

Study on the Coupling and Coordination of Logistics Industry and Retail Industry in the Yangtze River Economic Belt

Bi Siyu^{a,*}, Yang Jian

School of Economics and Management, Anhui University of Science and Technology, Huainan, China

^abisiyu1999@qq.com

**Corresponding author*

Abstract: *Based on the relevant data of nine provinces and two cities in the Yangtze River Economic Belt from 2010 to 2020, the entropy weight method, coupling coordination model and spatial autocorrelation model are used to explore the coupling development relationship and spatial correlation between logistics industry and retail industry in this region. The results show that the average coupling coordination degree of the two systems in the Yangtze River Economic Belt has changed from serious imbalance to mild imbalance in 11 years, and the level of coupling coordination between provinces and cities is quite different. The spatial coupling of the two systems is positively correlated, and the spatial correlation in some areas is weak, and the agglomeration effect is not obvious. To promote the coordinated development of the logistics industry and retail industry in the Yangtze River Economic Belt, it is necessary to formulate development strategies according to local conditions, improve the service capacity of logistics infrastructure, and improve industry standards.*

Keywords: *logistics industry; retail industry; coupling coordination degree; spatial autocorrelation*

1. Introduction

With the current global economic slowdown and the COVID-19 pandemic having hit us, consumption has become a key driver of economic growth. Diversification and high-level consumption require the transformation and upgrading of the circulation industry. The coupling level of retail industry and logistics industry is an important reflection of the development quality of circulation industry. The coordinated development of the two industries is beneficial to reduce retail logistics costs and promote retail market specialization, and the retail transformation has greater demand for logistics service and higher efficiency of logistics service, which drives the optimization and upgrading of the logistics industry. In 2016, the General Office of the State Council issued Opinions on Promoting the Innovation and Transformation of Physical Retail to accelerate the multi-sector integration, especially the combination of offline logistics and online retail. In 2018, the CPC Central Committee and the State Council clearly promoted the coordinated development of the upper, middle and lower reaches of the Yangtze River and the development of green industry and provide guidance for the transformation of logistics and retail industry; In 2020, the 14th Five-Year Plan put forward suggestions to comprehensively promote consumption and promote the coordination of industrial categories. The Yangtze River Economic Belt is an important regional economic development area in China, covering 11 provinces and cities, forming three growth poles: the downstream Yangtze River Delta economic circle, the midstream urban agglomeration, and the upstream Chengdu-Chongqing economic circle. In order to improve the development quality of circulation industry and promote regional economic growth, it is necessary to study the coordinated development level of logistics industry and retail industry in the Yangtze River Economic Belt.

2. Literature Review

The domestic and foreign literature on the integration of logistics industry and retail industry can be summarized into two aspects: (1) the integrated development relationship between logistics industry and retail industry. Tian Zhenzhong^[1]using Granger causality test method of quantitative analysis and Xu Mengyang^[2]from the theoretical point of view of qualitative analysis show that the logistics industry is an important factor to promote the development of the retail industry, Chen Qianmin^[3]and Zhang

