

An Empirical Study on the Impact of Financial Agglomeration on the Tertiary Industry in Anhui Province

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Abstract: On the basis of measuring the level of regional financial agglomeration and tertiary industry development, this paper selects panel data of Anhui provinces from 2008 to 2017 and uses fixed effect model to empirically test the impact of financial agglomeration on tertiary industry development. The results show that financial agglomeration can promote the development of the tertiary industry, and the gradual addition of control variables indicates that the scale of fixed assets investment and government financial expenditure will also promote the development of the tertiary industry, but the level of human capital has inhibited the development of the tertiary industry. On the basis of the empirical results, this paper puts forward relevant countermeasures and suggestions.

1. Research Background

With the integration of the world economy and the rapid growth of the financial industry, the flow of financial production factors among regions and the rational financial allocation among enterprises are becoming more and more obvious. With the help of inter-bank bond market and capital market, financial resources can achieve effective allocation of funds and adjust the industrial investment of funds. This allocation of financial resources not only affects the development of small and micro companies and the overall economic growth, but also promotes the development of small and micro enterprises and industrial restructuring. With the development of urbanization, financial institutions begin to operate and produce in the way of cooperation among enterprises, which promotes the high concentration of financial activities and institutions in central cities. At present, four major international financial centers, represented by Frankfurt, London, New York and Tokyo, have emerged. Practice has proved that the higher the degree of financial agglomeration in developed countries, the richer the financial resources. Agglomeration not only strengthens the cooperation and resource sharing among financial institutions, but also has a great impact on regional economic growth and tertiary industry development through the effects of agglomeration and radiation.

Therefore, it is of great significance to explore the supporting role of financial agglomeration on the tertiary industry in Anhui Province, accelerate the upgrading of industrial structure, promote the coordinated development of local economy and narrow the gap of regional economic development in Anhui Province. Finance can effectively allocate resources, to a certain extent, affect and control the development of the tertiary industry. Through the data, it can be easily found that the development of tertiary industry in Anhui Province is different and the gap is large. Therefore, we can think that the different degree of financial agglomeration in different cities of Anhui Province has an impact on the development of tertiary industry in different cities. Therefore, based on the current situation of China's economic development, this paper studies the impact of financial scale on the development of tertiary industry in various cities of Anhui Province, and combines with the current situation of the development of tertiary industry, from the financial point of view, puts forward countermeasures and suggestions to speed

up the development of tertiary industry in various cities of Anhui Province.

2. Literature Review

Liu Dalei (2016) concluded that the phenomenon of financial industry agglomeration in Chinese cities shows obvious interaction. The wage level of workers and per capita GDP of a city have a very prominent impact on financial industry agglomeration.

Yu Binbin (2017) research shows that "the impact of financial industry agglomeration on industrial structure upgrading and spatial spillover effect are limited by industrial development stage and urban scale".

Chen Qiliang et al. (2017) pointed out that the effect of regional financial agglomeration in China has significant characteristics of spatial autocorrelation and path dependence. Local protection hinders cross-regional activities of financial elements. The impact of industrial agglomeration on financial agglomeration is not obvious because of path dependence.

Du Qingxia (2018) pointed out that "the center of financial agglomeration is the most important position for the development of a regional economy, and has the core guiding role for the development of a country's entire financial industry and economy."

Zhongshen and Du Lei (2018) pointed out that there is a highly positive and significant relationship between financial agglomeration and regional economic growth, and there is a significant spatial spillover effect. At the same time, the level of human capital, the investment of fixed assets in transportation infrastructure construction, government financial expenditure and other factors have obvious positive effects on regional economic growth.

Xie Tingting et al. (2018) concluded that: "Upgrading of industrial structure and financial agglomeration play a significant positive role in promoting China's current economic development, have a strong radiation effect on adjacent areas, and are an important driving force for China's economic growth; the input of open material capital, market and labor force is an important driving force for economic development." The government's behavior has a certain degree of restraint in space, and the linkage between industrial structure and financial agglomeration is conducive to regional economic growth and radiation effect is obvious.

