

The Logic, Dilemma and Way out of the Coupling Coordination of Digital Inclusive Finance, Rural Industry and Ecological Revitalization in the Yangtze River Economic Belt

Yueyue Sui*

School of Finance, Anhui University of Finance and Economics, Bengbu, China

*2741173706@qq.com

Abstract

As an innovative financial model, digital Inclusive Finance provides new impetus and opportunities for rural industry and ecological revitalization. However, in the actual development process, there are problems such as the structural imbalance between the supply and demand of digital inclusive financial products and services, and the lack of rural digital infrastructure, which restrict the deep integration and coordinated development of the three. Combined with the coordinated development of digital Inclusive Finance, rural industry and ecological revitalization in the Yangtze River economic belt, this paper analyzes the internal logic of the coordinated development of the three systems, reveals the current difficulties, and explores the way out for promoting the coordinated development of the three systems, aiming to provide practical basis for promoting the high-quality development of rural industry and ecological revitalization in the Yangtze River economic belt.

Keywords

Digital Inclusive Finance; Industrial Revitalization; Ecological Revitalization; Coordinated Development.

1. Introduction and Literature Review

The report of the 20th National Congress of the Communist Party of China stressed the need to comprehensively promote rural revitalization, and industrial prosperity and ecological livability are the two cores that must be taken into account in the Rural Revitalization Strategy. China's "14th five year plan" mentions the current situation of "unstable agricultural foundation", "long way to go for ecological and environmental protection" and "short board for people's livelihood security". In 2025, the No. 1 document of the central government stressed the need to improve the development of rural industry, the level of rural construction and the level of rural governance. These "three improvements" pointed out the need to promote the coordinated development of rural industry prosperity and ecological livability. It can be seen that rural industrial revitalization and ecological revitalization need to be promoted as a whole and made concerted efforts, so as to solve the short board of development and realize the comprehensive revitalization of rural areas.

Industrial development is the basic support for Rural Revitalization. Only the development of industry can provide employment opportunities and sustainable sources of income growth for farmers[1].The revitalization of rural industry is the foundation of Rural Revitalization. It can provide the core power for farmers' income increase and rural development by cultivating characteristic industries and activating resource elements, which is the key support to realize the comprehensive revitalization of rural areas. Finance is the main driving force of economic development and plays an important role in the adjustment of industrial structure [1]. However, in the process of promoting the revitalization of rural industries, there is a phenomenon of

Financial Exclusion, which makes it difficult to effectively meet the financial needs [2]. Therefore, it is urgent to develop an innovative financial model to serve the development of rural industry in China.

Rural ecological revitalization is also an important prerequisite for Rural Revitalization. Protecting green waters and mountains can not only create a livable environment and ensure ecological security, but also inject green momentum into industrial development through the transformation of ecological value, which is the necessary path to achieve rural sustainable development. China has been actively engaged in rural pollution prevention and control and the construction of ecologically livable and beautiful villages by increasing financial investment, which is exactly the case. In this regard, it has also exposed problems such as insufficient supply of funds for rural infrastructure construction and insufficient participation of social capital [3]. It is urgent for us to explore a new path to activate social capital and optimize the allocation of funds, so as to inject sustainable power into rural ecological livable construction.

In recent years, with the application of Internet technology, digital Inclusive Finance is gradually growing and contributing to the road of Rural Revitalization. In January 2025, the CPC Central Committee and the State Council issued the rural comprehensive revitalization plan (2024-2027), emphasizing the need to develop digital Inclusive Finance to regulate social investment in agriculture and rural areas and promote rural revitalization. Digital Inclusive Finance is a new tool to transform the traditional financial system based on Inclusive Finance and relying on modern scientific and technological means[4]. With the help of technology and digital economy, digital Inclusive Finance has broken the "28 law" of traditional finance, alleviated the pain point of difficult coverage and high cost of traditional financial services, and thus stimulated the huge potential of the long tail market [5].

Industrial prosperity will reduce the consumption of resource-based products, and ecological livability can reverse the industrial development. Digital Inclusive Finance indirectly increases financial support for ecological construction by driving industrial development. It can be seen that the digital Inclusive Finance, rural industry revitalization and ecological revitalization need to develop in coordination and promote each other. In order to form a virtuous cycle of rural revitalization, digital inclusive finance can promote the green transformation of industry, and ecological industry development can help ecological construction.

