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Research on the Impact of Financial Agglomeration on Industrial Structure in Jiangxi Province

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Abstract

With the development of modern economy, the optimization and upgrading of traditional industrial structure is increasingly inseparable from the support of the financial system. During the 13th Five Year Plan period, Jiangxi Province actively constructed a more comprehensive financial system and formed a modern financial service system with Jiangxi characteristics. During the 14th Five Year Plan period, Jiangxi Province continued to strengthen its financial agglomeration advantages and promote the optimization and upgrading of industrial structure. This paper uses panel data to empirically study the impact of financial agglomeration on industrial structure by constructing the location entropy of financial agglomeration and the comprehensive index of industrial structure in prefecture level cities of Jiangxi Province. The research results show that there is indeed a significant positive relationship between financial agglomeration and industrial structure upgrading, and the strengthening of financial agglomeration is conducive to promoting the upgrading of industrial structure. According to the empirical results, suggestions are put forward from four aspects: financial agglomeration, fixed assets investment, education investment, innovation and entrepreneurship to further optimize and upgrade Jiangxi's industrial structure.

Keywords

Financial Agglomeration; Upgrading of Industrial Structure; Time Fixed Effect Model.

1. Introduction

Economic development cannot do without the optimization and upgrading of industrial structure. As a developing country, China has achieved tremendous economic development since the reform and opening up, and its economic development model is constantly being optimized. In the past few decades, China's economic development has mostly focused on industries with high investment, high energy consumption, and high waste, excessively pursuing high-speed economic development, while ignoring the huge costs and costs we bear behind the rapid economic development. Since the 18th National Congress of the Communist Party of China, we have entered the stage of medium to high growth from the previous high-speed growth stage. The report of the 19th National Congress of the Communist Party of China proposes that at the current stage, accelerating industrial structure adjustment and promoting industrial structure upgrading are important issues facing us in achieving high-quality economic development at a new historical starting point.

During the 13th Five Year Plan period, Jiangxi Province actively constructed a financial system, played a leading role in the traditional financial institutions of banks, securities and futures, and insurance, developed and strengthened various local financial organizations, and formed a modern financial institution system with Jiangxi characteristics. Since the 14th Five Year Plan period, Jiangxi Province has vigorously promoted the high-quality leapfrog development of the "2+6+N" industry, promoted the rise of a new generation of industries, adjusted industrial

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structure, and promoted the optimization and development of traditional industrial structure. Previous literature on financial agglomeration has shown that the development of financial agglomeration has a positive promoting effect on the optimization and upgrading of industrial structure. The optimization and upgrading of traditional industrial structure cannot be achieved without the support of the financial system.

In terms of Jiangxi Province, the uneven economic development, traditional industrial structure compared to some cities in the central and eastern regions, and uneven financial development have to some extent constrained the development of Jiangxi Province. Economic development can not be separated from the upgrading of industrial structure and the development of financial industry, and the upgrading of industrial structure can not be separated from the support of financial capital. A large number of studies have proved that financial agglomeration can promote the upgrading of industrial structure through diffusion effect and scale effect. However, whether there is such a relationship between inland cities in Jiangxi Province needs to be analyzed specifically in combination with the actual level of financial agglomeration and industrial structure of prefecture level cities in Jiangxi Province.

The data in this article is based on 11 prefecture level cities in Jiangxi Province. The location entropy is used to calculate the financial agglomeration situation of prefecture level cities in Jiangxi Province, and different weights are given to the three major industries. The comprehensive index of industrial structure of prefecture level cities in Jiangxi Province is calculated. On this basis, a time fixed effect model is constructed to test the relationship between financial agglomeration and industrial structure. Through this study, the relationship between the degree of financial agglomeration and industrial structure among 11 prefecture level cities in Jiangxi Province is revealed, providing some practical suggestions for the upgrading of industrial structure and the construction of financial system in Jiangxi Province.

