Journal of Economics and Management Sciences; Vol. 8, No. 3; 2025
ISSN 2576-3008 E-ISSN 2576-3016
https://doi.org/10.30560/jems.v8n3p75

The Impact of Financial Agglomeration on the Real Economy

Jinhong Zhang[1]

[1] University of Shanghai for Science and Technology (Business School), China

Correspondence: Jinhong Zhang, University of Shanghai for Science and Technology (Business School), Shanghai, China.

Received: May 21, 2025; Accepted: May 31, 2025; Published: June 3, 2025

Abstract

This paper investigates the impact of financial agglomeration on China's real economy, especially during the critical transition of the 14th Five-Year Plan period. Drawing on theories of economic growth and industrial agglomeration, it explores how financial concentration enhances resource allocation efficiency and generates scale and spillover effects. Using panel data from 2007 to 2024 and classifying finance into banking, insurance, and securities, the study finds that financial agglomeration—especially in banking—significantly promotes real economic development. Through static panel regression analysis, the results highlight the positive role of financial clustering in supporting high-quality economic growth, offering insights and policy recommendations for aligning financial development with the needs of the real economy.

Keywords: real economy, financial agglomeration, static panel regression

1. Introduction

1.1 Research Background and Significance

1.1.1 Research Background

With the growing maturity of international financial operations and increasing cross-border trade, the scale of global transactions continues to expand, making the regional influence of the financial sector more pronounced. Many countries are concentrating financial industries in specific regions to leverage external economic effects and promote regional and national economic development.

Globally renowned financial hubs include Wall Street in New York, the City of London, Tokyo, and Hong Kong. These areas are characterized by a dense concentration of financial institutions like banks, securities firms, and insurance companies. For instance, within just a few square kilometers, Wall Street houses dozens of large financial firms, whose capital flows can influence national economies and even the global economic landscape. International experience shows that financial agglomeration zones in major cities often generate immense economic vitality and effectively stimulate the real economy.

In China, financial agglomeration strategies are beginning to take shape as the economy grows rapidly. First-tier cities such as Beijing and Shanghai have made significant strides in developing financial districts like Beijing Financial Street and Shanghai Lujiazui(Liu et al., 2024). These areas now host the nation’s densest clusters of financial resources. With China’s growing national strength and global influence, these zones are drawing international attention. Second- and third-tier cities, such as Jinan’s Hanyu Jin’gu, are also developing local financial hubs. Spatial analysis reveals that financial resources in such zones account for up to a quarter of some cities’ economic output, with notable contributions to economic growth. Geographical factors are becoming crucial in driving technological innovation and economic growth, with economic resources increasingly concentrated in core financial districts of major cities, serving as key pillars of China’s real economy.

Currently, China's urbanization and financial agglomeration levels are still relatively low, but the country has vast economic development potential. As urbanization progresses, resource allocation improves, and the financial market becomes more regulated, financial agglomeration will likely play an even more vital role in China’s economic development, becoming a key driver of high-quality growth.

1.1.2 Research Significance

China’s real economy has made considerable progress in recent years, thanks not only to the expansion of the financial industry but also to proactive fiscal and monetary policies during economic downturns. However, the excessive money supply has led to inefficiencies in resource utilization. Large corporations, often leveraging

concepts like “Internet Plus,” have attracted capital but diverted funds into real estate and financial markets. These sectors, while appearing prosperous, are often accompanied by asset bubbles and systemic risks, weakening the foundations of economic growth. It is clear that stimulating the economy through monetary expansion is unsustainable.

Since the launch of the 14th Five-Year Plan, China has actively pursued economic restructuring and upgrading. The government is enhancing financial regulatory frameworks and strengthening risk prevention mechanisms, while also implementing more targeted macroeconomic policies to improve the financial sector's support for the real economy. In this context, financial agglomeration has emerged as a focal point for policy and academic research due to its role in improving financial efficiency and resource allocation (Al et al., 2022). As 2025 marks both the end of the 14th Five-Year Plan and a pivotal year for economic transformation, exploring how financial agglomeration supports the real economy is both urgent and strategically significant. It informs economic models, industrial policies, and financial reforms vital to China’s future.

1.2 Literature Review

1.2.1 Review of Domestic and International Literature

As early as 1915, American economist Powell examined the spatial aspects of financial development. With continued growth in the financial industry, scholars increasingly recognized its spatial characteristics (Buera & Shin, 2008), making financial agglomeration a key research topic. The Marshall School of Economics also discussed financial agglomeration, emphasizing its importance for large urban clusters. As industrial spatial spillover occurs, agglomerated areas benefit from lower costs and more efficient resource use.

Kindleberger (1978), from a functional perspective, described how clustered financial institutions form financial centers that improve capital mobility, reduce transaction costs for real sectors, and enhance inter-industry information exchange, leading to scale effects. Audretsch and Feldman (2006) noted that while spatial distance can hinder technological diffusion, it does not prevent knowledge spillovers in financial clusters. Enterprises in agglomeration zones learn from each other, improving innovation capabilities. Financial agglomeration also reduces transaction costs and provides firms with easier, cheaper financing (Kong et al., 2022), helping them expand and innovate, thus increasing domestic value-added in exports (Yang & Liu, 2024).

Guan et al. (2019) argues that financial agglomeration and financial innovation jointly influence the real economy. While agglomeration generally promotes growth, innovation shows a U-shaped effect—only beyond a threshold does it significantly benefit the real economy. Guo et al. (2020) suggest external economies emerge from inter-institutional cooperation, talent availability, and information exchange, outweighing potential negative externalities from competition. Local network effects, especially with complementary industries, also amplify the positive externalities of financial clusters.

Dong et al. (2019) found that financial agglomeration positively impacts the real economy across China’s regions, though less so in central and western areas due to lower urbanization, infrastructure, and talent pools. Tan Peng adds: (1) The central and western regions lag behind the east in population density, urbanization, and infrastructure; (2) Although financial agglomeration is beneficial nationwide, its impact is most pronounced in the east; (3) Excessive government intervention in central and western financial agglomeration may backfire due to nonlinear regional responses.

