Original Research Article

A Review of the impact of digital inclusive finance on enterprise innovation efficiency

Dongdong Jin

School of Finance, Yunnan University of Finance and Economics, Kunming, Yunnan, 650221, China

Abstract: This paper systematically discusses the concept and connotation of inclusive finance and enterprise innovation efficiency, combs the existing evaluation index system of enterprise innovation efficiency at home and abroad, and summarizes the influencing factors of enterprise innovation efficiency from the internal perspective and external perspective of enterprise organization. This article also explores the pratt &whitney financial promote the transmission mechanism of technological innovation in enterprises. Finally, this paper summarizes and comments on the relevant research on digital inclusive finance and enterprise innovation efficiency, in order to provide a reference for future scholars to conduct further research.

Keywords: Digital inclusive finance; Enterprise innovation; Efficiency

1. Introduction

The current Chinese economy has moved from a stage of high-speed growth to a stage of high-quality development. Innovation, as a core component of the new development concept, has become a core task in enhancing China's global value chain and strengthening its international competitiveness. It is a necessary path for China to shift from the previous extensive development model to high-quality development (Zhang et al., 2019). However, innovation in Chinese enterprises still faces problems such as difficulty in financing, narrow financing channels, difficulty in talent mobility, and shallow foundation, which seriously hinder the pace of technological innovation in enterprises.

The Central Financial Work Conference in October 2023 pointed out that efforts should be made to create a favorable monetary and financial environment, and to effectively strengthen high-quality financial services for major strategies, key areas, and weak links; We need to optimize the structure of capital supply and allocate more financial resources to promote technological innovation, advanced manufacturing, green development, and small and medium-sized enterprises. Digital inclusive finance combines emerging technologies such as artificial intelligence, big data, blockchain, and cloud computing, with advantages such as wide coverage, low cost, and high efficiency. It has inclusive and convenient features and is a beneficial supplement to the traditional financial system. The rapid development of digital inclusive finance has brought new opportunities to solve the innovation dilemma of enterprises.

Innovation is that a long period, high risk, both the complexity of investment activities, resources input is not necessarily able to obtain expected effective output (Holmstrom, 1989). How to scientifically gathered integrate innovation resources, through the efficiency gain more high quality output is the issue of common concern from all walks of life both at home and abroad. So, what is the impact of digital inclusive finance on enterprise innovation efficiency? Under the background of the digital era, study the effect of digital pratt &whitney financial enterprises technological innovation efficiency, to our country implement innovation-driven strategy and high-quality economic development has the strong practical value and theoretical significance.

Therefore, in this paper, the digital pratt &whitney concept and connotation of financial innovation and efficiency, the paper summarizes measure way, explore the relationship between the two, they so as to provide reference for the future further research scholars.

2. The current research of innovation efficiency

Innovation is the primary driving force for economic development. High-quality innovation plays a vital role in promoting the transformation and upgrading of industrial structure and the transformation of economic growth mode. This article from the connotation of the innovation efficiency, measure method and factors influencing the efficiency of the three aspects of enterprise innovation related research results in this paper.

2.1. Research on the notion of innovation efficiency

Foreign scholars first carried out the analysis and research on innovation efficiency. Innovation efficiency is based on the concept of technical efficiency proposed by Farrell. He defines technological innovation from the Angle of investment efficiency, namely, under the condition of the same output, the proportion of state or minimum inputs (Farrell, 1957). Afriat(1972) believed that innovation efficiency is the input-output ratio of technological innovation behavior; That is to say, the process of technological innovation is "the biggest output for a given input" or "the minimum input of a given output. Since then, scholars have been following this concept, namely, innovation efficiency is the ratio of innovation factor input to innovation outcome output. Yang & Wang (2022) points out that the innovation efficiency is different from that of the former should consider innovation output, and input, emphasis on efficiency, while the latter only consider innovation output.

Zhao et al., (1999), a domestic scholar, studied the efficiency of technological innovation earlier and proposed that the organic combination of knowledge and decision-making power was the key to improve the efficiency of technological innovation. Later, Chi (2003) pointed out more directly that if the enterprise can obtain higher output with less input, then the enterprise with this input-output relationship belongs to the scope of high technological innovation efficiency. Since then, scholars have continued to use this view until now. Wang et al.,(2022) argues that companies such as innovation efficiency refers to the enterprises in the innovation in knowledge, information and other inputs into new technologies, new products, new technology and new services such as output conversion efficiency. Zhao et al., (2023), the efficiency of the process from input to output, and USES the enterprise r&d and patent output sensitivity to measure efficiency of enterprise innovation.

