

Analysis of Regional Economic Differences and Cooperative Development Paths between Jiangsu and Anhui

Jinyi Duan^{1,*,†}, Fangyu Liu^{2,†} and Haonan Luo^{3,†}

¹School of Economics, Lanzhou University, Lanzhou, China

²Maranatha High School, Pasadena, USA

³School of International Trade, Central University of Finance and Economics, Beijing, China

*Corresponding author: duanjy18@lzu.edu.cn

†These authors contributed equally.

Abstract. The imbalance of regional economic development is certainly an important feature of the imbalance. The impact of the current imbalance in China's regional economic development is mainly reflected in the ability of each region of the country to develop economically, its long-term expectations and its motivation to participate in the overall development of the national economy. This imbalance is not only reflected in the economic development gap between the east and the central and western regions, but also in the Yangtze River Delta economic zone in the east, where the difference in regional economic development between Jiangsu and Anhui is more obvious. In this paper, this paper will use the GDP and population of Anhui and Jiangsu from 2000 to 2021 to calculate the Thayer index to illustrate the changes of economic differences between the two provinces since the 21st century, and combine the commonly used indicators to compare regional economic differences, such as social fixed asset investment, local fiscal revenue, and the proportion of three industries to GDP. This paper analyzes the regional economic differences between Jiangsu and Anhui provinces in terms of GDP difference, industrial structure similarities and differences, degree of marketization and human capital differences, and explain the advantages of promoting the cooperation between Jiangsu and Anhui provinces in light of the literature, and give policy suggestions.

Keywords: Coordinated regional economic development; provincial-level regional economic disparity; central rising strategy.

1. Introduction

Jiangsu and Anhui provinces are very similar in terms of geographical location and cultural customs. At the beginning of the founding People's Republic of China, in order to resume economic construction and change the status quo of weak industrial base and deformed industrial layout, the state adopted a balanced development strategy to balance the industrial productivity of the country and divided the country into three major regions. The economic level of Anhui was not very different from that of Jiangsu, but after various economic policies since the reform and opening up, the economic gap between Jiangsu, which was divided into the "east", and Anhui, which was divided into the "middle", became bigger and bigger. This paper will analyze the problems and advantages of economic cooperation between Jiangsu and Anhui, and propose policy recommendations in view of the current situation of economic development differences between Jiangsu and Anhui.

As a developing country, regional development imbalance is the main theory of China's economic development. The difference of regional economic development between Jiangsu and Anhui in the Yangtze River Delta economic zone is relatively obvious. Based on the analysis of the economic development gap between Anhui and Jiangsu and Zhejiang, Mu Zhanliang summarized the relevant theories of China's economic development: growth pole theory, accumulation cycle causality theory, core-periphery theory, and inverted "U" theory [1]. This paper uses the GDP and population of Anhui and Jiangsu from 2000 to 2021 to calculate the Thiel index to reflect the changes of economic differences between the two provinces [2]. This paper analyzes the differences in GDP, industrial structure, marketization and human capital by taking into account the indicators commonly used to

compare regional economic differences, such as social fixed asset investment, local fiscal revenue, and the proportion of three industries to GDP [3-6]. Xu Xinzao studied the causes of regional development imbalance and gave countermeasures [7]. To reflect the aspect of unbalanced economic development, measurement the unbalanced regional development of the Yangtze River Delta represented by Jiangsu [8, 9]. The strategies and experiences of rapid economic development were summarized through a comparative analysis of the regional advantages of Anhui Province and the study of Wang Xianzhu studied in combination with the development of Nanjing City in Jiangsu [10-13]. Liu Wei analyzed the development of Anhui Province on the key directions based on the study of Anhui Province's special industries [14]. Wu Xinchun et al researched on the Anhui government policies and proposed out the suggestions of economic policies for the economic development of Anhui province [15].

2. Theoretical Basis

The main theoretical basis for formulating regional economic development strategies in China is the "regional unbalanced development theory", including the growth pole theory, accumulation cycle causality theory, core-periphery theory, and inverted "U" theory [1]. The core idea of the theory of unbalanced regional economic development is that a country or region should first use its advantageous resources and factors to concentrate in a certain region or an industrial sector, and then lead the region with a point to promote the overall development of the region. Therefore, China's inter-regional development shows obvious imbalance, which is manifested by the obvious polarization effect in the developed eastern regions and the tendency to widen the economic gap between the eastern and western regions. This situation is consistent with the current situation of China as a large developing country, because China is still in the transition period from industrialization to urbanization, and the imbalance of regional economic development is unavoidable. The eastern coastal region, as the frontier of reform and development, assumes a pioneering role in China's industrialization process and should be the key region for economic development.

However, according to American economist G. Myrdal, "inequality and its tendency to increase can become a compound that constrains and hinders development". While the eastern region serves as a growth pole for economic development, regional differences and regional conflicts in the development of other regions should also be taken into account. To ensure the coordinated economic development of the East, West and Central regions, China has formulated and implemented regional economic policies such as the development of the West, the rise of Central China and the construction of the Xiongnu New Area. The eastern region, on the other hand, has gathered resources from all over the country and has received the greatest benefit in terms of policy development.