1.2.2 Literature Evaluation

Overall, most scholars agree that financial agglomeration yields significant scale (Zhang et al., 2024) and knowledge spillover (Yuan et al., 2020) effects, reduces financing risks (Abegaz & Nene, 2022), and promotes financial innovation. Competition and collaboration among institutions enhance financial efficiency (Qin et al., 2024). Financial clusters also enhance city branding and exert broad economic influence through trickle-down effects.

However, some empirical studies highlight that China’s financial agglomeration is still in its infancy and often reliant on government-led initiatives, which may disproportionately benefit state-approved firms while marginalizing private enterprises. Regional disparities also persist, with eastern regions deriving greater real economic benefits from financial agglomeration, and some years even witnessing adverse effects in less-developed areas. This underscores the need for coordinated regional and financial development strategies.

1.3 Research Content and Methods

1.3.1 Research Content

This paper aims to explore the impact mechanisms and regional disparities of financial agglomeration on the real economy, focusing on the differing effects across eastern, central, and western China. The main areas of study include: (1) Theoretical foundations and conceptual framework: Reviewing global definitions, stages, characteristics of financial agglomeration, and its relationship with the real economy; (2) Mechanisms of impact: Exploring how financial agglomeration affects the real economy through scale effects, knowledge spillovers, and financing convenience; (3) Regional comparison: Analyzing how varying levels of financial agglomeration influence the real economy across China's regions; (4) Policy recommendations: Proposing differentiated strategies to enhance financial agglomeration and support real economic growth, especially in central and western areas.

1.3.2 Research Structure

The paper is structured as follows:

Chapter 1: Introduction – background, significance, literature review, and research outline; Chapter 2: Theoretical framework and mechanism – overview of relevant theories including industrial agglomeration, new economic geography, and financial development, leading to the study's analytical framework; Chapter 3: Empirical model and data – introducing the econometric model, data sources, and variable definitions; Chapter 4: Empirical analysis and discussion – regression analysis of regional data to examine the effects and heterogeneity of financial agglomeration on the real economy; Chapter 5: Conclusions and policy recommendations – offering suggestions for optimizing financial agglomeration and promoting high-quality economic growth, while summarizing key findings and study limitations.

1.3.3 Research Methods

(1) Literature Review: Analyzing related studies to clarify research direction, content, and methodology.

(2) Control Variables: Including variables such as population density (rk), infrastructure level (tie), and urbanization rate (cit) to ensure robust empirical analysis.

(3) Theoretical and Empirical Analysis: Drawing on relevant theories to explore mechanisms of impact. Data is collected and variables are selected to represent real economic performance. Using static panel regression, the study empirically evaluates the relationship between financial agglomeration and real economy performance.

2. Theoretical Foundations

2.1 Conceptual Definitions

2.1.1 Financial Agglomeration

As the name suggests, financial agglomeration refers to the geographic concentration of financial institutions and their related service industries (such as asset appraisal, tax processing, legal consulting, etc.) within a specific area. This concentration forms a financial ecosystem characterized by specialized division of labor and resource sharing. Such agglomeration improves the allocation efficiency of financial resources through economies of scale and network effects.

2.1.2 Real Economy

The real economy includes sectors that produce tangible goods such as industry and agriculture, as well as non-physical sectors like education and certain services. However, according to the Federal Reserve's classification, real estate and financial industries are not considered part of the real economy. Therefore, in this paper, the real economy is defined as GDP minus the output of the real estate and financial sectors.

2.1.3 Location Quotient (LQ)

Also known as the specialization ratio, the location quotient measures the degree of specialization of a certain industry in a specific region compared to the national level. A value greater than 1 indicates high specialization and agglomeration of that industry in the region. It is a key tool for analyzing regional industrial comparative advantages and agglomeration levels.

2.2 Theoretical Basis

2.2.1 Industrial Agglomeration Theory

Industrial agglomeration is a prominent economic form where similar or interrelated industries are highly concentrated in a geographic area, creating economies of scale. Within these regions, enterprises cooperate and compete with each other. The resulting scale economies reflect the net effect of both positive and negative externalities. The concentration of similar or related firms facilitates labor market sharing and reduces labor costs.

Agglomeration attracts abundant resources and lowers financing costs. The availability of specialized intermediate products and services further reduces production costs. Technological spillovers from innovation also reduce production costs. Although competition among firms may cause certain negative effects, such as increased transport costs, industrial agglomeration generally exhibits significant economies of scale.

This paper argues that industrial agglomeration supports enterprise development within financial clusters. Particularly for the financial industry, which requires extensive capital flows, the positive externalities of resource attraction emphasized in agglomeration theory are especially beneficial.

2.2.2 Economic Growth Theory

Economic growth has been defined differently over time by various schools of economic thought. In The Wealth of Nations, Adam Smith defined it as the continuous provision of diverse goods and increased per capita supply of goods and services, reflected in sustained growth in total real output.

The neoclassical growth model developed by Solow (1956) and Swan (1956) builds upon Keynesian theory and introduces a two-sector economic model:

Y＝F(K，L), which means that when technology level A is constant, the total economic output, Y depends on capital , K and labor , L Savings can boost short-term growth but have minimal long-term effects.

Modern endogenous growth theories, however, treat technology A as an endogenous factor, arguing that knowledge and human capital development influence technological progress.

2.3 Mechanism of Financial Agglomeration's Impact on the Real Economy

The positive impact of financial agglomeration on the real economy can be explained through the following mechanisms:

(1) Improved Resource Allocation Efficiency

In regions where financial institutions are concentrated, mutual interaction and competition can effectively improve capital utilization efficiency and service quality. The principle of "survival of the fittest" applies—companies with low capital utilization efficiency may lose out in a fiercely competitive market, thus pushing them to improve their capital use. Moreover, the financial industry demands highly skilled and educated professionals. Financial agglomeration attracts such talent, enabling institutions to better serve the real economy and allocate resources more effectively. Additionally, when professionals move between institutions, they bring with them valuable experience and knowledge, promoting the exchange of financial expertise. In China, financial agglomeration zones are often key development projects and attract significant funding. As a result, financial institutions have more resources to invest in research related to resource allocation, creating a "knowledge spillover" effect that ultimately improves the level of service provided to the real economy.