Eternal^[4]are using VAR pulse model analysis of the logistics industry on the development of wholesale and retail trade industry contribution is higher, Chen Ling^[5]research results that the retail industry and logistics industry coupling development is stronger than the wholesale industry. With the popularization of the Internet, the improvement of the supply capacity of the logistics industry and the improvement of the service level, Chen Hua^[6]believes that under the urban-rural dual structure, the logistics industry still has positive significance for the development of the retail industry, but its contribution elasticity is declining. (2) The coordinated development of logistics industry and retail industry. It is mainly reflected in the coordinated development level and synergistic effect of the two. Scholars mainly carry out from the national and provincial levels. The research of Zhu Changzheng, Ma Ke^[7]and Pang Xuesheng, Gao Ziwen^[8]is based on the data of 31 provinces in the mainland. Guo Jinyong^[9]combs the coordination mechanism of digital economy and logistics transportation to the development of retail industry from the perspective of time series change analysis and province. Wang Yuxia^[10]uses the coupling degree model to conclude that the coupling degree of retail industry and logistics industry in Liaoning Province is good, and the elements within the two systems influence each other and achieve coordinated development. Zong Qiu^[11]uses the improved BP neural network to predict the coordination degree of the two systems in China in the next few years. The research of Zhang Minfu^[12]and Wang Ying^[13]respectively verifies the synergistic effect of logistics industry agglomeration, logistics business environment and retail industry transformation. Ren Yu^[14]'s research shows that there is a low level of development relationship between logistics industry agglomeration and wholesale and retail industry in Shandong Province. Baosu Li^[15]also believes that when the new retail output value increases in a short period of time, the synergy between the two is weak. Zhou Weilang^[16]et al.show that the agglomeration of logistics service industry, the output value of logistics service industry, fixed investment and the number of employees in Guangdong Province have a significant positive effect on the economic growth of wholesale and retail industry. Grandys Frieska Prassida, Ping-Yu Hsu^[17]takes IKEA as an example, and believes that channel integration and logistics service quality coordination in omni-channel retail were conducive to improving customer satisfaction. Hamid Jafari^[18]proves that logistics flexibility plays an intermediary role in the delay-performance relationship by analyzing 261 retailers in Sweden and the application of logistics flexibility generated by the delay can improve the performance of retail enterprises. Su Taoyong, Zhang Liangliang, Shan Zhiwen^[19]The empirical analysis confirms that the coupling interaction between China's logistics industry and retail industry is not good as a whole and the regional differences are large, but its research does not involve the specific propositions and suggestions for increasing the development of logistics industry to promote the development of retail industry.

To sum up, the existing research on the interaction and integration of logistics industry and retail industry has some basis, but it still needs to be further expanded. First, the existing studies mostly study the coupling relationship between the two industries from the provincial or national perspective, lacking in regional studies; second, the existing literature focuses on the evaluation of the coordinated development level of the two, and relatively few studies explore the coupled coordination relationship from the space-time dimension. Therefore, this paper takes Yangtze River Economic Belt, China's major economic strategic region, as the research object, and uses the entropy weight method, coupling coordination model and spatial autocorrelation analysis method to calculate the comprehensive development level and spatial coupling relationship between the two systems, in order to enrich the relevant literature on the coupling of logistics industry and retail industry.

3. Research Model&Data Source

3.1. Entropy right method

Entropy weight method is an objective empowerment method, the smaller the information entropy value, the greater the influence on the comprehensive evaluation. It can judge the degree of dispersion of a certain index and provide a basis for the comprehensive evaluation of multiple indicators.

3.2. Coupled coordination degree model

Degree of couplingA model is a method used in physics to measure the degree of motion coordination of two or more objects or systems. Its value range is 0 to 1, the closer to 1, the greater the coupling degree between the systems, the smaller the coupling degree, equal to 0 indicates that the system is irrelevant and unnecessary. Referring to the common practice of many scholars, the coupling degree formula of the two systems is established as follows:

$$C = 2 \cdot \sqrt{(U_1 \times U_2) / (U_1 + U_2)^2} \tag{1}$$

U1, U2 represent the comprehensive score of logistics industry and retail industry respectively.

To reflect the synergistic effect between the two systems, the coupled coordination model is introduced:

$$D(U_1, U_2) = \sqrt{C(U_1, U_2) \times E(U_1, U_2)} \tag{2}$$

$$E(U_1, U_2) = \alpha U_1 + \beta U_2 \tag{3}$$

α, β Represents the coefficient of the retail industry system and the logistics industry system, respectively. Due to the interaction and symbiotic influence of retail industry and logistics industry, the α and β values are also 0.5. The measurement results were analyzed according to the coupling coordination degree classification standard shown in Table 1.

Table 1: Grade classification of coupling coordination stage

Value interval	Coupling degree phase type	Coupled coordination degree phase type
0-0.1	Low-level coupling phase	Extreme disorder
0.1-0.2		major maladjustment
0.2-0.3		Moderate dysregulation
0.3-0.4	The antagonistic coupling phase	Mild dysregulation
0.4-0.5		On the verge of dysregulation
0.5-0.6		Forced coordination
0.6-0.7	Run-in coupling stage	Primary coordination
0.7-0.8		Intermediate coordination
0.8-0.9	Preliminary coupling phase	Good coordination
0.9-1.0	High-level coupling phase	Quality coordination

