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A Study on the Impact of Digital Inclusive Finance on High-Quality Development of the Region

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Abstract. With the development of big data, cloud computing and artificial intelligence, digital inclusive finance has advanced steadily around the world in recent years and achieved good results in the financial sector and regional economic growth. Over the past decade, scholars have explored a variety of links through which digital inclusive finance promotes high-quality regional development, such as optimising capital allocation, fostering technological innovation and stimulating industrial structure upgrading. This paper reviews existing research and identifies three main links: digital inclusive finance can enhance the efficiency of resource allocation to promote high-quality regional development; it can also stimulate technological innovation among innovative enterprises and support the development of emerging sectors; and it can advance industrial structure upgrading through support for emerging industries and SMEs. The study also indicates three deficiencies in current research: a lack of standardised measurement indicators, difficulties in addressing regional differences and the problem of digital inequality, and concrete regulatory challenges such as data privacy breaches and algorithmic discrimination.

Keywords: Digital Inclusive Finance, High-quality Economic Development, Regional Economy

1. Introduction

With the rapid development of the digital economy, big data, cloud computing and artificial intelligence have been applied in various ways to transform the traditional model of financial services and have given rise to digital inclusive finance. This new model of financial services uses digital technology to increase the number of financial products and services available for previously underserved groups of people and enterprises; convenient and affordable online financial services can now be obtained without visiting a physical office, benefiting SMEs and low-income groups in particular. Many studies have examined the economic impact of digital inclusive finance from all sides, and according to the Peking University Digital Inclusive Finance Index (PUDIFI), both the coverage and usage in different areas have been rising steadily over the past decade [1].

China's economy has entered a new era of high-quality development, whose central task is to promote high-quality regional growth and reduce disparities. High-quality development encompasses innovation, coordination, ecological civilization, openness and common prosperity, rather than merely high GDP growth. According to the PUDIFI, the average provincial index rose

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from 185 in 2014 to 384.2 in 2023, more than doubling over the decade, while the national high-quality economic development index rose from 0.565 to 0.687 over the same period. Understanding how digital inclusive finance supports high-quality regional development has therefore become a research focus.

This paper systematically collects and studies current research on the relationship between digital inclusive finance and high-quality regional economic development, integrating theoretical systems, empirical data, and other methods in this new field. Based on the above investigation, it has been determined that digital inclusive finance affects high-quality development through three channels: optimisation of capital allocation, promotion of technological innovation, and upgrading of industrial structure. At the same time, the current research has also exposed three problems: first, there are still shortcomings in measurement and data, second, the distribution between regions is uneven and inequality is relatively obvious, and third, there are also some difficulties in supervision and policy. Based on these contents, this article aims to encourage policymakers to pay more attention to the impact of digital inclusive finance on all aspects of regional development, and also provide some solid evidence support for evidence-based governance. Correspondingly, there are three key challenges to be solved in the future: unifying measurement indicators and data sources, narrowing regional gaps and digital divides, and designing flexible regulatory methods that can protect consumers, data privacy and algorithm fairness [2].

2. Mechanisms and channels of digital inclusive finance in promoting the high-quality development of regions

Based on the frameworks of financial evolution, information economics and innovation economics, many ways to promote high-quality development in various areas have been proposed and verified through digital inclusive finance. This section presents the three most widely discussed and empirically verified pathways: the optimisation of capital allocation, the promotion of technological innovation, and the upgrading of industrial structure.

2.1. Capital allocation optimization mechanism

One of the basic problems of the traditional financial system is information asymmetry, which gives rise to adverse selection and moral hazard in credit markets. Financial institutions generally favour large, well-guaranteed companies, and many small- and medium-sized enterprises with good marginal productivity cannot obtain loans because they lack a good credit history, which in turn weakens productivity growth and the overall quality of economic development. This misallocation is precisely what digital inclusive finance seeks to correct.

With the development of inclusive finance, big data and digital technologies have been applied to solve the problem; lenders can now collect all sorts of alternative data about borrowers to better assess credit risk. Lowering the threshold for financial offerings and issuing unsecured financial instruments have allowed more underbanked enterprises to join the financial system, thus improving fund allocation efficiency for key sectors [3]. The expansion of extended credit for productive small and medium-sized enterprises will stimulate investment, create employment and improve total factor productivity. Thus, the whole region's economy will be promoted to develop in all aspects, completing the link from financing access to overall economic expansion.