The main regional policy contexts explored in this paper are the pioneering development policies of the eastern region and the Central Rising Strategy. Since the implementation of the Central Rising Strategy, the central Anhui region has further consolidated its position as a traditional grain production base based on its own conditions, while providing energy and raw materials for the development of the eastern region, and undertaking modern equipment manufacturing and introducing high-tech industries transferred from the Yangtze River Delta region. Anhui, as the transportation hub between east and west China, has enabled the central region to continue to grow its economic output, quality universities have provided the scientific and educational strength and human capital needed for development, and local government-owned infrastructure and social undertakings have played an important supporting role. All in all, the problem of unbalanced and insufficient development in the central region is still prominent, and the economic gap with the eastern region is gradually narrowing, but there is still a large gap overall.

3. Empirical Evidence and Analysis of Regional Economic Differences Between Jiangsu and Anhui

3.1 Measuring Economic Differences Between the Two Provinces by the Theil Index

The Theil index is an indicator that measures inequality and differences between regions. It consists of two Theil indicators: namely Theil index T and Theil index L. The difference between the two is that the T index is weighted by income data, while the L indicator is weighted by population. In this paper, the Theil index T is used to measure the difference between Jiangsu and Anhui provinces. The Theil index T is calculated by the formula (1).

$$T = \sum_{i=1}^n y_i \log \frac{y_i}{p_i} \quad (1)$$

In this paper, n is the number of regions and n=2. y_i is the proportion of regional economic indicators in the overall population and p_i is the proportion of regional population in the total population. Through the first-order decomposition of Theil index, the total difference level between the two provinces is divided into the regional difference between Jiangsu and Anhui as well as the urban difference between the two provinces. Theil index formula of total difference is as follows.

$$T_p = \sum_i \sum_j \left(\frac{Y_{ij}}{Y_i} \right) \log \left(\frac{Y_{ij}/Y}{P_{ij}/P} \right) \quad (2)$$

In this paper, Y_{ij} is the GDP of the jth city in region i. Y_i is the total GDP of region i (i.e. the total GDP of Jiangsu or Anhui in a certain year). Y is the total GDP of the two provinces. P_{ij} is the population of the jth city in region i. P_i is the total population of region i and P is the total population of the two provinces. Defining the intercity differences in region i (within Jiangsu or Anhui Province) as the formula (3). The total difference can be broken down into the function (4).

$$T_{pi} = \sum_j \left(\frac{Y_{ij}}{Y_i} \right) \log \left(\frac{Y_{ij}/Y_i}{P_{ij}/P_i} \right) \quad (3)$$

Where T_{BR} refers to the difference between regions while T_{WR} refers to the difference within regions. Table 1 shows the total Thale index of the two provinces and the regional Thale index in the 22 years from 2000 to 2021 calculated with STATA , and the line chart of regional differences and intra-regional differences is made with Excel.

Table 1. Intra-regional and inter-regional Theil index

Year	T_{BR}	T_{WR}	Theil	T_{pi} Anhui	T_{pi} Jiangsu
2000	0.0848	0.1326	0.2174	0.0920	0.1453
2001	0.0942	0.1352	0.2294	0.1014	0.1453
2002	0.1005	0.1443	0.2449	0.1108	0.1540
2003	0.1141	0.1694	0.2835	0.1310	0.1797
2004	0.1133	0.1714	0.2847	0.1453	0.1785
2005	0.1060	0.1722	0.2782	0.1675	0.1735
2006	0.1031	0.1629	0.2660	0.1830	0.1575
2007	0.1006	0.1513	0.2520	0.1850	0.1421
2008	0.0946	0.1454	0.2400	0.1861	0.1339
2009	0.0933	0.1352	0.2285	0.2011	0.1166
2010	0.0795	0.1125	0.1920	0.1848	0.0915
2011	0.0767	0.0966	0.1733	0.1437	0.0818
2012	0.0754	0.0909	0.1663	0.1393	0.0756
2013	0.0749	0.0861	0.1610	0.1433	0.0679
2014	0.0739	0.0782	0.1521	0.1402	0.0585
2015	0.0815	0.0720	0.1535	0.1340	0.0525
2016	0.0773	0.0695	0.1468	0.1336	0.0493
2017	0.0790	0.0805	0.1595	0.1435	0.0617
2018	0.0785	0.0842	0.1627	0.1447	0.0657
2019	0.0561	0.0732	0.1293	0.1171	0.0580
2020	0.0460	0.0567	0.1026	0.0968	0.0428
2021	0.0465	0.0573	0.1038	0.1031	0.0415