2. Literature Review

2.1. Research on the Reasons for the Formation of Financial Agglomeration

So far, many scholars at home and abroad have conducted research on the formation motivations of financial agglomeration. Zindlberg (1974) first applied the theory of economies of scale to explain the formation of financial agglomeration. Brenner (2006), based on empirical research in the German industry, believes that information asymmetry between enterprises plays an important role in the formation of financial industry clusters. Chinese scholar Pan Yingli (2003) also studied the formation motivations of financial agglomeration from a micro perspective and concluded that the existence of financial centers can generate external scale effects, promoting the development of the financial industry by saving working capital and improving market liquidity. Huang Jieyu (2008) pointed out that geographical location can affect financial development by summarizing and analyzing the causes of financial agglomeration. Zong Xiaowu (2008) explained the development models of financial agglomeration from the perspectives of market led financial agglomeration and government led financial agglomeration. He believes that the government led model promotes the formation of the financial industry in functional areas by designing diversified financial businesses under the leadership of the government. The market-oriented model promotes the formation of regional financial centers through the formation of financial growth poles in the process of economic development. Fu Shuangshuang (2008) used the research method of human geography field research to build the centripetal force and centrifugal force factors of financial industry agglomeration [6]. Liu Chao and Li Dalong (2013) believe that government behavior, individual behavior of financial practitioners, and cooperative behavior between financial institutions and enterprises can all have an impact on the development of financial agglomeration. Huang Zhengli (2014) believes that industrial agglomeration, human capital,

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economic foundation, and industrial agglomeration all have a positive impact on financial agglomeration, with economic foundation being the main driving force [8]. Yu Hongmei (2015) innovatively proposed the water law of financial agglomeration in view of the causes of financial agglomeration in ancient China. In addition, from the process of international financial agglomeration, five common factors of financial agglomeration were identified, namely innovation, economic foundation, location advantage, infrastructure construction, and government support. Wang Leixi (2016) concluded that market proximity effect and learning effect have obvious positive effects on China's financial agglomeration through panel data of provinces and cities [10]. Later, Zhang Wenting (2020) also concluded that the internal cause of financial agglomeration in China is the scale economy of the financial industry, and the external cause is factor supply, market demand and urban environment through the study of panel data of Chinese provinces and cities [11].

2.2. Research on the Impact of Financial Agglomeration on Industrial Structure

Beck (2004) believes that the development of the financial industry is conducive to solving the problem of financing difficulties for small and medium-sized enterprises, achieving convenient loans for small and medium-sized enterprises, and thereby reducing the financing costs of small and medium-sized enterprises [12]. Carlyn and Mayer (2003) believe that high-risk and high-tech enterprises should choose market-oriented financial institutions for cooperation when developing, while low-risk and traditional enterprises tend to cooperate with bank oriented financial institutions [13]. Brulhat and Sbergami (2008) studied data on financial agglomeration and industrial structure in 105 countries and found that a certain degree of financial agglomeration has a promoting effect on the upgrading and development of industrial structure [14]. Wang Xue (2010), by analyzing the internal mechanism of financial agglomeration affecting industrial structure, based on the current situation of financial agglomeration in Guangdong Province and relevant data, combined qualitative analysis and quantitative analysis, concluded that financial agglomeration has promoted the optimization and upgrading of industrial structure in Guangdong Province through economic effects, and concluded that financial intermediary market and capital market have different effects on industrial structure [15]. Shi Pei and Pu Yongjian (2011) concluded from a spatial perspective that the spatial dependence and mutual influence of financial agglomeration and industrial structure exhibit an asymmetric characteristic [16]. Sun Jing and Li Hanshuo (2012) used the individual fixed effects model to empirically demonstrate that financial agglomeration has a promoting effect on industrial structure upgrading nationwide, but the impact is differentiated, with banking agglomeration having a more significant impact on industrial structure [17]. On this basis, Sun Jing and Jiang Fuxin (2013) used a spatial autoregressive model to prove that the agglomeration effect of the banking industry is increasing year by year, while the agglomeration effect of the insurance industry has a beneficial hindrance effect on the upgrading of the industrial structure, which promotes the economic development of agriculture and provides basic guarantees for the development of the second and third industries [18]. Subsequently, Li Na (2013), Deng Xiangrong, and Liu Wenqiang (2013) also reached the same conclusion [19,20]. Yang Yiwu and Fang Dachun (2013) used the panel data of the Yangtze River Delta region to find that there is a long-term stable relationship between financial agglomeration and industrial structure upgrading. At the same time, they concluded that the role of financial agglomeration in the Yangtze River Delta region in industrial structure upgrading is mainly concentrated in the capital market [21]. Shi Weidong and Gao Ya (2014) drew a similar conclusion by using the panel data of the Yangtze River Delta, that is, the financial cluster promotes the advanced development of the industrial structure [22]. Guo Lu and Ding Feng (2015) also studied the relationship between financial agglomeration and industrial structure in the Yangtze River Delta region, believing that the coordinated development between the two is characterized by local polarization [23]. Pang Haiyu (2017) believes that bank aggregation

