Empirical Study on the Impact of Retail Business Changes on Regional Economic Development

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Abstract: the Deep Integration of Online Retail and Offline Retailing Has Promoted the Continuous Changes in the Retail Format and Promoted the Stable Growth of the Regional Economy. This Paper Studies the Impact of Retail Changes on Regional Economic Development by Constructing a Fixed-Effects Model. the Results Show That Online Retail Transaction Volume, Offline Retail Sales, Year-End Employment and Commodity Structure Optimization Have a Positive Impact on Regional Economic Development. At the End of the Year, Due to the Cost of Rent, the Store Area Has a Negative Impact on Regional Economic Development. Moreover, Due to the Different Levels of Economic Development, e-Commerce Development, Industrial Structure Optimization, Consumer Group Demand and Store Rent Costs in the Eastern, Central and Western Regions, the Impact of Variables on Regional Economic Development is Different. Based on This, the Conclusion of the Study is Further Drawn.

1. Introduction

1.1 Literature Review

Chinese Scholars Have Studied the Impact of Retail Changes on Regional Economic Development and Have Achieved Rich Results. Wang Haibo Proposed That the Online Retail Format is a Product of the Convergence of the Internet and Retail Industries. the Major Changes in the Online Retail Format Focus on the Flow of Business, Logistics, Capital Flow, and Information Flow in the Traditional Retail Process, Which Has Prompted the Network Retail Channel to Sink and Stimulate the Region. Economic Growth (Wang, 2016). Xu Baoqin Believes That At This Stage, China's Online Retail Format Has Become a Key Force to Promote Social and Economic Development (Xu, 2017). Cao Yaqi Believes That the Changes in China's Retail Industry Can Strongly Influence Regional Economic Development. on the Basis of Considering Regional Differences, It is Necessary to Realize the Diversified Development of Retail Formats, Upgrade Offline Retail, and Seek New Retail Models to Promote the Rational and Orderly Development of Retail Formats (Cao, 2018). Although Domestic Scholars Have More Research on Retail Business Changes and Regional Economy, the Research Perspective is Relatively Broad, Lacking Targeted Research on Factors Related to Retail Business Changes, and Has Not Thoroughly Explored the Specific Impact Path of Retail Business Changes on Regional Economic Development. Therefore, This Paper Establishes a Fixed Effect Model, and Studies the Influence Path and Effect of Consumer Behavior on the Retail Concentration Degree from the Two Dimensions of External Environmental Factors and Internal Psychological Factors of Consumer Behavior, in Order to Enrich the Research in Related Fields and Retail for China. the Development of the Industry Provides a Certain Reference.

1.2 Purpose of Research

Since the reform of the circulation system, the retail format has undergone a leap-forward change, from a single stage of business to a new stage of diversification and internationalization. The changes in retail formats are mainly divided into two parts: the offline retail format evolution and the online retail format evolution. The online retail format is based on the Internet revolutionary

background and an upgrade based on the offline retail format (Wang and Lei, 2018). In recent years, the role of retail formats in driving consumption, expanding domestic demand, and guiding production has become increasingly prominent. In particular, online retail formats have become a key force driving regional economic development (Yan, 2016). Moreover, with the introduction of new retail concepts based on mobile technology and its terminals, technology drives new businesses to deepen exploration, integrate online and offline development, and inject new kinetic energy into the real economy. Therefore, in-depth study of the impact of retail changes on regional economic development will help promote the prosperity of the retail industry and stimulate consumption, thus promoting regional economic development.

2. Empirical Analysis of the Model

2.1 Model Building

To analyze the impact of retail business changes on regional economic development, we must consider not only the regional retail enterprises' online transaction volume, offline sales, year-end store area, year-end employment and commodity structure ratio, but also the regional production total caused by retail changes. Value (Zhou and Xu, 2017). This paper uses a fixed-effects model to explore the impact of retail changes on regional economic development. The specific model is set to:

$$\ln GDP_{iy} = \beta_0 + \beta_1 \ln OTV + \beta_2 \ln OA + \beta_3 \ln SA + \beta_4 \ln NE + \beta_5 \ln CS + \mu_{iy}$$

Among them, GDP is an explanatory variable, which indicates the regional GDP. It can visually see the regional economic development level from the panel data. OTV, OA, SA, NE and CS as explanatory variables are respectively expressed as the online transaction volume of retail enterprises and the retail enterprise line. Lower sales, year-end store area, year-end employment and retail product structure optimization, $i = 1, 2, 3, 4$ is the number of sections, representing the national, eastern, central, and western regions, $y = 2010, 2012, \cdots, 2017$ represents the different years of the sample data, and β_0 is the intercept term. $\beta_n (n = 1, 2, 3, 4, 5)$ is the regression coefficient of each explanatory variable, and μ_{iy} is the random interference term.