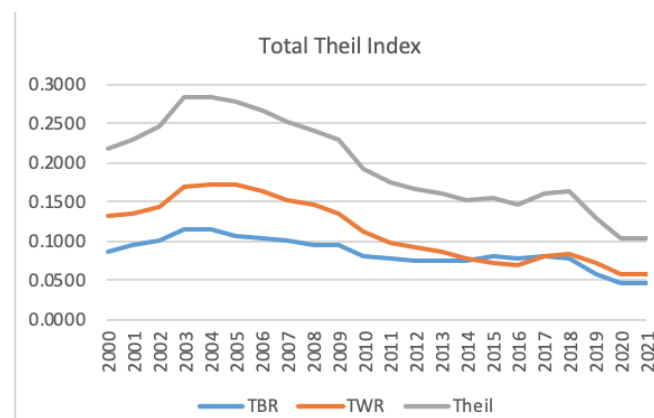


Fig. 1 Total Theil index
 (Photo credit: Original)

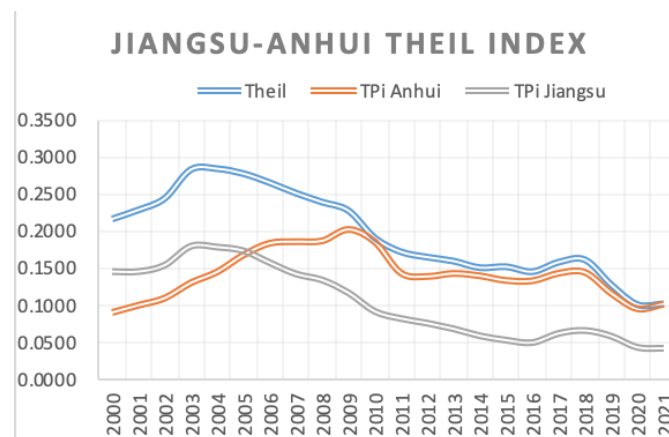


Fig. 2 Jiangsu-Anhui Theil index
 (Photo credit: Original)

Table 1 shows the results of the Theil coefficient and its decomposition to measure the economic development gap between the two provinces during the study period. 2000-2021, the total Theil index of the two provinces is decreasing year by year, which indicates that the economic development difference between Jiangsu and Anhui is decreasing year by year, and the change of the difference is relatively small (see Figure 1). The trend of the Theil index of the difference within Jiangsu province basically shows the same trend as the fluctuation of the Theil index of the national economic difference, i.e. it is not considered to be narrowing. In Anhui Province, the trend of the Theil index from 2000 to 2009 shows an increase, but after 2010, the trend is basically the same as the trend of the discounted national economic disparity Theil index, reflecting that the disparity of economic development within Anhui Province gradually decreases after 2010, and the inter-provincial regional economic disparity in the country shows a trend of gradual decrease (see Figure 2).

3.2 Inter-Provincial Gap

3.2.1 Disparity of GDP between two provinces

In 1986, a study by the State Planning Commission proposed Nanjing to organize a pilot inter-provincial economic circle, and the socio-economic development of the two provinces has been relatively fast. However, after 2000, the level of socio-economic development in Anhui was significantly lower than that in Jiangsu, and the gap between the two provinces' GNP increased with each year. As Figure 3 shown, the GDP of Anhui province in 2000 was 312.533 billion yuan, accounting for 3.15% of the national GDP, while that of Jiangsu was 855.369 billion yuan, accounting for 8.62% of the national GDP [6]. By 2021, Anhui's GDP is 4.29 trillion yuan, accounting for 3.16% of the national GDP, while Jiangsu's is 11.6 trillion yuan, accounting for 10.17% of the national GDP. In other words, Jiangsu's share of national GDP has increased by 1.55% in 21 years, while Anhui's GDP share has only increased by 0.61% in the same period, which is less powerful than Jiangsu's [4].

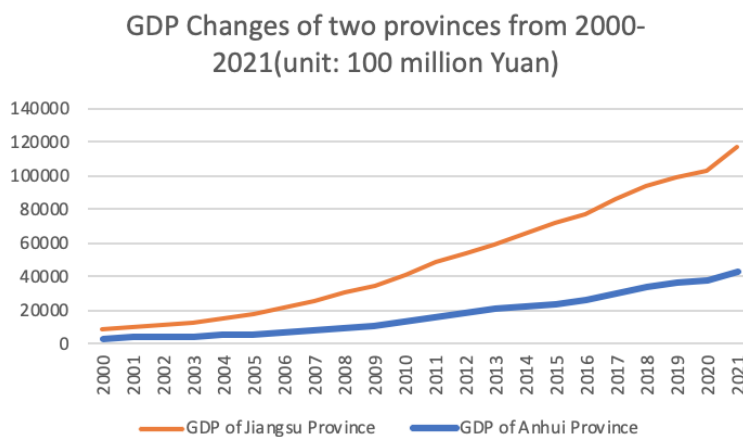


Fig. 3 GDP Changes of Two Provinces from 2000 to 2021
(Photo credit: Original)

