Research on the Agglomeration Degree and Development Strategy of Logistics Industry in Hubei Province from the Perspective of the Rise of Central China

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Abstract: The central region occupies an important strategic position in China's regional development pattern. Logistics industry, as a basic and strategic industry supporting the development of national economy, is the foundation and guarantee for the realization of the strategy of the rise of the central region. Under the strategic background of the rise of the central region, this paper takes the logistics industry of Hubei Province as the research object, uses the improved location entropy method to analyze the level of logistics industry agglomeration in Hubei Province from multiple angles, and combines with the economic and historical situation of Hubei Province to further analyze, explore the problems of its logistics industry development and put forward suggestions for improvement.

1. Introduction

The central region occupies an important strategic position in China's regional development pattern. Promoting the rise of the central region is an important part of the implementation of the regional layout of the four major plates and the "three strategies". It is also an objective need to build a unified national market and promote the formation of a sound interaction and coordinated development of the eastern, western and Eastern regions. Logistics industry, as a basic and strategic industry supporting the development of national economy, plays a link role in realizing the interregional exchange of resources and goods, smooth trade and currency circulation, and is the basis and guarantee for the realization of the strategy of the rise of central China. During the 13th Five-Year Plan period, Li Lecheng, Director of the Development and Reform Commission of Hubei Province, pointed out that as an important province in the central part of China, Hubei Province has accumulated strategic opportunities at the national level and superimposed macro-overall mission, which has a more prominent strategic position in the national development pattern and laid a good development environment for the transformation, upgrading and rapid development of the logistics industry in our province. A solid policy foundation. However, while the modern logistics industry in the province is facing rare opportunities for development, there are also some problems, which make the development level of logistics industry in the province incompatible with its industry, location and transportation advantages. Therefore, under the strategic background of the rise of the central region, this paper takes the logistics industry of Hubei Province as the research object, uses the improved location entropy method to analyze the level of logistics industry agglomeration in Hubei Province from multiple angles, and combines with the economic and historical situation of Hubei Province to further analyze, explore the problems of its logistics industry development and put forward suggestions for improvement.

According to the collection and collation of literature, there are some studies on Industrial Agglomeration by domestic scholars at present, but they mainly focus on the manufacturing industry, the research on service industry mainly focuses on tourism, and the research on logistics industry is less. The measurement methods mainly include location entropy, industry concentration, Herfindahl index, spatial Gini coefficient and geographic concentration index. These methods reflect the level of

industrial agglomeration from different angles. The methods themselves have their own emphasis, but the above methods have some shortcomings more or less. At present, no matter the government or academia, there is no uniform standard for the relevant data of logistics industry when calculating the level of logistics industry agglomeration. Moreover, due to the limitation of data collection, most scholars tend to choose location entropy. Therefore, location entropy has become the most commonly used method. However, this index only uses a single data - the output value of logistics industry or the number of employees, which means that the labor productivity of each region is regarded as the same. Obviously, this is not consistent with the facts. Therefore, this paper considers the labor productivity, adds it to the location entropy, and puts forward the method of improving the location entropy.

2. Data Sources and Measurement Methods

2.1. Data Sources

By consulting the Classification of National Economic Industries and the relevant statistical yearbooks of countries, provinces and municipalities over the years, it is found that logistics industry is not clearly listed according to industry classification, unlike manufacturing industry and construction industry. Based on this, most experts and scholars classify transportation, warehousing and postal industry into one category, which is called logistics industry, and make relevant statistical measurements. Therefore, this paper also chooses the relevant data of transportation, warehousing and postal industry in the statistical yearbooks of China, Hubei Province and the central region. The data mainly come from China Statistical Yearbook, Hubei Statistical Yearbook, Hunan Statistical Yearbook, Henan Statistical Yearbook and Anhui Statistical Yearbook. Yearbook, Jiangxi Statistical Yearbook and Shanxi Statistical Yearbook.

