in my country's economic development. In addition to my country's economic complexity index, the paper also adds other variables to measure and evaluates the impact of different factors on my country's regional economic growth differences through model analysis. The specific analysis results are shown in Table 4.

3.4.1. Analysis of the Impact of Investment Levels on Regional Economic Growth Differences. By observing the data of the IIFA terms in the SAM model, it can be found that the coefficients of IIFA are significant at the 1% level (Table 4). The investment level is represented by fixed asset investment here. The data shows that the improvement of the investment level has a reducing effect on the difference of regional economic growth in my country. If the regional investment is insufficient, it will lead to insufficient vitality of regional economic development and increase the difference of economic growth. At the same time, due to the correlation between different economic growth factors among different regions, the backward investment level will also lead to the slow development of the regional economy in the surrounding areas, which has an adverse effect on reducing the imbalance of regional economic development. Comparing the investment level parameters in the SEM model, the IIFA term coefficient in the SAM model is also significant at the 1% level (Table 4). The coefficient value in the SEM model is slightly higher than that of the investment level in the SAM model, but it also shows that the difference in my country's regional economic growth is affected by the investment level, and the improvement of the regional investment level is conducive to reducing the economic growth in the region and surrounding areas difference. This result shows that regional governments and enterprises should pay attention to the grasp of investment level and investment intensity

Table 4: Influencing factors of regional economic growth differences in my country—estimated results of spatial econometric model.

	Dependent variable: TL				
	(I)	(II)	(III)	(IV)	(V)
ECI (SAR)	−0.086** (−2.67)	−0.069* (−1.29)	−0.069* (−1.31)	−0.072* (−1.39)	−0.086* (−1.41)
ECI (SEM)	−0.041** (−1.76)	−0.061** (−1.93)	−0.056* (−1.59)	−0.06** (−1.69)	−0.055** (−1.71)
IIFA (SAR)	−0.179** (−2.54)		0.069** (1.72)		
IIFA (SEM)	−0.234** (−2.83)		0.087** (2.93)		
CPI (SAR)	−0.108** (−2.4)		−0.036* (−1.84)		
CPI (SEM)	−0.234** (−2.4)		0.087** (−1.88)		
EL (SAR)	0.118** (−2.57)			0.060** (−2.59)	
EL (SEM)	0.143** (2.69)			0.080 (2.57)	
HCS (SAR)	0.069 (0.93)			0.037* (1.13)	
HCS (SEM)	0.038 (0.79)			0.017* (1.08)	
IB (SAR)	0.309** (4.63)				1.172** (4.68)
IB (SEM)	0.352** (5.03)				0.228 (5.21)
n	868	868	868	868	868
Rho	0.051**	0.054**	0.049**	0.048**	0.056**
Lambda	0.584**	0.049**	0.047**	0.049**	0.594**

when formulating development strategies, strengthen the setting of scientific investment policies, and improve the high-quality development of regional economy through the introduction of investment [21–23].

3.4.2. Analysis of the Influence of Consumption Factors on Regional Economic Growth Differences. From the perspective of spatial measurement, with the continuous development of scientific and technological information and the continuous improvement of transportation facilities, the communication between populations in different regions has been enhanced, and the changes in people's lifestyles and consumption habits have led to the consumption level and consumption patterns in our country. The impact of social and economic development continues to increase. The consumption habits of the masses in a certain area will directly affect the economic growth difference index between this area and the surrounding areas. If the consumption level in this area declines, or there are differences in consumption patterns, it will directly lead to the expansion of the economic growth difference between this area and surrounding areas, and it is not conducive to regional economic development, and the opposite will have an impact on people's lives. The government should actively observe the characteristics of the market in a timely manner, guide the masses to develop healthy consumption habits, and continuously improve the consumption level of the people through the development of the social economy, and the improvement of the consumption level of the people will also promote the stable development of the social economy.

3.4.3. Analysis of the Impact of Educational Factors on Regional Economic Growth Differences. By analyzing the educational factors in Table 4, the results of the model show that the educational factors have a positive effect on the differences in regional economic growth in my country. Excessive cultural differences may cause regional economic growth differences to increase. In addition, there is a certain mobility of regional talents. Influenced by the treatment of regional talents, the impact of educational factors on the differences in my country's regional economy has spatial characteristics. Differences in education level and education level lead to differences in regional economic growth. The gathering of high-level talents will lead to the peak gathering of regional economies. However, if basic education is weak, regional economic differences will increase. The impact of educational factors on my country's economic differences is obvious. My country should pay attention to the development of education and the allocation of educational resources. It should not only pay attention to the development

of higher education, but also should not relax the construction of basic education. The development of education in areas with relatively weak economic development and the balanced development of education will play a role in reducing the gap in economic growth in my country [24, 25].