3.2.2 Differences in the proportional relationship of industrial structure in two provinces

The industrial structure of a region largely determines the economic development rate of the region, so the ratio of the three major industries can better represent the degree of regional economic development. The primary, secondary and tertiary industries in Anhui accounted for 24.2%, 42.7% and 33.1% respectively in 2000, 7.8%, 41% and 51.2% respectively in 2021, 12%, 51.7% and 36.3% respectively in 2000, and 4.1%, 44.5% and 51.4% respectively in 2021. From the above data, it can be seen that after 22 years of industrial structure optimization, the proportion of agriculture in the overall industrial structure has decreased by 16.4%, which reflects the trend of continuous and rapid development of Anhui economy in recent years, showing a good trend of accelerating speed, optimizing structure, improving efficiency, improving people's livelihood and increasing strength. Under the influence of credit growth control, real estate market regulation, pressure of energy saving

and emission reduction, and industrial structure adjustment, the value added of primary, secondary and tertiary industries has increased year by year, which shows that the quality of economic growth in Anhui is also improving steadily, and the ratio of secondary and tertiary industries is similar to Jiangsu in 2021. However, the primary industry still occupies a large proportion compared with Jiangsu until 2021. Anhui still needs to continue the urbanization process, upgrade the industry, and transform the inefficient labor force in rural areas into industrial workers and engage in higher value-added industries.

3.2.3 Different degrees of marketization

The degree of marketization differs between Anhui and Jiangsu in terms of the degree of tertiary industry development, the degree of openness to the outside world, the degree of development of the non-public economy, the degree of government adaptation to marketization, and the degree of social security in rural areas. In this paper, The data is cited from the index system for measuring the degree of marketization established by Zhao Yang to illustrate the difference in the degree of marketization between Jiangsu and Anhui [3]. The main reason is that the economic foundation of Anhui is weaker than that of the eastern part of the country, and the historical status of Anhui as a grain-producing region has led to the over-representation of primary industry in the economic structure. In terms of non-public economy, in 2019, the number of private enterprises in Anhui was only 1.346 million, while the number of private enterprises in Jiangsu reached 3.12 million, with 635,000 newly registered private enterprises in 2021 alone. In terms of foreign direct investment, Jiangsu has 28.85 billion yuan, while Anhui has 19.3 billion yuan, which is 10 billion yuan different from Jiangsu. All these indicators show the huge difference between Jiangsu and Anhui in terms of marketization.

3.2.4 Human capital differences

According to the American economist Schultz, the growth of human capital has undoubtedly improved the quality of work put into the process of economic growth, and these improvements in quality have become an important source of economic growth. Based on human capital, regions can form knowledge effects, external effects and knowledge spillover effects, which promote the economic development of the region and drive the economic development of neighboring regions, forming a virtuous circle.

Table 2. Comparison of educated population between Anhui and Jiangsu in 2019 (unit: person)

Province	Population aged over 6	Primary school	Junior high school	Senior high school	College degree or above
Anhui	45814	12452	17813	5203	3157
Jiangsu	59066	13540	20855	11144	10371

According to the calculation in Table 2, the population with junior high school education or above accounts for 57.13% of the population aged 6 or above in Anhui and 71.3% in Jiangsu, of which 50.24% is secondary education (junior high school and high school) in Anhui and 54.17% in Jiangsu. The difference between the two provinces in terms of secondary education is not significant, which is in line with Lewis' dual structure theory (i.e. the share of secondary industry in Anhui has gradually converged with that of Jiangsu since 2000, reflecting the urbanization and industrialization process of the labor force from primary industry to secondary and tertiary industries. However, there is a big gap in the development of higher education, with Jiangsu accounting for 17.56% and Anhui only 6.89%. Jiangsu pays more attention to the cultivation of talents than Anhui, not only because Jiangsu has a more developed economy and more excellent colleges and universities than Anhui, but also because Jiangsu pays more attention to investment in education and makes preferential policies to attract foreign talents, so that it can cultivate more secondary and higher education talents suitable for economic development and industrial transformation and upgrading. This has enabled Jiangsu to cultivate more secondary and higher education talents to meet the needs of economic development and industrial transformation and upgrading.

3.3 Analysis of the Reasons for the Difference of Regional Economic Development Between Jiangsu and Anhui

3.3.1 Historical reasons

During the Ming Dynasty, Jiangsu and Anhui were both part of Jiangnan Province, which had a developed economy and paid 1/3 of the country's taxes and was the first in the country in terms of regional development. Until the early Republic of China, Anhui had three main railroad lines and cities such as Bengbu were formed, but the railroad also made Anhui's economy more fragile during the war period, making it an agricultural province with a weak industrial base until the founding of China. After the founding of New China, a relatively well-developed industrial system was established, and many universities moved in, making Anhui a moderately developed province before the reform and opening up. After the reform and opening up, due to the "siphoning" effect of the neighboring coastal provinces, there is a large outflow of talents from Anhui, and there is not enough human capital for industrial structure optimization. In addition, the cultural differences between the north and the south within Anhui prevented the formation of strong centripetal force and cohesion. Anhui's socio-economic development once ranked the last in East and Central China

3.3.2 Policy reasons

At the early stage of reform and opening up, the theoretical basis of the central layout of the region was Muldaur's "gradient development theory", which improved the average economic development level of the eastern region and the whole country, but exacerbated the regional economic gap because the mainland did not enjoy the same preferential policies given to the eastern region by the central government, such as increased investment, tax exemptions, the establishment of special economic zones, and other policies and autonomy. This inevitably accelerates the flow of capital, labor, and talent to the eastern region, resulting in faster development in the eastern region. In addition, not only the mainland factors are assembled in the eastern region, but also a large amount of foreign capital is assembled in the eastern region. This also leads to faster development in the eastern region.

