

# Digital Finance on Economic Development: Impact and Prospect

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**Abstract.** In the wave of digitalization, more and more countries are beginning to value the power of digital finance, positively embrace the frontier technological revolution. Developing the digital finance is regarded as a key path to promote the healthy economic operation and build economic powerhouse, is currently a research hotspot. The paper aims to review the research literature about the impact of digital finance on economic by relevant scholars in recent years. Firstly, this paper combs the three stages of the development of digital finance in China, demonstrating its evolution process. Secondly, this paper analyzes the impact of digital finance on the economic development from both micro and macro perspectives. Finally, this paper prospects future research in this field and provide several research directions. The significance of this paper is to sort out and summarize how digital finance affects economic development, provide a foundation for future research and construction, and provide a theoretical reference for policymakers to better develop the economy.

**Keywords:** Digital Finance; economic development; frontier technology.

## 1. Introduction

Nowadays, digital revolution is taking place around entire world, transforming not only the development of the world, but also the economic development of regions, countries, economic agents and the wider public sector [1]. Among them, digital finance is a hot topic in the digitalization process of various countries and has received widespread attention and importance. Especially after the outbreak of the COVID-19 epidemic, digital finance can still work as normal and guiding economic recovery due to its characteristics that are not limited by time and space, further highlighting its important position [2]. As far as we know, economic is an important index that measures the achievements and strength of a country, and a foundation to achieve grand blueprint of all countries. Digital finance integrates many frontier technologies such as big date, internet of things, blockchain, artificial intelligence, and has the characteristics of inclusiveness [3]. It will inject many new driving forces for economic development and has a broad and close connection with economic development [3].

From a global perspective, China has been in a leading position in the aspect of application, business scale, and breadth and depth of related research in recent years, China's digital finance has become a global flag and representative [4]. Therefore, the focus of this paper will be sort out and explore the relevant literature about China's digital finance on economic development. Currently, many scholars have analyzed the impact and mechanism of digital finance on economic development by empirical research. But the development of digital finance is quickly, new issues and theories are constantly emerging, the hot spots of related research are also constantly changing. The overall research is showing a trend of diversification, the impact on the economy cannot be summarized simply. So, it is necessary to classify and sort out the literature about digital finance on economic development from different perspectives and levels, to show the positive and negative impact of digital finance on economic development more clearly and intuitively. This will not only help relevant scholars better understand the current research situation in this field and lay a foundation for future research, but also provide theoretical basis and inspiration for policymakers to better understand and control digital finance, so that digital finance can better serve the high-quality development of the economy.

This paper aims to answer the following questions by reviewing the literature about digital finance on economic development. How can the development stages of digital finance in China be divided? What are the impacts of digital finance on economic development from macro and micro perspectives? In addition, this paper further looks forward to the future research directions and trends of digital finance on economic development and provides three research suggestions.

## **2. The Development Stage of Digital Finance in China**

Although the formation time of concept about digital finance in China is relatively late, its application has already been reflected, and China's digital finance is developing rapidly, with a wide range of popularity and high innovation, that's why China's digital finance is leading the word [4]. The development of digital finance in China has gone through different periods of integration with electronic information technology, integration with big data technology, and now integration with AI technology [5,6]. According to whether the business model of the financial system has changed in each period and the specific content of the change, this process can be divided into three stages: embryonic stage, exploration stage and development stage (see Figure 1).

### **2.1. Embryonic Stage (the 1980s ~ the Launch of Alipay in 2004)**

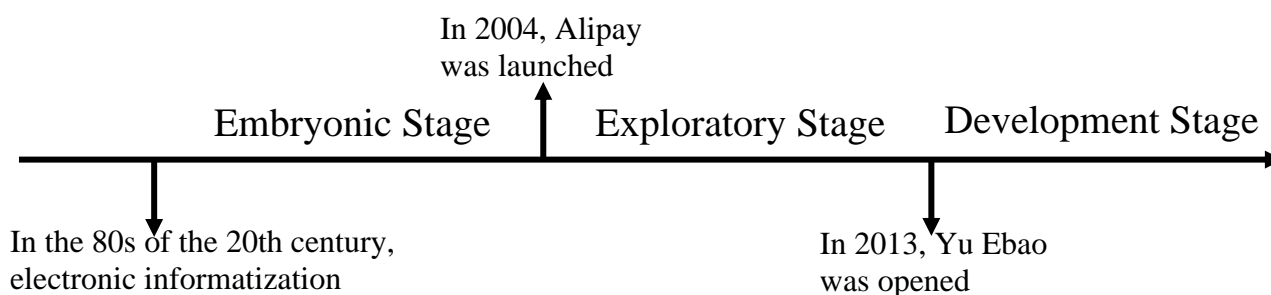
After the 80s of the last century, China set off a wave of electronic informatization, traditional financial institutions actively used electronic information technology, commercial banks began to process business through computers, and step by step established self-service banking systems and online banking, business efficiency has been improved [5,7]. At this stage, traditional financial institutions widely use various information technologies in business execution, but this only optimizes the business processes of traditional financial institutions and improves efficiency, but does not change the business model [5,8].