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can promote the advancement of industrial structure, but is not conducive to the rationalization of industrial structure [24]. Zheng Kaiyan and Li Huiwen (2015), based on panel data of Fujian Province, concluded that for every 1% increase in bank credit agglomeration, the proportion of the secondary industry and the tertiary industry increased by 9%, and there is an optimal level of financial agglomeration in the impact of financial agglomeration on the upgrading of industrial structure [25]. Yu Binbin (2017) used the panel data of prefecture level cities in China to draw the conclusion that the impact of financial agglomeration on the upgrading of industrial structure is limited by the development stage of the industry and the size of the city, that is, financial agglomeration has a significant impact on the industrial development of eastern and central regions and large cities, and has a negative impact on small cities [26]. Guo Bin and Zhang Xiao (2018) analyzed from the perspective of coupling coordination and found that there is a highly coupled relationship between financial agglomeration and industrial upgrading. In addition, economically developed regions have a higher level of coordination. At the same time, the coupling coordination between financial agglomeration and industrial upgrading is showing an upward trend, with the trend being more pronounced in economically developed regions [27].

2.3. Research on the Impact of Financial Agglomeration on Industrial Structure in Jiangxi

Dai Zhimin, Guo Lu, and Peng Jizeng (2011), based on relevant data from prefecture level cities in Jiangxi Province, used an individual fixed effects model to conclude that the impact of financial agglomeration on economic development in Jiangxi Province has regional differences, which may be influenced by different industrial structures between regions. This has sparked thinking on the selection of leading industries in each region from the perspective of financial agglomeration [28]. Li Shunli (2017), based on the empirical data of panel data in Jiangxi Province, concluded that in the long run, the financial cluster in Jiangxi Province promotes the upgrading of the industrial structure, the support of banks and insurance is strong, the support of the security is weak, and in the short run, the security has a restraining effect on the upgrading of the industrial structure [29].

2.4. Short Evaluation

In summary, a large number of domestic and foreign scholars have conducted theoretical and empirical research on financial agglomeration. The methods and research perspectives used provide multiple research methods, theories, and perspectives for future generations to analyze the effects of financial agglomeration and its series of impacts on production and life. Scholars have mostly studied the causes of financial agglomeration from the perspectives of economies of scale in the financial industry, development factors of financial centers, and financial geography. Domestic scholars often combine previous research perspectives to analyze the causes of financial agglomeration from a micro perspective, believing that it has stages and regional differences. They also believe that regional differences, economic foundations, and other factors have a significant impact on financial agglomeration. With the in-depth research of domestic and foreign scholars, the research on financial agglomeration has mostly shifted to the economic growth effect and industrial upgrading effect of financial agglomeration, and the research content has mostly shifted from national panel data to provincial and municipal panel data. Scholars often use research methods from a spatial perspective, and empirical research has found the characteristics of the impact of financial agglomeration on industrial structure. However, after summarizing and summarizing, it was found that although there has been a lot of research on financial agglomeration in recent years, most scholars have focused on studying the impact of financial agglomeration on economic growth, with less research on the impact of industrial structure, and the research scope mainly

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focuses on the whole country or developed regions, with less attention paid to underdeveloped provinces and cities.

3. Theoretical Analysis

3.1. The Connotation of Financial Agglomeration Effect

At present, there is no unified definition of financial agglomeration in the academic community. Liang Ying and Luo Xiao (2006) believe that the formation of financial agglomeration originates from economic development and has self-organizing characteristics. At the same time, it is believed that financial agglomeration is a special industrial spatial structure in which financial intermediary, financial regulators, multinational financial enterprises, domestic financial enterprises and other institutions and enterprises with headquarters function concentrate in a specific region have close contact with other headquarters enterprises [30]. Ma Dan (2007) defined financial agglomeration as a process of coordinated changes in financial resources and location conditions from the perspective of spatiotemporal changes [31]. Based on existing literature, it can be considered that financial agglomeration in economic development organically combines various financial resources in specific regions through resource allocation to achieve a state of mutual competition and cooperation in order to achieve economies of scale. This is a process of financial industry growth and economic development.

The impact of financial agglomeration on industrial structure is mainly achieved through the internal effects of financial agglomeration on regional economy. We can discuss the effects of financial agglomeration by dividing them into the impact on the core region and the impact on the surrounding areas.

