

Research on the Industrial Geographic Concentration and Regional Specialization in China

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Abstract: The industrial division of labor and geographical concentration is the key factor to affect and determine the industrial layout and industrial optimization of China. Collecting 2014 Chinese industries in the provincial spatial data distribution, to study China's industrial geography concentration and the degree of regional specialization, and for the Chinese optimization of industrial layout and promote industrial development to provide policy recommendations.

Introduction

The measurement of industrial geographic concentration and regional specialization is a basic theme in the empirical analysis of regional economy. Industrial geographic concentration is the measurement that industry in the distribution of the geographical elements of the imbalance. The more uneven spatial distribution of an industry, which means a large share of the industry are concentrated in a few areas, the higher the degree of geographical concentration. Regional specialization is a measure of the uneven distribution of regional economic activities in different industries. The proportion of each industry's total economic activity in a region is a big difference, which means that all economic activities in the region focus on a small number of industries, the region's professional level is higher.

In fact, the unbalanced of the industrial geographic concentration and spatial distribution is the two sides of a coin. Therefore, it is generally used to measure the spatial distribution of the indicators to measure the industrial geographic concentration, such as the Gini coefficient, etc.. As far as the spatial distribution of industry is not balanced, it reflects the proportion of each spatial unit in a certain industry. According to the understanding of the expectations of different levels, there are two cases named "absolute geographical concentration" and "relative geographical concentration". "Absolute geographical concentration" that the proportion of the space unit is not different from the expected level. If there is N space unit, the N unit is expected to be the level of $1/n$. In fact this is not appropriate, the total economic size of each region is different, so it is expected that they can accommodate a certain difference in the industry share. Assuming 10% for the total economic scale in Zhejiang accounted for the proportion of the total size of the economy, of course, we expect its textile industry accounted for the entire textile industry (i.e. all the provinces of the textile industry and the proportion for 10%); if 1% in total economic scale in Tibet accounted for the proportion of the total size of the economy. We of course hope its textile industry accounted for the proportion of the textile industry as a whole is only 1%. So from the relative sense, Zhejiang in the textile industry accounted for 10% of Tibet in the textile industry accounted for

more than 1% of its expected value, so the two is no difference. But in the absolute sense, there are significant differences between the two, may come to the conclusion that the textile industry in Zhejiang has concentrated. This is because in the absolute sense that Zhejiang and Tibet in the expected proportion is 1 / 31 (in 31 provinces, Hong Kong, Macao and Taiwan excluded), and Zhejiang in the textile industry accounted for 10% higher than the level of expectation, and Tibet in the textile industry accounted for more than 1% less than the level of hope. In consideration of this, this article will use the relative geographical concentration method to measure the degree of China's industrial geographic concentration, in order to eliminate the difference caused by the economic gap between the provinces of the absolute geographic concentration.

Materials and Methods

Gini coefficient is commonly used to measure the data distribution diversity index, the value of area surrounded by Lorenz curve and the 45 degree line and the isosceles right angled triangle area ratio, value between 0 and 1, its value that bigger data difference is bigger, its value is more smaller to show smaller differences in the data. Gini Coefficient Location is on the basis of the Gini coefficient, adding spatial distribution characteristics, the measure of economic activity in the geographical space distribution is not balanced degree. Its formula is:

$$G = \frac{1}{2n^2\bar{x}} \sum_{i=1}^n \sum_{j=1}^n |x_i - x_j| \quad (a)$$

$$x_i = \frac{X_i}{\sum_i^n X_i}$$

In formula (a), when x_j for the original data, or when $x_i = c_r^k$, at this

time $\bar{x} = \frac{1}{n}$), for the absolute Gini coefficient. At that time $x_i = \frac{X_i / \sum_i^n X_i}{Z_i / \sum_i^n Z_i}$, that is $x_i = \frac{c_r^k}{c_r}$, Z_i for

each geographical unit of all economic activities of the scale index, for the relative coefficient of Gini. The relative Gini coefficient controls the overall size of the geographical unit, and is quite reasonable. The value of Gene coefficient ranges from 0 to (1-1/n), the higher the value of the value, the higher the degree of concentration.