2.2. Research on innovation efficiency measurement

In the evaluation of enterprise innovation efficiency, the commonly used methods mainly include arithmetic method, frontier analysis method and mathematical statistics method.

Arithmetic method. This method directly takes the ratio of innovation output to innovation input as the absolute efficiency value of innovation. Wang &Liu(2023) used the ratio of enterprise innovation output to innovation input to measure enterprise innovation efficiency. For enterprise innovation output, the listed companies will apply for a patent for invention and utility model patents independently, the sum of natural logarithm as measure; For enterprise innovation input, it is measured by the proportion of the company's annual R&D expenditure in the current year's operating income. Song et al.(2023) with number of patent applications and r&d take natural logarithm of the ratio to measure efficiency of enterprise innovation. Ongsakul et al. (2022) using a new innovation efficiency measure Research Quotient (RQ) to explore the influence on enterprise

innovation, and the purchase and sale of RQ is using the financial data of the enterprise to forecast by index, namely each dollar increase R&D input, In other words, how many dollars of revenue can be obtained for each additional dollar of R&D investment.

Frontier analysis. In the research of innovation efficiency, most scholars use frontier analysis methods, such as stochastic frontier analysis (SFA) and data envelopment analysis (DEA), which are common methods to measure enterprise innovation efficiency and have their own advantages and disadvantages and corresponding usage conditions. ① **Stochastic frontier analysis (SFA).**Piao et al.(2022) constructed a multi-input-output SFA model to measure the technological innovation efficiency of Chinese listed energy companies from 2008 to 2017. Yin et al. (2023) using SFA model to measure enterprise technology innovation efficiency, analysis of enterprise technology innovation. ② **Data envelopment analysis (DEA).** Min et al. (2020) using a two-stage DEA to evaluate efficiency of South Korea's technology development and commercialization area. Wang et al.(2022) used the DEA model to measure the innovation efficiency of high-tech industrial parks. Yang et al.(2022) empirically analyzed that the opening of high-speed trains significantly improved the innovation efficiency of enterprises by using the SBM super efficiency DEA model.

Mathematical statistical methods. The commonly used methods include cluster analysis and factor analysis. In the evaluation of innovation efficiency, mathematical statistical methods are mostly used in combination with other methods. ① **Cluster analysis method.** Based on DEA and Malmquist index decomposition method, Wang et al. (2018) conducted comprehensive evaluation, index decomposition and cluster analysis of scientific and technological innovation efficiency of 11 provinces and cities in the Yangtze River Economic Belt from 2006 to 2016. ② **Factor analysis.** Yong et al. (2020) to classify the indexes according to the nature of the input and output, and the factor analysis method to deal with it, and finally using cross DEA model to evaluate the national independent innovation demonstration area of shandong peninsula in six high-tech development zone of science and technology innovation efficiency.

2.3. Research on influencing factors of innovation efficiency

In the discussion of enterprise innovation efficiency, the factors affecting enterprise innovation efficiency have always been the focus of many scholars. Scholars mainly discuss the influencing factors and improvement paths of enterprise innovation efficiency from the internal and external innovation environment of enterprise organization.

2.3.1. Based on the internal perspective of enterprise organization

From the perspective of enterprise organization, the influencing factors of enterprise innovation efficiency focus on corporate governance, enterprise digital level and other aspects.

Corporate governance. At the level of corporate governance, this paper mainly examines the impact of ownership structure, managerial ability, senior management characteristics and other factors on corporate innovation efficiency. Guo et al. (2020) argued that there is an inverted U-shaped relationship between the shareholding of major shareholders and the efficiency of corporate technological innovation. Government subsidies, foreign investment and the years of establishment of enterprises are conducive to corporate innovation, while the higher the degree of industry competition and the more regional enterprises are not conducive to the efficiency of corporate technological innovation. Yao et al. (2018) shows that senior executives are important human resources of enterprises, and there is a significant positive correlation between senior management ability and enterprise innovation level and innovation efficiency. Chen et al.(2022) argued that CEO's external social

capital has a positive impact on corporate innovation efficiency.