From the perspective of the impact of financial agglomeration on the core area, in 1957, Murdar proposed the cyclic cumulative causal effect, which means that the development of the regional economy is accompanied by the entry of new industries and enterprises, thereby promoting market expansion and economic development in the region, forming a cumulative circular pattern. During the process, two opposite effects will occur: diffusion effect and reflux effect. The diffusion effect refers to the transfer of resources and labor from developed regions to underdeveloped regions in order to adapt to the upgrading of industrial structure in developed regions. Ultimately, underdeveloped regions will also achieve industrial structure upgrading, thereby narrowing the economic gap between the two. The backflow effect refers to the transfer of resources and labor from underdeveloped areas to developed areas, influenced by the economic advantages of economically developed regions, resulting in continued widening of regional disparities. The impact of financial agglomeration on the core area is mainly reflected through three effects. The first effect is the demand correlation effect, where financial aggregation brings about an increase in capital, which in turn expands production, increases expenditure, and promotes the expansion of local market size. The second is the capital spillover effect, where an increase in capital share is beneficial for reducing the cost of capital. For the knowledge and technology brought about by financial agglomeration, the local knowledge spillover effect is more obvious, which is conducive to local knowledge accumulation. Finally, there is the market congestion effect, which is a negative effect on the core area. Specifically, the increase in living costs, information costs, rent, and excessive market competition brought about by financial agglomeration will promote the diffusion effect of financial resources and transfer to surrounding areas.

From the perspective of the impact of financial agglomeration on the edge areas, financial agglomeration achieves its impact on the edge areas from both positive and negative aspects. On the one hand, financial agglomeration brings economic growth to all regions, and in addition, the market congestion effect generated by financial agglomeration causes the transfer of financial resources to peripheral areas, which also promotes the upgrading of industrial

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structure in these areas. On the other hand, financial agglomeration is conducive to reducing transaction costs in core areas, which will further expand regional differences. Therefore, whether financial agglomeration in peripheral areas has promoted the upgrading of industrial structure mainly depends on the relative size of the losses brought by economic development to peripheral areas and the overall benefits brought by economic growth.

3.2. Theoretical Analysis of the Impact of Financial Agglomeration on Industrial Structure

This article elaborates on the impact of financial agglomeration on industrial structure into four types of effects: resource allocation effect, economies of scale effect, innovation incentive effect, and risk management effect.

(1) The resource allocation effect. The process of agglomeration is actually a process of resource allocation. By optimizing the transfer and allocation of financial resources between different regions, we aim to achieve Pareto optimality of financial resources and reduce transaction costs. In addition, financial gathering promotes the transfer of financial resources from low utilization areas and industries to high utilization areas and industries, improving the utilization and liquidity of financial resources. Under the effect of resource allocation, new industries have emerged and outdated industries have been eliminated. The local industrial structure will gradually upgrade from traditional industries to the secondary and tertiary industries.

(2) Economies of scale effects. Most scholars believe that the main cause of financial agglomeration is that economies of scale promote the emergence and development of financial centers. In this process, financial resources and financial service oriented institutions will gather in a certain region, promoting the development of the financial industry in that region. The development of the financial industry will strengthen connections with more enterprises, promote information communication and resource sharing with more industry enterprises, and reduce transaction costs. The increase of financial intermediary brought by financial agglomeration has increased the liquidity of investment and financing channels and financial resources, and promoted the upgrading of industrial structure.

(3) The innovation incentive effect. The industrial upgrading brought about by financial agglomeration will attract high-tech enterprises, whose rich knowledge resources and innovative capabilities can provide financial enterprises with innovative products and risk management mechanisms, improve their management capabilities, and facilitate the formation of an innovative environment and improve information exchange efficiency. The development of the financial industry is also conducive to providing financial support and long-term incentives for high-tech enterprises, and providing financing convenience for the development of emerging industries.

(4) The risk management effect. The agglomeration of the financial industry is conducive to promoting innovation in various financial products, forming a variety of asset portfolios, and enhancing the ability to avoid and diversify risks. The agglomeration of the insurance market is conducive to the innovation of various insurance products, providing effective risk prevention and compensation for the adjustment of industrial structure. At the same time, close contact and information exchange between financial institutions are conducive to better anticipating risks and avoiding them.

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4. Empirical Analysis

4.1. Indicator Description

This article uses annual data from 11 prefecture level cities in Jiangxi Province as samples, and the variable raw data selected is from the "China Urban Statistical Yearbook" and "Jiangxi Statistical Yearbook" in China from 2003 to 2019.

This article studies the impact of financial agglomeration on industrial structure upgrading in Jiangxi Province, using the level of financial agglomeration in Jiangxi Province (Fn) as the explanatory variable and the comprehensive indicator of industrial structure upgrading in Jiangxi Province (CY) as the dependent variable. In addition, the impact of industrial structure upgrading is also influenced by many social factors. Based on the existing literature, this paper sets the control variables as four factors, namely, fixed assets investment (GZ), social education level (IY), government policy intervention (ZC), and social demand level (XQ). The specific indicators are selected as follows:

4.1.1. Explanatory Variables

Location entropy can effectively measure the level of financial agglomeration and measure the relative concentration of the financial industry in Jiangxi Province. This article measures employment in the financial industry and added value in the financial industry separately.

