

# Research on the Impact of Digital Finance on the Quality of Manufacturing Industry Agglomeration

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**Abstract:** In the new era of deep global economic integration and industrial structure transformation and upgrading, high-quality industrial agglomeration has become the core driving force leading the development trend. Manufacturing is the most obvious industry of industrial agglomeration. The promotion effect of digital finance on high-quality manufacturing agglomeration is mainly reflected in the scale, economic efficiency, innovation, green and industrial structure upgrading of manufacturing agglomeration. The development of digital finance plays an important role in promoting high-quality manufacturing agglomeration.

**Keywords:** Digital finance; High-quality Agglomeration of manufacturing industry; Manufacturing Agglomeration.

## 1. Introduction

As China's economy continues to progress steadily, the agglomeration model of the manufacturing industry is also evolving, gradually shifting its focus from mere pursuit of scale and speed expansion to greater emphasis on quality and efficiency improvement. Against this backdrop, high-quality agglomeration of the manufacturing industry has become a new focus in the field of industrial development. It not only concerns whether China's economy has sufficient momentum for sustained growth, but also profoundly impacts whether the country's overall competitiveness can be further enhanced and whether the strategy of sustainable development can be realized.

The development of digital finance provides powerful financial support for the formation of manufacturing industrial clusters. By providing financial services such as financing, payment, and risk management for enterprises within the clusters, digital finance helps to reduce enterprise costs, improve production efficiency, and enhance the competitiveness of industrial clusters. At the same time, digital finance can also provide support for the digital transformation of industrial clusters, promoting the development of industrial clusters towards high-end and intelligent directions. In addition, the development of digital finance provides powerful support for technological innovation and transformation and upgrading, driving traditional enterprises to transform and upgrade towards digitalization and intelligence. With the rapid development of digital finance today, it is of profound practical significance to explore whether digital finance will have an impact on manufacturing industrial clusters.

## 2. Literature Review

Digital finance has a significant impact on the development of industrial agglomeration in China. According to a study by Lin Chun and Sun Yingjie (2022), digital finance can significantly promote industrial agglomeration in China. This is mainly achieved by reducing the financing costs of enterprises and alleviating financing constraints, which directly promote industrial agglomeration. Additionally,

digital finance also affects the external environment of the region by promoting green innovation and improving human capital levels, indirectly promoting the development of industrial agglomeration. Another study by Ren Jiao et al. (2023) found that digital finance can enhance regional innovation performance by promoting the agglomeration of high-tech industries, strengthening the scale economy effect and diversified knowledge spillover effect of agglomeration. This indicates that while promoting industrial agglomeration, digital finance can also drive the development of regional innovation.

Digital finance can improve the economic benefits of enterprises. According to a study by Chen Zhongfei and Jiang Kangqi (2021), the development of digital finance has optimized enterprise revenue channels and financial efficiency channels, increasing sales revenue and mitigating the negative impact of inefficient traditional financial phenomena on enterprises. It has also reduced the difficulty of external financing for enterprises, indirectly promoting the improvement of their profitability. The research by Pan Yi and Zhang Jinchang (2023) shows that the development of digital finance has alleviated the problem of "expensive financing" for industrial enterprises, reducing interest burdens, improving economic efficiency, and significantly enhancing total factor productivity.

Digital finance can also affect the innovation performance of enterprises. The research by Wan Jiayu et al. (2020) indicates that the development of digital finance significantly alleviates financing constraints for enterprises, thereby exerting a positive impact on their innovation. Tang Song et al. (2020) argue that the development of digital finance not only effectively addresses the difficulties and costs associated with financing for enterprises but also drives deleveraging and stabilizes financial conditions, all of which contribute to increased technological innovation output and subsequently enhance enterprise technological innovation.

### **3. Theoretical Analysis of the Impact of Digital Finance on the High-Quality Agglomeration of Manufacturing Industry**

The impact of digital finance on high-quality agglomeration of the manufacturing industry can be analyzed from the perspective of how digital finance affects the micro-level operations of individual enterprises within manufacturing clusters. Specifically, we can divide enterprise operations into three aspects: investment, financing, and operations, to examine the economic benefits of manufacturing agglomeration. Drawing on Krugman's Core-Periphery Theory, we can further analyze the impact mechanism of digital finance on manufacturing agglomeration from the perspectives of centripetal and centrifugal forces within the clusters.