2.2 Panel Data Description, Root Test and Cointegration Test

In order to comprehensively analyze the impact of retail changes on regional economic development, this paper selects 31 provinces (autonomous regions and municipalities) in China as the sample range from 2010 to 2017, and collects and organizes sample data from two aspects. On the one hand, through the 2010-2017 Retail Industry Research Report, the regional online transaction volume, offline sales and commodity structure of each retail enterprise were obtained (Wang and Wang, 2010). On the other hand, through the website of the National Bureau of Statistics of the People's Republic of China and the China Statistical Yearbook of 2010-2017, the area of stores at the end of the year, the number of employees at the end of the year, and the GDP of each region are obtained. This is used as a sample to analyze the impact of retail changes on regional economic development (Cai, 2013).

In order to ensure the accuracy of the model results and avoid the problems of pseudo-regression and false regression (Li, 2018), this paper takes the cross-sectional sequence of each variable in the panel data as a whole and performs the unit root test. Since the panel data unit root test method has not yet formed a unified standard, in order to ensure the robustness of the test, this paper uses the IPS test, Fisher-ADF test, Fisher-PP test and LLC test to determine the first order of the logarithm of each variable. The difference was tested and the results are shown in Table 1.

Table 1 Unit Root Test of the First-Order Difference of Panel Data

Testing method	GDP	OTV	OA	SA	NE	CS
IPS	- -	-7.0981*** (0.0000)	-19.8637*** (0.0000)	-4.1576*** (0.0000)	-3.4571** (0.0000)	- -
Fisher-ADF	113.4315*** (0.0006)	105.3879*** (0.0000)	137.1294*** (0.0000)	124.5791*** (0.0000)	103.7165*** (0.0000)	94.4169*** (0.0000)
Fisher-PP	136.1687*** (0.0000)	191.4537*** (0.0000)	203.4861*** (0.0000)	211.7346*** (0.0000)	194.1536*** (0.0000)	153.5061*** (0.0000)
LLC	- -	- -	-2.1037*** (0.0000)	-5.7351*** (0.0000)	-7.1903*** (0.0008)	-3.4381** (0.0000)

Note: The values in parentheses are the accompanying probabilities of the test statistics; ***, **, and * indicate that the statistic is significant at the 0.01, 0.05, and 0.1 significance levels; the panel root test without the intercept or trend is not reported. IPS test value and LLC test value.

It can be seen from Table 1 that the test results of the first-order differential unit root test show that, except for the test method that cannot report the test value, the results of the Fisher-ADF test and the Fisher-PP test completely reject the existence of the unit root under the significance of 0.01. The null hypothesis. Therefore, the first-order difference sequence of the logarithm of each variable is highly stable.

In addition, it should be judged whether the sample data has a long-term cointegration relationship (Peng, 2012). In this paper, through the Pedroni test and the KAO test, the cointegration test of the panel data is performed on the first-order single-integer sequence of the logarithmic original values of each variable. As can be seen from Table 2, in the Pedroni test, Group-ADF, Panel-ADF, Group-PP, Panel-PP, and Panel-v all reject the null hypothesis under the significance of 0.01; Group-Rho and Panel-Rho Under the significance of 0.01, accept the null hypothesis. In terms of Kao test, the statistical ADF rejects the null hypothesis that there is no cointegration relationship under the significance of 0.01. From the overall test results of the sample data, there is a long-term stable equilibrium cointegration relationship between variables GDP, OTV, OA, SA, NE and CS.

Table 2 Sample Data Cointegration Test Results

			National	East area	Central Region	Western Region
Pedroni test	Group	ADF	-5.1567***	-11.0394***	-15.1563***	-18.3836***
		RHO	6.1349	9.1025	11.2431	12.6942
		PP	-13.2435***	-20.4181***	-22.7334***	-23.4531***
	Panel	ADF	-3.7513***	-17.1563***	-19.9785***	-20.9183***
		RHO	4.1037	7.1269	8.6281	9.3516
		PP	-15.1564***	-13.8912***	-12.7643***	-11.0438***
		V	1.55E+19***	3.84E+15***	6.48E+17***	8.12E+18***
KAO 检验		ADF	-3.9721***	-3.8394***	-3.4573***	-3.1571***

Note: *** indicates rejection of the null hypothesis at a 1% significant level.

2.3 Analysis of Results

This paper uses Stata15.1 software to analyze the impact of retail business changes on regional economic development. The fixed effects regression was mainly carried out for the national, eastern, central and western regions. The results are shown in Table 3.