(1) Concentration of employment in the financial industry. The employment figures in the financial industry can be used to indicate the scale and relative degree of development of the financial industry in the region. The calculation method is:

$$Fn = \frac{e_{it}/p_{it}}{E_t/P_t}$$

Where, F_n represents the level of financial agglomeration at the end of i city t, e_{it} and p_{it} represent the number of employed people in the financial industry at the end of i city t and the total population at the end of i city t, respectively. E_t and P_t represent the number of financial industry employees in Jiangxi Province and the total population of Jiangxi Province at the end of t.

(2) Financial industry level agglomeration. Replacing the employment numbers in the financial industry with the added value of the financial industry, and the total population with the gross domestic product, using the added value of the financial industry, can represent the relative scale of the development of the financial industry in the region. The calculation method is:

$$Fn = \frac{q_{it}/g_{it}}{Q_t/G_t}$$

Where, F_n represents the level of financial agglomeration at the end of i city t, q_{it} and g_{it} represent the added value of the financial industry at the end of i city t and the gross domestic product at the end of i city t, respectively, Q_t and G_t represent the added value of the financial industry in Jiangxi Province and the gross domestic product of Jiangxi Province at the end of t.

This paper uses financial industry employment agglomeration as an explanatory variable to empirically study the relationship between financial agglomeration and industrial structure upgrading, and uses financial industry level agglomeration to test the robustness of the model.

4.1.2. The Dependent Variable

This article draws on Wu Xiaoxia's (2014) comprehensive index method for industrial structure upgrading to describe the level of industrial structure upgrading in Jiangxi Province [33]. The specific formula is as follows:

$$CY = W_1 + 2W_2 + 3W_3$$

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Where, CY represents the comprehensive index of industrial structure upgrading in Jiangxi Province, while W_1, W_2, and W_3 respectively represent the proportion of the primary industry, secondary industry, and tertiary industry in the three major industries. And different weights are given to the three major industries based on their level of upgrading. The higher the level of upgrading is, the greater the weight given.

4.1.3. Control Variables

(1) Fixed assets investment. In this paper, the fixed assets investment index (GZ) is expressed by the ratio of the whole society's fixed assets investment to the region's GDP. According to a large number of previous literature, fixed assets investment has a positive role in promoting the optimization and upgrading of industrial structure. This paper assumes that changing the direction of fixed assets investment and the efficiency of asset allocation will play an important role in the upgrading of Jiangxi's industrial structure.

(2) Social education level. The social education level indicator (JY) is expressed by the proportion of the number of colleges and universities in each prefecture level city of Jiangxi Province in the total registered residence population at the end of the year. The level of social education in a region will affect the quality of the labor force and the level of innovative technology, and high-quality labor force and social innovation level will promote the advancement of the industrial structure in the region. So the introduction of social education level in this article also takes this impact into account.

(3) Government policy intervention. The measurement of government policy intervention indicators (ZC) is to select the proportion of fiscal expenditure of prefecture level city governments to the gross domestic product of prefecture level cities. Existing literature suggests that the upgrading of industrial structure is influenced by the expenditure allocation of the financial department, and the adjustment effect of industrial policies on industrial structure is influenced by the government's policy intervention ability.

(4) Social demand level. The measurement of social demand level indicator (XQ) uses the annual per capita consumption expenditure of urban residents in various prefecture level cities in Jiangxi Province as a measure of social demand level. Living consumption expenditure can represent the consumption structure of residents, and changes in consumption structure are related to changes in social demand structure, which in turn can cause changes in social industrial structure. Therefore, this article introduces the level of social demand as a control variable.

4.2. Model Settings

In order to measure the impact of financial agglomeration on industrial structure in Jiangxi Province, this paper selects a multiple regression model based on panel data of Jiangxi Province to test the impact of financial agglomeration on industrial structure upgrading. The model settings are as follows:

$$Y = C_0 + C_1X_1 + C_2X_2 + \cdots + C_kX_k + u$$

When setting the model, in order to avoid being affected by heteroscedasticity, natural logarithm is taken for all variables. The specific description of the model is as follows:

$$InCY_{it} = C_0 + C_1InFn_{it} + C_2InGZ_{it} + C_3InJY_{it} + C_4InZC_{it} + C_5InXQ_{it} + u_{it}$$

Where, $InCY_{it}$is a measure of the level of industrial structure upgrading at the end of i city t, $InFn_{it}$ measures the level of financial agglomeration at the end of i city t, similar to $InGZ_{it}$, $InJY_{it}$, $InZC_{it}$, $InXQ_{it}$ measure fixed assets investment, education level, government policy intervention, and social demand level at the end of the period t.