3.3. The spatial autocorrelation model

The spatial autocorrelation model can show the correlation between the spatial locations of the provinces and cities in the Yangtze River Economic Belt. The global spatial Moans' I index is used to analyze the overall spatial correlation degree and the degree of difference. The formula is as follows:

$$I = \frac{\sum_{i=1}^n \sum_{j \neq i}^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sigma^2 \sum_{i=1}^n \sum_{j \neq i}^n w_{ij}} \tag{4}$$

3.4. Data Source

The logistics industry indicators are replaced by transportation, warehousing and postal services. Due to the transformation and upgrading of the logistics industry structure in recent years, the improvement of logistics technology level and the logistics system is more intelligent, the number of R & D and the number of Internet broadband access users in the selection of logistics industry indicators respectively represent the intelligent input and output results of the logistics industry.

Retail indicators mainly select the relevant indicators of the retail industry above the quota. Compared with self-supplied retail enterprises, retail enterprises with annual commodity sales of more than 5 million yuan have greater demand for logistics services and have more frequent interaction with the logistics industry, so they are more representative. Referring to the existing literature, the coupling evaluation index system of logistics industry and retail industry is constructed from three aspects of input scale, output results and development potential (Table 2). Relevant data are from China Statistical Yearbook from 2011 to 2021 and statistical yearbooks of various provinces and cities.

Table 2: Coupling evaluation index system of logistics industry and retail industry in the Yangtze River Economic Belt

subsystem	Level 1 indicators	Secondary indicators
logistics industry	Invest in scale	Total fixed assets investment in the logistics industry
		Number of logistics employees
		Unit number of logistics enterprises
		R&D number of people
	Output results	Total freight volume
		turnover of freight traffic
		Number of Internet broadband access users
		Total postal and telecommunications business
	development potential	Logistics industry output value growth rate
		The proportion of fixed assets investment in the logistics industry
retail trade	Invest in scale	Number of retail employees
		Units of retail enterprises
	Output results	Main business income
		Sales of goods
		Total retail goods consumption
	development potential	productivity of labour
		Sales growth rate

4. Results and Analysis

4.1. Analysis of the coupling degree of logistics industry and retail industry in the Yangtze River Economic Belt

On the whole, from 2010 to 2020, the 11 provinces and cities along the Yangtze River Economic Belt tended to approach high-quality resonance, and the coupling level fluctuated (see Table 3). Partially, Shanghai, Jiangsu, Zhejiang and Anhui provinces in the lower reaches of the Yangtze River, Hubei and Hunan provinces in the middle reaches of the Yangtze River, and Chongqing and Sichuan provinces in the upper reaches of the Yangtze River have always been in a high-level coupling stage for 11 years. The system coupling degree in Jiangxi province mainly fluctuates between the initial coupling stage and the high level coupling stage, and gradually stabilizes in the high level coupling stage after 2014. The difference in the system coupling degree between Yunnan province and Guizhou province is the most obvious, and the run-in coupling stage in 2020.

Table 3: Coupling degree of logistics industry and retail industry system in all provinces and cities along the Yangtze River Economic Belt

year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Shanghai	0.942	0.974	0.969	0.949	0.969	0.951	0.947	0.981	0.996	0.995	0.995
Jiangsu	0.992	0.988	0.982	0.988	0.989	0.987	0.984	0.980	0.993	0.994	0.999
Zhejiang	0.991	0.981	0.959	0.971	0.964	0.965	0.953	0.957	0.973	0.989	0.975
Anhui	0.992	0.939	0.965	0.896	0.906	0.967	0.940	0.950	0.920	0.939	0.959
Jiangxi	0.888	0.764	0.933	0.865	0.905	0.999	0.984	0.869	0.956	0.992	0.945
Hubei	0.999	0.982	0.996	0.986	0.997	0.993	0.997	0.985	0.996	0.998	0.992
Hunan	0.977	0.951	0.987	0.987	0.996	0.997	0.995	0.999	0.999	0.999	0.999
Chongqing	0.996	0.974	0.986	0.966	0.991	0.999	0.986	0.988	0.995	0.988	0.981
Sichuan	0.985	0.966	0.995	0.971	0.957	0.955	0.920	0.975	0.989	0.996	0.993
Yunnan	0.998	0.879	0.966	0.952	0.836	0.979	0.897	0.862	0.636	0.721	0.659
Guizhou	0.952	0.598	0.947	0.946	0.983	0.947	0.973	0.998	0.982	0.957	0.675

4.2. Analysis of the coupling and coordination degree of logistics industry and retail industry in the Yangtze River Economic Belt

The coupling coordination degree of logistics industry and retail industry system in the 11 provinces and cities of the Yangtze River Economic Belt is shown in Figure 1.