Enterprise digitalization level. At present, the relationship between enterprise digitalization level and innovation efficiency is uncertain, mainly including positive relationship and inverted U-shaped relationship. Wang &He(2023) believed that the digital transformation of enterprises can help enterprises realize the optimal allocation of resources, enhance the information flow and integration ability of enterprises, thus promoting the improvement of innovation efficiency of enterprises, and the financial information disclosure plays an intermediary role. Song et al. (2023) believed that digital transformation can significantly improve the innovation efficiency of enterprises, with financing constraints playing an important intermediary role and financialization playing a regulating role. Liu et al. (2023) believed that digital transformation has an inverted U-shaped impact on enterprise innovation efficiency, and digital transformation can improve enterprise technological innovation efficiency by improving the allocation efficiency of labor, capital, knowledge and technology factors among enterprises, and industry competition can enhance the promotion effect of digital transformation on innovation efficiency.

2.3.2. Based on the perspective of enterprise external environment

As the main body of technological innovation, enterprises are exposed to the macroeconomic environment, and their innovation efficiency is not only affected by their own factors, but also by the external innovation environment. Relevant literature shows that external environmental factors such as government support, financial market development level and market competition degree are important factors affecting enterprise innovation efficiency.

Government support. Government departments provide innovation support to enterprises by providing financial subsidies, intellectual property protection and other related policies. And fiscal subsidies and the relationship between the enterprise innovation is uncertain, there are positive, u-shaped, inverted u-shaped relationship. Da (2022) argued that the more knowledge spillovers and the stricter IPR protection are in China, the more beneficial it is to improve the innovation efficiency of Chinese firms. Lin and Luan(2020) argued that there was a U-shaped relationship between government subsidies and innovation efficiency, and reducing government subsidies before the inflection point could improve innovation efficiency. Liu et al. (2023) believed that financial subsidies had an inverted U-shaped local effect on innovation efficiency of high-tech industries, and industrial structural transformation played a positive role in regulating it.

Level of financial market development. A developed financial market can maintain the sustainability of corporate innovation. Yang &Wang(2022) argued that fintech promotes overall innovation efficiency and start-up efficiency, but has little impact on R&D efficiency. Wang &Liu(2023) used the data of China's A-share listed companies from 2011 to 2021 to study the influence mechanism of digital finance on corporate innovation efficiency. Yin et al.(2024), using the data of 2008 enterprises' bank-firm and technology innovation efficiency from 2011 to 2020, revealed that the bank-firm relationship can improve the efficiency of technological innovation through the mechanism of financing constraints and information asymmetry. Qi et al. (2023) argue that pratt &whitney financial through direct or indirect r&d efficiency and ease the financing constraints of small and medium-sized enterprises innovation achievements transformation efficiency played a promoting role.

Degree of market competition. Currently, scholars are uncertain about the relationship between the degree of market competition and corporate innovation. Hu et al. (2020) argued that product market competition promotes enterprise innovation efficiency by improving information transparency and incentive effectiveness.

Huang (2023) using stochastic frontier analysis method, the data based on the enterprise level, the objective to estimate the innovation efficiency of China's industrial enterprises, reveals the competition in the market for r&d efficiency with inverted u-shape effect.

2.4. Summary

At present, scholars have a preliminary consensus on the concept of innovation efficiency. This paper holds that innovation efficiency refers to the ability of enterprises to maximize innovation output by using limited resources. In the study of innovation efficiency, some scholars use arithmetic method to measure, some scholars using stochastic frontier analysis (SFA) and data envelopment analysis (DEA), these measures still have corresponding restrictions on the use conditions and disadvantages, should dig deeper into the influence factors of innovation efficiency and the path of ascension. Current on the influence factors of innovation efficiency, scholars have launched a large number of research, but on its specific function relation between the scholars still have differences.

3. A review of research on the impact of digital inclusive finance on corporate innovation efficiency

3.1. Research on the concept of digital inclusive finance

Before defining the concept of digital inclusive finance, we should first clarify the meaning of inclusive finance. Inclusive finance, first proposed by the United Nations at the International Year of Microfinance in 2005, advocates the equity and inclusion of financial services, so inclusive finance is also called inclusive finance. In 2016, The State Council issued the Plan for Promoting the Development of Inclusive Finance 2016-2020, which defines inclusive finance as the provision of appropriate and effective financial services at an affordable cost to all social strata and groups in need of financial services based on the requirements of equal opportunity and the principle of business sustainability. Mialou et al.(2017) argued that inclusive finance is defined as the financial services that individuals and enterprises in a region can obtain as long as they need financial services. Sarma(2016) argued that inclusive finance is the process of making formal financial products and services available to all members of the region equally and conveniently.

