

The Influence of Manufacturing Agglomeration on Industrial Structure Upgrading in Anhui Province

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Abstract: In order to promote the upgrading of industrial structure in Anhui province and meet the requirements of high quality development of manufacturing industry put forward by the government of Anhui Province, this paper firstly calculates the degree of agglomeration of manufacturing industry in Anhui Province in the past five years. It is found that the development status of manufacturing industry in Anhui Province is better, and some industries have comparative advantages compared with the whole country. Then, based on the data of Anhui Province from 2001 to 2020, the paper analyzes the influence of manufacturing agglomeration on industrial structure upgrading in Anhui Province, and draws the following conclusions: the agglomeration of manufacturing industry has a promoting effect on industrial structure upgrading. In addition, government intervention will have a negative impact on industrial structure upgrading, and the level of informatization can promote the upgrading of industrial structure. Therefore, it is necessary to promote the development of the manufacturing industry, improve the layout of the manufacturing industry, enhance the innovation ability of the manufacturing industry, improve the manufacturing infrastructure, and promote the agglomeration of the manufacturing industry to promote the upgrading of the industrial structure.

Keywords: Industrial agglomeration, Manufacturing industry agglomeration, Upgrading of industrial structure.

1. Introduction

With the improvement of China's economic level and the deepening of the process of industrialization, some areas with early industrialization and high level of development began to carry out industrial transfer, such as Hebei province to undertake the industrial transfer of Beijing, Anhui Province to undertake the industrial transfer of Yangtze River Delta. The manufacturing industry has always been the lifeblood and pillar of the national economy, and the rapid development of the manufacturing industry is one of the biggest achievements in the liberation and development of the productive forces since China's reform and opening up. At the same time, China's current manufacturing industry development still has shortcomings: the speed of development is fast but the quality is not high; there is a large gap between cities in the level of manufacturing agglomeration, and the scale is uneven. Therefore, it is urgent to promote high-quality development of the manufacturing industry. Anhui Province is currently in the middle stage of industrialization. In January 2022, the CPPCC of Anhui Province proposed to accelerate the building of manufacturing industry cluster in terms of the content of the two sessions, and actively realize the improvement of quality, expansion and efficiency. After the development and expansion of the "13th Five-Year Plan" period, Anhui province's economic strength has shown leap-forward progress. The industrial added value of the province has an average annual growth of 8.1%, ranking the third in China, and the industrial structure is constantly upgrading. In 2020, the proportion of secondary industry in Anhui Province is 40.5%, of which industry accounts for 30.2%, but the industrial economy of Anhui Province is still dominated by the traditional manufacturing industry, and the current industrial structure cannot meet the requirements of efficient economic growth and high-quality development. Industrial agglomeration has a positive impact on regional economic development, and the upgrading of regional industrial

structure will also benefit from industrial agglomeration. As an important part of Anhui Province's industry, the agglomeration development of manufacturing industry has important practical significance to promote the upgrading of Anhui Province's industrial structure.

2. Literature Review

The upgrading of industrial structure refers to the process of upgrading from the primary industry such as agriculture to the secondary industry and finally to the tertiary industry in the process of continuous economic development. In this process, the industrial structure of the economy is constantly improving from low to high. Industrial agglomeration refers to the gradual and high concentration of a certain type of industry in a geographical area, such as Zhongguancun in Beijing, Wuhan "Optical Valley" and Hefei "Sound Valley" in China. In industrial agglomeration areas, enterprises of the same type are concentrated, which can form scale effect, accelerate the realization of technological progress of enterprises, and promote the rapid improvement of the overall economic benefits. The research on industrial agglomeration began in 1890, and this economic phenomenon attracted the attention of Marshall. Since then, the related theory of industrial agglomeration has developed rapidly.