### **2.2. Exploration Stage (the Launch of Alipay in 2004 ~ the Opening of Yu Ebao in 2013)**

At this stage, the Internet triggered a new round of revolution in the financial industry, and Internet companies were deeply involved in the financial system as outsiders in the industry [5,9]. Through the innovation and related technology development, Internet companies have provided a technical foundation for the birth of digital finance, and then digital financial products such as online lending and third-party payment have emerged [5,9]. At this stage, digital finance shows certain use scenarios and business models that distinguish traditional finance.

### **2.3. Development Stage (the 2013~Present)**

Digital finance continues to be based on emerging technologies, and its core and model are further improved. The usage scenarios are becoming more and more abundant, and the level of intelligence has been significantly improved. Industry leaders have begun to introduce generative AI into financial business scenarios, and the application of large-scale models in the financial industry is accelerating, including the development of AI investment advisors, AI customer service applications, and more intelligent operating platforms [6]. With the combination of the latest technologies such as artificial intelligence models and blockchain, digital finance will gradually achieve leapfrog development, and the business model will change from "rule by man" to "rule by code" [9].



**Fig. 1** Timeline of China's digital finance development

### 3. The Impact of Digital Finance on Economic Development: A Macro Perspective

#### 3.1. Digital Finance is Conducive to the Rational Allocation of Resources, Promotes Industrial Upgrading, and Drives High-Quality Economic Development

China has always focused on improving the overall economic quality, and digital finance is an indispensable catalyst in this process [10].

The intervention of digital finance enables financial and other resources to flow faster to where they are needed, and changes the consumption level of market subjects, thereby increasing the speed of economic circulation and enabling the economy to grow under the premise of ensuring economic stability [10,11]. Li et al. seized the inclusiveness of digital finance to conduct research and found that it promotes the transformation of consumption structure, thereby having a positive impact on the economy of the province and surrounding areas, and this effect will be enhanced by enjoyment-oriented consumption but inhibited by the survival consumption concept [10]. Based on the measurement of the allocation rate of financial resources, Fan and Chen found that digital inclusive finance can make relevant resources more reasonably allocated and diverted in terms of credit, coverage and depth [11].

Digital finance has also changed the pattern at the industrial level, optimized the industrial structure, and then played a role in and improved the macro-economic structure [12,13]. After careful research, Xue et al. concluded that digital finance does have an impact on the industrial level, which can be the driving force for industrial structure improvement, and with the support of the government, the effect is even better [12]. Ma et al. started from the relationship between digital finance and manufacturing, and found that the level of coupling and coordination between them has changed, rising from the transition and run-in period to a new era of coordinated development, which fully illustrates the inseparable relationship between digital finance and manufacturing, and their mutual assistance can provide a strong boost for economic development, improve economic structure, and increase economic stability [13].

#### 3.2. Digital Finance can be Controlled by Algorithms and Create a Digital Divide

After years of development, digital finance has eliminated some of the limitations of traditional finance and brought benefits to economic development, but it has also brought new risks and challenges, which have buried certain hidden dangers for the future economic.

With the huge data storage capacity in the industry, the advantages and capabilities of big data and large models are fully reflected in the financial industry, but they are also inevitably limited by algorithms [14,15]. Much of the research on digital finance risk focuses on the algorithmic black box behind digital finance for in-depth analysis, Yuan pointed out that the algorithm black box is caused by the opacity and complexity of the algorithm, and under the cover of the black box, the possible non-neutrality of algorithm writing will lead to a huge risk of human manipulation [14]. Ouyang and Gong found that although algorithms can reduce and overcome the statistical bias and subjective bias

caused by traditional credit, they will deepen the financial exclusion of specific loan groups, that is, algorithmic discrimination derived from algorithmic black boxes [14,15].

