

## Empirical Study on the Impact of Financial Agglomeration over New Urbanization: Taking the Eastern Area as an Example

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**Abstract.** To study the impact of financial agglomeration over new urbanization construction can not only clarify its influential path and strength, but also help the authorities to make relevant policies for promoting urbanization construction from the perspective of finance. Analyzing the transmission mechanism on how the financial agglomeration affects the new-type urbanization construction, the paper then constructs new index systems of the related financial agglomeration and new-type urbanization. Based on the data of the eastern provinces data from 2001 to 2012, it uses the PVAR model for regression to test the mode and intensity that financial agglomeration effects on the new urbanization, and makes the conclusion that financial agglomeration effectively promotes the development of industrial urbanization and spatial urbanization but little impact on promoting human urbanization. Finally, based on the empirical results, the policy recommendations about financial development are put forward to support the new-type urbanization construction.

### Introduction

Since the 17th national congress of the CPC (Communist Party of China), "new urbanization" has become a hot term. Compared with the traditional urbanization, new urbanization tends to emphasize enhancing the quality of urbanization, coordinating the development speed of urbanization and quality. New urbanization not only refers to the rural population transferring to urban areas, the secondary and tertiary industries gathering to the town, the process of the expansion of the number of cities and towns, it is also the process which is not at the expense of the ecological environment, optimizing the industrial structure, improving farmers' income, realizing equalization of public service and integration of infrastructure in urban and rural areas. It's the unification of the urbanization of industry, population and space. Since the Chinese Economic Reform, China has accelerated the process of urbanization, the urbanization rate was 53.7 percent at the end of 2013, having met and exceeded the world average, but the quality of China's urbanization is not synchronous with the rate of the urbanization[1]. "China's urbanization Quality Report" in 2013 noted that because cities can gather more resources to improve the quality of urbanization from aspects of urban development, social development, industrial structure, etc., the level and quality of the urbanization in eastern region of China are significantly higher than in the Midwest. The rapid development of new urbanization of the eastern area has its "innate advantages" and "dividend policy", but it is also inseparable from the support and influence of financial agglomeration.

Since the 70s of last century, the financial gathering has become the basic form of the modern financial industrial organizations. There are many international financial gathering areas, such as London, New York and Tokyo. The trend of domestic financial institutions gathering has been increasingly evident. 31 cities mainly in the eastern part of the country position themselves as a financial center. Beijing and Shanghai are national financial centers. Shenzhen, Tianjin, Suzhou and other cities are regional financial centers [2].

Jun Liu, Jie-Yu Huang, etc(2007)believe that the financial Agglomeration may promote economic growth through financial agglomeration effects, financial functions and spillover effects of financial[3]. Yi Ding, Jing-Xia Li, etc (2010) made a empirical research with all provinces' location

entropy panel data from the year of 2003 to 2007. It indicated that the financial agglomeration plays an obvious role in promoting economic growth of China, among which the Banking industrial agglomeration has the most remarkable influences[4]. Xian-Dong Zeng, Ke-Jin Xie (2011) analyzed the data of Shanghai and found that the financial agglomeration in Shanghai stimulated its economic development, banking and securities industrial agglomeration also influenced on accelerating the upgrading of industrial structure and economic growth in Jiangsu and Zhejiang[5]. Kim (1983) considered finance had an impact on urbanization through supports of public infrastructure construction. Analyzing the financial city of London, Ya-Min Li, Hao Wang (2010) found that the financial center is essential in improving the quality of infrastructure and the capacity of public service[6].

Overall, the study of Impacts of financial agglomeration of new urbanization has made some achievements, however, few scholars, systematically, have ever studied the influencing way and intensity of financial agglomeration on new urbanization. Therefore, this paper has certain significance of studying respectively the influence of Financial agglomeration degree on the urbanization of industry, population and space.

## **The Mechanisms of Financial Agglomeration's Effects on New Urbanization**

### **The Mechanisms of Financial Agglomeration's Effects on Urbanization of Industry**

The urbanization of industry is the intrinsic motivation and support of new urbanization, which is the key to solving the employment and entrepreneurship in big cities and small towns. The urbanization of industry refers not only to the secondary and tertiary industries gathering to towns and the tertiary industries' increased contributions to GDP ratio, but also to including the optimization and upgrading of industrial structure.