(2) External Economic Effects

Financial agglomeration increases the scale of the local financial industry and expands financing channels and capital liquidity within a region or province, thereby reducing financing costs. Furthermore, finance is an information-intensive industry. Agglomeration facilitates easier information exchange among financial institutions, between industries and financial sectors, and across different regions. This improves access to industry-specific financial information and promotes the development of various sectors. Lastly, financial agglomeration creates a branding effect. Since financial agglomeration in China is still in its early stages, regions that establish such zones often become known not only for finance but also as tourist destinations. For example, Pudong's Banking Street in Shanghai has become a financial landmark. This reduces the need for marketing by local financial institutions, allowing them to redirect resources toward financial product development, which helps improve the allocation of economic resources.

(3) Network Effects

When financial institutions concentrate in a particular region, complementary industries such as accounting firms, asset appraisal agencies, and law firms also tend to cluster there. This significantly promotes the development of these supporting sectors. For the real economy, this kind of "one-stop" service model provides more comprehensive financial and related services, significantly reducing both the time and cost required for financing.

3. Analysis of the Current State of Real Economy and Financial Agglomeration in China

3.1 Status of the Real Economy in China

3.1.1 Measurement Method of the Real Economy

To effectively represent the level of real economic development, this paper follows the methodology of Zhang et al. (2016) and Wu et al. (2020), excluding the financial and real estate sectors from regional GDP. The remaining GDP is logarithmically transformed to represent the real economy. Both real economic growth rate and total output are used as indicators.

3.1.2 Current Situation of China's Real Economy

As the backbone of national development, the real economy consists of three sectors: primary (e.g., agriculture), secondary (e.g., heavy industry), and tertiary (e.g., internet and services). Since the early 2000s, China's real economy has shifted from low-end industries to high-tech sectors such as the internet. This shift has led to increased digitization of consumption, improved product quality, and greater personalization (Cull et al., 2022; Ma et al., 2024; Wang & Li, 2024; Zhang & Zhou, 2025).

GDP alone reflects economic scale, not future trends, so both GDP total and growth rate are used. From 2007 to 2024, China's real economy grew approximately sixfold. This growth stems from market-oriented reforms and the opening up of China's economy, which attracted foreign investment and expanded domestic markets. Improved credit systems encouraged consumption and investment, reducing savings bias and invigorating domestic demand. The rise of the internet economy has driven advances across manufacturing, industry, and agriculture.

Despite steady growth, the real economy now faces structural adjustment and quality development challenges. Since the 2008 global financial crisis, China launched a RMB 4 trillion stimulus in 2009, alongside active fiscal and loose monetary policies, boosting short-term recovery. From 2009 to 2011, China's rapid rebound made it a key driver of global recovery. However, this period also sowed structural issues such as local debt, real estate bubbles, and overcapacity.

After entering the "new normal" post-2012, China's growth slowed. External demand weakened and internal reforms shifted the economy from factor-driven to innovation-driven. By 2015, overcapacity in traditional heavy industry became severe, prompting the government to implement the "Three Cuts, One Reduction, One Improvement" strategy (cut overcapacity, reduce inventory, deleverage, reduce costs, and strengthen weak links). From 2016 to 2019, industrial upgrading under supply-side structural reform stabilized growth. Financial reforms like interest rate liberalization and private enterprise support improved financing conditions.

The 2020 COVID-19 outbreak disrupted growth, particularly for manufacturing, exports, and SMEs. China adopted measures such as monetary easing, fiscal transfers, and tax reductions. Despite setbacks, China was the only major economy to post positive growth in 2020. From 2021 to 2024, recovery continued, driven by innovation and green development policies. Key policy themes included "re-shoring of manufacturing," "advanced manufacturing," and "new quality productivity." Financial policies emphasized "returning to fundamentals and serving the real economy," with more funding channeled to SMEs, tech firms, and green sectors.

In summary, from 2007 to 2024, China's real economy experienced a transformation from rapid expansion, through crisis and policy-driven recovery, to structural adjustment and high-quality development. Although short-term growth slowed, long-term trends show a stronger, more rational industrial foundation, transitioning from quantity-driven to quality-driven growth, laying the groundwork for sustainable development.

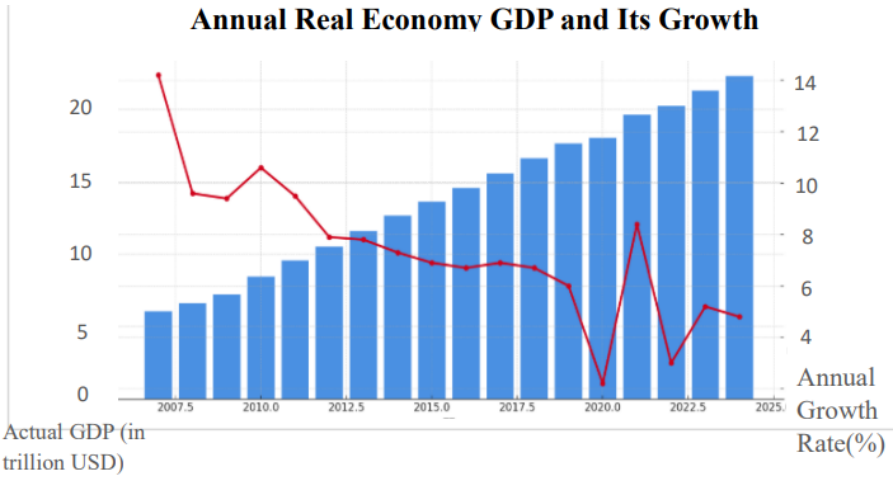

Figure 1. Real Economy from 2007 to 2024

3.2 Current Development Status of Financial Agglomeration in China

Financial agglomeration refers to the concentration of a large number of financial firms and financial economic resources in a limited area, forming a specific financial organizational structure. The financial industry is generally divided into banking, securities, and insurance sectors. To accurately reflect financial agglomeration, this study uses urban population, urbanization rate, and infrastructure development as control variables, and adopts the location quotient (LQ) of each region as the main indicator to measure the level of financial agglomeration.