With the increasing development of cloud computing, big data, mobile Internet and other technologies, digital inclusive finance, as a combination of traditional forms of inclusive finance and modern forms of digital technology, has become a new financial development model of high-quality development in China (Naz et al.,2022). At the G20 Summit in Hangzhou in 2016, the concept of "digital inclusive finance" was formally put forward, which refers to all actions to promote inclusive finance through the use of digital financial services. Digital financial inclusion broadly refers to the use of digital financial services to promote financial inclusion at a cost that is both affordable for customers and sustainable for suppliers (Zhang et al., 2023). Digital inclusive finance uses digital platforms to absorb social capital and provide services with lower costs and lower barriers (Ozili, 2018) and more convenient services (Geng&He, 2021), which cover a wide range of financial products and services, including payment, transfer, savings, credit, insurance, securities, financial planning and account statements.

3.2. Research on the measurement of digital inclusive finance

At present, the domestic academic research on digital inclusive finance is mostly based on the digital

inclusive finance index of Peking University. Based on the massive data of Ant Financial, the Institute of Digital Finance of Peking University constructs the index system of digital inclusive finance from three dimensions: the coverage breadth of digital finance, the depth of digital finance use and the digitalization degree of inclusive finance. The index system consists of 33 specific indicators covering 31 provinces, 337 cities and 2,800 counties in mainland China.

3.3. Relevant research on digital inclusive finance and enterprise innovation efficiency

Current research focuses on exploring the transmission mechanism of digital inclusive finance to promote enterprise technological innovation from the perspectives of optimizing financial resource allocation, lowering loan threshold and alleviating financing constraints.

Optimize the allocation of financial resources. Digital inclusive finance can alleviate the problem of fund mismatch under the traditional financial model, make up for the "long tail effect" in the financing process, help small and medium-sized enterprises to obtain financing loans, and improve their innovation capacity (Zhang et al., 2023). Based on the resource allocation theory, Li et al. (2020) explored the relationship between digital inclusive finance and enterprise innovation. According to Li et al. (2020), corporate innovation is faced with the problem of insufficient allocation of financial resources, and digital inclusive finance can promote corporate innovation by alleviating the distortion of financial factors, and play a stronger role in promoting private enterprises and small and medium-sized enterprises. Yang et al. (2021) believed that digital inclusive finance promotes the technological innovation of small and micro enterprises by alleviating the financing constraints of enterprises, optimizing the allocation of financial resources among departments and making up for the shortcomings of traditional finance, which is a strong supplement to traditional finance. Li and Pang(2023) believed that the digitalization and informatization of digital inclusive finance can effectively correct the problem of financial mismatch in the traditional financial model and enhance the technological innovation ability of small and medium-sized enterprises.

Lower the threshold for loans. Zheng(2023) compared digital inclusive finance with traditional finance, arguing that digital inclusive finance has a positive impact on corporate innovation output by tracking the flow of funds and lowering the loan threshold. Xiong et al.(2023) argued that digital inclusive finance can collect data on the usage and daily transaction activities of small and medium-sized enterprises through the Internet and other financial technologies, and use these data as the basis for credit risk assessment, so as to provide efficient and convenient financial services for small and medium-sized enterprises, while reducing the threshold and cost of financial services.

Ease financing constraints. Tang et al. (2020) believed that the development of digital finance can effectively solve the problem of "difficult and expensive financing" of enterprises, and drive enterprises to deleverage and stabilize their financial status, thus contributing to the increase of technological innovation output of enterprises. Guo and Yin (2022) believed that digital inclusive finance mainly improves the innovation environment by increasing the government impetus; Increasing financial driving force and easing credit constraints; Strengthen social interaction, promote information sharing and other ways to activate the innovation vitality of micro, small and medium-sized enterprises. Sun et al. (2022) argued that digital inclusive finance mainly promotes enterprise innovation by reducing information asymmetry, financing constraints and financial risks, and intellectual property protection plays a regulatory role. Song et al. (2023) argued that digital inclusive finance can promote technological innovation of small and medium-sized enterprises by easing financing

constraints and reducing financing costs.