By considering the role of digital finance in optimizing financing channels, reducing financing constraints, and promoting green innovation and human capital development, we can understand how it enhances the efficiency and profitability of enterprises within manufacturing clusters. Additionally, the analysis based on Krugman's theory allows us to consider the spatial distribution and economic interactions between different regions and the role of digital finance in shaping these interactions, particularly in terms of attracting and maintaining high-quality manufacturing activities within clusters.

#### **3.1. Impact of Digital Finance on the Economic Benefits of High-Quality Agglomeration of the Manufacturing Industry**

First, from the perspective of enterprise operating income, digital finance primarily affects enterprise profits by increasing operating revenue and reducing operating costs. Regarding operating revenue, digital finance can significantly promote consumer spending (Yi Xingjian and Zhou Li, 2018) and simultaneously enhance the per capita disposable income level of urban and rural residents in China (Yang Weiming et al., 2020). With concurrent growth in both resident income and consumption, enterprise operating revenue naturally increases. Secondly, digital finance can significantly reduce information asymmetry, enabling enterprises to provide targeted product services based on more complete information, thus boosting their operating revenue. From the perspective of enterprise operating costs, digital finance can better provide information and reduce transaction costs, leading to lower operating costs for enterprises. Additionally, digital information can help enterprises access a broader range of suppliers and obtain better prices.

Second, considering enterprise financing benefits, digital finance can lower financing costs and alleviate financing constraints (Huang Rui et al., 2021). Compared to traditional financing methods, digital finance offers more convenient and cost-effective financing channels, effectively improving enterprise financing accessibility. With the development of digital finance, enterprises have more financing options, enhancing their financing availability. Simultaneously, for financial institutions, the application of digital technology can effectively extend the scope of financial services while maintaining a balance between financial stability and innovation. This approach has stronger inclusivity, better serving different enterprises with financing services. In a

digital context, interest rates tend toward marketization, enabling enterprises to more accurately choose financing methods.

Third, from the perspective of enterprise investment returns, against the backdrop of digital finance development, enterprises can better manage their monetary funds, have access to more investment channels, and adopt flexible investment strategies to enhance their fund management level. Secondly, digital finance can raise the level of financial marketization, leading to reduced information costs and information asymmetry for enterprises. This enables them to make better investment decisions and thereby increase their investment returns.

#### **3.2. Impact of Digital Finance on the Centripetal Force of High-Quality Agglomeration of the Manufacturing Industry**

Centripetal force refers to the force that drives the manufacturing industry to concentrate in a particular region. It is mainly composed of various factors that are conducive to the development of the manufacturing industry, such as low-cost production factors, a large market size, advanced technology and knowledge spillovers, as well as a sound industrial base and supporting facilities. These factors work together to make a particular region attractive to manufacturing enterprises, prompting them to agglomerate in that area. The stronger the centripetal force, the greater the attractiveness of the region to the manufacturing industry, the more able it is to attract and retain enterprises, and thus promote industrial agglomeration and economic development.

First, digital finance has strengthened the purpose of manufacturing agglomeration. According to the previous theory of industrial agglomeration, the main purposes of industrial agglomeration are to reduce costs, improve industry chains, and promote technology spillovers. Firstly, digital finance can effectively reduce labor costs, thereby enhancing the economies of scale in the labor market. Through increasing enterprise scale and entrepreneurial activities (Xie Xuanli et al., 2018), regions with active digital finance can form stronger industrial agglomeration clusters, attracting more skilled labor and significantly reducing recruitment and training costs for enterprises. Secondly, digital finance can innovate financial services and improve the financing efficiency of the entire industry chain. With its powerful data identification capabilities, digital finance can reduce financing costs for the industry chain while effectively controlling financing risks, further promoting the agglomeration of the manufacturing industry chain. In addition, digital finance can also reduce information asymmetry in the labor market, providing financial security for the unemployed while promoting the dissemination and exchange of skills and knowledge within the agglomeration region, which is conducive to the formation of enterprise agglomeration.