With the continuous deepening of China's economic reforms and the gradual opening of financial markets, financial agglomeration has become a crucial force driving regional economic coordination and development. In cities like Beijing, Shanghai, and Shenzhen, financial resources are highly concentrated, forming several internationally influential financial centers. Financial agglomeration in China has also expanded beyond the traditional banking sector to include securities, insurance, trusts, and fintech. The rise of fintech enterprises such as Ant Financial and JD Digits signals a shift from "factor agglomeration" to "innovation agglomeration."

The eastern coastal regions of China, due to well-developed infrastructure and high capital density, have significantly outperformed the central and western regions in terms of real economic development. The central and western regions still rely heavily on resource-based industries and traditional manufacturing, with insufficient growth momentum and slow industrial transformation.

The trend of the real economy "shifting from real to virtual" has not been fundamentally reversed. Financing difficulties for small and medium-sized enterprises (SMEs) remain prominent. High-end manufacturing and core technologies are still heavily dependent on imports. The depth and efficiency of financial capital serving the real economy need improvement. Similarly, the spatial distribution of financial resources in China presents a pattern of "strong east, weak west" and "high south, low north." The eastern coastal areas—particularly the Yangtze River Delta, Pearl River Delta, and Bohai Economic Rim—have a much higher concentration of financial resources than inland areas. For example, Shanghai has developed a comprehensive financial services system, including securities, banking, futures, insurance, and funds, making it China's most prominent financial center.

In practice, the relationship between financial agglomeration and the real economy is not a one-way "financial promotion" but a dynamic, interactive process. Financial agglomeration provides a more efficient capital allocation mechanism, benefiting financing for high-growth industries such as manufacturing and technology enterprises. In return, the development of the real economy provides a solid demand base and growth space for the financial industry. However, over-concentration of financial resources in some regions has led to a "shift from real to virtual," reducing the efficiency of resource allocation.

3.2.1 Measurement Method of Location Quotient

To measure the agglomeration level of the financial industry, this study adopts the location quotient (LQ) method as proposed by Li et al. (2019), and Ma et al. (2021). The financial sector is divided into banking, insurance, and securities. The location quotient LQ uses 1 as the threshold: an LQ greater than 1 indicates that the region's share in that industry is higher than the national average, suggesting a higher level of agglomeration and specialization. An LQ less than 1 indicates a lower level of agglomeration. The formula is as follows:

General form： $\mathrm{LQ}_{it}^{sector} = \frac{(sector_{it}/gdp_{it})}{(sector_t/gdp_t)}$

Banking LQ： $fj_{it} = \frac{(fin_{it}/gdp_{it})}{(fin_t/gdp_t)}$

Insurance LQ： $fj_{it} = \frac{(fin_{it}/gdp_{it})}{(fin_t/gdp_t)}$

Securities LQ： $dg_{it} = \frac{(gu_{it}/gdp_{it})}{(gu_t/gdp_t)}$

Where: fj is the banking agglomeration index, fin is the amount of local and foreign currency loans in the banking sector, gdp is the regional gross domestic product, db is the insurance agglomeration index, b is the insurance premium income, dg is the securities LQ, gu is the total market capitalization of stocks.

3.2.2 Measurement of Banking Agglomeration

As the earliest developed financial system in China, the banking system has a long history. Banking agglomeration emerged early, with Shanghai's Pudong Bank Street and Beijing's Bank Street serving as early examples of

agglomeration. Overall, China's banking agglomeration began early, has developed steadily, and has strong potential.