Financial agglomeration influences the urbanization of industry mainly through the following two ways: firstly, by accumulative effect, financial agglomeration can attract secondary and tertiary industries gathering to the towns nearby and boost the development of the tertiary industry. Financial agglomeration improves financial efficiency, which can save the cost of business transactions and attract corporate headquarters to flow to the financial gathering center; Financial agglomeration promotes financial innovation, providing more abundant products and more diversified financial service for the development of secondary and tertiary industries; Financial agglomeration promotes the development of financial industry and drives the development of related auxiliary industries serving for financial institutions or social intermediary services sectors, such as investment consulting, legal, rating certification, etc. Secondly, the financial agglomeration propels industrial innovation and the optimization and upgrading of industrial structure by strengthening financial functions. Financial agglomeration can strengthen financial risk management, information revealed, corporate governance, savings gathering and also facilitate the exchange, etc. The strengthening of financial capabilities will effectively guide the funds to industrial innovation projects and high value-added industries, promoting industrial innovation and the optimization and upgrading of industrial structure.

### **The Mechanisms of Financial Agglomeration's Effects on Urbanization of Space**

The urbanization of space is a carrier of the new urbanization and an important part of coordinating urban and rural development. In the aspect of Quantity, space urbanization means the increasing amounts of urbanization and the expanding scales of towns; In the aspect of quality, the urbanization of space means the integration of urban and rural infrastructure and the improvement of living environment.

Impacts of financial agglomeration on the urbanization of space are reflected in the following two aspects: Firstly, the financial agglomeration is conducive to expanding the urban scales and developing surrounding small towns. Financial agglomeration expands the scale of concentrated area city by the scale effect. In order to promote industrial development, infrastructure and ecological environment improvement of the surrounding small towns, It also Carries out capital, technology and industrial output to the surrounding areas by diffusion effect. Secondly, the financial agglomeration is conducive to improving the Infrastructure and ecological environment of gathering areas and

surrounding areas. On the one hand, the improved infrastructure and ecological environment are prerequisite for the establishment of the financial gathering area, so the process of financial agglomeration must be inevitably accompanied by improvements of the space environment in concentrated areas; On the other hand, as the financial media, Finance can provide a lot of money for optimizing and upgrading urban industrial structure, infrastructure and ecological environment construction.

### **The Mechanisms of Financial Agglomeration's Effects on Urbanization of People**

The urbanization of population is the core of new urbanization, which is also an important breakthrough for improving the quality of urbanization development. The urbanization of population is not only embedded in the population transferring from country to city, but more importantly in the improvement of the rural residents' income, the equalization of urban and rural public service and the citizenization of migrants, emphasizing the convergence of urban and rural lifestyles, improving people's livelihood in order to enhance their quality of life.

Financial agglomeration, mainly, affects the urbanization of population through three ways: At first, by the combined effect, the financial agglomeration facilitates the development of secondary and tertiary industries and township enterprises to increase employment opportunities, which can attract the population to gather in towns and help the transformation of rural surplus labor in situ. At the same time, it increases the proportion of urban population and non-farm payrolls effectively, while increasing the residents' income. The second, the financial agglomeration can not only broaden residents' investment channels through functional effects, providing residents with a more convenient financial services and popularizing the urban lifestyle, but also attract legal, accounting, auditing, consulting and other social service agencies stationed by the combined effect, forming the social service system of functioning, network coverage and service in place, improving the quality of life. The third, financial agglomeration perfects financial structure of surrounding small towns through spillover effects. The development of commercial insurance business is in favor of public service system and migrant's Citizenization.

### **An empirical analysis of the effects of financial agglomeration on new urbanization**

#### **The Index System and Evaluation Model**

In order to fully investigate the financial agglomeration effect on the new urbanization and reveal their mechanism, in this paper, location entropy of banking, securities and insurance are respectively taken as their agglomeration index, and the comprehensive index system constructed from the angle of quantity and quality to measure the quality of urbanization of industry, space and people to study the influence and impact strength of financial agglomeration on urbanization from three aspects.

Reference to other documents and data availability, this paper takes agglomeration level of banking, securities and insurance industry to represent the overall degree of financial agglomeration.