3.4. Summary

Based on the review and summary of the above related literature, this paper holds that: (1) Digital inclusive finance is the product of the effective combination of network information technology and inclusive finance, which provides financial services to vulnerable groups excluded from the financial system and small, medium and micro enterprises with financing difficulties at controllable costs. (2) There are many studies on digital inclusive finance and enterprise innovation output, but few on digital inclusive finance and enterprise innovation efficiency. (3) At present, scholars mostly discuss the impact mechanism of digital inclusive finance on enterprise innovation from the perspective of internal financing constraints, and other main impact mechanisms should be further explored.

4. Summary and comments

Digital inclusive finance and enterprise innovation are current research hotspots, and all sectors of society pay high attention to them. Through reviewing and sorting out domestic and foreign literature, this paper has learned the history and current situation of domestic and foreign scholars' research on digital inclusive finance and enterprise innovation efficiency, and made the following findings:

First, the innovation efficiency of enterprises is affected by a variety of factors, which are mainly divided into internal factors and external factors.

Second, in the research on the impact of digital inclusive finance on enterprise innovation, scholars are mostly based on the perspective of traditional enterprise innovation, but lack of empirical research based on the perspective of enterprise innovation efficiency. Based on the perspective of different mediating variables, scholars have shown that the development of digital inclusive finance, an external factor of enterprises, has a significant role in promoting corporate innovation through theoretical or empirical methods.

Third, research on the transmission mechanism of digital inclusive finance affecting corporate innovation is limited. Most of the existing studies studied the mediating and moderating effects of digital inclusive finance on corporate innovation from the perspectives of optimizing financial resource allocation, lowering loan threshold and alleviating financing constraints, but there was a lack of research from the perspective of corporate absorptive capacity.

About the author

Jin Dongdong (1999-) female, Chinese graduate student, School of Finance, Yunnan University of Finance and Economics, research direction: Inclusive Finance, Enterprise Innovation Management.

References

[1] Chi, R. (2003). Research on the efficiency of enterprise technological innovation and its influencing factors. Quantitative Economics and Technical Economics Research, (6), 105-108.

[2] Da, Q. (2022). The impact of intellectual property protection on enterprise innovation efficiency: From the perspective of knowledge spillover. Finance and Accounting Monthly, (21), 145-153.

[3] Guo, P., & Yin, Z. (2022). The driving force of micro and small enterprises' independent innovation: Evidence from the perspective of digital inclusive finance. Economic Perspectives, (2), 85-104.

[4] Hu, L., & Wang, J. (2020). Product market competition and enterprise innovation efficiency: A study

based on quasi-natural experiments. Modern Economic Discussion, (9), 98-106.

[5] Li, J., Jiang, G., & Chen, C. (2020). The relationship between inclusive finance and enterprise innovation from an inclusive perspective: Evidence from Chinese A-share listed companies. Management Science, 33(6), 16-29.

[6] Liu, B., & Liu, A. (2023). Digital transformation, factor allocation, and enterprise innovation efficiency. Economic System Reform, (5), 121-128.

[7] Liu, M., & Liu, Y. (2023). Fiscal subsidies, industrial structure transformation and upgrading, and innovation efficiency of high-tech industries. Modern Management, 43(5), 118-127.

[8] Qi, H., Zhang, J., & Chen, M. (2023). Research on digital inclusive finance promoting the innovation efficiency of SMEs: From the perspective of the innovation value chain. Macroeconomic Research, (10), 23-40.

[9] Song, J., Tu, H., & Zhao, R. (2023). How does digital transformation promote the improvement of enterprise innovation efficiency? A re-examination from the perspective of financial asset allocation. Science & Technology Progress and Policy. Advance online publication. Retrieved December 2, 2023, from [URL of the article].

[10] Song, X., Wang, W., & Wang, G. (2023). Can digital inclusive finance provide momentum for SME innovation? Empirical evidence from SMEs listed on the New Third Board. Investment Research, 42(1), 120-137.

[11] Sun, F., Wu, G., & Jiang, S. (2022). Digital inclusive finance, intellectual property protection, and enterprise innovation. Technological Economics, 41(12), 38-49.

[12] Tang, S., Wu, X., & Zhu, J. (2020). Digital finance and corporate technological innovation—Structural characteristics, mechanism identification, and effect differences under financial regulation. Management World, 36(5), 52-66+9.