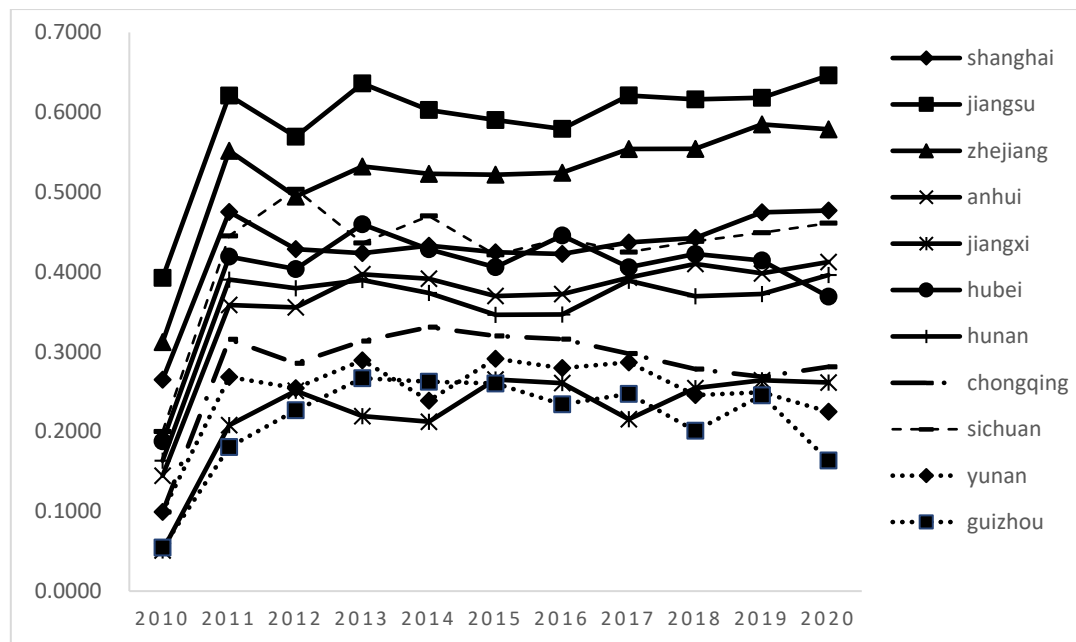


Figure 1: Trend chart of the coupling and coordination degree of logistics industry and retail industry in all provinces and cities in the Yangtze River Economic Belt

On the whole, the system coupling coordination degree of logistics industry and retail industry in 11 provinces and cities in the Yangtze River Economic Belt showed a fluctuating upward trend from 2010 to 2020. The average coupling coordination degree from 2011 to 2020 fluctuated between 0.3774 and 0.3966. It is in the stage of mild imbalance, and there is still a big gap from high-quality coordination, and the differences between provinces and cities are obvious, indicating that there is still much room for improvement in the overall logistics industry and retail industry coupling in the Yangtze River Economic Belt. From the perspective of geographical spatial distribution, the Yangtze river economic belt of logistics industry and retail system coupling coordination from the eastern coastal areas to the central trend of decline, the western region "low-high-low" situation, namely by Chongqing-Sichuan province, Yunnan province, Guizhou province administrative division order, Sichuan province is the region the only logistics industry and retail coupling coordination development top provinces.

From the perspective of provincial level, the system coupling coordination degree of Jiangsu province and Zhejiang Province has been in the leading position from 2010 to 2020. In 2020, Jiangsu Province has the best coupling degree, which is in the primary coordination stage, and Zhejiang Province is in the state of weak coordination. The development of system coupling degree in Shanghai city, Anhui Province and Sichuan Province has increased steadily, and increased to the near state of imbalance in 2020, among which the coupling coordination degree in Anhui province increased by 185.2% from 2010 to 2020. The sales growth rate and labor productivity in these three regions will maintain positive growth in 2020, and the comprehensive evaluation index of the retail industry and logistics industry has increased compared with 2019. The good and orderly development of the retail industry is conducive to the coordination between the two industries.