2.2. Measurement Methods

The definition of logistics industry agglomeration originates from industry agglomeration. Michael Porter (1990, 1998), an American strategic management scientist, believes that industrial agglomeration is a phenomenon in which many closely related enterprises and institutions concentrate in space and form sustainable competitive advantages. Such competitive advantages are mainly manifested in the fierce competition brought about by the spatial concentration of many small and medium-sized enterprises, thus promoting innovation and innovation. Innovation. Logistics industry cluster is a phenomenon of spatial agglomeration of logistics-related activities and enterprises in a specific region, relying on transportation hub facilities, scientific research and development organizations and management departments, taking third-party logistics enterprises as the core. Kayikci, Zhenzhen Wang, Fuqing Wu and others studied the economic effects of logistics industry agglomeration from different perspectives using empirical research methods. They revealed that logistics industry agglomeration played an important role in industrial structure, manufacturing added value, and achieving sustainable and healthy social and economic development.

The agglomeration degree of logistics industry reflects the agglomeration level of factors of production in a certain region. Location entropy index is considered as one of the means to identify regional industrial agglomeration, which can measure the spatial agglomeration of a regional factor and reflect the degree of specialization of an industry. Based on the principle of uniformity, availability and reliability of the caliber obtained by the statistics of logistics industry, it is easy to measure the aggregation degree by using location entropy method, and it has been widely used by scholars. The formula for calculating location entropy is as follows:

$$L_{ij} = \frac{q_{ij}/q_j}{q_i/q_c}$$

Among them, Lij denotes the location entropy index, qij denotes the output value or employment population of I industry in j region, qj denotes the total output value or employment population in j region, qi denotes the output value or employment population of i industry in higher region, and qc denotes the total output value or employment population in higher region. If L is greater than 1, the concentration of i industry in j region is higher than the average level of higher-level region. The higher the value of location entropy, the more obvious the agglomeration degree advantage of i industry in j region, and vice versa, the less obvious advantage.

At present, the measurement of logistics industry agglomeration level mostly adopts a single indicator of employment quantity or output value, which means that the labor productivity of each region is regarded as the same, but this is obviously not in line with the actual situation. Using the location entropy method of single index, it is found that the higher level of logistics industry agglomeration only means the higher number of employees or output value of logistics industry in the region, and does not mean the high efficiency of logistics industry. Obviously, this is contrary to the idea that industrial cluster development can enhance industrial competitive advantage and industrial efficiency. Therefore, on the basis of location entropy method, this paper uses the improved location entropy method to quantitatively measure the agglomeration of logistics industry in Hubei Province. This method takes into account the differences of labor productivity in different regions, and combines several indicators, which makes the measurement of regional logistics concentration level more convincing. The calculation formula is as follows:

$$T_{ij} = \frac{q_{ij}/q_j}{q_i/q_c} \times \frac{p_{ij}/q_{ij}}{p_i/q_i} = \frac{p_{ij}/q_j}{p_i/q_c}$$

Tij denotes the value of improved location entropy; qij denotes the number of employment in i industry in j region, qj denotes the total number of employment in j region; qi denotes the number of employment in i industry in higher region, qc denotes the total number of employment in higher region, pij denotes the output value of i industry in j region, and pi denotes the output of i industry in higher region. Value. The value of the improved location entropy fluctuates above and below the value 1. If it is greater than 1, the agglomeration degree of logistics industry in this region is higher, and less than 1, the agglomeration degree of logistics industry in this region is lower. After adding labor productivity factor, the improved location entropy value is the ratio of the output value of logistics industry to the total employment population in a region and the ratio of the output value of logistics industry to the total employment population in a higher-level region.

3. Measurement and Analysis of Logistics Industry Agglomeration in Hubei Province

3.1 Overall Level: Longitudinal Analysis Angle

The analysis of the vertical dimension of the agglomeration degree of logistics industry in Hubei Province is based on 13 administrative regions and 4 county administrative units directly under the jurisdiction of Hubei Province as the sub-regions, Liaoning Province as the whole region, and the whole country as a higher-level region, collecting the accounting data of agglomeration degree from 2011 to 2017, and calculating each index. The mapping results are shown in Table 1 below.