DOI: 10.54254/2754-1169/2026.37381

2.2. Technological innovation-led effect

Technological innovation is one of the driving forces for the steady development of the economy. It can improve production efficiency, promote industrial upgrading, and help support high-quality growth. However, innovation often involves large investment, high risk and long development cycle. Traditional banks are usually conservative and tend to avoid risks. Therefore, they are reluctant to provide loan support for unproven ideas or young enterprises without collateral and stable profit records. In this way, innovation lacks funds. The economy will also be limited if it wants to shift from growth, which is mainly based on scale expansion, to development that relies more on innovation.

Digital Inclusive Finance has released many funds for innovation. With the use of big data credit assessment methods, it is now possible to know more accurately about the credit risk and innovation ability of young companies, so under the umbrella of inclusive finance, tailor-made financial services can be provided to help these enterprises overcome financing difficulties. Therefore, they can obtain more funds for research and development, advance technology, and also obtain funds for the commercialization of innovation results and be rapidly industrialised, thereby serving as a strong driving force for economic growth. By reducing the requirement for physical collateral and using soft data, such as transaction records, digital finance can also reduce the funding pressure on small and medium-sized innovative enterprises; both product and process innovation have been positively affected by the improvement in credit conditions [4]. In addition to providing funds, digital finance is also cultivating talent by investing in vocational education and promoting academic-industry cooperation; it can offer full-round support to innovation in finance, human resources and information by strengthening the digital infrastructure for payment systems, cloud services, data trading, etc.

In addition to direct financing, scholars have also found that digital inclusive finance can promote technological innovation through other channels. In addition to direct financing, scholars have also found that digital inclusive finance can promote technological innovation through other channels. First, alternative data can be used to judge credit risks more accurately, which is also easier to evaluate a new generation of innovative projects and reduce information asymmetry. Second, crowdfunding and point-to-peer (P2P) platforms can provide some early funds, which are often not available by traditional venture capital. Third, with the popularization of digital financial services, the knowledge spillover effect will be enhanced, which will also help those areas that have long been excluded from the mainstream financial system form an innovative ecology. However, these effects are not the same in different places, and it depends on the local support conditions.

2.3. Industrial structure upgrading effect

Industrial structure upgrading — the shift from labour- and resource-intensive industries toward technology- and knowledge-intensive ones — is an essential characteristic of high-quality development. Based on the above research results, the three main effects of digital inclusive finance are to channel funds to emerging industries and high-tech firms, driving advanced manufacturing and modern services; it finances technological transformation and equipment upgrades in traditional industries [5]; and it creates new business models such as platforms and digital products to further improve the industrial system.

According to the cross-provincial panel studies mentioned above, the areas that have achieved good results in digital inclusive finance generally have an industrial structure with a relatively large proportion of tertiary and high-tech sectors, and there has been an increase in the value added by

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these industries. Based on the mechanism analysis, the two main ways to achieve this result are capital supply and technological progress. By directing more financial resources to high-value-added, technology-intensive industries, digital inclusive finance can help move labour and capital from low-productivity areas to high-productivity areas, thereby promoting all-round industrial upgrading. However, some scholars have also listed several reasons for the limited effect mentioned above, such as poor quality of human resources, insufficient digital infrastructure and institutional systems, etc; therefore, some additional supporting policies are needed to fully realize the potential of digital inclusive finance in promoting industrial transformation [6].

3. Challenges and controversies in research

Although an increasing number of studies have investigated digital inclusive finance and high-quality regional economic development, many problems and controversies in this area have not been solved. The problems listed above can be divided into methodological difficulties, content and data obstacles, and policy dilemmas; the following subsections therefore examine the three main areas of problems in greater detail, highlighting both their theoretical roots and their practical implications for policymakers.

3.1. Measurement and data challenges

One of the first problems in this field is the absence of a commonly accepted set of indicators for measuring digital inclusive finance and high-quality economic development consistently across all regions. Different places have introduced various indices and metrics for research, so it is difficult to compare the results. For example, the PUDIFI is relatively good; it has some included indices, such as the scope of coverage, extent of use and level of digitalisation, but it is specific to China and cannot be directly compared with benchmark data from other countries [7].

Measuring high-quality economic development is even more challenging. Since it has many components, including innovation, coordination, green development, openness, and sharing, composite indices with multiple indicators are needed. However, many studies have chosen different variables, assigned different weights, and used all sorts of combinations. Therefore, their results on the extent and significance of the relationship are not the same. Furthermore, there are still problems with data quality and accessibility at the sub-national level and in developing countries. Given the rapid progress of innovation in digital financial services, many existing datasets are out-of-date and do not reflect the current situation in the market. Future studies could increasingly draw on high-frequency transaction data, web-crawled platform information and satellite or mobile-payment records to capture the dynamics of digital financial services in closer to real time, thereby improving both the timeliness and the granularity of measurement.