Table 1. Location Quotient of Banking Agglomeration by Region (2007–2024)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Anhui	1.178	1.116	1.13	1.208	1.267	1.279	1.262	1.212	1.216	1.219	1.227	1.239	1.252	1.3	1.331	1.333	1.276	1.278
Beijing	2.714	2.659	2.657	2.826	2.904	2.675	2.807	2.841	2.832	2.739	2.572	2.482	2.452	2.369	2.268	2.214	1.98	1.923
Fujian	0.949	0.97	1.03	1.126	1.232	1.298	1.324	1.242	1.249	1.274	1.275	1.28	1.279	1.276	1.244	1.193	1.133	1.117
Guangdong	5.642	5.345	5.242	5.044	4.757	4.714	4.783	4.961	4.952	5.194	5.553	5.902	6.541	7.709	8.15	8.433	8.168	7.723
Gansu	0.51	0.487	0.479	0.463	0.445	0.45	0.443	0.443	0.436	0.436	0.444	0.441	0.434	0.427	0.432	0.435	0.45	0.459
Guangxi	1.796	1.764	1.85	1.961	1.976	1.989	2.051	2.19	2.187	2.201	2.221	2.222	2.223	2.201	2.21	2.227	2.268	2.283
Guizhou	5.246	5.11	5.493	5.734	5.828	5.637	5.373	5.202	5.4	5.291	5.107	5.079	5.172	5.233	5.335	5.335	5.471	5.49
Hainan	10.82	10.02	9.883	10.45	10.3	9.826	9.542	9.955	10.16	10.84	11.12	11.46	11.53	12.57	12.74	12.6	11.76	11.15
Hebei	0.967	0.868	0.824	0.798	0.818	0.803	0.793	0.84	0.844	0.84	0.858	0.904	0.956	1.015	1.046	1.103	1.129	1.118
Henan	0.897	0.83	0.79	0.728	0.726	0.684	0.638	0.626	0.615	0.597	0.595	0.61	0.627	0.644	0.666	0.677	0.683	0.704
Heilongjiang	2.014	1.838	1.7	1.44	1.412	1.383	1.298	1.402	1.442	1.461	1.473	1.52	1.657	1.992	2.042	2.099	2.054	1.964
Hubei	1.471	1.384	1.332	1.284	1.28	1.241	1.181	1.159	1.126	1.049	1.025	1.016	1.008	1.047	1.07	1.086	1.089	1.095
Hunan	1.101	1.06	1.048	1.035	1.028	1.014	0.991	0.961	0.937	0.921	0.911	0.92	0.917	0.927	0.936	0.976	1.018	1.027
Jilin	4.402	4.113	3.935	3.576	3.604	3.723	3.237	3.031	2.922	2.802	2.681	2.781	2.957	3.393	3.518	3.474	3.477	3.497
Jiangsu	0.44	0.48	0.503	0.505	0.521	0.536	0.539	0.538	0.529	0.522	0.519	0.511	0.5	0.487	0.493	0.492	0.502	0.518
Jiangxi	2.069	1.98	1.937	1.892	1.843	1.83	1.775	1.833	1.793	1.761	1.81	1.855	1.939	2.047	2.112	2.251	2.312	2.369
Liaoning	1.265	1.242	1.279	1.25	1.251	1.216	1.219	1.239	1.36	1.374	1.384	1.405	1.433	1.492	1.514	1.501	1.476	1.466
Inner Mongolia	2.592	2.236	2.21	2.283	2.43	2.407	2.463	2.474	2.64	2.872	2.874	2.927	3.028	3.116	3.166	3.211	2.983	2.783
Shandong	0.505	0.525	0.505	0.515	0.514	0.507	0.501	0.491	0.5	0.512	0.508	0.498	0.497	0.481	0.48	0.481	0.488	0.487
Shanxi	3.156	2.877	2.799	2.722	2.697	2.536	2.352	2.544	2.471	2.39	2.494	2.673	2.793	3.062	3.192	2.886	2.866	2.861
Shaanxi	3.397	3.277	3.047	2.803	2.653	2.583	2.506	2.507	2.422	2.369	2.275	2.287	2.319	2.485	2.458	2.395	2.399	2.37
Shanghai	1.8	1.756	1.766	1.88	1.835	1.846	1.875	1.738	1.729	1.724	1.702	1.635	1.552	1.554	1.508	1.516	1.478	1.455
Sichuan	1.353	1.269	1.236	1.21	1.208	1.197	1.236	1.273	1.259	1.216	1.187	1.199	1.207	1.225	1.211	1.181	1.15	1.144
Tianjin	3.887	4.582	4.547	4.627	4.812	5.183	5.034	5.414	5.501	5.474	5.413	5.396	5.371	5.624	5.662	5.671	5.573	5.354
Xinjiang	4.075	3.712	3.588	3.423	3.152	3.111	2.856	3.089	3.169	3.368	3.597	3.801	3.885	4.126	4.261	4.181	3.826	3.755
Yunnan		2.56	2.582	2.914	3.048	3.038	3.063	3.049	3.083	2.954	2.775	2.643	2.63	2.731	2.65	2.553	2.435	2.312
Zhejiang	0.763	0.833	0.899	0.975	1.022	1.056	1.133	1.141	1.12	1.117	1.104	1.079	1.052	0.991	0.938	0.922	0.955	0.973
Chongqing	2.583	2.625	2.627	2.867	2.861	2.95	3.039	3.12	3.145	3.061	3.024	3.005	2.935	2.847	2.705	2.674	2.758	2.766

According to Table 1, due to the long history of banking development, most regions have a location quotient above 1, indicating a high level of banking agglomeration. Notably, even some western regions such as Guangxi have an LQ around 1. This shows that with the continued development of China's financial sector, the government and relevant departments are increasingly supporting banking agglomeration in the west through initiatives like the Western Development Program and targeted poverty alleviation. Infrastructure improvements have also attracted financial talent, strengthening the specialization of the banking industry in these areas.

In the eastern regions, except for Shandong and Jiangsu, the LQ is generally above 1. This may be because the ratio of foreign and domestic currency loans to regional GDP in Shandong is relatively low. Although the eastern region has a higher GDP, the LQ remains above 1, demonstrating that banking agglomeration levels are still high. Overall, the level of banking agglomeration in China is relatively high, and the gap between western and eastern/central regions is not significant.

3.2.3 Measurement of Insurance Agglomeration

The insurance industry also developed relatively early in China. Initially, companies like Ping An and China Life used face-to-face marketing to introduce the concept of insurance to the public. As national income increased and living standards improved, people's awareness of risk prevention also grew, leading to the broader recognition of

insurance. Insurance agglomeration is a relatively recent phenomenon in China. There are few prominent clusters, and agglomeration often results from multiple companies coincidentally locating in financial hubs. However, as the industry continues to develop, its agglomeration potential is significant.

From Table 2, most regions have an LQ greater than 1, with only a few exceptions. Although insurance agglomeration is still in its early stages, it is growing. Some regions with LQ below 1 are showing upward trends, indicating increasing emphasis on insurance agglomeration. It's worth noting that some eastern regions like Shandong and Jiangsu have lower insurance agglomeration levels. This may be because these regions are still dominated by heavy industry and traditional manufacturing, and their financial and insurance sectors remain underdeveloped. On the other hand, regions like Guangdong and Beijing have high levels of insurance agglomeration, likely due to advanced and highly specialized insurance sectors. In the western regions, except for Gansu, most areas also show an LQ above 1. Overall, major cities exhibit high levels of insurance agglomeration, and the western regions are also gradually catching up.