Since the reform and opening up, the private economy in Jiangsu, represented by township enterprises and individual and private businesses, has increased rapidly and is the backbone of economic development in Jiangsu. The reforms in the ownership structure, industrial structure and infrastructure of Jiangsu have led to the rapid development of the non-state economy. In contrast to Jiangsu, Anhui has a higher share of the state-owned economy than the private economy. For example, Wang and Liu (2016) find that the monopolistic behavior of SOEs brings inefficient SOEs into the market, squeezes out efficient private enterprises, hinders the technological progress of the whole industry and worsens the efficiency of resource allocation. Yang et al. (2015) found that privately held enterprises are 5.5 times more responsive to the economic environment than SOEs. It is because of the large share of SOEs in the economy that has largely contributed to the widening of the economic gap between Anhui and Jiangsu.

4. Advantages of Regional Economic Development in Anhui

Although there are objective internal and external, subjective and objective economic development differences between Anhui Province and Jiangsu Province, Anhui Province still has many advantages as a large central province, such as location, transportation, natural resources, industrial development and policies, so the purpose of this chapter is to analyze these advantages and discuss the feasibility and advantages of cooperation between Anhui Province and Jiangsu Province.

4.1 Location and Transportation Advantages

Anhui is an important hub in China's economic geography and plays the role of a bridge to the east and the west, and has the first-mover advantage to receive the transfer of industries, capital and technology from developed regions. Especially, Anhui is the closest province to Shanghai among the six provinces, which means that it can better absorb the economic radiation from Shanghai, so this superior location advantage is the biggest comparative advantage of Anhui in comparison with other five provinces in central China. Anhui Province has made great progress in transportation after decades of development, with 800 km of highways in the province. With the opening of Pudong and the Yangtze River Delta to the outside world, Hefei and Wuhu have become open cities and enjoy a series of preferential policies. In terms of transportation, Beijing-Kowloon Railway and Beijing-Shanghai Main Line make Anhui Province a transportation hub in central provinces, which can fully connect with domestic and international markets and eliminate the inconvenience caused by some inland provinces in Anhui.

4.2 Natural Resources Advantage

Anhui Province has high natural endowment. There are more than 130 kinds of minerals found in Anhui Province, including coal, iron, copper, cement limestone and sulphur iron ore, which are among the top 10 minerals in China. There are also more land resources available for industrial development, and the province has abundant freshwater aquaculture resources, forest resources and wildlife resources. In addition, Anhui's resource advantages can be transformed into economic advantages, such as the energy and chemical production bases represented by Maanshan Iron and Steel Corporation and Anqing Petrochemical General Factory, which occupy an important position in China.

4.3 Industry Development Advantages

Anhui's industrial base is relatively strong in the central region, higher than the average level in the central region, especially in the automotive manufacturing industry, which is highly competitive. The famous Anhui automobile brands include Chery, Kerry, JAC, etc. In addition, there is a large proportion of electronic information and machinery manufacturing industries, among which Valin Heavy Truck, Conch Building Materials, Tongling Nonferrous Metals, Anqing Petrochemical, etc. are all famous enterprises in China. Since the reform and opening up, Anhui has been adjusting the industrial structure, so that the former weak industries can be transformed into advantageous industries.

4.4 Policy Advantage

Thanks to the policy resources provided by the strategy of the rise of central China, the integration strategy of the Yangtze River Delta and the Nanjing metropolitan area plan, Anhui Province can make full use of the preferential policies given by the state, which can greatly improve the policy environment of the development and opening up of the provinces and municipalities, and can overcome the difficulties of industrial synergy when cooperating with Jiangsu Province. If it can make use of Jiangsu's economic development results to drive Anhui's development, it can effectively reduce the economic gap between the two provinces.

5. Policy Suggestions to Promote the Development of Jiangsu and Anhui Regional Economic Cooperation

Based on the advantages of Anhui Province listed in Section 3, the policy recommendations in this section explore the path of cooperation between Anhui and Jiangsu. The main way is to promote the construction of city clusters, metropolitan areas and industrial cooperation, to take the initiative to undertake the eastern industries, and also to pay attention to the synergistic development of the province. In the process of cooperating with Anhui Province, Jiangsu Province can also reduce the

pressure on local land, buy cheaper labor and resources at low prices, transfer low value-added industries, and increase the proportion of high value-added high-tech industries as a result of industrial upgrading, but it should also help the development of backward areas in Anhui Province by providing capital, jobs, and management experience, while paying attention to environmental protection and going green. Green development.