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4.3. Results of Empirical Research

4.3.1. Unit Root Test

This paper is based on the panel data of the annual data of cities in Jiangxi Province from 2003 to 2019. In order to avoid the problem of false regression caused by non-stationary series, we first use Eviews10 to test the unit root of the data. The results of the inspection are shown in Table 1.

Table 1. Results of Unit Root Test

Variable	ADF Statistic	P value	Conclusion
INFN	23.9050	0.3522	Non-stationary
DINFN	126.9940	0.0000	Stable
INCY	0.8050	1.0000	Non-stationary
DINCY	94.7297	0.0000	Stable
INGZ	43.4209	0.0042	Stable
INJY	44.1276	0.0034	Stable
INZC	35.3131	0.0359	Stable
INXQ	20.6421	0.5429	Non-stationary
DINXQ	101.100	0.0000	Stable

According to the table, we can see that at a 1% confidence level, INGZ and INJY can reject the original hypothesis and consider it a stationary sequence; INZC can reject the original hypothesis at a 5% confidence level and consider it a stationary sequence; For INFN, INCY, and INXQ, the original hypothesis cannot be rejected, but after the first order difference, their confidence levels can all reject the original hypothesis at a level of 1%, which is considered a stationary sequence. From this, we can conclude that INFN, INCY, and INXQ are single integer sequences of the same order. To verify whether there is a long-term stable relationship between these same order single integer sequences, we will then conduct cointegration tests on these sequences.

4.3.2. Cointegration Test

Table 2. Results of Cointegration test

Test type	Statistical indicators	Statistic	P value
KAO	ADF	2.8646	0.0021
Pedroni	Panel v-Statistic	10.2876	0.2301
	Panel rho-Statistic	-2.0728	0.1992
	Panel PP-Statistic	-0.6371	0.0001
	Panel ADF-Statistic	-1.6496	0.0030
Pedroni	Group rho-Statistic	0.0676	0.5270
	Group PP-Statistic	-4.1009	0.0000
	Group ADF-Statistic	-1.5335	0.0626

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This article uses Eviews10 for Cointegration testing. In order to ensure the reliability of the test results, this article chooses the KAO test and Pedroni test. The inspection results are shown in Table 2.

From the table, it can be seen that at a confidence level of 1%, the variable passed the KAO test. Under the Pedroni test, we used Panel ADF Statistics as the standard, and the variable passed the confidence level of 1%. In summary, it can be concluded that INFN, INCY, and INXQ have a long-term stable relationship.

4.3.3. Model Verification

(1) F-test

The F-test can determine whether the mixed effect model or the fixed effect regression model is selected for the regression of the data in this paper. The F-statistic is constructed as follows:

$$F=\frac{(SSEr-SSEu)/N-1}{SSEu/(NT-N-K)}$$

Where, SSEr and SSEu represent the sum squared residual of the constrained model (mixed estimation model) and the unconstrained model (individual fixed effects model), respectively. N-1 and NT-N-K represent the degrees of freedom of the numerator and denominator, respectively, while N, T, and K represent the number of individuals, time span, and the number of regression coefficients corresponding to the explanatory variable. The N=11, T=17, and K=5 values in this article indicate that SSEr=0.280492 and SSEu=0.201628. From the formula, it can be obtained that F=3.2269>F (0.05)=1.87, F=3.2269>F (0.01)=2.41. So we know that we can reject the original hypothesis at both significance levels of 5% and 1%, and believe that a fixed effects regression model should be established.

(2) Hausman test

The Hausman test can determine whether to choose a random effects model or a fixed effects regression model for the data in this article. This article first estimates the random effects on the data, and then conducts Hausman's test. The results are shown in Table 3. The corresponding P value in the table is less than 0.01, indicating that the null hypothesis is rejected at a significance level of 1% and a fixed effect model is chosen.

Table 3. Hausman test results

	H-statistic	P value
Cross-section random	22.347839	0.0004

4.3.4. Analysis of Regression Results

This article studies the impact of financial agglomeration on industrial structure in Jiangxi Province from 2003 to 2019. The selected indicators are significantly affected by time changes, so this article chooses a time fixed effect model for regression analysis. The results of data processing using Eviews10 in this article are shown in Tables 4.