Shi Rong et al. (2019) pointed out that "at the national level, financial agglomeration and financial innovation have a significant role in promoting regional economic growth, and their synergistic effects significantly enhance the positive role of financial markets in the economy; there are regional differences in the role of financial agglomeration and financial innovation in economic growth."

3. An Empirical Analysis of the Impact of Financial Agglomeration on the Development of Tertiary Industry in Anhui Province

3.1 Data Source and Sample Selection.

The data in this paper are all from China Statistical Yearbook and Anhui Statistical Yearbook. They provide specific evaluation data for this paper. These data are issued by the relevant national authorities. The data are authentic and credible. They are timely, representative, authentic and reliable. In the selection of samples, 16 prefecture-level cities of Bengbu, Wuhu, Fuyang, Lu'an, Hefei, Bozhou, Anqing, Xuancheng, Ma'anshan, Tongling, Chizhou, Chuzhou, Huainan, Huaibei, Suzhou and Huangshan in Anhui Province were selected, including data from 2008 to 2017.

There are many indicators that can be used to reflect the development of the tertiary industry, such as the gross output value of the tertiary industry, the growth rate of GDP of the tertiary industry, the added value of GDP of the tertiary industry, the per capita GDP of the tertiary industry and so on. This paper uses the per capita GDP of the tertiary industry of 16 prefecture-level cities in Anhui Province from 2008 to 2017 as the index to reflect the development of the tertiary industry, and takes it as a logarithm. In terms of $\ln RGDP$.

Based on the above measurement of financial agglomeration in Anhui Province and cities at all levels in Anhui Province, this paper chooses the location entropy which reflects the Referring to the research of

Zhongshen and Du Lei (2018), this paper also controls the following control variables:

Firstly, the government's intervention in a region has a profound impact on its financial scale development. This paper uses the proportion of fiscal expenditure in GDP of a region to express as GOV.

Secondly, the level of human capital is measured by the number of people who have acquired a college degree in every ten thousand people and expressed by Ln HUM.

Thirdly, there are differences in fixed assets investment in different regions, which affect the scale of financial development in a region. Therefore, this paper chooses the proportion of fixed assets investment to GDP as another control variable, which is abbreviated as INV.

Fourthly, this paper uses the ratio of the total transportation mileage of each region to the land area of each region to express the infrastructure situation of a region, which is expressed as LnSTR.

3.2 Empirical Process and Result Analysis

In order to study the relationship between financial agglomeration and the development of tertiary industry in Anhui Province, and consider other variables, this paper uses the fixed effect model of panel data as the core tool of empirical research, and establishes a multiple linear regression model, as follows:

$$\text{LnRGDP}_{it} = \beta_0 + \beta_1 \text{LQ}_{it} + \beta_2 \text{GOV}_{it} + \beta_3 \text{LnHUM}_{it} + \beta_4 \text{INV}_{it} + \beta_5 \text{LnSTR}_{it} + \varepsilon_{it} \quad (1)$$

Among them, beta represents the regression coefficient of the parameters, I represents all regions of China, and T represents time. LnR GDP is the explanatory variable, which is the relative value of per capita GDP of the tertiary industry practitioners in different regions; LQ is the main explanatory variable, representing the regional financial agglomeration index; GOV is the proportion of government financial expenditure; LnHUM is the level of human capital; INV is the proportion of fixed assets investment; LnSTR is the level of transportation infrastructure construction; and E is the accompanying factor. Machine perturbation term.

3.3 Empirical Process Analysis

After the establishment of the basic model and the selection of variables, in order to further verify the impact of financial scale on the upgrading of industrial structure, we first test and analyze the single factor model, see Table 1 for the specific situation.