5.1 Promote the Construction of Nanjing Metropolitan Area

Nanjing metropolitan area is an economic zone centered on Nanjing, which is the first inter-provincial metropolitan area planned and built in China, and its importance in the regional economy is self-evident. Therefore, the two provinces should continue to promote the construction of Nanjing metropolitan area and the Yangtze River Delta growth poles such as the Jiangsu-Wanhai Cooperation Demonstration Zone, especially to bring Nanjing into play [13]. In particular, Nanjing, as the capital of Jiangsu Province, should play its geographical and economic advantages to help the less developed cities in Anhui Province in a one-to-one manner to maintain a balanced regional economic development.

5.1.1 Complementary advantages

The fact that Nanjing itself needs to complement Anhui Province makes cooperation possible. As the capital of Jiangsu province, Nanjing is a central city with a higher level of socio-economic development than other cities in the Nanjing metropolitan area, as well as advanced management and technology, but the high cost of land and labor in and around Nanjing is not conducive to large-scale manufacturing, and its urban economy is not conducive to agricultural development, with a low self-sufficiency rate of agricultural and sideline products. The above problems can be solved by providing land in Anhui Province as an enclave for cross-regional land management, because Anhui Province, as a large agricultural province, has relatively low prices for production factors such as land and labor, and has strong complementarity with Nanjing. Therefore, it can promote the coordination between Anhui and neighboring Jiangsu cities.

5.1.2 Establish industrial cooperation park to promote industrial cooperation

Jiangsu and Anhui provinces can jointly promote the construction of Nanjing metropolitan area by establishing industrial cooperation parks. Since there are objectively limited urban resources in Anhui Province and Jiangsu Province, which leads to the big difference in resource endowment between the two provinces, it is possible to establish industrial cooperation parks based on "industrial difference" and "benefit difference", so that the comparative advantages of each region can be brought into play and industrial cooperation can be formed. In this way, the comparative advantages of each region can be brought into play and industrial cooperation can be formed. The industrial cooperation can effectively solve the problems of imperfect infrastructure, disorderly industrial competition and administrative barriers between regions. Therefore, through the cooperation between Suzhou and Anhui governments, the resources of the two provinces are allocated by market mechanisms, breaking down geographical, factor flow and administrative barriers to achieve effective resource allocation in the Nanjing metropolitan area and becoming a strong regional growth pole between central and eastern China. The effect is to promote high-quality regional economic growth and integrated development, enhance the vitality of transferred industries, increase employment in the region, and strengthen the industrial competitiveness of the receiving region. With the increase of regional economic structure differences and a large number of enterprises investing across regions, industrial cooperation and industrial transfer are conducive to the economic growth of all parties. For example, when building the Ningma Industrial Cooperation Park, in addition to docking with Nanjing Jiangbei New District, it should also focus on Nanjing's preference for high-tech industries and Anhui Province's preference for economic benefits, and solve the differences in interests of both sides by means of tax sharing, so as to promote the cooperation momentum of both sides in the industrial cooperation park.

5.1.3 Improve industrial supporting work

Anhui Province should provide Nanjing with land-intensive or labor-intensive industrial support while fully absorbing financial and technical support, so as to facilitate Nanjing to better improve the primacy of its city functions and to radiate the surrounding areas to a larger extent. For example, Anhui regions should take advantage of the comparative advantage of land cost to attract enterprises in high-tech industries that need a large amount of land to move into the industrial cooperative park.

Anhui is facing fierce competition with other central and western provinces for excellent talents, so it should consider how to improve the talent flow mechanism in the province by increasing investment in basic education, improving human capital, maximizing the retention of scientific and technological talents cultivated by universities such as University of Science and Technology of China, and introducing multiple incentive policies such as providing housing and bonuses. It can attract high-level talents to flow to the local area by increasing investment in basic education, improving human capital, maximizing retention of scientific and technological talents cultivated by universities such as University of Science and Technology of China, and introducing multiple incentives such as housing and bonuses. The export of surplus rural labor from Anhui province to the eastern region can promote the reverse gradient transfer of technology through "learning by doing", which is important for narrowing the regional economic gap.