Table 4. Regression results

Variable	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)
C	1.0798 (***)	1.0966(***)	1.0559 (***)	0.6731(***)	0.6886 (***)
INFN	0.0449 (***)	0.0460 (***)	0.0296(***)	0.0262(***)	0.0285(***)
INGZ		0.0322 (***)	0.0342(***)	0.0335(***)	0.0278(**)
INJY			0.0122(***)	0.0108(***)	0.0115 (***)
INXQ				0.0380(***)	0.0397 (***)
INZC					0.0085
Adjusted R^2	0.5803	0.5982	0.6324	0.6489	0.6488
F-statistic	16.1282	16.3828	17.8379	18.1846	17.3631

Note: *, * *, * * respectively represent significance levels of 10%, 5%, and 1%.

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Table 4 shows that with the gradual addition of control variables, the value of Adjusted R^2 gradually increases to Model 4, which has the best Goodness of fit. The Goodness of fit of model 5 decreases after the index of government policy is added. From Tables 3-4, it can be seen that the government policy indicator is not significant, meaning that the selected indicator has little impact on the upgrading of industrial structure in Jiangxi Province. Therefore, this indicator is not considered in the regression analysis of this article. Next, data analysis will be conducted on Model 4.

Firstly, the analysis of the impact of financial agglomeration shows that each model shows that the impact of financial agglomeration on industrial structure in Jiangxi Province is very significant. In Model 4, for every 1 percentage point increase in the level of financial agglomeration, the industrial structure upgrading index will increase by 0.0265 percentage points. The scale of financial agglomeration in Jiangxi Province has reached a certain level, and the improvement of regional investment and financing capabilities brought about by financial agglomeration has reduced the financing costs of enterprises, further driven the growth of the real economy, and promoted the upgrading of Jiangxi Province's industrial structure.

The second is the analysis of the impact of fixed investment. The fixed assets investment index of model 4 passed the confidence level of 1%. From the table, it can be seen that every percentage point increase in fixed assets investment in Jiangxi Province, the industrial structure upgrading index increased by 0.0335 percentage points. The direction and efficiency of fixed assets investment largely affect the upgrading of regional industrial structure. The empirical results indicate that the significant impact of fixed investment on the upgrading of industrial structure is closely related to the investment tilt towards the tertiary industry in Jiangxi Province in recent years.

Next is the analysis of the impact effect of education level. According to Model 4, it can be seen that the education level in Jiangxi Province has a significant impact on the industrial structure. For every one percentage point increase in social education level, the level of industrial structure upgrading will increase by 0.0108 percentage points. The indicator selected in this article is the number of students in higher education institutions, and the level of education affects the composition of human resources in the region. High quality human resources are more conducive to the development of innovation level in the region, which is conducive to technological progress of enterprises, increasing the competitiveness of high-tech enterprises, eliminating backward enterprises, and achieving the upgrading of the regional industrial structure.

Finally, there is an analysis of the impact of social demand. From Model 4, it can be seen that for every one percentage point increase in social demand in Jiangxi Province, the industrial structure upgrading index will increase by 0.0380 percentage points. This article uses the annual per capita consumption expenditure of urban residents to represent social demand. Consumption comes from demand, and the consumption structure will affect the different levels of demand, which in turn will affect the production structure of the region. So the demand structure will affect the changes in industrial structure and promote the upgrading of industrial structure.

4.3.5. Robustness Test

The above analysis uses the panel data of financial agglomeration location entropy and industrial structure upgrading index of Jiangxi Province, and the time fixed effect regression model to obtain the results. In order to further illustrate the robustness of the estimated results, here we replace the original explanatory variables with financial industry level agglomeration to test the robustness of the model. The results of the inspection are shown in Table 5.

According to the Goodness of fit, this paper still chooses Model 4 for explanation. From Model 4, it can be seen that the impact of financial agglomeration on industrial structure upgrading is

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still significant. For every percentage point increase in financial agglomeration level, the industrial structure upgrading index will increase by 0.0162 percentage points. The financial industry agglomeration is used to replace the financial industry employment agglomeration, and the impact of financial agglomeration on the upgrading of industrial structure in Jiangxi Province is basically consistent with the previous empirical test estimates, indicating that the empirical test results in this paper are robustness.