A series of indexes such as industrial concentration, locational entropy (β index), Herfindahl index (HHI) and spatial Gini coefficient have been proposed in the existing research literature to calculate the industrial agglomeration degree. For example, Liang Qi et al. (2005) used the local specialization index (i.e., location entropy) to calculate the industrial agglomeration in the Yangtze River Delta and believed that industrial agglomeration promoted the industrial upgrading in the region. Zhang Sanfeng (2010) calculated the overall degree of agglomeration of producer services in 21 Chinese cities according to the location entropy index. According to the research results, the degree of agglomeration

of producer services is deepening year by year, especially in big cities with relatively complete infrastructure, which is more significant. The agglomeration speed of producer service industry in the central cities of the eastern manufacturing agglomeration area is also faster than that in other regions. Wu Qianbo et al. (2011) measured the concentration of China's manufacturing industry through the structural geographic concentration index and concluded that China's top 500 manufacturing enterprises gradually converged to coastal areas, but the status of coastal areas is the coexistence of internal polarization and diffusion. Therefore, the concentration degree of neighboring provinces and regions affected by the diffusion phenomenon will also gradually increase.

At present, there are studies devoted to examining the influence of industrial agglomeration on industrial structure transformation. Sun Jing et al. (2012) analyzed the degree of financial agglomeration in 31 provinces and cities through location entropy and found that financial agglomeration has a relatively obvious promoting effect on the upgrading of industrial structure of cities in different geographical regions. Wang Shengjin et al. (2017) calculated regional industrial agglomeration with Theil Index and believed that industrial agglomeration had a positive impact on regional industrial structure, and the balanced regional development of industry was also beneficial to the optimization of industrial structure. Liu Yi et al. (2017) made use of the urban panel data from 2005 to 2013 and found that the urban manufacturing upgrading would be positively affected by the agglomeration of producer services, which in turn would be affected by production scale, production level, wage level, innovation ability and other factors. The difference is that these influences are both positive and negative. Zhou Xiaoliang et al. (2019) used panel data from 2005 to 2015 to show that the collaborative agglomeration of industries can promote the rationalization of industrial structure, but there is a nonlinear inverted "U" shaped influence on the upgrading of industrial structure. Shen Hongliang et al. (2020) used the panel data of industrial enterprises from 1998 to 2013 to study the relationship among industrial agglomeration, FDI flow and industrial upgrading, and found that industrial upgrading can be promoted by FDI and industrial agglomeration. In addition, the scale of FDI will also affect the specific effect of industrial agglomeration on industrial upgrading.

Previous scholars' researches on the impact of industrial agglomeration on industrial structure upgrading are abundant, which can provide numerous references for this paper in terms of theory and practice. Firstly, this paper calculates the agglomeration degree of manufacturing industries in Anhui Province in the past five years, and draws the conclusion that the development status of manufacturing industry in Anhui Province is better, and some industries have comparative advantages compared with the whole country. Then, using the data of Anhui Province from 2001 to 2020, this paper studies the influence of manufacturing agglomeration on industrial structure upgrading in Anhui Province.

3. Mechanism Analysis

Industrial agglomeration is an important factor to accelerate the optimization and upgrading of regional industrial structure. Enterprises can not only reduce their costs and improve industrial economic benefits by taking advantage of economies of scale effect, but also obtain certain

pressure through industrial agglomeration, thus enhancing the innovation power of enterprises in technology. The influence mechanism of industrial agglomeration on industrial structure optimization and upgrading can be reflected in the following three aspects:

3.1. Competition mechanism

Under the influence of market competition mechanism, industrial agglomeration can help enterprises reduce transaction costs and accelerate the adjustment of industrial structure. First of all, the higher the degree of industrial agglomeration, the more conducive to enterprises to enhance market competitiveness and seize market share. Affected by the effect of price competition, enterprises in a certain industry will reduce prices to expand market demand, thus ensuring the sustainability of their own development. Secondly, the availability of information technology leads to overcapacity in the agglomeration area, which leads to the influx of a large number of products of the same type or even exactly the same in the market, resulting in serious product homogenization. At the same time of fierce competition, product surplus and oversupply are exposed, leading to the decline of product prices and the reduction of corporate profits. This phenomenon will encourage enterprises to actively innovate, produce heterogeneous products, and vigorously develop new products by grasping the market and customer demand, so as to optimize and adjust the industrial structure.