5.1.4 Helping less developed cities in Anhui province and promoting coordinated regional development

Anhui province is divided into three regions: South, Central and North Anhui, and the GDP contribution rate to the province is ranked as Central, South and North Anhui. Except for the primary industry, all other industries in northern Anhui are lower than those in southern Anhui and central Anhui, and the gap between southern Anhui and central Anhui is slowly shrinking. The gap between South Anhui and Central Anhui is slowly decreasing. Among them, primary industry: North Anhui > Central Anhui > South Anhui; secondary industry: South Anhui > Central Anhui > North Anhui; tertiary industry: Central Anhui > South Anhui > North Anhui; regional gross output value: Central Anhui > South Anhui > North Anhui. At present, the regional cooperation policy document for economic development in northern Anhui is the "Implementation Plan for Twinning Cooperation between Shanghai, Jiangsu and Zhejiang Cities to Help Northern Anhui Cities", which proposes the "Action Plan for High-Quality Synergistic Development of Three Industries" to establish industrial cooperation parks in northern Anhui to promote industrial chain division and collaboration, transform and upgrade traditional industries such as engineering machinery, light industry and food, textile and garment, etc. It will foster and strengthen strategic emerging industries such as new materials of pottery and aluminum, aluminum-based high-end metal materials and advanced polymer structural materials in Huabei, modern Chinese medicine in Bozhou, cloud computing in Suizhou, silicon-based new materials and bio-based new materials in Bengbu, new energy, energy-saving and environmental protection and new materials in Fuyang, big data in Huainan, intelligent home appliances in Chuzhou, and high-end equipment and basic parts in Liuan. According to the status of the important agricultural base in northern Anhui, it encourages the leading enterprises of agricultural industrialization to take the lead in the layout, develop efficient ecological agriculture and deep processing industry of agricultural products, support the creation of "one county, one industry" whole industry chain, and create a number of high-quality green agricultural brands in northern Anhui. At the same time, relying on Shanghai, Jiangsu and Zhejiang offline and online exhibitions, marketing networks and Internet platforms to carry out agricultural products production and marketing docking, listed and operated the exhibition and marketing center of famous and special agricultural products in northern Anhui, allowing more northern Anhui agricultural products to enter the market of Shanghai, Jiangsu and Zhejiang. Therefore, it should give full play to the economic advantages of the Yangtze River Delta and continue to help some cities in northern Anhui, which can not only take over the industries of Jiangsu and other provinces, but also drive the coordinated economic development of Anhui province. In addition, it can arrange cadres to be assigned to each other, learn the advanced management

experience of developed regions, build a platform for capital project matching, promote cooperation in cultural tourism industry, etc. to make up the short board of Anhui's development and achieve common prosperity.

Therefore, effective ways to promote the willingness of local governments to cooperate in Anhui and Jiangsu provinces are: to establish effective incentive mechanisms for local officials to encourage cooperation, to enhance the development of central cities such as Nanjing and Hefei, which can increase the willingness of neighboring cities with lower levels of economic development to cooperate with the central cities because the potential benefits are greater; to strengthen the ability to build equalization of public services through central supervision, which can effectively eliminate "superficial cooperation" by local governments for various preferential policies, maintain the fairness of resource competition in the market, and reduce the damage to environmental resources caused by vicious competition [15].

5.2 Undertake Industrial Transfer

5.2.1 Form a high-speed and effective characteristic industrial agglomeration mode

According to the United Nations document "World Capital Report 2001", international investment tends to shift to industrial clusters rather than to low cost, so industrial clusters attract more international investment. Facing the international competition between Southeast Asian countries and other provinces in central and western China in undertaking eastern industries, Anhui should not blindly choose in the process of undertaking industrial transfer in the Yangtze River Delta, but should choose the development path of characteristic industrial agglomeration according to its own advantages in location conditions, industrial structure and policies, so as to promote regional economic development [14]. For example, in 2021, Anhui Province issued the "Implementation Plan for the Construction of Industrial Transfer Agglomeration Area in Northern Anhui", which aims to accelerate the pace of industrial transfer in northern Anhui in an orderly manner, gradually form a new spatial carrying pattern with reasonable division of labor, distinctive features and complementary advantages, and build the Agglomeration Area into a preferred place for high-quality industrial transfer in the Yangtze River Delta, a model area for industrial agglomeration development in the central and western regions, a pilot area for the integration and development of production and cities in the Huaihe Ecological Economic Belt, an important production, processing and supply of energy and green agricultural products, and an advanced manufacturing base, and strive to cultivate industrial transfer.

In terms of the types of undertaking industries, Liu Wei measured the types and regional distribution of industries suitable for undertaking in Anhui Province by using indicators such as location quotient and industrial gradient coefficient [14]. The measurement results showed that the industries with location quotient index and industrial gradient greater than 1 were coal mining and washing, ferrous metal mining and dressing, nonmetal mining and dressing, agricultural and sideline food processing, beverage and tobacco manufacturing, wood processing and other transportation and energy manufacturing industries. It can better reflect Anhui's location advantage as a big province of energy, agriculture and labor, and it is suitable for undertaking labor-intensive industries, but it also shows Anhui's competitive disadvantage in capital-intensive aspects.

As for Jiangsu Province, although it belongs to a high-gradient position and a high-location business in textile industry, shoe and hat manufacturing industry, paper industry, etc., due to the gradual increase of regional competitiveness and rising labor costs, agglomeration is uneconomical. Therefore, the industries that are transferred to Anhui are mainly low-tech and labor-intensive industries. It is also true that Anhui Province is in a low-gradient position, and the degree of industrial agglomeration is relatively low. Therefore, the current development path of Anhui Province is to form a good pattern of regional division of labor with Jiangsu Province. Making full use of its natural endowment can not only promote the development of industrial agglomeration, but also further promote industrial transfer.

