

Research on Digital Inclusive Finance Facilitating Rural Revitalization in Liaoning Province

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Abstract

This article focuses on the role of digital inclusive finance in promoting rural revitalization in Liaoning Province. The research indicates that the level of digital inclusive finance in Liaoning Province has improved significantly in recent years, but there are still structural contradictions in the uneven development of coverage breadth and usage depth. Currently, the deepening of digital inclusive finance in Liaoning Province faces three major challenges: insufficient construction of digital financial infrastructure; digital financial literacy gap among residents; and poor alignment between digital financial products and rural needs. The research provides a theoretical reference for exploring the collaborative mechanism between digital finance and rural revitalization: strengthening the construction of digital financial infrastructure, scaling up investment in rural digital financial infrastructure; enhancing residents' literacy of digital finance; innovating digital financial products to meet rural needs, conducting in-depth research on the characteristics of the rural economy, and designing highly targeted financial products.

Keywords: digital inclusive finance, rural revitalization, rural economy

1. Introduction

Rural revitalization has become a major strategy in China's modernization process, concerning national food security, social stability, and common prosperity. However, in actual implementation, there are still many challenges, among which the imbalance in financial resource allocation, insufficient supply of financial service, and the lagging development of rural financial markets are particularly prominent.

Digital inclusive finance leverages technologies such as big data, cloud computing, and the internet, breaks through the limitations of traditional financial services and provides innovative solutions for rural revitalization. Since the release of the "G20 High-Level Principles for Digital Financial Inclusion" in 2016, digital inclusive finance has achieved remarkable results.

As a leading agricultural province, Liaoning's rural revitalization progress carries significant demonstration value for agriculture and rural modernization in Northeast China and the entire nation. However, hampered by slow restructuring of traditional industries, accelerating exodus of agricultural labor, and suboptimal financial ecosystem, its development remains a formidable journey ahead.

Currently, scholars have conducted research on the role of digital inclusive finance in promoting rural revitalization using different methods. Tian Ye et al. empirically validate the transmission mechanism of "inclusive finance - urban-rural integrated development - rural industrial revitalization" using inter-provincial panel data. Liu Weijiang et al. believe that digital inclusive finance can promote the deep integration of digital technology and traditional agriculture. Zhang Qiong and Zhang Yuhan explored effective pathways for enhancing rural revitalization.

This article analyzes the current development status and challenges faced by digital inclusive finance in supporting rural revitalization in Liaoning Province, and

proposes path optimization to provide theoretical basis and reference for optimizing digital inclusive finance policies and promoting rural revitalization.

2. The Path of Digital Inclusive Finance in Supporting Rural Revitalization

2.1 Improve the Accessibility of Financial Services While Reducing Costs

Traditional financial institutions have limited branch coverage in rural areas. Farmers and small enterprises face difficulties in financial services such as fund deposits, withdrawals, and loan applications. Digital inclusive finance can address the issues through online and intelligent solutions. Take mobile payments and online loans as example, farmers can complete transactions and loan applications using just their mobile phones. Institutions can leverage big data analytics to assess farmers' production and operation data, as well as credit records, allowing for quick loan approvals and disbursements, thus solving the "difficulty in obtaining loans" problem. This service model can significantly enhance the coverage and accessibility of financial services in rural areas.

Financial institutions have reduced their reliance on physical branches, lowering labor and operational costs through online business processes, making financial services more cost-effective. At the same time, digital finance can leverage big data and intelligent algorithms to assess customer credit risk quickly, reducing the costs of intermediary steps in traditional models, such as information collection and review.

2.2 Promote the Development of Rural Industries

Digital inclusive finance provides diverse financing channels and innovative financial service models for rural industrial development. It can accurately match the funding needs of small and micro enterprises in rural areas at different stages, assisting in industrial upgrading. At the same time, digital inclusive finance integrates with rural e-commerce, agricultural supply chains, and optimizes the capital flow in the industrial chain. Platforms of the e-commerce sector supply chain financial services to merchants through digital finance, ensuring funding circulation across all stages of farm produce production and marketing.