The development trend of Hubei province and Hunan Province located in central China is relatively stable, both rising from serious disorder stage to mild disorder stage. The coupling coordination level in Hunan province has been in mild disorder for ten years without significant change. The coupling coordination degree of Hubei Province was comparable to that of Shanghai from 2011 to 2019, and there was a recession trend in 2020. The comprehensive scores of the two systems decreased by at least 3 percentage points, indicating that under the influence of public health emergencies, the development of logistics industry and retail industry in Hubei Province suffered different degrees of impact, and the overall coordination degree of the two systems was poor. Measures need to be taken to promote the healthy and coordinated development of logistics industry and retail industry.

The development level of system coupling in Jiangxi, Chongqing and Yunnan provinces is similar, changing from extreme imbalance to moderate imbalance. The coupling and coordination degree of Jiangxi province and Yunnan province was moderately unbalanced in 2011-2020, with no obvious upward trend. There are some fluctuations in the development trend of the coupling coordination degree of Chongqing. In 2013-2016, the coupling coordination level was at the same stage as Anhui Province

and Hunan Province. In 2017-2020, it showed a recession trend. By analyzing the indicators and comprehensive scores of Chongqing, the growth rate of sales has been negative for three consecutive years since 2017. The decline in the comprehensive level of the logistics industry is greater than the decline in the comprehensive level of the retail industry, indicating that the development of the retail industry and the logistics industry in Chongqing is closely related. The impact of the coordinated development of the two industries on the logistics industry should not be underestimated.

The coupling and coordinated development of Guizhou Province is poor, and the coupling coordination degree drops the most in 2020. Combined with the comprehensive scores of the logistics industry and retail industry in the province, it is found that compared with 2019, the comprehensive score of the logistics industry in Guizhou Province in 2020 increased, and the comprehensive score of the retail industry decreased to 0.01. The lag of the retail industry has a greater impact on the integration of the two industries. In addition, due to the natural and geographical conditions of the province, the slow development of the retail industry and the logistics industry has led to a slower increase in the coupling coordination degree of the system.

4.3. Spatial analysis of the coupling and coordination degree between logistics industry and retail industry in the Yangtze River Economic Belt

4.3.1. Global spatial autocorrelation analysis

The spatial autocorrelation model is used to further analyze the spatial distribution of the coupling coordination degree between the logistics industry and the retail industry in the Yangtze River Economic Belt, and the global Moran's I value of each year is shown in Table 4. The global Moran index of the coupling coordination degree of the Yangtze River Economic Belt from 2010 to 2020 is greater than 0. Except for 2015 and 2017, there is no significant correlation, and the remaining years pass the 5% significance test, indicating that there is a positive correlation between the spatial distribution of the coupling coordination degree of logistics industry and retail industry in the Yangtze River Economic Belt from 2010 to 2020. The overall fluctuation development can be divided into three stages: the first stage from 2010 to 2014 decreased from 0.289 to 0.214, indicating that the spatial correlation of the coupling coordination degree between the logistics industry and the retail industry was weakening; the second stage of 2014-2016 showed a trend of decreasing first and then increasing. The increase was greater than the decrease, and the spatial correlation was enhanced. In the third stage of 2017-2020, the Moran's I value increased significantly, indicating that its spatial correlation gradually increased.

Table 4: Global Moran's I values of the coupling coordination degree in the Yangtze River Economic Belt from 2010 to 2020

year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
M	0.289	0.273	0.213	0.238	0.214	0.125	0.265	0.131	0.289	0.318	0.305
P	0.046	0.012	0.024	0.011	0.014	0.054	0.012	0.061	0.039	0.031	0.043

4.3.2. Local spatial autocorrelation analysis

In order to better compare the agglomeration or dispersion of local spatial correlation in the Yangtze River Economic Belt, 2010 and 2020 were selected as objects, and the local spatial autocorrelation analysis in Geoda was used. The results are summarized as shown in Table 5.