3.2. Economies of scale effect

The market size oriented by customer demand expands gradually under the influence of industrial agglomeration, and enterprises will improve the industrial structure under the effect of market mechanism. Enterprises expand the scale of production, the emergence of more specialized division of labor to improve efficiency, the whole industry to form a more moderate and reasonable economic scale, thus bringing more economies of scale, the formation of a "circular cumulative causal chain". In the process of enterprise scale expansion, more efficient machinery and equipment can not only help the enterprise to complete the work efficiently and professionally, but also reduce the resource cost of the enterprise, greatly enhance the position of the enterprise in the industry market, improve the industrial structure.

3.3. Knowledge spillover effect

As one of the important causes of industrial agglomeration, the local characteristics of knowledge spillover and technology diffusion can further guide the development and innovation of industrial technology, and promote the adjustment of industrial spatial structure. Related enterprises in the agglomeration area learn from each other and compete for development. Knowledge spillover is generated in the process of information exchange activities between enterprises, which improves the degree of technological innovation and diffusion speed, so as to promote the improvement of industrial technology level. At the same time, innovation will strengthen the attraction degree of the enterprises within the industry, strengthen the effect of industrial agglomeration, and increase the social and economic benefits. It can be seen that industrial agglomeration and knowledge spillover promote each other, showing a double spiral effect of upward development.

3.4. Resource supply effect

3.4.1. Manufacturing agglomeration increases the supply of capital resources required for industrial structure upgrading

First of all, manufacturing agglomeration can bring more direct financing opportunities for enterprises. Manufacturing agglomeration can improve the liquidity of the financial market, and enterprises can carry out direct financing with the help of the financial market formed in the manufacturing agglomeration area, so as to expand the scale of development. At the same time, capital holders can select enterprises with better development prospects for investment in the manufacturing agglomeration area. The flow of the financial market in the manufacturing cluster area has concentrated a large amount of capital and continuously attracted more funds from the society to invest in the region. Secondly, the agglomeration of manufacturing industry will provide indirect financing channels for enterprises and facilitate investment financing. The spatial agglomeration of manufacturing industry will attract and promote the formation of spatial agglomeration of other industries. Exchanges and cooperation between industries promote the innovation of financing methods, and thus broaden the indirect financing channels.

3.4.2. The agglomeration of manufacturing industry increases the supply of human resources required for the upgrading of industrial structure

Manufacturing agglomeration increases human resource supply for industrial structure upgrading in the following two ways. First, manufacturing agglomeration can bring more and better financing opportunities to enterprises in the agglomeration area. In order to expand market business, some enterprises will take advantage of financing opportunities to expand production scale and seize market shares. Therefore, skilled and innovative workers will get more employment opportunities in the manufacturing cluster area. Second, affected by the expansion of production scale, a large number of assembly line workers will be needed to fill the staff vacancies in the production lines of enterprises in the manufacturing agglomeration areas. At that time, a large

number of ordinary workers will begin to gather in the manufacturing agglomeration areas due to the income and population policies. A large number of different types of workers flock to the manufacturing cluster area. Workers constantly enhance their own skills in the process of job competition and information exchange. At the same time, the information collision between workers and enterprises promotes the progress and innovation of technology, so as to realize the upgrading of industrial structure.