Results

According to the relative location of the Gini coefficient of the calculation formula to calculate the concentration of China's industry, the results shown in figure 1:

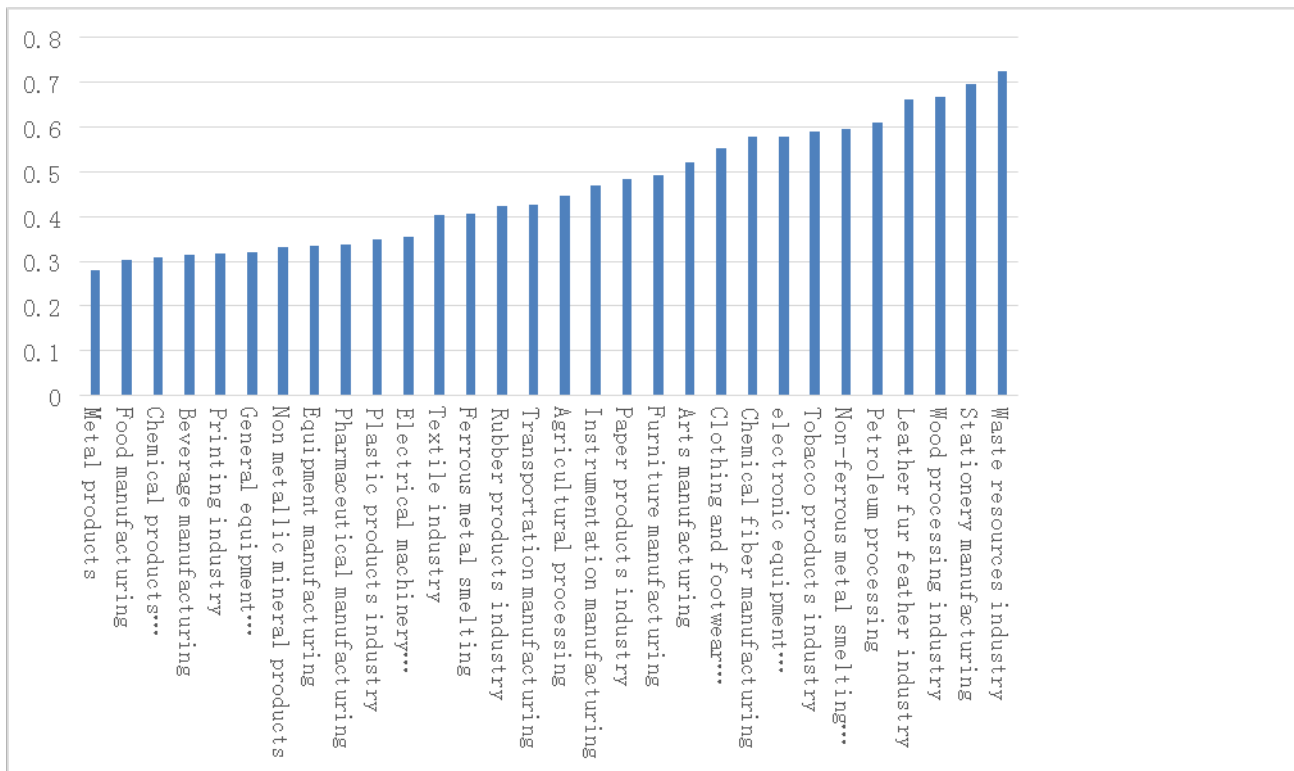


Figure 1 China industrial concentration relative Gini coefficient histogram

From Figure 1 can be found, The Gini coefficient of metal products industry relative is minimum(0.2797). Back in turn is food manufacturing(0.3042), chemical materials and chemical products manufacturing industry(0.3099), beverage manufacturing industry(0.3142), printing and record medium copy(0.3188). Visible in general life and light industrial goods industry concentration is relatively low, the spatial distribution of the relative equilibrium, show that Chinese provinces of their own province light industry supply relative equilibrium can be basically achieve self-sufficiency. The relative Gini coefficient of waste of resources and waste materials back of the processing industry is highest(0.7262), followed by stationery and sports goods manufacturing(0.6963), wood processing, bamboo, cane, palm, and straw products industry(0.6664), leather and fur, feather and related products manufacturing(0.6633), petroleum processing and coking and nuclear fuel processing(0.6101). In general, the industrial concentration of high tech manufacturing industry is relatively high, and its spatial distribution is relatively concentrated. On the one hand, the reason is due to certain areas of resource constraints, on the other hand is due to technical limitations or early accumulation of sustainable effects and distance. Leads to the degree of industrial concentration further improved, for the resources endowment and lead to industry differences between intervention effect is not significant. However, the state can increase supply and aid for education, technology and the development of industry more balanced.

Discussion

The measurement of regional specialization level and the index of industrial geographic concentration have certain similarity, which are to measured data in different units. The difference between them lies in the fact that the data is different from the overall unit of data. In the industrial geographic concentration measurement, the overall data for all economic activity in an industrial scale, segmentation overall unit of the data for the total area of each sub region; in the measurement of regional specialization, the overall data for all economic activity in a sub regional scale,

segmentation unit of the overall data constitute the major industry of all economic activity in the sub region.

Because of the computing industry geographic concentration index and calculating the local specialization index are the same in principle. Therefore, used to calculate the industrial geographic concentration index according to type(a) according to the classification of area calculation the relative balance of the industry level, can be used to calculating the level of regional specialization. By using the relative Gene coefficient, the degree of specialization in China is measured, and the results are shown in Figure 2.