The four quadrants of Moran scatter plot are the first quadrant "H-H", which means that the surrounding provinces and cities are relatively high; the second quadrant "L-H" indicates that the coupling coordination in the surrounding provinces and cities is low; the third quadrant "L-L" means that the region and the surrounding region are low; and the fourth quadrant "H-L" means that the coupling coordination in the surrounding areas is low. In 2010, there were 3 provinces and cities in the first quadrant and 4 provinces and cities in the third quadrant, accounting for 55% of the total, that is, half of the provinces and cities in the Yangtze River Economic Belt had small spatial differences in coupling coordination degree. In 2020, the second quadrant reduced in Anhui Province, which was transformed into a province with high coupling and coordination. Although Jiangxi Province in the second quadrant is adjacent to the province with high coupling coordination degree of the system, it has not been greatly affected by the drive ; Guizhou Province, Chongqing City and Yunnan Province in the third quadrant have been in a state of low coupling coordination and aggregation, and their development level lags behind the middle and lower reaches of the Yangtze River, which is very unfavorable to the coordinated development of logistics industry and retail industry in the Yangtze River Economic Belt ; in the fourth quadrant, except for Sichuan Province, which has no obvious change, Hunan Province has increased and

Hubei Province has decreased. The provinces with negative correlation of spatial difference in coupling coordination degree account for only 27 % of the total, which is 9 % lower than that in 2010.

Table 5: Moran scatter plot of local space of provinces and cities along the Yangtze River Economic Belt

class	2010	2020
“H-H”	In Shanghai, Zhejiang, and Jiangsu	Anhui, Shanghai, Zhejiang, Jiangsu
“L-H”	Anhui, Jiangxi	Jiangxi
“L-L”	Guizhou, Chongqing, Yunnan, Hunan	Guizhou, Chongqing, Yunnan and Hubei
“H-L”	Hubei, Sichuan	Hunan, Sichuan

5. Conclusions

By constructing the coupling coordination model of logistics industry and retail industry in 11 provinces and cities along the Yangtze River Economic Belt, the comprehensive development level, coupling degree and coupling coordination degree of the provinces and cities from 2010-2020 are calculated, and the spatial differentiation characteristics are studied combined with spatial correlation analysis. The conclusion is as follows:

On the whole, from 2010 to 2020, the average coupling and coordination degree between the logistics industry and the retail industry in the Yangtze River Economic Belt showed a trend of rising first and then gently, and the average coordination degree basically fluctuated within the value range of (0.37,0.4). Therefore, the average coupling and coordination level between the logistics industry and the retail industry in the Yangtze River Economic Belt in 2010 to 2020 is in a slight disorder stage from 2020.

From the perspective of local areas, the coupling and coordination level in Jiangsu province developed the best, with the transition from mild disorder to primary coordination within 11 years. In other provinces and cities in the lower reaches of the Yangtze River, the degree of coupling and coordination between the two systems in Shanghai is higher than that of Zhejiang Province and Anhui Province, and it is stable at the stage of imbalance. In the middle reaches, except for the slow development of Jiangxi Province, which is in moderate imbalance, the other two provinces are hovering between mild imbalance and near imbalance. The development level of the coupling coordination of the two systems in Sichuan province is at the same stage as that of Shanghai city, and other provinces and cities in the downstream region fluctuate between the coordination degree of mild and severe disorders.

From the perspective of space, the degree of coupling and coordination of the two systems in the Yangtze River Economic Belt was in a spatial positive correlation but not at a high significance within 11 years. In 2020, 72% of the regions have little spatial differences, and the sluggish development of provinces and cities with large spatial differences is not conducive to the improvement of the coupling development level of the two systems.

In order to better improve the coupling and coordination between the logistics industry and the retail industry in the Yangtze River Economic Belt and promote the integration of the two industries, each province should formulate development strategies according to local conditions and give full play to the positive effects of logistics industry agglomeration and retail industry transformation. We will improve the service capacity of logistics infrastructure, use modern technology to balance the differences in logistics levels brought about by regional differences, accelerate the popularization of the application of the Internet, artificial intelligence, big data and the Internet of Things in business, and focus on the role of science and technology in promoting the coordinated linkage between the logistics industry and the retail industry. By expanding the scale of intelligent express cabinets, promoting the use of RFID technology and other means to improve the efficiency of logistics system operation, the construction of intelligent logistics integrated service platform to ensure better convergence with new retail logistics needs. At the same time, improve industry standards and guide the benign coupling of logistics industry and retail industry.