Table 2. Location Quotient of Insurance Agglomeration in China (2009–2023)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Anhui	1.511	1.693	1.663	1.725	1.743	1.584	1.506	1.432	1.341	1.339	1.389	1.343	1.442	1.411	1.387
Beijing	2.43	2.777	2.645	2.32	2.425	2.617	2.294	2.375	2.275	2.348	2.27	2.319	2.159	1.817	1.877
Fujian	1.287	1.337	1.307	1.26	1.21	1.159	1.174	1.173	1.251	1.242	1.177	1.071	1.01	0.95	0.901
Guangdong	5.278	5.364	5.351	5.453	5.765	5.522	5.16	5.296	5.321	5.238	5.766	5.585	5.992	6.066	5.994
Gansu	0.416	0.44	0.47	0.477	0.465	0.467	0.475	0.484	0.49	0.51	0.502	0.528	0.511	0.521	0.543
Guangxi	1.928	1.85	1.813	1.734	1.68	1.622	1.778	1.851	1.919	1.844	1.873	1.78	1.862	1.927	1.799
Guizhou	3.979	4.454	4.182	3.886	4.028	4.001	4.102	3.97	4.008	3.771	3.566	3.382	3.391	3.545	3.402
Hainan	6.759	6.858	7.138	6.722	6.45	6.778	7.384	7.453	7.932	7.759	8.635	7.808	0	8.806	8.579
Hebei	1.188	1.168	1.24	1.296	1.444	1.378	1.35	1.333	1.369	1.352	1.448	1.469	1.5	1.516	1.494
Henan	0.964	0.893	0.906	1.026	0.99	1.064	1.149	1.066	1.051	1.002	1.012	0.988	1.105	1.14	1.087
Heilongjiang	2.305	2.327	1.929	2.296	2.413	2.336	2.145	2.134	2.188	2.594	2.831	2.745	3.45	3.276	3.144
Hubei	1.27	1.297	1.219	1.386	1.36	1.341	1.423	1.242	1.202	1.188	1.197	1.155	1.27	1.261	1.31
Hunan	1.218	1.226	1.308	1.409	1.334	1.244	1.227	1.171	1.138	1.104	1.116	1.068	1.17	1.263	1.222
Jilin	3.589	3.517	3.51	3.407	3.381	3.351	3.072	2.906	3.026	3.271	3.818	4.035	4.257	4.158	4.112
Jiangsu	0.645	0.571	0.524	0.5	0.504	0.486	0.503	0.506	0.503	0.494	0.477	0.506	0.56	0.509	0.52
Jiangxi	2.35	2.183	2.019	2.135	2.031	2.018	1.931	1.918	1.986	2.105	2.24	2.086	2.175	2.056	2.003
Liaoning	1.409	1.422	1.374	1.393	1.34	1.463	1.278	1.281	1.299	1.398	1.547	1.547	1.593	1.405	1.379
Inner Mongolia	2.341	2.281	2.443	2.47	2.521	2.489	2.723	2.701	2.721	2.686	2.853	2.807	2.916	3.198	3.168
Shandong	0.573	0.53	0.549	0.522	0.541	0.553	0.572	0.577	0.587	0.574	0.582	0.6	0.638	0.669	0.661
Shanxi	3.099	3.292	3.275	3.29	3.529	3.234	3.132	3.138	3.235	3.341	3.866	3.893	1.704	3.375	3.248
Shaanxi	2.826	2.871	2.945	2.85	2.927	2.759	2.723	2.54	2.549	2.454	2.574	2.57	2.657	2.727	2.578
Shanghai	1.584	1.696	1.621	1.507	1.479	1.561	1.411	1.473	1.337	1.36	1.309	1.362	1.231	1.023	1.133
Sichuan	1.298	1.53	1.686	1.735	1.752	1.726	1.702	1.606	1.597	1.568	1.602	1.688	1.602	1.466	1.422
Tianjin	3.884	3.948	4.718	3.722	2.791	2.982	2.943	3.029	3.16	3.129	3.445	3.695	3.485	3.301	3.309
Xinjiang	4.712	4.582	4.687	4.848	4.663	4.052	4.201	4.375	4.413	4.283	4.434	4.372	4.308	4.242	4.325
Yunnan	2.429	2.519	2.341	2.461	2.357	2.372	2.333	2.297	2.32	2.292	2.235	2.115	2.081	2.059	1.964
Zhejiang	0.763	0.755	0.739	0.712	0.714	0.695	0.746	0.789	0.809	0.789	0.744	0.725	0.648	0.74	0.759
Chongqing	2.309	2.682	2.872	3.163	3.275	3.202	2.925	2.774	2.646	2.466	2.553	2.261	2.41	2.486	2.468

3.2.4 Measurement of Securities Agglomeration

Securities investment is a relatively new and emerging industry in China, with limited public acceptance but great potential. Securities investment generally develops better in more developed regions. As shown in Table 3, regions

such as Beijing, Shanghai, and Tianjin have particularly high location quotients. In contrast, regions focused on heavy industry and manufacturing, such as Shandong and Zhejiang, show relatively low LQs, indicating weaker securities agglomeration and lower specialization. Some western regions, such as Guizhou, may show high LQs due to their relatively low GDP, meaning that the securities sector makes up a larger share of the economy. This also reflects increasing attention to the development of securities investment in these regions.

Table 3. Location Quotient of Securities Investment Agglomeration by Region (2010–2024)