2.3 Promoting the Upgrade of Rural Consumption

Digital inclusive finance has enriched the consumption and payment methods of rural residents, with mobile payments making consumption convenient and efficient. At the same time, the gradual promotion of consumer finance products such as installment payments in the rural market has enhanced the consumption capacity and willingness of rural residents. Rural residents can improve their living standards and production conditions by accessing goods and services before full payment, thereby upgrading their consumption structure.

3. The Current Situation of Digital Inclusive Finance and Rural Economic Development in Liaoning Province

The construction of the evaluation system for the development level of digital finance is most authoritatively represented by the "Peking University Digital Inclusive Finance Index" compiled by the Digital Finance Research Center of Peking University. This system includes three core dimensions: the breadth of coverage and the depth of usage of digital financial, and the degree of digitalization of inclusive finance. The breadth of coverage focuses on the reach of financial services, such as the density of digital financial service outlets in rural areas, reflecting the level of penetration; The depth of usage concerns the extent of application of financial services, for example, the frequency and scale of farmers using complex products like supply chain finance and agricultural insurance; The degree of digitization measures the digital level of financial services, covering the online rate of financial transactions in rural areas, the proportion of big data risk control technology application, etc., highlighting the innovation intensity enabled by digital technologies in rural financial services.

The overall index of digital inclusive finance in Liaoning Province has increased by 653.73% over the past 10 years. Coverage breadth registered a 583.07% increase, and the depth registered a 635.04% increase. The increase in the level of digitization is 993.49%, which is far higher than the overall index, indicating that Liaoning Province performs excellently in the innovation of financial services empowered by digital technology. The level of digitization has tended to stabilize after 2018. This indicates that, supported by new technologies such as big data and artificial intelligence, the development of digital inclusive finance is gradually entering a new normal. Therefore, the main direction for the next step in deepening digital inclusive finance in Liaoning Province should be the breadth of coverage and the depth of usage.

Table 1. Digital Inclusive Finance Index of Liaoning Province 2011-2020

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Overall Index	43.29	103.53	160.07	187.61	226.4	231.41	267.18	290.95	311.01	326.29
Coverage breadth	44.96	89.01	126.67	175.49	194.17	207.74	239.87	271.81	292.44	307.11
Usage depth	44.64	120.36	181.54	162.89	178.41	220.06	291.27	279.48	302.52	328.12

Digitali-zation level	35.33	120.91	231.33	272.53	420.06	330.21	313.57	375.01	387.77	386.33
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In recent years, Liaoning Province has achieved certain results in using digital finance to support rural revitalization. For example, by the end of 2023, Agricultural Bank of China Dalian Branch had increased county loans by 7.286 billion yuan, with a growth rate of 20.61%. Ping An Guarantee Liaoning Branch has also provided financial services to owners of small and micro enterprises and individual industrial and commercial households through online intelligent financing products like "Lu Zhang Fang" improving the accessibility and quality of services.

However, it should be noted that the digital inclusive finance index of Liaoning Province ranked 18th among 31 provincial-level administrative regions in 2020, and its overall development achievements are still at a medium-low level nationwide, indicating that there is still a long way to go in promoting digital inclusive finance.

4. Challenges Faced by Digital Finance in Supporting Rural Revitalization in Liaoning Province

Liaoning Province faces numerous challenges in utilizing digital finance to promote rural revitalization, which restricts its further deepening.

4.1 Insufficient Construction of Digital Financial Infrastructure

The operation of digital finance relies on infrastructure, including network communication facilities and financial service terminals. As a traditional industrial province, Liaoning Province had an industrial structure dominated by heavy industry for a long time, which makes digital economic resources tilting towards industrial regions, resulting in insufficient breadth of digital infrastructure investment. Bandwidth quality and stability in many regions remain inadequate to support complex transactional scenarios of digital finance.

4.2 Digital Financial Literacy Gap among Residents

The proportion of the rural population aged 65 and above in rural areas of Liaoning Province reaches 21.1% , ranking first in the country, and the elderly group's acceptance of digital finance faces significant barriers. Farmers in the region have a weak awareness of digital financial risk prevention, and there are even cases of not understanding basic digital financial concepts such as online lending, making them easy targets for financial fraud. Cash remains the primary payment method at rural markets, and farmers have insufficient knowledge of mobile payments, which hinders the popularization of digital finance. In July 2023, the Liaoning Agricultural Credit Guarantee Company and the Postal Savings Bank Panjin Branch launched the " Pan Dao Guarantee" product. In practice, customers of small and micro enterprises are generally not familiar with the products, resulting in low utilization rates. Knowledge gap makes it difficult for digital finance to achieve full coverage from basic services to high-end applications in rural areas.