All market players have undoubtedly benefited from the digital dividends brought by digital finance, but they have also been harmed by the digital divide brought about by it. As a result, different regions will inevitably enjoy different digital resources according to factors such as the degree of development and the level of digitalization [16,17]. The shortcomings and thresholds of traditional finance have been transformed into discrimination against poor regions and exclusion of non-local regions, resulting in new risks of gradual imbalance in the digital financial resources in different cities [16,17]. Zhou and Ding found that the financial risk in the region will be greatly reduced with the intervention of digital finance, but the financial risk will increase in the surrounding area, and the regional development will be different, and the developed region will be more affected [16]. From a global perspective, financial development in economically backward regions is also suffering from negative problems. By analyzing the impact of the digital divide on the International Monetary Fund's New Financial Development Index, which is composed of African countries, Mignamissi and Djijo T. found that the digital divide between countries would be a serious obstacle to the financial development of economically backward countries [17].

## **4. The Impact of Digital Finance on Economic Development: A Micro Perspective**

### **4.1. The Impact of Digital Finance on the Financial Supply Side**

As a new form of the financial industry, digital finance has profoundly changed the development pattern of the financial field. Many studies believe that the demand for financial services derived from economic development is the driving force for the reform and upgrading of the financial system, and only focus on the demand-side perspective, but in fact, for developing countries, the supply-side technological revolution and financial reform are also important driving forces for the upgrading of the financial system [18]. Therefore, it is worth exploring what impact digital finance has on the financial supply side. The existing research focuses on the impact on commercial banks, but some studies also focus on the impact on non-bank finance such as insurance.

#### **4.1.1. Digital finance has aggravated the internal and external competition of commercial banks, but it has also promoted their high-quality development**

Nowadays, the strong rise of digital finance has brought many new variables to traditional commercial banks. On the one hand, digital financial applications such as third-party payment compete with the related businesses and resources of commercial banks, Hao et al. pointed out that digital finance crowds out banks' liquidity creation through resource competition, and confirmed the existence of such a negative effect [19]. On the other hand, it is precisely because the financial resources and profit margins mastered by commercial banks are squeezed by digital finance, which exacerbates the involution behavior of traditional banks [20,21]. Gao and Wang prove that competition between banks will intensify with the development and intervention of digital finance demonstrated the significant positive impact of digital finance on bank competition [20]. Jia et al. found that under the continuous role of digital finance, a new banking competition system and pattern has been born, in which large state-owned banks firmly occupy the core position and show strong competitiveness, while small and medium-sized commercial banks are in the marginal area and are vulnerable to negative effects [21].

Despite the huge competitive pressure from digital finance, it has also prompted commercial banks to stop lying flat, accelerate the process of digital transformation, and improve the quality of banking services [22,23]. Zuo et al. confirmed the role of digital finance in the process of digital revolution in banks, and the productivity level of banks, especially joint-stock banks, has been greatly improved [22]. From the perspective of commercial bank performance, Lei and Li's empirical study found that

banks reduced their non-performing loan ratios and improved asset utilization, which was ultimately reflected in the improvement of business quality and performance levels [23].

#### **4.1.2. Digital finance has driven an increase in the purchase of various types of insurance, helping the insurance industry to flourish**

As an important part of the financial system, the insurance industry needs to continuously innovate business models, actively embrace digitalization and cutting-edge technologies, improve service capabilities, and contribute new impetus to economic development and the construction of a digital China [18]. In the context, it is necessary for the academic community to explore how the insurance industry has changed in the digital age of finance and how people's purchasing behavior of insurance services is different. Judging from the overall situation of the current insurance industry, Liu and Ding 's research confirms that financial digitalization can help the insurance industry continue to improve, and that the effect is heterogeneous, the life insurance industry is more susceptible to incentives than the property insurance industry [24].

Further research focuses on the changes and differences between different insurance services such as pension, medical care, and agriculture in the digital age of finance [25~27]. Research by Liu et al. shows that the inclusion of digital finance can promote the development of the basic pension insurance industry by increasing insurance contribution rates and people's incomes [25]. After rigorous research, Zhang and Tang pointed out that the rise of digital inclusive finance has increased the amount of medical insurance revenue in China, and digital factors have the greatest impact on medical insurance services [26]. Chen et al. conducted an empirical study on agricultural insurance and concluded that digital finance can make agricultural insurance services continue to improve, and improving the efficiency of claims settlement, the quality of digital financial services, and the improvement of the smart agricultural insurance system are important and effective ways to promote the high-quality development of agricultural insurance [27].