At present, it mainly uses location entropy coefficient (LQ), spatial Gini coefficient (G), E-G index, industrial geographic concentration index (EG index), Beh Finn Dahl (HHI) and CAD index to measure the degree of industrial agglomeration. Considering the data availability, this paper uses the location entropy coefficient (LQ) to measure China's eastern provinces of financial agglomeration degree.

New urbanization mainly includes the urbanization of industry, the urbanization of space and the urbanization of people. The unified requirements of urbanization for both quantity and quality make it hard for a single index to reflect the comprehensive level of industry urbanization, space urbanization and people urbanization. The method of principal components analysis is a widely used method of synthetic index that comprehensively reflects the research object information through turning multiple indicators or variables into several factors or variables by dimension reduction. Therefore, this paper, respectively from the angles of quantity and quality (as shown in Table 1), constructs the index system of new urbanization and gets the comprehensive scores of the eastern provinces in different years by principal component analysis to represent the comprehensive level of the provinces.

Table 1 Evaluation Index System of New Urbanization

Urbanization of industry (iu)	quantitative index	the proportion of GDP accounted for by the value of the third industry output	
	qualitative index	The employment proportion of the second industry and the third industry the standard discharge rate of industrial effluents the proportion of GDP accounted for by the expense in industrial pollution comprehensive utilization rate of industrial solid waste	
Urbanization of space (su)	quantitative index	per-capita road area	
		per-million-capita transit vehicle	
		per-land GDP	
	qualitative index	town gas penetration rate	
		town water penetration rate	
		green coverage rate in built-up area	
Urbanization of People (pu)	quantitative index	Per-capita green area	
		rate of life rubbish harmlessly treated	
		urbanization rate	
Urbanization of People (pu)	quantitative index	per-capita GDP	
		urban per-capita disposable income	
		Per-capita income ratio between urban and rural	
	qualitative index	Engel coefficient ratio between urban and rural	
		per-million-capita university degree holder	
		the proportion of urban fiscal expenditure accounted for by science technology and education expenditure	
Urbanization of People (pu)	quantitative index	Per-thousand-capita hospitals and health beds	

Considering the availability of data and model's requirements for time series length, this paper takes 2001-2012 years as the time span of the 10 Eastern Province to study financial agglomeration's influence on urbanization. Those data are collected from provinces' "Statistical bulletin of national economic and social development", "Financial statistics yearbook" and "Statistical yearbook" from 2002 to 2013.

The logical relationship between new urbanization and financial agglomeration is very complex, so it's not suitable to take the financial agglomeration variables as explanatory variables to analyze their effects on industry urbanization, space urbanization and people urbanization directly. Therefore, this paper selects the panel vector auto regressive (PVAR) model to establish the analysis framework that how financial agglomeration effects on urbanization. Before establishing the model, this paper makes a stationary test for each index by the methods of IPS test and LLC test, and the results show that all the levels of the variables values are stationary series and a PVAR model can be established. Therefore, three PVAR models are established to study the impacts of financial agglomeration on urbanization of industry, urbanization of space and urbanization of people. According to the AIC criterion, BIC criterion and HQIC criterion, a PVAR(2) model is set up in terms of location entropy of banking, securities and insurance and urbanization of industry as target variables or factors, and a PVAR(4) model and PVAR(1) model of location entropy of banking, securities and insurance and urbanization of space and of location entropy of banking, securities and insurance and urbanization of people, respectively.

### Calculation Results and Analysis

Analysis of Impulse Response Function: We can see from Figure 1, the agglomeration of banking industry, insurance industry and securities industry has significant influence on the industry of urbanization in the long term. When a positive impact is given to the banking industry, response of urbanization of industry has soared to around 10% in the short term and then decreases gradually to 0 in the fifth period, which indicates that the improvements of agglomeration of banking industry has significant effects on the industry of urbanization in the short term; When a positive impact is given to the insurance industry, response of industry urbanization has increased from the current 5% to 8% in

the first year and later the development level of industry urbanization goes up with time passing by. It demonstrates that the boost of agglomeration level of insurance industry plays a significant role and has long continuous effects in driving the development of urbanization of industry; When a positive impact is given to the securities industry, the response maintained at 4% from the current period to fourth years and the growth of the level of industry urbanization remains stable, which illustrates that improving the level of agglomeration of securities industry are conducive to the development of industrial urbanization in the long term.