References

- [1] Tian Zhenzhong. *Research on the development relationship between logistics industry and retail industry in Henan Province* [J]. *Logistics Technology*, 2012 (15): 32-34.
- [2] Xu Mengyang. *Analysis on the integrated Development of retail industry and logistics industry in*

- Henan Province [J]. *Modern Business*, 2014 (21): 34-36.
- [3] Qianmin Chen. *Research on the Coordinated Development of Logistics Industry and Wholesale and Retail Industry in China* [J]. *Logistics Technology*, 2017 (7): 42-48.
- [4] Zhang Yongheng. *Study on the interaction between wholesale and retail industry and logistics industry in China* [J]. *China prices*, 2015 (5): 89-91.
- [5] Chen Ling. *The coupled development of wholesale and zero trade industry and logistics industry in China* [J]. *Business Economics Research*, 2019 (20): 100-103.
- [6] Chen Hua. *Research on the influence of Internet and logistics industry on the development of retail industry- -Dynamic analysis based on spatial measurement model* [J]. *Journal of Chongqing University of Science and Technology: Social Science Edition*, 2015 (11): 59-62.
- [7] Zhu Changzheng, Ma Ke. *Research on the coordination of the interactive development of wholesale and retail industry and logistics industry in China* [J]. *Logistics Engineering and Management*, 2018,40 (05): 7-10.
- [8] Pang Xuesheng, Gao Ziwen. *The synergistic situation of modern logistics and retail and the construction of new retail format organization field* [J]. *Business Economics Research*, 2022 (12): 25-28.
- [9] Guo Jinyong. *Analysis of the coupling relationship between digital economy, logistics and transportation and retail development* [J]. *Business Economics Research*, 2022 (14): 42-45.
- [10] Yuxia wang. *Research on the Coordinated Development of Retail Industry and Logistics Industry in Liaoning Province* [J]. *Journal of Changchun University of Science and Technology (Social Science Edition)*, 2017 (2): 100-103.
- [11] Zong Qiu. *Research on the coupling mechanism of modern logistics and new retail* [D]. Zhejiang Gongshang University, 2018.
- [12] Wang Hongwei, Zhang Minfu. *The Coordinated development of logistics industry agglomeration and retail industry- -an empirical research based on provincial panel data* [J]. *Business Economics Research*, 2019 (22): 106-109.
- [13] Wang Ying. *The optimization of logistics business environment and the coordinated development of trade and retail industry under the new Development Pattern- -Comparative analysis based on the four metropolitan areas in China* [J]. *Business Economics Research*, 2021 (19): 25-28.
- [14] Ren Yu. *Research on the coordinated development of Regional Logistics industry Cluster and Wholesale and Retail industry* [J]. *Business Economics Research*, 2020 (11): 119-122.
- [15] Baosu Li. *Research on Coupling Mechanism and Path Optimization of Coordinated Development of New Retail and Modern Logistics.* [J]. *Journal of Sociology and Ethnology* (2021) Clausius Scientific Press, Canada:119-123.
- [16] Zhou Weiliang, Gao Li, Lin Changhui. *Analysis of the impact of logistics service industry agglomeration on the economic growth of wholesale and retail industry — Take Guangdong Province as an example.* [J] *Technology and Management*, 2015 (06): 95-100.
- [17] Prassida. G. F.& Ping-Yu Hsu. *The harmonious role of channel integration and logistics service in Omnichannel retailing: The case of IKEA.* [J]. *Journal of Retailing and Consumer Services*.2022(68).
- [18] Jafari.H.&M.H.Eslami.&A.Paulraj.*Postponement and logistics flexibility in retailing: The moderating role of logistics integration and demand uncertainty.* [J]. *International Journal of Production Economics*.2022(243) .
- [19] Su Taoyong, Zhang Liangliang, Shan Zhiwen. *Industrial coupling, regional heterogeneity and new retail organization field* [J]. *Business Economy and Management*, 2020 (08): 5-21.