## **4.2. The Impact of Digital Finance on the Financial Demand Side**

Compared with the financial supply side, digital finance has a greater impact on the financial demand side composed of various market players and is deeply reflected in economic development. In the financial market, the demand of residents and enterprises, as the main consumer body and the core of economic activities, is the fundamental impetus for the existence and progress of financial institutions. With its unique advantages, digital finance can better meet the needs of these market players and provide high-quality and low-threshold financial services, further promoting economic development.

### **4.2.1. Digital finance has increased residents' income and consumption**

Digital finance has effectively lowered the threshold for household borrowing, allowing the people to obtain more practical and high-quality financial services, thereby changing the economic activities and income and expenditure levels of residents, and reflecting in the enhancement of economic vitality [28~30]. Li and Liu's research found that digital inclusive finance acts on residents' income levels through three paths, namely, increasing the overall social entrepreneurship rate to increase the level of business income, increasing the use of financial services to improve the level of property income, and increasing people's employment rate to increase the level of wages [28]. Liu et al. concluded that digital inclusive finance can improve residents' comprehensive consumption capacity by providing more convenient payment methods, improving residents' income levels, and promoting the optimization and upgrading of the industrial structure of various industries [29]. Household leverage is related to household financial stability, and Tian's research points out that digital finance can have a negative and positive impact on household leverage by promoting excessive consumption and increasing household income levels, respectively [30].

#### **4.2.2. Digital finance promotes business innovation, increases productivity, and reduces business costs**

For enterprises, digital finance is indispensable in their digital transformation and investment and financing. At a time when technological revolution is becoming more and more frequent, the fastest way for enterprises to improve their enterprise value is innovation in technology, system, production process, and many scholars have put the impact of digital finance on enterprises on the improvement of enterprise innovation efficiency [31~33]. After careful empirical research, Wang and Liu affirmed the view that digital finance can play a huge role in improving the efficiency of innovation in enterprises [31]. With the empowerment of digital finance, enterprises can improve production efficiency and reduce production costs, and Zhang conducted research on the changes in enterprise labor productivity, and found that in the era of financial digitalization, enterprises will be more conducive to improving labor productivity if they provide good employee compensation and have an excellent human capital structure [32]. Jun and Ran analyzed the evolution of digital transformation financial networks, emphasized the key role of learning and adaptation in financial networks, and demonstrated that digital finance can solve the financing constraints faced by enterprises, thereby driving business improvement [33].

For the leading Internet companies, they not only benefit from the promotion of digital finance on the level of enterprise innovation, but also grasp certain financial resources through the establishment of financial technology subsidiaries, leading the development direction of digital finance to a certain extent [34,35]. Based on the advantages of data, capital, technology and experience accumulated over a long period of time, Internet giants such as Alibaba have taken the lead in combining the Internet and finance to form a closed-loop model, occupying a leading position in digital financial businesses such as third-party payment [34]. In addition, these Internet companies have further taken advantage of the convenience of digital finance to increase investment in other enterprises, expand related businesses, establish and continuously improve their own digital ecosystems, and greatly enhance their corporate influence [35].

### **5. Research Prospects of Digital Finance on Economic Development**

Nowadays, the impact of digital finance on economic development has become a hot topic in social research, although there are many related studies, there are still areas that have not been fully explored. With the continuous development of society, new situations and frontier technology are constantly emerging, which has also given birth to new research directions. Based on this, this paper looks forward to the development trend of research related to digital finance on economic development, and provides the following research suggestions:

#### **5.1. Complement Research on the Impact of Digital Finance on Non-Bank Finance**

Nowadays, the research on the impact of digital finance on the financial supply side mainly focuses on commercial banks, while there are relatively few studies on non-bank financial institutions such as securities, insurance, and funds, which is insufficient to fully reflect the real impact of digital finance on the entire financial industry. Future research should fill this gap to have a more comprehensive understanding of the impact and mechanism of digital finance on the financial supply side, to provide theoretical support for the stable and healthy development of the financial supply side.

#### **5.2. Explore the Impact of AI + Finance on the Economy**

In the past, the core of digital finance was mainly Internet technology, but with the rise of large models such as ChatGPT in recent years, the application prospects of artificial intelligence technology in the financial field are becoming more and more broad, and some banks in China have begun to use AI large models [6]. In this context, how can we use new AI technologies to optimize financial business models, reconstruct digital financial information systems, and find new scenarios for the application of digital finance [6,9]? What are the advantages and disadvantages of digital finance

after the reconstruction of AI technology for economic development? Obviously, these are important trends for future research.