4. Measurement of agglomeration degree of manufacturing industry in Anhui Province

There are many methods to measure industrial agglomeration. In this paper, the locational entropy index is used to measure the industrial agglomeration level of the 10 industries with the highest output value in the manufacturing industry of Anhui Province from 2016 to 2020 (with the output value of 2020 as the ranking standard). The locational entropy index is used to measure the specialization degree of an industry in a certain region, that is, the agglomeration level. The locational entropy index is positively correlated with the industrial agglomeration level. Compared with the national unified level, if the locational entropy index is greater than 1, it indicates that the industry in the region has comparative advantages compared with the whole country.

$$\beta_{ij} = \frac{\theta_{ij}/\sum_{i=1}^n \theta_{ij}}{\sum_{j=1}^n \theta_{ij}/\sum \theta_{ij}} \quad (1)$$

In the above formula, θ_{ij} represents the output value of industry i in region j ; $\sum_{i=1}^n \theta_{ij}$ represents the total output value of region j ; $\sum_{j=1}^n \theta_{ij}$ is the national total output value of industry i ; $\sum \theta_{ij}$ is the total output value of the country.

In this paper, the regional entropy index of manufacturing industry in Anhui Province from 2009 to 2016 is obtained by using the above formula based on the data of national and Anhui total output value and manufacturing output value in Statistical Yearbook.

Table 1. Agglomeration degree of manufacturing industry in Anhui Province from 2016 to 2020

	2016	2017	2018	2019	2020
Electrical machinery and equipment manufacturing	1.8484	2.0192	1.5141	1.6061	1.5656
Communications Equipment Manufacturing of computers and other electronic equipment	0.6267	0.5915	0.6947	0.6901	0.7807
Non-metallic mineral products industry	1.0785	1.082	1.4617	1.47	1.4074
Automotive manufacturing	1.0045	0.9708	0.8418	0.8662	1.0253
Nonferrous metal smelting and calendering industries	1.2222	1.1984	1.8505	1.6746	1.2223
Manufacturing of chemical raw materials and chemical products	0.7263	0.7491	0.8323	0.8963	0.9693
Ferrous metal smelting and calendering industry	0.8200	0.7894	0.8022	0.7362	0.7738
Agricultural and sideline food processing industry	1.2341	1.2695	1.1872	1.2339	1.1891
General Equipment Manufacturing	1.2633	1.2641	1.0478	1.1003	1.1728
Metal products industry	0.9623	0.9535	1.0325	1.0186	1.019

According to the data in Table 1, among the 10 manufacturing industries in Anhui Province selected in this paper, the location entropy index of communication equipment, computer and other electronic equipment manufacturing, chemical raw materials and chemical products manufacturing, ferrous metal smelting and rolling

processing industry is all less than 1 in the past five years, indicating that these industries do not have comparative advantages compared with the national level of development is not high. The electrical machinery and equipment manufacturing industry, non-metallic mineral products industry and agricultural and sideline food processing

industry and other 7 industries have relatively good development, and have comparative advantages compared with the national manufacturing industry.

5. Empirical Study

5.1. Model construction

In order to study the impact of manufacturing agglomeration on industrial structure upgrading in Anhui province, the following econometric model is constructed in this paper:

$$IS = \alpha_0 + \alpha_1 \beta + \sum \alpha_i X_i + \varepsilon_i \quad (2)$$

Where, IS represents the level of industrial structure upgrading in Anhui Province, β represents the level of manufacturing agglomeration in Anhui Province, and X_i represents control variables, including the level of economic development in Anhui Province, the degree of government intervention and the level of informatization.

5.2. Variable selection and data selection

Due to the availability of data, data of Anhui Province from 2001 to 2020 are selected for empirical analysis.

5.2.1. Explained variables

The upgrading of industrial structure (IS) is the process of the development of industrial structure from low level to high level. From the perspective of the change of industrial income structure of national economy, it is a process of continuous progress from the proportion of primary industry to secondary

industry, and then to tertiary industry. This paper adopts Xu Deyun's calculation of industrial structure upgrading, and believes that the characteristics of industrial structure upgrading are that the position of the tertiary industry is becoming more and more prominent, while the proportion of the primary industry in the national economy is becoming smaller. The specific calculation formula is as follows:

$$IS = (1 \leq R \leq 3) \sum_{i=1}^3 i \times y_i \quad y_1 \times 1 + y_2 \times 2 + y_3 \times 3 \quad (3)$$

Where, y_i is the proportion of industry i , is $\frac{Y_i}{Y}$. R is to measure the degree of industrial structure upgrading. The larger R is, the higher the degree of industrial structure upgrading is.