[13] Wang, W., & Xu, A. (2022). Can the digital economy drive enterprise innovation efficiency? Modern Economic Discussion, (12), 79-90.

[14] Yang, J., Xiao, M., & Lv, P. (2021). Does digital inclusive finance promote technological innovation in small and micro enterprises? An empirical study based on the China Micro and Small Enterprise Survey (CMES) data. Journal of Zhongnan University of Economics and Law, (4), 119-131+160.

[15] Zhang, J., Hou, Y., Liu, P., et al. (2019). The goals and strategic pathways for high-quality development. Management World, 35(7), 1-7.

[16] Zhao, L. (1999). Knowledge, decision-making, and technological innovation efficiency. Science of Science and Management of S&T, (4), 53-56.

[17] Zhao, L., & Huang, H. (2023). Corporate digital transformation, executive information technology expertise, and innovation efficiency. Journal of Yunnan University of Finance and Economics, 39(7), 86-110.

[18] Afriat S N. Efficiency estimation of production functions[J]. International economic review, 1972: 568-598.

[19] Farrell M J. The measurement of productive efficiency[J]. Journal of the Royal Statistical Society Series A: Statistics in Society, 1957, 120(3): 253-281.

[20] Geng Z, He G. Digital financial inclusion and sustainable employment: Evidence from countries along

the belt and road[J]. Borsa Istanbul Review, 2021, 21(3): 307-316.

[21] Holmstrom B. Agency costs and innovation[J]. Journal of Economic Behavior & Organization, 1989, 12(3): 305-327.

[22] Huang X. The roles of competition on innovation efficiency and firm performance: Evidence from the Chinese manufacturing industry[J]. European research on management and business economics, 2023, 29(1): 100201.

[23] Li W, Pang W. Digital inclusive finance, financial mismatch and the innovation capacity of small and medium-sized enterprises: Evidence from Chinese listed companies[J]. Heliyon, 2023, 9(2).

[24] Lin B, Luan R. Are government subsidies effective in improving innovation efficiency? Based on the research of China's wind power industry[J]. Science of the Total Environment, 2020, 710: 136339.

[25] Mialou A, Amidzic G, Massara A. Assessing countries' financial inclusion standing–a new composite index[J]. Journal of Banking and Financial Economics, 2017, 2(8): 105-126.

[26] Naz F, Karim S, Houcine A, et al. Fintech growth during COVID-19 in MENA region: current challenges and future prospects[J]. Electronic Commerce Research, 2022: 1-22.

[27] Ongsakul V, Chatjuthamard P, Jiraporn P. Does the market for corporate control impede or promote corporate innovation efficiency? Evidence from research quotient[J]. Finance Research Letters, 2022, 46: 102212.

[28] Ozili P K. Impact of digital finance on financial inclusion and stability[J]. Borsa Istanbul Review, 2018, 18(4): 329-340.

[29] Piao Z, Miao B, Zheng Z, et al. Technological innovation efficiency and its impact factors: An investigation of China's listed energy companies[J]. Energy Economics, 2022, 112: 106140.

[30] Sarma M. Measuring financial inclusion for Asian economies[J]. Financial inclusion in Asia: Issues and policy concerns, 2016: 3-34.

[31] Wang H, Liu F. Digital finance and enterprise innovation efficiency: Evidence from China[J]. Finance Research Letters, 2024, 59: 104709.

[32] Xiong M, Li W, Xian B T S, et al. Digital inclusive finance and enterprise innovation—Empirical evidence from Chinese listed companies[J]. Journal of Innovation & Knowledge, 2023, 8(1): 100321.

[33] Yang L, Wang S. Do fintech applications promote regional innovation efficiency? Empirical evidence from China[J]. Socio-Economic Planning Sciences, 2022, 83: 101258.

[34] Yin L, Du S, Chen G. The influence of the bank–firm relationship on enterprises' technological innovation efficiency: Evidence from China[J]. International Review of Economics & Finance, 2024, 89: 1583-1600.

[35] Zhang X, Li J, Xiang D, et al. Digitalization, financial inclusion, and small and medium-sized enterprise financing: Evidence from China[J]. Economic Modelling, 2023, 126: 106410.

[36] Zheng L. Heterogeneous impacts of financial inclusion on enterprise innovation: Evidence from China[J]. Finance Research Letters, 2023: 103965.