Table 1. Index Value of Logistics Industry Agglomeration in Hubei Province from 2011 to 2017

Year	Location Entropy (Output Value)	Location Entropy (Employed Population)	Improvement of Location Entropy
2011	0.992	0.95	0.979
2012	0.956	0.931	1.002
2013	0.999	1.02	1.076
2014	0.975	1.033	1.072
2015	0.95	1.021	1.033
2016	0.893	1.025	0.976
2017	0.9	1.065	0.980

Through the comparative analysis of the values in Table 1, it is found that the changes of the three logistics industry agglomeration indices in Hubei Province show different results from 2011 to 2017. Logistics industry location entropy (industry) index basically maintained above 0.9 and showed a downward trend, rising in 2013 and 2017, and the value was less than 1. This shows that the contribution of logistics industry to GDP in Hubei Province is slightly lower than that of the whole country, and the contribution of logistics industry to economic development is lower than the national average level. From the point of view of location entropy (Employed Population) index, the value basically shows an upward trend. In 2011 and 2012, the value is less than 1, and since 2013 it has been greater than 1. This shows that the number of employed people absorbed by logistics industry in Hubei Province has been slightly higher than the national average since 2013. Logistics industry improved location entropy index showed a trend of first rising and then declining, reaching the highest point in 2013, which was greater than 1 in 2012-2015, and less than 1 in the other three years. This shows that the specialization level and labor productivity of logistics industry in Hubei Province in 2012-2015 are higher than the national average water after joining the regional labor productivity factors. Ping, basically formed the logistics industry agglomeration. Through further analysis of the three values, it is found that the two traditional location entropy methods have different trends in measuring the level of logistics industry agglomeration. The value of location entropy (output value) index is less than 1 in seven years, and the location entropy (employment) index is more than 1 in 2013. These two methods are not consistent for logistics industry agglomeration. The measurement of the level is obviously different. They can only explain the level of logistics industry in Hubei Province compared with that in the whole country from the single point of view of output value or employment, and further explain the relative reliability of the improved location entropy method with labor productivity factors.

3.2 Regional Level: A Horizontal Perspective

The six provinces in the central region are adjacent to each other and are located in the hinterland of the Central Plains. They belong to densely populated areas, important grain-producing areas and energy and raw materials supply areas. They have certain similarities in geographical location, natural resources, social factors and economic factors. The horizontal analysis of the agglomeration degree of logistics industry in Hubei Province is to compare Hubei Province with five other central provinces, select the relevant indicators data of each province in 2017 to calculate, so as to orientate the development level of logistics industry in the central region of Hubei Province. The results are shown in Table 2 below.

Table 2. Index Values of Logistics Industry Agglomeration in Central Six Provinces in 2017

Province	Location Entropy (Output Value)	Location Entropy (Employed Population)	Improvement of Location Entropy
Hubei province	0.9	1.065	0.980
Hunan province	0.992	0.812	1.267
Henan province	1.091	0.837	0.918
Anhui province	0.713	0.98	0.796
Shanxi province	1.523	1.146	1.176
Jiangxi province	0.973	0.925	0.896

Through the comparative analysis of the data in Table 2, it is found that the agglomeration level of logistics industry in the six provinces in central China is generally lower than the national average level, while the agglomeration level in Shanxi Province is obvious, and that in Hubei Province, the agglomeration level is in the middle and upper levels of the six provinces in central China. From the point of view of location entropy (output value) index of logistics industry, Shanxi Province and Henan Province rank the first and second, and the value is greater than 1. The other four provinces rank less than 1, and Hubei Province ranks the fifth. This shows that the contribution of logistics industry output value of Hubei Province to regional GDP is lower than that of the other five provinces. From the point of view of location entropy index of logistics industry, only Shanxi and Hubei provinces have more than 1 index, and Hubei province ranks second. The index results show that the logistics industry in Hubei Province has obvious advantages in absorbing population employment. From the point of view of improved location entropy, Hunan Province ranks first, and only Hunan and Shanxi Province rank third, indicating that the professional level and competitiveness of logistics industry in Hubei Province are relatively good in the six central provinces. Overall, the three indicators of logistics industry in Shanxi Province are more than 1, which reflects certain agglomeration advantages in terms of employment, output and labor productivity. The three indicators of Jiangxi Province and Anhui Province are all less than 1, and the level of logistics industry agglomeration is low.