The following table shows the industrial structure upgrading index of Anhui Province for a total of 20 years from 2001 to 2020 calculated by using the data of Anhui Province. From Table 2, it can be seen that during 2001-2011, the industrial structure upgrading coefficient of Anhui Province was on the rise, but the upward trend was not obvious, and it fluctuated greatly during this period, which reflects that although the industrial structure of Anhui province was adjusting, the pace of adjustment was slow and the interference was great. During the 10 years from 2011 to 2020, the industrial structure upgrading process of Anhui Province was fast, which was the result of the national and Anhui provincial government issuing relevant policies to vigorously support the development of secondary and tertiary industries in Anhui Province.

Table 2. Industrial structure upgrading Index of Anhui Province

Time	2001	2002	2003	2004	2005
IS	2.1448	2.1748	2.2266	2.2129	2.2189
Time	2006	2007	2008	2009	2010
IS	2.2256	2.216	2.2052	2.2153	2.1994
Time	2011	2012	2013	2014	2015
IS	2.1935	2.2004	2.2239	2.2392	2.2793
Time	2016	2017	2018	2019	2020
IS	2.3053	2.3337	2.3629	2.4296	2.4302

5.2.2. Explain variables

Based on the formula of location entropy index listed above, this paper calculates the degree of manufacturing agglomeration in Anhui Province from 2001 to 2020 (β), as shown in Table 3. As can be seen from the following table, the index of the manufacturing industry in Anhui Province before 2014 was less than 1, which was no advantage compared with the national manufacturing industry. β After 2014, thanks to

the policy support, the industrial transfer in the Yangtze River Delta and other factors, the agglomeration level of the manufacturing industry in Anhui Province improved and showed a relatively better level than that of the whole manufacturing industry in China. Since 2019, due to the impact of the epidemic on the resumption of production, the level of manufacturing agglomeration in Anhui Province has slightly decreased.

Table 3. Degree of manufacturing agglomeration in Anhui Province from January 2001 to 2020

Time	2001	2002	2003	2004	2005
β	0.6713	0.6424	0.6264	0.5802	0.6149
Time	2006	2007	2008	2009	2010
β	0.6555	0.714	0.7593	0.8047	0.8732
Time	2011	2012	2013	2014	2015
β	0.9736	0.9769	0.9892	1.0512	1.1212
Time	2016	2017	2018	2019	2020
β	1.1504	1.2207	1.1148	0.9583	0.9628

5.2.3. Control variables

This paper selects the following three control variables: First, the level of economic development (gdp), measured by the gross regional product index, calculated at constant prices in 2000; Second, government intervention (gov), expressed by the proportion of fiscal expenditure in GDP; Third, information level (info) is expressed by the volume of post and telecommunications business, and the information level value is processed logarithmically.

5.3. Analysis of empirical results

5.3.1. Stationarity test

Since the data of Anhui Province from 2001 to 2020 are selected in this paper, that is, 20-year time series data. Therefore, before model regression, it is necessary to determine whether the time series is stable. Firstly, the stationarity test is carried out on the data. In this paper, the ADF test is selected. After the data is imported into the software, the ADF test with trend and intercept items is carried out. The results show that the t value in the ADF test is 1.7101, corresponding to a probability of 0.9981, which is greater than the p value at the 5% confidence level, indicating that the time series has unit roots, namely, instability. Then, the stationarity test with intercept term is carried out on the first order difference sequence. The result shows that the t value in the ADF test is 23.0260, and the corresponding probability is 0.0107, which is less than the P-value at the 5% confidence level, indicating that the time series has no unit root and is first order integral.