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Anhui	1.463	0.839	0.767	0.776	0.898	0.998	0.948	0.881	0.861	0.843	0.945	0.938	0.876	0.789	0.941
Beijing	9.863	18.88	19.46	20.8	17.62	15.76	17.19	16.7	14.51	14.48	11.06	10.83	10.79	11.63	10.22
Fujian	0.768	0.409	0.589	0.726	0.864	0.893	0.88	0.884	0.891	0.947	1.043	0.994	0.973	1.012	0.981
Guangdong	0.564	0.45	0.39	0.367	0.429	0.477	0.447	0.493	0.572	0.59	0.676	0.656	0.74	0.748	0.815
Gansu	2.333	1.045	1.29	1.389	2.222	2.148	2	2.136	2.532	2.428	2.773	2.79	3.247	2.18	1.986
Guangxi	1.086	0.523	0.496	0.435	0.582	0.626	0.6	0.585	0.607	0.652	0.854	0.814	0.588	0.58	0.519
Guizhou	6.377	5.22	3.776	4.589	4.518	4.831	5.353	4.958	3.336	3.487	3.145	4.105	5.766	5.935	7.806
Hainan	19.44	11.96	9.643	7.581	9.377	10.76	10.67	10.77	12.34	12.83	12.02	13.16	10.77	7.757	6.434
Hebei	0.346	0.168	0.216	0.222	0.274	0.304	0.35	0.377	0.439	0.434	0.441	0.435	0.427	0.403	0.349
Henan	0.316	0.192	0.179	0.173	0.221	0.286	0.284	0.304	0.327	0.268	0.303	0.31	0.307	0.276	0.295
Heilongjiang	1.051	0.514	0.396	0.492	0.519	0.693	0.548	0.588	0.712	0.823	1.093	1.07	0.868	0.718	0.609
Hubei	0.923	0.454	0.43	0.425	0.512	0.599	0.516	0.495	0.607	0.579	0.633	0.668	0.61	0.564	0.623
Hunan	0.654	0.369	0.356	0.343	0.396	0.515	0.503	0.505	0.547	0.56	0.639	0.605	0.585	0.568	0.579
Jilin	2.052	1.254	1.276	1.202	1.68	1.442	1.161	1.309	1.504	1.626	1.843	1.781	1.581	1.349	1.363
Jiangsu	0.275	0.143	0.124	0.144	0.184	0.26	0.263	0.248	0.271	0.275	0.351	0.378	0.36	0.361	0.389
Jiangxi	1.686	0.99	0.9	0.684	1.025	1.235	0.926	0.876	0.791	0.707	0.83	0.865	0.762	0.676	0.653
Liaoning	0.763	0.569	0.481	0.439	0.494	0.499	0.438	0.397	0.424	0.489	0.618	0.657	0.569	0.516	0.487
Inner Mongolia	2.136	1.006	1.096	0.91	1.183	1.428	1.497	1.831	1.883	1.737	1.65	1.647	1.928	1.652	1.446
Shandong	0.41	0.219	0.183	0.197	0.241	0.298	0.298	0.277	0.29	0.243	0.264	0.29	0.287	0.275	0.312
Shanxi	1.974	2.975	2.701	2.127	2.937	2.677	2.36	2.243	1.913	1.964	1.691	1.781	1.578	1.385	1.278
Shaanxi	1.108	0.684	0.489	0.771	0.923	1.25	0.892	0.887	0.877	1.254	1.41	1.408	1.199	1.086	1.12
Shanghai	3.477	2.761	2.545	2.338	2.618	2.179	2.244	2.448	2.637	2.704	3.002	2.741	2.544	2.531	2.477
Sichuan	1.031	0.678	0.619	0.628	0.674	0.781	0.73	0.642	0.587	0.581	0.7	0.725	0.706	0.629	0.782
Tianjin	3.326	2.382	4.839	3.362	2.975	2.901	2.306	2.301	2.892	2.755	2.428	2.198	2.337	2.733	2.658
Xinjiang	3.152	1.823	2.386	2.953	3.342	3.671	2.641	2.422	2.464	2.263	3.343	3.706	3.709	3.261	2.753
Yunnan	1.453	1.016	1.389	1.144	1.355	1.341	1.056	0.987	0.949	0.933	0.891	0.925	1.038	0.892	1.035
Zhejiang	0.41	0.229	0.221	0.269	0.359	0.526	0.531	0.526	0.696	0.662	0.921	0.948	0.962	0.856	0.892
Chongqing	1.274	0.734	0.633	0.617	0.98	1.234	1.085	1.086	1.315	1.334	1.345	1.412	1.164	1.175	1.15

4. Empirical Analysis of the Impact of Financial Agglomeration on the Real Economy

4.1 Sample Selection and Construction of the Indicator System

The real economy is influenced by various factors; this study specifically investigates the impact of financial agglomeration. Key influencing variables include urbanization, population density, and infrastructure development. Based on data availability, this study selects the following indicators. The variables are divided into three categories: (1)Dependent variable: Development of the real economy; (2)Core explanatory variable: Financial sector agglomeration；(3) Control variables: Factors that influence the real economy.

Real Economy: The indicator system for the real economy was detailed in Chapter 3. Here, the GDP values (excluding real estate and finance sectors) are logarithmically transformed. Financial Agglomeration: Measurement was elaborated in Chapter 3. Given the scale differences between the core variables and the dependent variable, financial agglomeration indicators are divided by 100. This rescaling only affects coefficient magnitude, not sign. The new variables are named fj (banking), db (insurance), and dg (securities).

Control Variables: These include regional population density (symbol: rk, measured as people per km²), urbanization rate (cit, urban population as a percentage of total population), and infrastructure level (tie, measured by railway passenger volume). The definitions are summarized in Table 4:

Table 4. Variable definition

Variable Name	Symbol	Calculation Method
Real Economy Growth	lgdpqs	Log of GDP excluding real estate and financial sectors
Banking Agglomeration	fj	See variable description
Insurance Agglomeration	db	See variable description
Securities Agglomeration	dg	See variable description
Population Density	rk	Population / Administrative area
Urbanization Rate	cit	Urban population / Total population
Infrastructure	tie	Railway passenger volume

The study uses panel data from 31 provinces, municipalities, and autonomous regions in mainland China from 2007 to 2024. Data is sourced from the National Bureau of Statistics, various regional Statistical Yearbooks, the Financial Statistical Yearbook, and the iFinD database. Samples with excessive missing values were excluded to ensure consistency.

4.2 Model Construction

To analyze the impact of financial agglomeration on real economic development from 2007 to 2024, the empirical model is constructed as follows:

$$\lg dps_{it} = \alpha_0 + \alpha fj_{it} + \beta_1 \times rk_{it} + \beta_2 \times tie_{it} + \beta_3 \times cit_{it} + \mu_i + \varepsilon_{it}$$
$$\lg dps_{it} = \alpha_0 + \alpha db_{it} + \beta_1 \times rk_{it} + \beta_2 \times tie_{it} + \beta_3 \times cit_{it} + \mu_i + \varepsilon_{it}$$
$$\lg dps_{it} = \alpha_0 + \alpha dg_{it} + \beta_1 \times rk_{it} + \beta_2 \times tie_{it} + \beta_3 \times cit_{it} + \mu_i + \varepsilon_{it} \quad (4\text{-}1)$$

Where: i represents region; t represents year; α and β are estimated coefficients; μ_i is the province-specific fixed effect; $\varepsilon_{it}$is the error term.

4.3 Empirical Process

4.3.1 Estimation Method Selection

Given the panel nature of the data, the estimation method must be carefully selected among pooled OLS, fixed effects (FE), and random effects (RE) models. The statistical tests used for model selection are shown in Table5 :

Table 5. The selection of estimation methods

	Step 1: Wald F-Test	Step 2: Hausman Test
Test Statistic	135.86	193.92
P-Value	0	0

The Wald test shows a p-value below 0.1, indicating that the fixed effects model is preferable to pooled OLS. The Hausman test also rejects the null hypothesis of random effects at the 0.1 level, confirming the appropriateness of the fixed effects model for estimating Model 4-1.