Figure 1. Financial agglomeration and urbanization of industry

As shown in figure 2, the agglomeration of banking industry promotes the urbanization of space in the short term while the agglomeration of insurance industry and securities industry have long time effects on space urbanization. When a positive impact is given to the banking industry, response of urbanization of space has soared to 10% in the current period and reaches the maximum value -4% in the third year after turning briefly negative in the first year, while it has long time effects on space urbanization, which indicates that the deepening of banking industrial agglomeration promotes urbanization of space in the short term; When a positive impact is also given to the insurance industry, response of space urbanization is 5% in the current period and then has raised to 7% in the first year. In the second year it reduces to zero and later goes up in the third year and then keeps a relatively stable growth rate after peaking 4% in the fourth year. It indicates that insurance industry agglomeration significantly promotes the urbanization of space in the short run and this agglomeration also has pulling function in the long run. When the impact is given to the securities industry, it has fallen from 5% to 0 in eight years. That is to say, urbanization of space can get a boost in at least eight years.

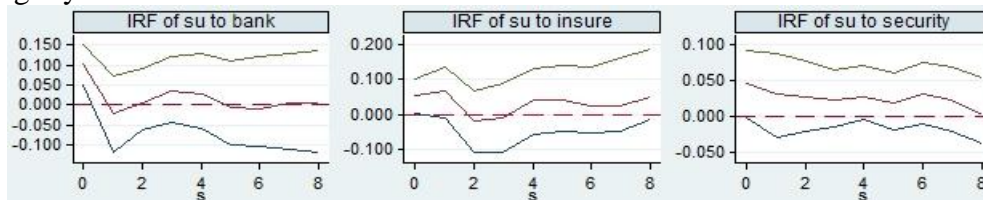


Figure 2. Financial agglomeration and urbanization of space

As shown in Figure three, the agglomeration of banking do not have significant influence on population urbanization in the short time but it has negative impact in the long time. And insurance industry has a persistent and remarkable negative impact on urbanization of people while the agglomeration securities industry has positive influence. When a positive impact is given to the banking industry, urbanization of people has had negative response since the second year and keeps relatively stable influence in the fourth year after getting to -4%. In other words, the higher the level of bank industrial agglomeration is unfavorable for the urbanization of people in the long run; When a positive impact is given to the insurance industry, urbanization of population has a negative response at the rate of 5% in the first period and declines steadily to -2.5% in the eighth year after reaching its maximal negative response of 8% in its first year. The results indicate that agglomeration of insurance industry will block the development of urbanization of population both in the short run and the long run. When the impact is given to the securities industry, the response of population urbanization is zero in the first period, and then it increases gradually to the rate of 5% in the fourth year before remaining stable. It shows that agglomeration of securities industry has a positive effect on the urbanization of population and this influence will remain stable in the long run.

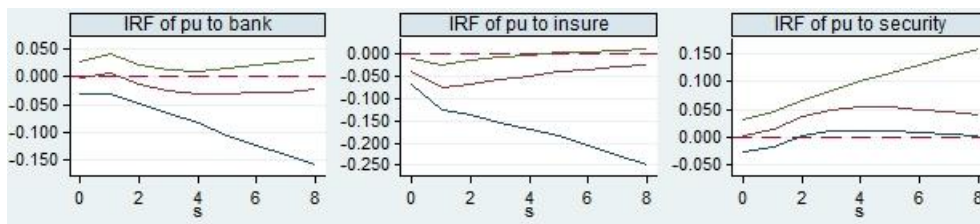


Figure 3. Financial agglomeration and urbanization of people

Analysis of Variance Decomposition: As the chart below shows, it is basically the same with the impulse response analysis results previously shown that the financial agglomeration has lagged influence on urbanization of industry and space, among which it has smaller influence on urbanization of industry in a short time and agglomeration of banking industry contributes most to urbanization of industry; that agglomeration of insurance industry contributes most to urbanization of space; that agglomeration of insurance and securities industry contributes less to urbanization of people; agglomeration of banking industry can promote urbanization in three aspects.