3.2. Regional differences and disparities

The second main problem is whether the impact of digital inclusive finance on regional economic disparities is uniform. Some scholars believe that financial services in underdeveloped areas will help reduce the gap; others are concerned that this will increase the digital divide, and this problem has not yet been solved. Research shows that the positive impact of digital inclusive finance is relatively stronger in central and western China compared to the east, consistent with the latecomer-advantage hypothesis that lagging regions can benefit more from new technologies by skipping earlier stages, while the already advanced east sees smaller marginal gains from further expansion.

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At the same time, there are concerns that digital inclusive finance may worsen some types of inequality. The digital divide refers to differences in the access to and use of digital tools among people in different areas, and it restricts the ability of marginalized groups to enjoy the benefits of digital financial services. In areas with a weak digital environment, if people lack digital literacy or financial education, the good effects of digital inclusive finance will be reduced or even negative. In addition, the benefits may be concentrated in certain groups, such as urban residents, young people and educated individuals, and will not reach older adults, rural areas and low-skilled workers. Some scholars have also pointed out that the distribution effect will be negative, and the vulnerable will be more financially stressed: easier digital credit may expose vulnerable households to income volatility and over-indebtedness. The digital divide is understood at three levels: access to infrastructure, use and digital literacy, and the ability to derive economic benefits [8].

3.3. Regulatory and policy dilemmas

With the rapid development of digital inclusive finance, many problems have arisen for regulators and policymakers around the world. One of the main issues is that the development of technology has advanced much faster than the construction of governing institutions. Many types of digital financial products fall outside the traditional categories of banking, insurance and securities, which may pose non-trivial challenges for the current regulatory system to anticipate and cover them in a timely manner. Therefore, there are concerns about regulatory arbitrage and difficulties in ensuring the protection of consumers, financial stability and fair competition.

One central problem in regulating digital finance is how to promote financial innovation while maintaining financial stability. Overly strict regulation may stifle innovation and prevent digital finance from achieving its goals of boosting economic growth and improving the quality of life for all; overly loose regulation may create substantial risks of systemic crises, consumer harm and instability. Current risks include data leakage, cyberattacks, algorithmic bias and platform monopolies, and according to policymakers, all of these have been getting worse day by day. Unauthorised collection of consumer information by some lending platforms is a direct violation of the right to privacy of the people; credit-rating algorithms based on biased historical data may continue to deny credit to individuals in certain areas or groups, illustrating why abstract principles must be translated into enforceable rules on data use and algorithmic accountability.

4. Conclusion

This review has organised the research on digital inclusive finance and high-quality regional economic development, presenting its theoretical basis, empirical results and research problems. The impact of digital inclusive finance on high-quality development can be traced through the three main channels mentioned below: optimisation of capital allocation, innovation-driven technology, and upgrading of industrial structure. Through these channels, digital inclusive finance can improve the use of economic resources; support new and innovative enterprises that have been overlooked by traditional financial institutions; and promote the construction of a modern and sustainable industrial structure, all of which can contribute to high-quality regional economic development. The three paths should not be regarded as separate processes; enhanced capital allocation can boost the profitability of innovation, effective innovation will promote industrial upgrading, and this upgrading in turn will create higher-quality loan recipients and more information. Thus, these three frequently work together and may have an integrated effect that surpasses that of their individual parts.

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At the same time, three primary research issues remain unresolved. The quantification of digital inclusive finance and high-quality economic development has not been standardised yet, so different studies have used various indicators and methods, and cross-study comparison is difficult. Second, regional differences and distribution effects need further clarification: some studies have shown that digital finance has addressed some deficiencies, but others have warned that it may worsen other problems in society. Lastly, policymakers need to promote innovation and protect financial stability and the rights of financial consumers.

There are three main aspects of the contribution of this article. First, it sorts out the existing research according to the idea of "mechanism-challenge-future direction", which not only talks about the academic progress, but also points out the current problems and possible prospects of digital inclusive finance. Second, it summarizes three major research shortcomings and gives corresponding improvement measures: establishing a more standardized measurement system; conducting in-depth research on regional differences and distribution effects, and exploring new regulatory measures. On the whole, this article comprehensively introduces how digital inclusive finance promotes regional development. At present, the urgent problem that needs to be solved is how to ensure effective supervision while promoting financial innovation - that is to say, to design adaptive and measured rules that can not only accommodate new business models, but also ensure data privacy, algorithm fairness and financial stability.

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