5.3.2. Descriptive statistics

As shown in Table 4, the mean value of the model's

explained variable -- industrial structure upgrading index is 2.2519, the standard error is 0.0801, the maximum value is 2.4302, and the minimum value is 2.1448, indicating that the industrial structure upgrading change of Anhui Province's manufacturing industry in the past 20 years has a small range and a low degree of industrial structure change. As the explanatory variable, the mean value of manufacturing industry agglomeration is 0.8731, the standard error is 0.2047, the maximum value is 1.2207, the minimum value is 0.5802, and the difference between the maximum values is large, indicating that the level and degree of industrial agglomeration among different industries in Anhui manufacturing industry during 2001-2020 are very different. The development speed of industrial agglomeration is fast, and the level of development is constantly improving. The mean values of economic development, government intervention and informatization as control variables were 3.8696, 0.0413 and 1.0410, the standard errors were 5.4680, 0.1888 and 6.3188, and the maximum values were 13.3285, 0.2381 and 8.6418, respectively. The minimum values are 1.1188, 0.1244 and 4.8078, respectively. Thus, it can be seen that the economic development level and informatization level of the manufacturing industries in Anhui Province during 2001-2020 differ greatly. With the passage of years, the economic development level and informatization level have been enhanced and improved, and the government intervention is relatively stable. The Anhui provincial government has also been supporting the agglomeration of manufacturing industries.

Table 4. Descriptive statistics

Types of variables	Variables	Meaning	Standard error	Mean	Maximum	Minimum
Explained variable	IS	Upgrading of industrial structure	0.0801	2.2519	2.4302	2.1448
Explanatory variables	β	Manufacturing agglomeration	0.2047	0.8731	1.2207	0.5802
Control variables	gdp	Level of economic development	3.8696	5.4680	13.3285	1.1188
	gov	Government intervention	0.0413	0.1888	0.2381	0.1244
	info	Informationization level	1.0410	6.3188	8.6418	4.8078

5.3.3. Baseline regression

The data of Anhui Province from 2001 to 2020 are analyzed by regression, and the regression results are shown in Table 5. Through the regression analysis of Model 1, it is found that the economic development level (gdp) in the control variable is not significant at the confidence level of 5%, and has an impact on the core explanatory variable manufacturing agglomeration level (β), so the control variable is eliminated. According to the regression results of Model 2, after controlling the degree of government intervention and the level of informatization, each variable is significant under the given confidence level. The regression coefficient of

manufacturing agglomeration is positive, indicating that manufacturing agglomeration has a positive impact on the upgrading of industrial structure. The degree of government intervention has a negative effect on the upgrading of industrial structure, which may be because excessive government intervention will hinder the normal agglomeration and industrial upgrading of manufacturing industry, but will have a negative effect on the upgrading of industrial structure. The improvement of informatization level is conducive to timely communication between enterprises, information can be transmitted in time, knowledge and technological innovation spread faster among enterprises, will promote the upgrading of industrial structure.

Table 5. Regression results

Variable names	Model 1	Model 2
β	0.0992 (0.1418)	0.0011 (0.2186)
gdp	0.2208 (0.0066)	
gov	0.0012 (1.1223)	0.0001 (1.2911)
info	0.0011 (0.0569)	0.0000 (0.0737)