Table 2 The Results of Variance Decomposition

s	bank	insure	security	iu
3	0.091	0.009	0.003	0.784
4	0.140	0.010	0.014	0.776
5	0.177	0.017	0.025	0.772
6	0.209	0.020	0.038	0.769
7	0.234	0.027	0.047	0.769
8	0.255	0.032	0.053	0.769
	bank	insure	security	su
3	0.043	0.142	0.122	0.823
4	0.042	0.186	0.111	0.818
5	0.047	0.186	0.121	0.806
6	0.052	0.222	0.120	0.804
7	0.079	0.236	0.119	0.802
8	0.104	0.254	0.119	0.801
	bank	insure	security	pu
3	0.001	0.001	0.001	0.813
4	0.002	0.001	0.002	0.772
5	0.002	0.001	0.003	0.738
6	0.002	0.001	0.003	0.711
7	0.003	0.001	0.004	0.690
8	0.003	0.001	0.004	0.674

## The Overall Conclusion of VAR Model

Firstly, Financial agglomeration can effectively stimulate industrial development of urbanization, where the banking industrial agglomeration plays the most obvious role in promoting urbanization but mainly has short-term impacts; The degree of industrial and the securities industrial agglomeration have an increasingly longer persistent effect on the industrial development of Urbanization. This shows that the current funding of industry urbanization is mainly from the banking sector, but it is not enough to establish a modern service, strategic emerging, advanced manufacturing-based industrial system and enhance the technological innovation capability and high-end services relying solely on bank funds. In the long run, getting money from the insurance and securities industries is the most potential and effective way to broaden the financing channels of urbanization industry.

Secondly, The financial agglomeration playing the most obvious role in promoting the development of space urbanization, where the insurance industrial agglomeration plays the key role. Insurance industrial agglomeration has a significant promoting effect on the development of urbanization of space in the short term and has a stable stimulating effect in the long term, while the banking industrial agglomeration in the short term plays a role in promoting the development of

urbanization of space but the impact is relatively small. The securities industrial agglomeration has a more lasting impact on the development of urbanization of space. According to estimates, each additional urban population needs 8-10million municipal infrastructure investment[7], which shows that with the increase of urban population, municipal public facilities such as public transport, environment and sanitation, roads, bridges, water, heat supply, sewage treatment and landscaping, etc .have rapidly increasing demand for capital, especially for the medium and long term capital. The securities industrial agglomeration just provides financing markets and platform of medium and long term capital for construction of urbanization of space. Insurance funds can not only invest directly in in urban infrastructure and other real estate projects, but also can invest in urbanization projects through bonds, stocks and other markets indirectly.Statistics showed that the incremental scale of information management products including 2013 insurance infrastructure debt plan amounted to 345.2 billion, which filled the larger financing gap of special urban construction. Comparatively ,the support of banking industrial agglomeration for urbanization space is very limited.

Thirdly ,the function of financial agglomeration to promote urbanization of population is limited. Securities industrial agglomeration can effectively promote urbanization of population ,while the banking and insurance industries agglomeration are not conducive to improving the level of urbanization of population. It suggests that financial agglomeration does not have an effective function on the increased urban population, convergence of urban and rural lifestyles and improved quality of urban and rural life , hindering the development of urbanization of people to some extent, instead. The reason may be that the urbanization of people emphasize more on on the integration of urban and rural development and public service equalization problem, and the agglomeration effect of the eastern in the process of gathering financial resources is greater than the diffusion effect, which widen the gap between urban and rural areas to some extent.

Fourthly, the impact of the financial agglomeration on new urbanization has lagged behind. The impact of financial agglomeration on new urbanization can not be "immediate", mainly because changes in the degree of financial agglomeration transferring to the new urbanization development requires a process. Lag is inevitable.