4.3.2 Empirical Results and Analysis

Table 6. The regression results using the fixed effects model are presented in

	(1) lgdpqs	(2) lgdpqs	(3) lgdpqs	(4) lgdpqs
fj	1.110***			0.551**
	(5.87)			(2.45)
db		6.220***		2.482**
		(7.27)		(2.08)
dg			1.177***	0.860***
			(7.01)	(4.66)
rk	0.078***	0.054***	0.077***	0.058***
	(9.10)	(4.98)	(9.19)	(5.45)
tie	0.023***	0.020***	0.021***	0.019***
	(7.23)	(6.61)	(6.99)	(6.46)
cit	0.059***	0.060***	0.059***	0.060***
	(37.64)	(36.14)	(38.75)	(37.22)
_cons	3.015***	2.896***	3.018***	2.948***
	(48.05)	(38.53)	(48.98)	(39.21)
R2	0.916	0.909	0.918	0.915
adj. R2	0.910	0.902	0.913	0.908
N	539	456	540	456

(t-values are in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels respectively.)

Based on the above analysis, this paper adopts a fixed effects model to estimate Model 4-1, with the results presented in Table 6 . Specifically, the first column examines the impact of banking agglomeration (fj) on real economic development. The estimated coefficient for banking agglomeration is 1.110, and it is marked with three asterisks, indicating that the coefficient is significantly positive at the 1% level. This suggests a statistically significant positive relationship, meaning that higher levels of banking agglomeration contribute to improved real economic development. Possible reasons include:

(1) When banks cluster in a particular area, competition among them intensifies. To maximize profits, banks tend to offer more attractive loan and deposit policies, thereby giving real-sector firms better access to credit services. (2) As a vehicle of national macroeconomic control, banks attract more economic resources when agglomerated, leading to increased availability of bank loans for real-sector enterprises. Bank agglomeration reduces the time and effort that enterprises spend seeking loans from different institutions, thereby lowering financing costs and fostering real economic growth. (3) The concentration of banking institutions attracts a large pool of financial talent, which enhances the development of loan services and risk management, ultimately improving resource allocation and boosting the real economy. (4) The second column examines the effect of insurance agglomeration (db) on real economic development. The coefficient is 6.220, also significantly positive at the 1% level, indicating that the agglomeration of the insurance sector promotes local real economic growth. This may be because:

The insurance industry demands high levels of professional knowledge. When multiple insurance institutions cluster in one area, a brand effect is formed, attracting skilled professionals citywide. As personnel move between

firms, they carry with them valuable experience and knowledge, facilitating knowledge transfer. Insurance agglomeration helps integrate industry talent, allowing companies to manage risks more accurately. This both lowers entry barriers to insurance and enables the real economy to access more efficient and affordable insurance services, thus spurring growth.

The third column considers the impact of securities agglomeration (dg) on real economic development (lgdpqs). The coefficient is 1.177, again significantly positive at the 1% level, suggesting that securities industry agglomeration also supports regional economic growth. Potential explanations include: Similar to the insurance sector, the securities industry relies on highly skilled talent. The abilities of these professionals directly impact the efficiency of resource allocation and risk assessment, thereby enhancing the securities sector's service to the real economy. Securities agglomeration generates brand effects, which attract both domestic and international capital. This increase in capital availability can then be channeled into investments in the real economy, further promoting growth.

The final column includes all three sub-sectors—banking (fj), insurance (db), and securities (dg)—simultaneously. The coefficients for all three remain significantly positive, reinforcing the conclusion that financial agglomeration in general strongly contributes to local real economic development. The underlying mechanism may involve the rapid concentration of financial resources, which enhances the efficiency of capital allocation and stimulates real economic growth. Moreover, financial agglomeration can produce a "trickle-down effect," benefiting surrounding areas and fostering the development of complementary industries such as catering and entertainment.

Further analysis of the control variables shows that the coefficient for population density (rk) is significantly positive at the 1% level across all three models. This suggests that higher population density supports local economic development, likely because dense populations provide both a large labor force and greater consumer demand, stimulating economic growth from both the supply and demand sides. The coefficient for infrastructure (tie) is also significantly positive, indicating that the expansion of railway networks and improved infrastructure significantly boost economic growth. Lastly, the effect of urbanization (cit) on the real economy is likewise significantly positive at the 1% level, showing that higher levels of urbanization strongly promote economic development.

5. Policy Recommendations

Based on the findings on how financial agglomeration affects the real economy, the following recommendations are proposed:

(1) Continue Promoting Financial Agglomeration: China is currently in the early stages of financial agglomeration. Enhancing financial agglomeration—especially in the banking sector—can significantly boost real economic recovery, particularly important after the pandemic.

(2) Improve Financial Industry Regulations: While financial agglomeration fosters economic growth, it can also exacerbate systemic risks if regulatory loopholes exist. For example, quarter-end fund manipulation through interbank lending could distort the benefits of agglomeration. Therefore, robust regulatory frameworks must be in place to ensure that financial agglomeration enhances rather than undermines credibility and real economic growth.

(3) Establish Agglomeration Zones on Urban Peripheries: As financial clusters are likely to continue forming in the east, the government should consider developing these zones on the outskirts of major cities. This approach takes advantage of existing infrastructure while stimulating growth in surrounding smaller towns, creating a "satellite city" model. Over time, this could help extend urbanization and financial development westward, narrowing the regional economic gap.

6. Conclusion

In conclusion, this study systematically analyzes the impact mechanisms and regional disparities of financial agglomeration on the development of China's real economy. Based on empirical data from 2007 to 2024, it is evident that the agglomeration of the banking, insurance, and securities sectors significantly promotes the growth of the real economy, with banking agglomeration showing the most prominent effect. Moreover, control variables such as population density, infrastructure, and urbanization also exert positive influences on the real economy. The findings suggest that in the critical stage of China's economic transformation and upgrading, promoting financial agglomeration not only enhances resource allocation efficiency but also injects new momentum into the real economy. Looking ahead, efforts should focus on strengthening institutional frameworks, optimizing the spatial layout of financial clusters, and advancing the deep integration of finance and the real economy to achieve high-quality and coordinated development.

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