Table 1 List of single-factor model checks

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
LQ	0.866*** (0.206)	0.592*** (0.175)	0.349** (0.134)	0.907*** (0.135)	0.128*** (0.173)
GOV		4.819*** (0.595)			
LnHUM			0.563*** (0.0377)		
INV				0.879*** (0.0633)	
LnSTR					0.643*** (0.0733)
C	10.17*** (0.121)	9.363*** (0.141)	6.765*** (0.240)	9.373*** (0.0975)	8.388*** (0.225)
Obs	160	160	160	160	160
R-square	0.710	0.391	0.653	0.622	0.422

Based on the data of 16 prefecture-level cities in Anhui Province, the fixed-effect intercept model is used to estimate the impact of financial agglomeration on the development of tertiary industry in Anhui Province. According to the test results of table 1, we can see that the regression

coefficients of financial agglomeration degree in model (1)-(5) are significantly positive, indicating the financial scale. It is advantageous to promote the rationalization and heightening of industrial structure. In the control variables, the coefficients of GOV and INV are positive, and both are significant at the level of 1%. It shows that the increase of GOV and INV is beneficial to the development of tertiary industry. In addition, the coefficients of infrastructure construction (LnSTR) and human capital level (LnHUM) in all regions are also positive, and both are significant at the level of 1%. This shows that the improvement of infrastructure construction is conducive to the development of the tertiary industry, and the promotion of human capital level is also conducive to the development of the tertiary industry.

In order to prevent the emergence of heteroscedasticity, this paper uses the method of adding variables step by step to further regression, that is, to test and analyze the multivariate equation model. According to the analysis of Table 2, it is clear that for the overall sample, the correlation between financial agglomeration (LQ) and the development of the tertiary industry (LnRGDP) is positive, and significant at the level of 1%.

As shown in the table below, the government intervention degree (GOV), human capital level (LnHUM), fixed assets investment (INV), infrastructure construction (LnSTR) of the control variables are still significant at the level of 1%.

Table 2 List of Multivariate Equation Model Tests

	Model(1)	Model (2)	Model (3)	Model (4)	Model (5)
LQ	0.866*** (0.206)	0.592*** (0.175)	0.323** (0.129)	0.562*** (0.129)	0.677** (0.146)
GOV		4.819*** (0.595)	1.721*** (0.514)	0.0415 (0.584)	0.192* (0.597)
LnHUM			0.486*** (0.0432)	0.353*** (0.0482)	0.321*** (0.0515)
INV				0.471*** (0.0950)	0.462*** (0.0946)
LnSTR					0.113** (0.0678)
C	10.17*** (0.121)	9.363*** (0.141)	6.946*** (0.238)	7.606*** (0.258)	7.532*** (0.260)
Obs	160	160	160	160	160
R ²	0.710	0.391	0.679	0.727	0.732

Through the test and analysis of single factor model and Multi-equation model, we can conclude that the coefficient of financial agglomeration is positive, which can be explained as: the agglomeration of financial industry contributes to the development of regional tertiary industry. The degree of financial agglomeration has a positive effect on the development of tertiary industry at the level of 1% significance, with an estimated coefficient of 0.206, indicating that the level of development of tertiary industry will increase by 0.206% for every 1% increase in the degree of financial agglomeration. The reason is that when the development of the tertiary industry needs a certain amount of capital support, and this region has a high degree of financial agglomeration and efficient allocation of financial resources, there will be more favorable conditions to accelerate the development of the tertiary industry in this region.

For the degree of government intervention, the level of human capital, the scale of investment in fixed assets and the construction of transportation infrastructure, the degree of government intervention shows the proportion of fiscal expenditure in GDP. If the proportion of fiscal expenditure in a region is relatively large, it shows that the relatively large government investment in industrial restructuring is more conducive to promoting the region. The development of tertiary industry. From the results, the impact of government financial expenditure on various regions is significantly positive, indicating that at this stage in the process of tertiary industry development, government financial expenditure has played a positive role. With the improvement of the degree of

financial marketization and the gradual improvement of the financial system, the government has continuously increased its investment in the tertiary industry.

The level of human capital is represented by the logarithm of the number of people who have obtained college education in every ten thousand people. Higher human capital means that the human resources in this area are relatively more advanced. Higher knowledge content has greatly promoted the development of the tertiary industry in this area. More talents are devoted to new industries and make the third place. The development of industry is more advantageous.

Investment in fixed assets is represented by INV. The increase in investment in fixed assets represents the increase in the number of factories and equipment, which provides the corresponding conditions for the development of the tertiary industry. Under such favorable conditions, it facilitates the development and upgrading of the tertiary industry and helps to improve the level of tertiary industry upgrading. The empirical results show that the investment of fixed assets promotes the development of the tertiary industry, which has a positive effect on the rationalization and upgrading of the tertiary industry.