3.4.4. Analysis of the Impact of Human Capital on Regional Economic Growth Differences. This study measures the impact of human capital factors on regional economic growth differences and finds that the level of human capital has an impact on regional economic growth differences, but the impact is weaker than other factors. The level of economic development in the region and surrounding areas is rising; if the level of human capital declines, the difference in economic growth in this region will also be narrowed. It will have an impact on the level of human capital and regional economic development in the surrounding areas and will drive the level of human capital in the surrounding areas to decline and reduce the difference in regional economic growth. It should be noted that the representation vector of the level of human capital in the article is the proportion of the government's investment in education in GDP. It is necessary for my country to change from a country with a large population to a country with excellent human capital, but it also takes a certain amount of time. The improvement of the total amount of human resources, the rational distribution of human resources, and the rationalization of the structure of human resources can promote the continuous high-quality development of my country's economy. The continuous improvement of the human resources system is an issue that the society and enterprises have always paid attention to, only the continuous optimization and upgrading of human resources in order to better promote the economic and social benefits of enterprises.

3.4.5. Analysis of the Impact of Technological Innovation on Regional Economic Growth Differences. Whether it is the SAR model or the SEM model, the coefficient of technological innovation factor is the highest among all evaluation factors, which proves that, compared with other evaluation factors, the level of technological innovation in this model has the highest impact on the difference in economic growth in my country. And the level of technological innovation IB has a positive impact on the regional economic growth difference TL. Both the spatial lag model and the spatial error model show that, with the continuous increase of scientific and technological innovation in some regions, the economic value created by science and technology will increase significantly, which will cause the economic growth difference between the region and the surrounding regions to increase. Although regions with a low level of technological innovation can reduce the difference in economic growth between the region and surrounding regions, there may be a general lack of economic development momentum, which will affect the high-quality social and economic development. At the present stage, my country is in the historical intersection of industrial transformation and technological innovation revolution affecting the transformation of my country's economic development mode. The government and enterprises need to better grasp and control the technological innovation mode in a scientific way. While promoting the continuous development of industrial informatization and intelligence, we should also pay attention to the coordination of regional characteristics and different technological innovations, develop technological innovations according to local conditions, steadily improve my country's technological innovation capabilities, and drive new models of industrial systems with technological and intelligent production models. The construction of social production capacity and comprehensive national strength will be the key to narrowing the gap in economic growth in my country.

By analyzing the basic statistical data of 31 provinces and cities in my country from 1993 to 2020, the following conclusions are drawn:

First, the development of industries in my country is diverse, and there are regional differences in the diversity of industries. According to the measurement of industry indicators, the development of my country's regional economic industries can be divided into four types of regions, namely, regions with high industry diversity and low industry ubiquity, regions with low industry diversity and high industry ubiquity, and regions with low industry diversity and low industry ubiquity. Industry Prevalence Regions, High Industry Diversity, and High Industry Prevalence Regions.

Second, the time dimension of economic complexity in my country is not very different, but the economic complexity of regional spatial locations varies greatly. The economic complexity index is higher in the eastern region, such as Shanghai, Beijing, Tianjin, Guangdong, Fujian, and other regions. In the early stage of the western region, the economic complexity index was relatively low. In the later stage, due to the continuous development of the economy, the strengthening of the government's macro-control, and the construction of regional infrastructure, the types of industries in the region continued to increase, and the industry was upgraded. The index keeps rising.

Third, not only does the regional economic complexity index have a spatial impact on regional economic development, but also the levels of investment, household consumption, education, human capital, and technological innovation in the SAR model and SEM model also show that they are closely related to the regional economy. There is a spatial correlation of growth differences. The improvement of investment level has a reducing effect on the difference of regional economic growth in my country. If the regional investment is insufficient, it will lead to insufficient vitality of regional economic development and lead to the increase of the difference in economic growth.

4. Conclusion

This study combines my country's economic complexity with regional economic growth differences, puts the relevant basic data from 1993 to 2020 into a panel model for research, and uses the method of spatial econometrics to

comprehensively analyze my country's economic complexity and other factors. The impact of regional economic development was measured. The research highlights of the article lie in the nonmonetary indicators—the calculation of economic complexity, the measurement of regional economic growth differences refined to the county level, and the combination of economic complexity and regional economic growth differences. In general, the observation time span is long, the observation sample size is relatively abundant, and the results of each model are significant.

Data Availability

The dataset can be obtained from the corresponding author upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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