Table 5. Robustness Test

Variable	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)
C	0.8139(***)	0.8270(***)	0.9052 (**)	0.5186(***)	0.5187(***)
INFN	0.0222 (***)	0.0255 (***)	0.0181(***)	0.0161(***)	0.0162(***)
INGZ		0.0379 (**)	0.0399(**)	0.0386(***)	0.0390(***)
INJY			0.0167(***)	0.0147(***)	0.0146 (***)
INXQ				0.0412(***)	0.0400(***)
INZC					-0.0712
Adjusted R^2	0.5084	0.5328	0.6241	0.6430	0.6408
F-statistic	12.3142	12.7865	17.2551	17.7513	16.8049

5. Conclusion and Suggestions

5.1. Conclusion

Based on the research results of domestic and foreign scholars, this paper first analyzes the theoretical support of the impact of financial agglomeration on the upgrading of industrial structure, then introduces the location entropy financial agglomeration index and the comprehensive index of industrial structure, constructs the panel data of Jiangxi Province, and uses the time fixed effect model to conduct regression analysis on the data. The conclusions are as follows:

Financial agglomeration affects the upgrading of industrial structure through resource allocation effects, economies of scale effects, innovation incentive effects, and risk management effects. Through the comprehensive impact of these four effects, financial agglomeration provides technological upgrading support for industrial development, promotes the development of high-tech industries, eliminates outdated industries, reduces investment and financing costs, and is conducive to the upgrading of industrial structure. In addition, financial agglomeration has different impact mechanisms on the core and peripheral areas. Promoting the transfer of production factors between developed and underdeveloped regions through diffusion and reflux effects will ultimately enhance the upgrading of regional industrial structure.

Through the analysis of the control variables selected in this paper on the upgrading of the industrial structure, the impact of fixed assets investment, social education level and social demand on the industrial structure is obvious. Fixed assets investment has a significant positive impact on the upgrading of industrial structure. The development of education can improve the quality of labor force, increase manpower reserves for high-tech enterprises, eliminate backward enterprises, and adjust industrial structure. Social demand increases enterprise production and adjusts the social industrial structure. The government policy indicator has no significant impact on the upgrading of industrial structure in Jiangxi Province, which may be related to the inaccurate representativeness of the original data selected in this article.

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5.2. Suggestions

5.2.1. Consolidate the Advantages of Financial Agglomeration

In the year of the 14th Five Year Plan, Jiangxi Province will promote the construction of a modern financial system and consolidate the advantages of financial agglomeration. Increase the relaxation of financial system constraints and promote financial liberalization. Concentrate on building the financial core cluster of Jiujiang in Ganzhou, Nanchang, and use the diffusion effect to drive the development of the financial industry in other prefecture level cities. Promote financial marketization, vigorously develop the bond market, capital market, and improve the stock market. At the same time, we will strengthen the construction of the social credit system, strengthen the credit awareness of small and medium-sized enterprises, strengthen the risk management mechanism of financial enterprises, and better achieve cooperation between banks and enterprises.

5.2.2. Optimize Fixed Assets Investment

Last year, the growth rate of fixed investment in Jiangxi Province rebounded, and the work of stabilizing investment has achieved certain results. Private investment accounts for 65.2%, occupying a dominant position. As an important channel for active market funds, private investment in Jiangxi Province should continue to guide private capital to participate in various industrial investments in society. Financing methods such as PPP and BOT can be used to guide private capital to participate in investment in social infrastructure and high-tech industries, promoting regional economic development and upgrading of industrial structure. In addition, when emphasizing investment in the secondary and tertiary industries, the importance of the primary industry cannot be ignored, and underdeveloped areas can vigorously develop characteristic agriculture. At the same time, attention should be paid to controlling investment in the development of the real estate industry and strengthening investment in the secondary industry to form a pillar industry.

5.2.3. Emphasize the Role of Education

At present, the development of education in Jiangxi Province is influenced by the level of economic development, and there is still a serious regional differentiation. Moreover, there is a lack of relevant research on the impact of education level on the development of industrial structure in Jiangxi Province. The government should continue to increase educational support, actively introduce excellent teachers, and improve the educational level of higher education institutions. Strengthen education support for underdeveloped areas and increase investment in educational infrastructure and talent cultivation. Strengthen the important role of the government in education issues, provide funding and talent support for scientific research in universities, and strive to form innovative teams. Provide talent reserves for industrial structure upgrading.

5.2.4. Creating an Innovative Atmosphere for the Whole Society

The government actively promotes the formation of an innovative atmosphere throughout society, utilizing the effects of finance and the internet to enable banks and other financial institutions to play a role in policy financing and equity financing. At the same time, enterprises should strengthen investment in scientific research work, utilize technology enterprises to improve management and service levels, such as risk management, evaluation and maintenance of intellectual property rights, etc. At the same time, attention should be paid to improving production technology, improving resource utilization efficiency, and increasing the added value of products. In addition, Jiangxi Province needs to accelerate the construction of higher-level research and development institutions, combine the "2+6+N" industry to create high-tech industry research institutions, promote technological innovation, and achieve the upgrading and optimization of industrial structure.

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