Infrastructure construction process, if it occupies a relatively large part of government expenditure, represents that a region is still in the period of urban infrastructure construction. Infrastructure construction is conducive to the development of tertiary industry. The development of tertiary industry in a city needs good infrastructure support, such as railways, communications, electricity and so on. Therefore, the higher the proportion of infrastructure construction, the more beneficial to the third development.

4. Suggestions

In the past, when China's industrial development has achieved a series of achievements, there are also many problems and contradictions. Through a series of index analysis and empirical research, this paper finds that the financial agglomeration is unbalanced and the degree of financial agglomeration needs to be improved, so that the development level of tertiary industry is different. With the rapid development of economy, the mode of economic growth is unsustainable. Therefore, it is our main task to adjust and optimize the industrial structure and change the mode of industrial development. Thus, financial agglomeration has a direct impact on the development of regional tertiary industry. Therefore, the government, capital market and relevant financial institutions should improve the development of regional tertiary industry and narrow the gap between the rich and the poor from the perspective of narrowing the gap between the rich and the poor, optimizing the industrial structure and promoting economic development. Based on the mechanism path and empirical results of the impact of financial agglomeration on tertiary industry, this chapter gives the following suggestions.

The development of finance is mainly manifested in the expansion of capital scale in the financial market. Therefore, financial efficiency can reflect whether financial resources have been allocated and invested effectively. At present, most of the funds in China come from banking institutions, and the securities market is also an important part of the financial market. However, due to the inefficient use of funds, the role of funds is not significant. Therefore, financial institutions should make effective use of social idle funds for financial investment from the following two aspects: first, to establish a modern enterprise system, improve the corporate governance system of financial institutions, and strengthen the restructuring and reorganization of their own system, so as to deepen the institutional reform of the financial industry, and ultimately to expand the financial scale and raise funds. The purpose of financial efficiency. Second, we should further strengthen the innovation and management of our own. While focusing on the "quantity" of industrial development, the financial industry must also focus on the "quality" of industrial development. Therefore, we must realize the innovation of financial enterprises so as to improve financial efficiency and provide financial support for the development of emerging industries.

We should formulate different development strategies according to the characteristics and advantages of different regions and take measures according to local conditions. On the one hand, for the economically developed areas, the rationalization and upgrading of their industrial structure

has reached a certain extent. Therefore, we should strengthen the construction of financial centers in this area, so as to enhance the spillover and driving role of finance to the surrounding areas. When the financial development of this area reaches a certain scale, it can be used in this area. Financial support is provided elsewhere. In addition, we can innovate financial instruments in developed areas to meet the needs of investors at different levels. Developed areas have the conditions to develop new financial instruments and financial products. On the other hand, the agglomeration of financial industry is more conducive to the development of the tertiary industry in areas with low rationalization and high degree of industrial structure. Therefore, we should optimize the financial institutions in this area, seek policy-oriented investment from the government, optimize the investment structure, and the financial enterprises in this area should lead. The development of financial industry should avoid excessive government intervention and duplication of construction, and make rational and effective use of limited financial resources to build regional leading financial industry clusters. Finally, we can achieve the goal of improving the development of the tertiary industry in all regions.

Empirical results show that the higher the level of human capital, the better the development of tertiary industry. Nowadays, the development of tertiary industry pays more attention to quality. Good quality needs talents with high quality, high quality and high knowledge reserve to realize. Therefore, we should pay attention to the cultivation of talents, which is very important for the development of the tertiary industry. A large number of excellent talents are conducive to the improvement of the quality of the tertiary industry, and make the development of the tertiary industry change from quantitative to qualitative.

From the empirical results, we can see that the impact of fixed assets investment on the development of tertiary industry is significantly positive. Therefore, increasing investment in fixed assets can improve the quality of the development of the tertiary industry, and have a positive effect on the rationalization and upgrading of the tertiary industry. Fixed assets investment includes the increase of plant and equipment. The increase of plant and equipment provides more convenient and favorable conditions for the development of tertiary industry.

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