### **5.3. Focus on the Research of the Digital Financial Regulatory System to Mitigate Economic Risks**

The rapid development of digital finance has brought new risks and hidden dangers to economic development, but the research on regulatory and control systems is relatively lagging behind. Although some studies have put forward some directions for digital financial regulation, the total number is not large enough and in-depth enough, and future research should pay more attention to balancing the relationship between financial innovation and financial stability, to establish a more reasonable supervision and control system to reduce the negative impact of digital finance on economic development [4].

## **6. Conclusion**

This paper classifies and discusses the development of digital finance in China and its impact on economic development from macro and micro perspectives, looks forward to the future research directions. This paper basically covers the main trends and directions of the research on the impact of digital finance on economic development in China, and systematically reviews these research literatures, aiming to provide some reference for relevant personnel in this field.

The research shows that: Firstly, the sprout of digital finance in China can be traced back to the period of electronic informatization of banks, and many studies in the past mainly focused on Internet finance fields such as online lending and third-party payment, but the current research is gradually turning to digital finance with AI as the core technology. Secondly, the development of digital finance has played a positive role in improving resource allocation and promoting the upgrading of industrial structure, overall promoting high-quality economic development. But it also brings new risks and hidden dangers, so relevant scholars need to positively carry out research on digital financial supervision and propose solutions for specific situations. Thirdly, scholars pay more attention to the impact and mechanisms of digital finance on commercial banks and find that although digital finance has aggravated the internal and external competition of banks, it has also promoted their digital transformation, which ultimately improves their performance. In contrast, the research on the impact of digital finance on non-bank financial institutions is still relatively blank and needs to be further explored. Finally, as important component of economic development, residents and enterprises have also fully enjoyed the dividends brought by digital finance. The income level and consumption capacity of residents have increased significantly, and the innovation ability of enterprises has also been enhanced. To sum up, the impact of digital finance on economic development has become a hot topic of research, and certain results have been achieved. In view of the high popularity of digital finance in China and its huge market potential, it is still necessary to conduct intensive research on the impact of digital finance on the economy in the future, accurately grasp its development trend, and positively respond to challenges to promote the high-quality development of China's economy.

## **References**

- [1] Burlacu S, Ciobanu G, Troaca V A, et al. The Digital Finance—opportunity of development in the new economy. *Proceedings of the International Conference on Business Excellence*. 2021, 15(1): 392-405.
- [2] Zhao Y, Feng Y. Research on the development and influence on the real economy of digital finance: The case of China. *Sustainability*, 2022, 14(14): 8227.
- [3] Zhao L, Yin Y. A Research Review on Digital Finance Supporting High Quality Economic Development. *Finance and Accounting Monthly*, 2024,45(01):117-122. (in Chinese)
- [4] Huang Y, Huang Z. The Development of Digital Finance in China: Present and Future. *China Economic Quarterly*, 2018,17(04):1489-1502. (in Chinese)