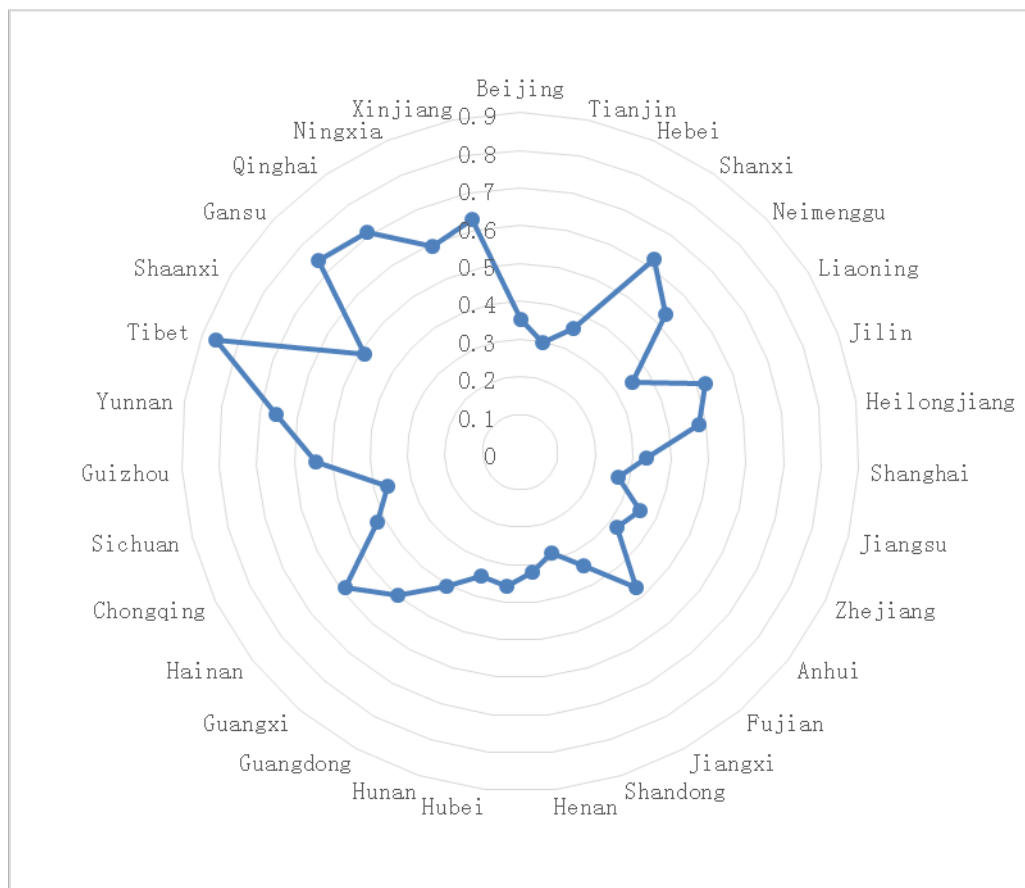


Figure 2 China regional specialization relative Gene coefficient radar chart

From Figure 2 can be found, the Tibet Regional Specialization relative Gini coefficient of the highest (0.8607) and subsequently in turn is Gansu (0.7391), Qinghai (0.7109), Yunnan (0.6565), Xinjiang (0.6307) that industrial structure in these regions the imbalance, which will seriously affected the coordinated development of the area, also the root causes of the area has long lagged behind other regions. Instead, Jiangsu's regional specialization relative Gini coefficient is minimum (0.2686) and subsequently in turn is Shandong (0.2782), Tianjin (0.2980), Henan (0.3213), Anhui (0.3253) that these areas of the industrial structure to balance, the industry in the regional allocation of reasonably uniform distribution, which will also in these areas in the future development lay a solid foundation, so in the future have more favorable conditions for the development of. Therefore, China should pay more attention to for the remote and backward areas of industry support, from the capital, technology, policy, personnel and education given a certain tilt, help the balanced allocation of industries while developing the industry's own reproduction and development ability, thus fundamentally help them out of poverty and rich, harmonious development.

Conclusions

For of above China Industrial geographic concentration and problems existing in the regional specialization, it is recommended to speed up the transformation and upgrading of traditional industries; to promote the healthy development of strategic emerging industries and advanced manufacturing industry; promote the service industry especially the development of modern service industry and growth; reasonable layout of infrastructure facilities and basic industries; development of modern information technology industrial system, promote the coordinated development of medium and small micro enterprise; balanced configuration of the industry in the region; the regional industrial portfolio optimization, promote industrial upgrading; focus on support backward areas behind the industry, accelerate the innovation the upgrading of the industry's ability to drive.

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Introduce

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