## **Policy Recommendations**

### **Accelerating the Financial Agglomeration of Small and Medium Towns to Promote New Urbanization**

In the process of new urbanization, finance should consider overall situation on the service object. When focusing on the big cities, we must also pay attention to the needs of small towns[8]. Small towns , a special form between urban and rural transition zones , is the key of the integration of urban and rural construction. Promoting quality financial resources gathering to small towns is of great significance to strengthen the integration of urban and rural areas and improve the quality of new urbanization. Promoting the agglomeration of financial resources of small towns not only needs the efforts of financial institutions, but also needs the support of all levels of government. Government institutions can use industrial policy to promote financial agglomeration actively and strengthen cooperation with other regional governments to promote regional agglomeration of finance, promoting the development of new urbanization from three aspects: controlling financial risks, increasing support for agriculture and strengthening urban and rural financial linkages.

### **Highlighting the Focal Points of the Support of Financial Resources to Promote the Urbanization of Industry**

Financial resources are limited. To improve the efficiency of resources, it is necessary to highlight the focal points of the support of financial resources. Therefore, the financial system must strengthen support for strategic emerging industries and high value-added specialty industrial industries, promoting the optimization and upgrading of industrial structure, giving full play to the labor absorptive capacity of the secondary and tertiary industry (especially the tertiary industry), increasing the residents' income, optimizing "hematopoietic function" of the urbanization construction. On the

one hand, the government may introduce relevant measures to encourage and guide the flow of financial resources to strengthen financial supporting for key industries; on the other hand, the government should encourage qualified enterprises to broaden the financing channels and raise funds by issuing enterprise bonds, corporate bonds and other financial tools.

### **Building Multi-level Financial System to Support the Urbanization of Space**

The urbanization of space has enormous medium and long term funding gap, any attempt to raise enough money for the urbanization of space must under the premise of breaking previous single financing channel based on financial funds and bank loans. In addition, it is imperative to build a multi-level financial system. First of all, to enhance the ability of these institutions against risks and expand the scale of urbanization construction loan, we must expand the quantity and size of bank assets of financial institutions; Secondly, we can use the BOT (Build - Operate - Transfer), BTO (Build - Transfer - Operate) and other project finance methods to revitalize social capital; Thirdly, to strengthen the Innovation of financial products, we can try to develop infrastructure asset securitization and infrastructure industry investment fund. However, these financial derivatives are characterized by risks, therefore, to provide a good environment for the financial infrastructure of securitization and industry funds., government should perfect relevant laws and regulations.

### **Developing "Grassroots Finance" to Promote the Urbanization of People**

In order to achieve the urbanization of population better and narrow the gap between urban and rural areas effectively, we should develop "grassroots finance" and build differentiated financial organization system vigorously. The key of narrowing the gap between urban and rural areas lies in improving the infrastructure of small towns and increasing outlets and staffing of the small towns. So under the premise of combining specialties of all kinds of new urbanization, we should develop grassroots' financial institutions facing with community, rural micro enterprises and agriculture, countryside and farmers, actively guiding more financial resources to flow to companies and individuals which are the most basic and the most in need.

### **References**

- [1] Chinese Academy of Social Sciences Institute of Urban Development and Environment .Chinese urbanization Quality Report [N].China Economic Weekly.2013-03-12.
- [2] Ling ZHONG, Shan HE. Urban Development Report of Chinese Financial Center:Eastern area lead and central area behind.21st Century Business Herald.2012-07-20.
- [3] Jun LIU, Jie-Yu HUANG and Li-jun CAO. Construction of evaluation index system of the new urbanization [J] .Jiangxi Social Sciences .2013 (8): 72-76.
- [4] Yi DING, Jing-Xia LI and Lin LI. Financial agglomeration and regional economic growth [J]. Macroeconomic, 2010(2):20-30.
- [5] Xian-dong ZENG, Ke-Jin XIE. The analysis of driving effect of financial agglomeration on regional economic [J].Financial Development Research. 2011 (7):31-37.
- [6] Ya-Min LI, Hao WANG. The research about financial agglomeration and strategic development in the City of London——Also on the Implications for the construction of Shanghai international financial center [J].Shanghai financial.2010(11):79-83.
- [7] Jie LIAO. The rate of Hunan urbanization was 46.5%, quality improvement and capacity expansion will become the breakthrough of county town.Rednet.2013-02-22.
- [8] Information on <http://www.china.com.cn>.
- [9] Yong HUANG, Zhao-Hua XIE. The support effect analysis of Urbanization construction [J].Theoretical exploration, 2008(3):91-93.