4.3 Poor Alignment Between Digital Financial Products and Rural Needs

Digital financial products are often not adequately designed to address the specific needs of rural areas. Agricultural production is characterized by strong seasonality and high risk, and most existing digital financial products are oriented towards the financial needs of urban residents and businesses, lacking customized products for rural agricultural production. Online loan products generally have short repayment periods, which do not align with the long production cycles of agriculture, making it difficult for farmers to repay on time during the production process, leading to increased default risks. In addition, the limited collateral in rural areas and the difficulties in operating asset mortgage businesses, such as land management rights, make it challenging for farmers to obtain financing. Financial institutions have not adequately considered the actual situation when designing products, resulting in a disconnect between products and needs.

5. Path Optimization of Digital Inclusive Finance in Liaoning Province to Support Rural Revitalization

5.1 Strengthen the Construction of Digital Financial Infrastructure

The government and financial institutions should increase investment in the construction of digital financial infrastructure in rural areas. In regions with weak networks, operators need to upgrade network equipment, enhance network stability through the construction of 5G base stations and fiber optic coverage, ensuring smooth business processes. This allows for efficient operation of services such as live streaming loan applications for agricultural products and online claims for agricultural insurance. In terms of building data centers and cloud computing facilities, the government can collaborate with technology companies to establish distributed data centers in rural areas, reducing data transmission latency and ensuring the timeliness of financial data processing. At the same time, perform regular maintenance and updates on terminal devices, such as installing additional smart

payment terminals, establishing a special-purpose fund to phase in network enhancement and equipment renewal, upgrading digital financial infrastructure for improved user experience.

5.2 Enhance Residents' Digital Financial Literacy

To address the dual challenges of rural population aging and low financial literacy, implement targeted digital finance education initiatives. Utilize rural cultural auditoriums, village broadcasts, and other channels to conduct offline digital finance knowledge lectures, explaining basic knowledge such as digital payments and mobile banking usage; produce locally themed digital finance popular science short videos to be played in a loop on local television and outdoor screens to eliminate cognitive misconceptions. At the same time, launch digital finance courses on e-learning platforms, covering emerging financial technology principles and financial fraud prevention; hold activities such as digital finance knowledge competitions in markets, schools, and other venues to stimulate residents' interest in learning. When promoting products like "Pan Dao Guarantee," financial institutions should hold product promotion meetings to elaborate on product benefits and risk mitigation strategies, thereby boosting adoption rates and deepening digital finance engagement.

5.3 Innovate Digital Financial Products to Meet Rural Needs

Financial institutions should conduct in-depth research around the unique characteristics of the rural economy and innovate products. For long production cycles, design loan products aligned with crop growth and sale periods, featuring grace periods in early stages and income-based repayment plans in later stages. In terms of collateral innovation, improve the mortgage to an business for land contracting and management rights, establish professional assessment agencies, and introduce a tripartite guarantee mechanism to reduce risks; explore new types of collateral such as agricultural product inventory pledges and agricultural intellectual property pledges to enhance the alignment of financial products with rural market demands.

6. Conclusion

Against the backdrop of the comprehensive promotion of the rural revitalization strategy and the vigorous development of the digital economy, digital inclusive finance, with its technological innovation advantages, has become a key engine for solving the development challenges in rural areas of Liaoning Province and promoting the modernization of agriculture and rural areas.

Currently, the digital finance in Liaoning Province supporting rural revitalization faces challenges such as weak infrastructure, literacy gap among residents, and mismatches in product supply and demand. By increasing investment in digital infrastructure through government-enterprise collaboration, building a diversified financial education system, and deepening product service innovation, it is possible to break through the bottlenecks in the development of digital inclusive finance effectively.

With the iteration of digital technology and the advancement of the rural revitalization strategy, Liaoning Province should further seize opportunities, using digital inclusive finance as a link to build a new pattern of urban-rural integrated development, and support the realization of rural revitalization strategy objectives.

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