From the regression results, it is known that the impact of retail changes on regional economic development has a significant positive impact on a national scale and in various regions. The regression coefficient of online trading volume of retail enterprises to regional economic growth is positive, and the level of significance is high. Among them, the regression coefficient in the eastern region is 0.9132, and the significance is 0.01, and the impact is at the highest level in each region. The reason is that e-commerce is developed in the eastern region, and online retail sales are prosperous, so the role of the regional economy is stronger.

Table 3 Panel Data Regression Results

Coefficient vector	National	East area	Central Region	Western Region
β_0	6.0724 (4.0711)	3.6254 (3.6365)	4.3451 (3.8119)	10.2468 (4.7618)
β_1	0.6265*** (2.6597)	0.9132*** (2.5148)	0.5349*** (3.1175)	0.4316*** (2.3468)
β_2	0.7937*** (4.0007)	0.7356** (-1.3731)	0.6937** (-2.1934)	0.9519*** (8.4356)
β_3	0.4098** (3.8559)	-0.3157** (2.7375)	-0.6375*** (5.3716)	-0.2764* (3.4586)
β_4	0.5341*** (5.0807)	0.3721** (4.1198)	0.5391*** (5.4375)	0.6908*** (5.6848)
β_5	0.4004** (4.0928)	0.6169*** (5.7172)	0.3671** (3.4153)	0.2173* (3.1459)

Note: ***, **, * respectively indicate that the statistic is significant at the significance level of 0.01, 0.05, and 0.1; () is the t-test value of the regression coefficient of each variable.

The offline retail sales of retail enterprises have a positive impact on regional economic development. Among them, the western region showed a positive effect of 0.01 significant, and the regression coefficient was 0.9519, which was at a high level. In the eastern and central regions, offline retail enterprises are more mature, and the growth effect of offline retail enterprises is limited, while there is still a large room for development in the western region. Therefore, the increase in offline sales is more likely to drive economic growth in the western region.

Among the variables, only the store area at the end of the year has a significant negative impact on the regional economic development. The regression coefficient of the central region is -0.6375, and the significance is 0.01. The regional economic development is the most negative. The rent problem has limited the scale of the development of retail enterprises. The eastern region is relatively developed due to e-commerce, and the impact is low. The level of rent in the western region has not reached a high level, and the impact is less significant. The retail industry in the central region is subject to rent. E-commerce has not yet reached a mature stage, so it is affected by the rent problem.

The number of employees at the end of the year has a positive impact on regional economic development. The central and western regions have the highest impact. The regression coefficients are 0.5391 and 0.6908, respectively, and the significance is 0.01. The industrial structure optimization in the eastern region is relatively high, with more jobs and better treatment, while the industrial structure in the central and western regions needs to be optimized. The employment positions provided by retail enterprises have a higher promotion effect on regional economic development.

The optimization of commodity structure has a positive impact on regional economic development. The eastern region has the highest impact, with a regression coefficient of 0.61639 and a significance of 0.01. The level of economic development in the eastern region is relatively high, and the consumption concept of the consumer groups is more diversified, which promotes the optimization of commodity structure and drives regional economic growth.

3. Conclusion

The change of retail format has a clear driving effect on regional economic growth. By reducing product prices, breaking consumer restrictions and enriching the supply of goods, it can effectively stimulate the growth of regional consumption levels. However, there are differences in the level of economic development in the eastern, central and western regions of China, and the retail distribution environment, infrastructure construction and location advantages are different. Therefore, the changes in the retail industry should also be adjusted and optimized in response to the actual development of the region and differentiated consumer demand, and improve the development benefits of the combination of online retail formats and offline retail formats. Specifically, the overall retail format should be adjusted. With the rapid development of

e-commerce, the all-retail format model combining online retail and offline retailing can adapt to the regional economic development to the greatest extent. Retail enterprises should combine the actual development characteristics of the region, and focus on the layout of supporting facilities for online retail in the eastern region with rapid economic development and e-commerce environment, and give full play to the dataization and convenience of online retail. And the use of big data technology, effectively categorize the consumer's personalized and distinctive needs, and promote the continuous optimization of the product structure. In the central region where economic development is stable and e-commerce has a certain foundation, retail enterprises should rely on the development advantages of regional offline retail, actively expand the e-commerce model of the corresponding region, and create an online retail system suitable for the regional economic environment. In the western region where economic development is relatively slow and the e-commerce foundation is weak, retail enterprises should fully explore the development space of offline retail. Improve the construction of retail infrastructure, adjust the layout of the whole retail business, and develop the offline retail and online retail, create a good development environment for e-commerce development, and drive regional economic growth.

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