- [5] Huang H. The Formation and Challenges of Digital Financial Ecosystem--Experience from China. *Economist*, 2018, (04):80-85. (in Chinese)
- [6] Ouyang R. Generative Artificial Intelligence and Deep Integration with Finance: Theoretical Mechanism and Development Path. *Seeker*, 2024, (01):57-65. (in Chinese)
- [7] Zhang R. Research on the digital transformation of commercial banks empowered by financial technology. *Modern Business*, 2023,(11):161-164. (in Chinese)
- [8] Li J. The formation mechanism of technology-finance integration and its policy implications. *Forum on Science and Technology in China*, 2004, (03):90-92. (in Chinese)
- [9] Ding X. From Internet Finance to Digital Finance: Development Trends, Technical Characteristics and Design Concepts. *Journal of Nanjing University (Philosophy, Humanities and Social Sciences)*, 2021, 58(06): 28-44+162. (in Chinese)
- [10] Li E, Tang Y, Zhang Y, et al. Mechanism research on digital inclusive finance promoting high-quality economic development: Evidence from China. *Heliyon*, 2024, 10(3), e25671
- [11] Fan Y, Chen S T. Research on the effects of digital inclusive finance on the efficiency of financial resource allocation. *Frontiers in Environmental Science*, 2022, 10: 957941.
- [12] Xue Q, Feng S, Li M. The Impact of Digital Finance on Industrial Structure: Evidence From China. *SAGE Open*, 2024, 14(2): 21582440241239387.
- [13] Ma K, Xia X, Liu L. Digital finance and advanced manufacturing industry development in china: a coupling coordination analysis. *Sustainability*, 2023, 15(2): 1188.
- [14] Yuan K. System Response on Algorithm Black – box of Fintech Under the Social Supervision Concept. *Journal of Huazhong University of Science and Technology (Social Science Edition)*, 2020, 34(01): 102-110. (in Chinese)
- [15] Ouyang R, Gong W. Digital Credit, Algorithmic Discrimination and Dynamic Coopetition Policy. *Journal of Nankai University (Philosophy, Literature and Social)*, 2022, (01): 78-92. (in Chinese)
- [16] Zhou Y, Ding X. Aggravation or Mitigation? Research on the Impact of Digital Finance on Regional Financial Risks ——From the Perspectives of Cross Regional Effect, Mechanism Identification and Structural Characteristics. *Studies of International Finance*, 2022, (10): 26-37. (in Chinese)
- [17] Mignamissi D, Djijo T. A. Digital divide and financial development in Africa. *Telecommunications Policy*, 2021, 45(9): 102199.
- [18] Zhan M, Sun X, Zhang Y. Opportunities and Challenges of Insurance Industry Development Under the Background of Digital Finance. *Insurance Studies*, 2023, (04): 3-14. (in Chinese)
- [19] Hao J, Peng M, He W. Digital finance development and bank liquidity creation. *International Review of Financial Analysis*, 2023, 90: 102839.
- [20] Gao C, Wang Q. Does digital finance aggravate bank competition? Evidence from China. *Research in International Business and Finance*, 2023, 66: 102041.
- [21] Jia K, He Y, Mohsin M. Digital financial and banking competition network: Evidence from China. *Frontiers in Psychology*, 2023, 13: 1104120.
- [22] Zuo L, Li H, Xia X. An Empirical Analysis of the Impact of Digital Finance on the Efficiency of Commercial Banks. *Sustainability*, 2023, 15(5): 4667.
- [23] Lei J, Li Y. The Influence of Digital Finance Development on the Operating Performance of China's Commercial Banks. *International Journal of Frontiers in Engineering Technology*, 2021, 3(8): 20-24.
- [24] Liu L, Ding M. Multiple Intermediary Mechanisms for Financial Digitalization to Promote the Development of Insurance Industry: Based on the Provincial Panel Data from 2011 to 2020. *Journal of Insurance Professional College*, 2023,37(03):32-39. (in Chinese)
- [25] Liu Y, Zhang L, Zhu Y. Can Digital Inclusive Finance Promote the Development of Basic Pension Insurance: Empirical Research Based on Provincial Panel Data in China. *Modern Urban Research*, 2024, (03):116-123. (in Chinese)
- [26] Zhang Y, Tang X. Research on the impact of digital inclusive finance on the income of China's commercial health insurance. *Academic Journal of Business & Management*, 2022, 4(17): 72-79.

- [27] Chen K, Ye M, Wang T. How Does Digital Financial Service Affect the Development of Agricultural Insurance? —— Empirical Evidence from 24 Major Agricultural Provinces. *Lanzhou Academic Journal*, 2022, (04): 64-78. (in Chinese)
- [28] Li Q, Liu Q. Impact of digital financial inclusion on residents' income and income structure. *Sustainability*, 2023, 15(3): 2196.
- [29] Liu L H, Wang Y X, Li B, et al. Digital inclusive finance and residents' consumption level: Analysis based on mediating effect test. *Academic Journal of Business & Management*, 2023, 5(15): 23-30.
- [30] Tian G. Influence of digital finance on household leverage ratio from the perspective of consumption effect and income effect. *Sustainability*, 2022, 14(23): 16271.
- [31] Wang H, Liu F. Digital finance and enterprise innovation efficiency: Evidence from China. *Finance Research Letters*, 2024, 59: 104709.
- [32] Zhang X. The impact of digital finance on corporate labor productivity: evidence from Chinese-listed companies. *Journal of Industrial and Business Economics*, 2023, 50(3): 527-550.
- [33] Jun W, Ran X Q. Dynamics in digital finance and its impact on SME financing. *Heliyon*, 2024, 10(9), e30586.
- [34] Gao J. Comparison of fintech development between China and the United States. *International Journal of Innovative Science and Research Technology*, 2022, 6563524: 1272-6.
- [35] Gorjón S. The growth of the FinTech industry in China: a singular case. *Economic Bulletin/Banco de España*, 2018, (4): 13.