Second, digital finance has enhanced the competitive advantage of manufacturing agglomeration. Based on Schumpeter's theory of innovative industrial agglomeration, digital finance can enhance the innovative atmosphere in manufacturing agglomeration regions. Digital finance can alleviate financing constraints for enterprises, leading to more innovation expenditures and significantly promoting micro-level innovation activities (Tang Song et al., 2020). Agglomeration regions are home to many enterprises, and

regardless of whether the first innovation is successful, they provide direction or lessons learned for other enterprises, creating opportunities for followers to innovate. This enhances the innovative atmosphere in the agglomeration region, complementing industrial agglomeration and forming a virtuous cycle. Secondly, under the influence of digital finance, labor agglomeration is also more likely to generate knowledge and technology spillovers, promote technology transfer, drive follow-up innovation activities in industrial agglomeration regions, and form a manufacturing agglomeration phenomenon.

Thirdly, digital finance has improved the development environment for manufacturing agglomeration. Based on Porter's theory of competitive advantage, a developed digital financial system contributes to fostering a positive and stable development environment. Firstly, it creates a favorable financial environment, as digital finance leverages advanced technological means such as big data analysis and cloud computing to not only facilitate easier access to financial support and daily financial transactions for enterprises in the agglomeration area but also enable financial institutions to more accurately assess the credit status and risk level of enterprises. This helps financial institutions formulate more scientific risk management strategies, reduce the non-performing loan ratio, and improve the stability of the financial system. Secondly, it promotes cross-border cooperation and innovation in the business environment. The development of digital finance has facilitated cross-border cooperation between finance, technology, industry, and other fields. This cooperation model generates more innovation opportunities, drives deeper integration between the financial industry and other industries, and provides enterprises with more diversified services and support. Thirdly, it creates an efficient government regulatory environment. The development of digital finance has also provided government regulatory agencies with more effective regulatory tools and methods. Regulatory agencies can utilize digital technology to conduct real-time monitoring and risk warnings of financial markets, improving regulatory efficiency and ensuring the healthy operation of financial markets.

### **3.3. Impact of Digital Finance on the Centrifugal Force of High-Quality Agglomeration of Manufacturing Industry**

Centrifugal force can be understood as a force that disperses industries or economic activities from agglomerated areas. It is mainly composed of factors that are unfavorable to the development of the manufacturing industry, such as environmental pollution, resource consumption, and decreasing market demand. These factors work together to create a repulsive force on manufacturing enterprises in a certain region, prompting them to leave the area. The stronger the centrifugal force, the greater the repulsive force on manufacturing industries in that region, making it more difficult to retain enterprises. This, in turn, leads to the decentralization of industries and restricts economic development.

Firstly, digital finance has optimized corporate collaboration. Through digital financial platforms, enterprises can better achieve supply chain financing, order financing, and other business activities, thereby strengthening economic ties among them, forming a tighter industrial ecology, and reducing the impact of centrifugal force on industrial agglomeration.

Secondly, digital finance has optimized the market supply-demand relationship. Enterprises can utilize the financial support provided by digital finance to increase investment in technological research and development and brand building, thereby enhancing their core competitiveness and better adapting to market demand and changes. This reduces the impact of market resource constraints and centrifugal force on manufacturing agglomeration.

Thirdly, digital finance has optimized environmental pollution in manufacturing agglomerations. Through the provision of green financial products and services, digital finance can guide capital towards environmentally friendly areas, promoting environmental protection investments by manufacturing enterprises. Secondly, by providing environmental risk assessment and early warning services through digital financial platforms, enterprises can promptly discover and respond to environmental risks, reducing the possibility of environmental pollution. At the same time, through digital financial platforms, enterprises can obtain services such as research and development loans and intellectual property pledge financing, which help enterprises develop and promote green technologies, reducing environmental pollution during production processes. This comprehensively reduces the impact of environmental pollution and centrifugal force on manufacturing agglomeration.

## **4. Conclusion**

Digital finance can significantly enhance the level of high-quality agglomeration of China's manufacturing industry. The coverage breadth, depth of usage, and digital service support of digital finance all have a significant positive impact on high-quality agglomeration of the manufacturing industry. Strengthening the development of digital finance can weaken the centrifugal force on the quality of manufacturing agglomeration and optimize the impact mechanism of digital finance on the economic benefits, innovation performance, and green ecology of the manufacturing industry.

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