5.3.4. Threshold effect analysis

Considering the dual nature of agglomeration economy, manufacturing agglomeration may have a dual impact on industrial structure upgrading. The information level (info) was selected as the threshold variable to test the threshold effect of manufacturing agglomeration, so as to study the specific influence of manufacturing agglomeration on industrial structure upgrading. According to the software results (see Table 6), the manufacturing agglomeration in Anhui Province has a triple threshold effect on industrial structure upgrading, and the threshold values are 5.7049, 6.2411 and 6.8193, respectively. When the informatization level is lower than 5.7049, the regression coefficient is 0.2392, which is significant below the 5% confidence level, indicating the existence of threshold effect. In this case, the regression coefficient of manufacturing agglomeration is positive, indicating that the influence of manufacturing agglomeration on the upgrading of industrial structure is positive. When the informatization level is between 5.7049 and 6.2411, the coefficient is 0.3698. When the informatization level is between 6.2411 and 6.8193, the coefficient is 0.3349; When the informatization level is greater than 6.8193, the coefficient is 0.1888, again significant under a given confidence level. In the stage where the level of informatization is not high, enterprises may choose similar locations as production places due to communication or competition, forming the prototype of agglomeration area. With the continuous improvement of information technology, the interconnection between enterprises is more convenient and fast. Moreover, production parks of a certain scale have been formed, which can attract enterprises of the same type to choose production parks, thus further enhancing the level of agglomeration. According to the above research results, the continuous improvement of agglomeration level has a positive impact on the upgrading of industrial institutions.

Table 6. Threshold effect test

Threshold test	F-statistic	Scaled F-statistic	Critical Value
0 vs. 1*	22.1578	44.3156	11.47
1 vs. 2*	13.7338	27.4676	12.95
2 vs. 3*	13.3421	24.6842	14.03
3 vs. 4*	5.5611	11.1221	14.85

6. Conclusions with Policy Recommendations

This paper uses provincial data of Anhui Province from 2001 to 2020 to study the relationship between manufacturing agglomeration and industrial structure upgrading in Anhui Province. It is found that the agglomeration of manufacturing industry in Anhui Province promotes the upgrading of industrial structure in Anhui Province. Policies and measures

introduced by the national government and Anhui provincial government in recent years have promoted the agglomeration of the manufacturing industry in Anhui province, while the impact of the novel coronavirus pandemic has had a negative impact on the development of the manufacturing industry. Through further research, it is found that the positive impact of manufacturing agglomeration on the upgrading of industrial structure will also be affected by policy intervention and informatization level.

According to the research conclusions of this paper, in order to promote the industrial structure upgrading of Anhui province, the following suggestions are given at the policy level.

First, strive to promote the high quality and high level development of manufacturing industry in Anhui province. The national and provincial governments should proceed from the actual local economic conditions, the current situation of human resources, the level of natural resources and transportation accessibility, take full account of the actual situation, formulate practical and effective development policies, and further promote the qualitative leap of the manufacturing industry in Anhui Province.

Second, continue to improve the layout of the manufacturing industry in Anhui Province. In the list of Top 100 Manufacturing Enterprises in Anhui Province in 2021, most of them are located in central and southern Anhui, such as Hefei, Wuhu, Tongling, Ma'anshan, etc. In contrast, northern Anhui is rich in human resources, but the development of the manufacturing industry is not ideal, which cannot make full use of human resources in northern Anhui. Therefore, in the future development should focus on promoting the layout of the manufacturing industry perfect, so that all kinds of resources in the north of Anhui can be fully used to promote the development of manufacturing industry, so as to promote the transformation and upgrading of industrial structure.

Third, improve the scientific and technological content and innovation capacity of manufacturing industry. At present, Anhui Province is still dominated by traditional manufacturing industry, with low high-tech content and heavy pollution to the environment. Therefore, Anhui Province not only needs to expand the scale of the original manufacturing industry, but also should develop advanced manufacturing industry, give full play to the role of science and technology in manufacturing industry, introduce high-quality talents through preferential policies, integrate innovation into the development of manufacturing industry, promote manufacturing enterprises to form healthy competition, and provide new power points for the development of manufacturing industry.

Fourth, promote the construction of manufacturing infrastructure in Anhui Province. By improving regional infrastructure and enhancing regional advantages, the

attractiveness of the region can be enhanced and external investment can be attracted, thus promoting the development of the manufacturing industry and upgrading the industrial structure. At the present stage, Anhui province should improve the transportation lines and other infrastructure, further construct and perfect the provincial market, and create more local demand, in order to enhance the domestic and international attraction of Anhui Province, so as to better accept the industrial transfer from the eastern region, and promote the further transformation and upgrading of the industrial structure of Anhui province.

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