4. Conclusions and Suggestions

Under the background of the strategy of the rise of central China, this paper takes the logistics industry of Hubei Province as the research object, selects the relevant statistical yearbook data from 2011 to 2017, and uses the improved location entropy method to measure the level of logistics industry agglomeration in Hubei Province. The specific conclusions are as follows: Firstly, the traditional location entropy method is used to measure the level of industrial agglomeration only from a single point of view of the employment population or output, and the calculation results are often inconsistent. The improved location entropy method, which introduces labor productivity, breaks the traditional location entropy method for the labor of each research object. Under the assumption of the same dynamic productivity, the calculation results are relatively reliable. Secondly, although the logistics industry in Hubei Province ranks higher in the agglomeration level of the six central provinces, under the circumstance that the professional level and agglomeration level of the logistics industry in the six central provinces are lower than the national average water level, the specialization and agglomeration effect of the logistics industry in Hubei Province are still on the low side, and there is still much room for development, which needs to undergo a continuous

development. The stage of continuous strengthening gradually enhances its regional competitiveness and becomes a new driving point of economic growth.

Based on the above research results, combined with the strategic positioning of the central region and the development plan of logistics industry in Hubei Province, this paper puts forward some suggestions on the development of logistics industry cluster in Hubei Province under the background of the rise of the central region. Firstly, we should attach importance to personnel training and enhance innovation ability. The location entropy index of Hubei Province calculated in this paper is more than 1. The average employment level of logistics industry is higher than that of the six central provinces and the whole country, but the labor productivity and specialization level are lower than those of the whole country and Shanxi Province. This shows that the overall quality of logistics practitioners in Hubei Province is low, and logistics professionals are scarce, so it must be heavy. Considering the training and absorption of logistics professionals. Accordingly, logistics enterprises can cooperate extensively with local logistics scientific research institutions and local universities, jointly set up logistics talent training centers, form perfect training mechanism, conduct all-round training on logistics-related knowledge and ability of employees, and strive to create a high-level logistics worker who can adapt to the development of modern logistics industry. Team members. Secondly, we should attach importance to the strategic basic position of logistics industry and realize the coordinated development of regional economy and regional logistics. The six provinces in central China are the bases of grain production, energy and raw materials, modern equipment manufacturing and high-tech industries. As the main body of social logistics service demand, each industry is an important driving force for the rapid growth of social logistics. The development of logistics service industry depends largely on the logistics demand of other industries. Aggregation and release. The modern logistics industry has formed a strong support in promoting the healthy development of the economy, known as the "source of the third profit", and has become an important basis for economic operation and a new economic growth point. The positive interaction and coordinated development of regional logistics and regional economy are the necessary conditions for their sustainable and healthy development. From the research results of this paper, the output value and productivity of logistics industry in Hubei Province have declined in recent years. Therefore, while focusing on the development of key industries, Hubei Province should attach importance to the strategic basic position of logistics industry, and continue to issue logistics industry cluster on the basis of actively implementing relevant policies and measures for the development of logistics industry. Policies and measures related to land use, investment and financing, taxation, industry and Commerce management, transportation, talent introduction and training will help the development of logistics industry cluster in our province. Thirdly, we should firmly seize the strategic development opportunities of the rise of the central region and the Yangtze River Economic Belt, accelerate the process of "building a fulcrum and leading the way", and realize the strategy of "strong logistics province". By comparing the three location entropy indices of logistics industry in Hubei Province, it is found that the output value and agglomeration level of logistics industry in Hubei Province do not have obvious advantages. As a central province, although Hubei has innate logistics advantages, it has not played an effective role in the actual development of logistics, and there is still a big gap compared with other logistics developed areas. In the new era, Hubei's logistics industry should correctly judge the situation, seize the historical opportunities, accelerate the transformation and upgrading of the logistics industry, vigorously develop the "Internet + efficient logistics", further improve the layout of regional logistics, strengthen regional logistics cooperation, strengthen the market players, stimulate logistics demand, and enhance the regional logistics industry's economic benefits. Advantage development of logistics industry.

Acknowledgments

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