5.2.2 Promote the independent innovation system integrating production with learning, and enhance the independent innovation capability

At present, Anhui Province has undertaken a large number of labor-intensive and heavily polluted low value-added industries from developed areas such as Jiangsu Province to improve its economic development level. However, Anhui Province itself should absorb the technologies of these industries and carry out technological innovation in the province to realize the industrial upgrading and leap-forward development in this region. Anhui province should build more technological innovation platforms, give full play to the advantages of scientific research and human capital of universities in the province, and invest and support scientific research and innovation in advantageous industries of the province, such as energy, machinery, automobile manufacturing and biomedicine. At the same time, enterprises are encouraged to absorb and digest scientific research achievements, put scientific research and technology into production as soon as possible, promote the integration of Industry-University-Research, build brand effects in industrial clusters in Jiangsu and Anhui provinces, and define industrial positioning. In addition, heavy polluting industries should be phased out, environmental pollution control should be emphasized, and the green development concept of "Lucid waters and lush mountains are invaluable assets" should be implemented.

5.2.3 Promote the willingness of local governments in the two provinces to cooperate

As early as 1990, Anhui Province established the Yangtze River Regional Economic Coordination Planning Committee to promote the development of Wuhu City, Maanshan City, Tongling City and Anqing City along the Yangtze River, and also established corresponding local government cooperation systems. However, despite the establishment of corresponding systems, it does not mean that local governments will implement these systems. Wu Xinchun, a scholar, found in his research that Anhui Province has formulated a series of systems to ensure local government cooperation in Wanjiang City Belt Demonstration Zone, which significantly increased the GDP growth rate of Wanjiang Demonstration Zone and accelerated the upgrading of industrial structure [15]. However, there are also some problems, such as insufficient government cooperation motivation and imperfect assessment mechanism. Therefore, in the process of Jiangsu-Anhui cooperation, people should learn from the lessons and experiences of local governments in Anhui Province and establish an effective mechanism to promote the cooperation between Jiangsu and Anhui local governments. Therefore, the effective ways to promote the willingness of local governments to cooperate in Anhui and Jiangsu provinces are establishing an effective incentive mechanism for local officials to encourage cooperation, and promoting the development of central cities such as Nanjing and Hefei, which can enhance the willingness of cities with lower economic development level around them to cooperate with central cities, because the potential benefits are relatively large [16]. Through the supervision of the central government, strengthening the capacity of equalization of public services can effectively eliminate the "superficial cooperation" of local governments for various preferential policies. In order to maintain the fairness of resource competition in the market and reduce the damage caused by vicious competition to environmental resources.

6. Conclusion

This paper first analyzes the theoretical basis on which the current strategic policies for regional economic development are formulated, and presents the current situation of the differences in regional economic development between the two provinces. Then, by analyzing the Thayer Index and decomposition results of Jiangsu and Anhui provinces in China from 2000 to 2021, it is found that the total Thayer Index of the two provinces has been decreasing year by year, reflecting the year-on-year decrease of the difference in economic development between Jiangsu and Anhui. The difference in economic development between Anhui province and the national inter-provincial regional economic gap also shows a gradual decrease after 2010.

However, by analyzing a series of indicators related to the inter-provincial gap, such as the difference in GDP between the two provinces, the proportional relationship between the industrial structure of the two provinces, the degree of marketisation and the gap in human capital, it can be seen that the level of economic development of Jiangsu is significantly better than that of Anhui in terms of optimization of the industrial structure and the degree of utilization and emphasis on foreign investment and human capital. The reasons for this widening regional economic disparity include historical reasons and the unbalanced development policies since the reform and opening up, which have increased the average level of economic development in the eastern region and the country as a whole, but have exacerbated the regional economic disparity. However, Anhui's regional economic development still has many advantages, such as location, transportation, natural resources, industrial development and policies. Therefore, it can help Anhui's economy to start a new round of growth by actively participating in the division of labor in the Yangtze River Delta region, where Jiangsu is located, such as promoting the construction of city clusters, metropolitan areas and industrial cooperation, and taking the initiative to undertake the eastern industries. At the same time, Jiangsu can also cooperate with Anhui in the process of industrial transfer and reduce the cost pressure on production factors such as land, which are essential for industrial upgrading. In short, the two provinces can achieve mutual benefits through economic cooperation.

This paper focuses on the regional economic gap between Jiangsu and Anhui in terms of economic indicators. It is found that although there is currently a large gap between the two provinces' economies for a number of reasons, this gap can be narrowed through inter-provincial economic cooperation led by the two provincial governments, for example. Although the overall level of economic development in Jiangsu is higher than that in Anhui, there are significant differences in the level of economic development and industrial focus between Jiangsu and Anhui, with each region divided into southern, central and northern Jiangsu. The next step of the study is to analyze the causes of this problem from multiple perspectives, in order to solve the problem of unbalanced regional development between the two provinces and to alleviate the main contradiction of the current unbalanced regional economic development in the whole society. The main contradiction of the current regional economic development in the country.

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