By combing the existing literature, it is found that scholars mostly focus on the relationship between the binary system of digital Inclusive Finance, rural industry and ecological revitalization to explore the mechanism of digital Inclusive Finance enabling Rural Revitalization. Specifically, it is divided into two aspects. On the one hand, explore how digital inclusive finance can promote the revitalization of rural industries, for example, Jin Jing (2022) concluded through provincial panel data that the development of digital Inclusive Finance has a significant role in promoting the revitalization of rural industries in China, and the higher the level of regional economic development, the more obvious the positive impact of digital Inclusive Finance on the revitalization of rural industries[6]. Some scholars believe that digital inclusive finance can indirectly help rural revitalization by optimizing the rural industrial structure[4]. Zhang Liao and Liu Chengfei (2024) also pointed out that digital inclusive finance can not only promote the revitalization of rural industry by reducing the resource constraints of business entities and stimulating market vitality, but also indirectly help the revitalization of rural industry by promoting agricultural science and technology innovation[7]. On the other hand, scholars mainly explored the role of digital Inclusive Finance in promoting rural ecological revitalization. For example, Cai Xuexiong et al. (2023) proposed that digital inclusive finance can significantly improve rural ecological livable level through agricultural technology progress and urbanization effect [3].Huang Hengjun and Wang Ziyuan (2024) explored the positive impact of digital Inclusive Finance on rural agricultural ecological efficiency, and

believed that it could be conducted by promoting urbanization and cultivating scientific and technological talents [8].

It can be seen that the existing studies have conducted in-depth discussions on the relationship between digital Inclusive Finance, rural industry and ecological revitalization, and have provided strong support for the construction of rural revitalization Road. However, few literatures have explored how to pay attention to the construction of rural ecological livable while giving consideration to industrial development from the perspective of coupling and coordinated development of digital Inclusive Finance, rural industry and ecological revitalization. We should also note that some existing rural industrial models are relatively inefficient, and the protection of the ecological environment is ignored in the process of pursuing industrial development, resulting in the imbalance of industrial and ecological development, and the lack of overall vitality of the rural economy, which will affect the acceptance and effect of digital Inclusive Finance in rural areas. Therefore, the absence of any one of digital Inclusive Finance, rural industry and ecological revitalization will affect the high-quality development of rural areas. In view of this, we need to build an effective synergy mechanism among digital Inclusive Finance, rural industry and ecological revitalization, deeply analyze the collaborative development path among the three systems, and then put forward guidance and suggestions for the practice of Rural Revitalization.

This paper will elaborate the theoretical mechanism, challenges and policy recommendations of the coordinated development of the three systems from three aspects: the theoretical logic of the Yangtze River Economic Belt's digital Inclusive Finance to promote the revitalization of rural industry and ecological revitalization, development difficulties and solutions.

2. Collaborative Development Logic of Digital Inclusive Finance, Rural Industry and Ecological Revitalization

2.1. Digital Inclusive Finance: The Dynamic Support of Rural Industry Revitalization

In the Yangtze River economic belt, digital inclusive finance breaks through the physical boundaries of traditional finance through technological empowerment and injects core momentum into the revitalization of rural industries. Digital inclusive finance can play a positive role in the development of rural industries in terms of coverage, depth of use and degree of digitization[9].As an inclusive financial tool, digital inclusive finance can optimize the allocation of rural capital elements, resolve rural financial exclusion, break the bottleneck of rural capital, curb capital outflow, and provide sustainable momentum for the transformation and upgrading of rural industries[10].In traditional rural finance, it is difficult for financial institutions to accurately assess the credit status of farmers and new business entities, resulting in the coexistence of "adverse selection" and "moral hazard".Digital inclusive finance uses digital technology, integrates data resources, continuously promotes the digital construction of rural credit system, and gradually improves the problem of information asymmetry, so that financial institutions can accurately grasp the credit and industrial potential of agricultural entities, continue to innovate risk control tools, and improve service efficiency[11].In addition, the offline outlets of the traditional rural financial system have the problems of high operating costs and low service efficiency. The emergence of digital Inclusive Finance enables rural people to complete the mobile terminal loan application without leaving home, thus reducing the threshold of financial services. In terms of industrial upgrading, digital inclusive finance promotes the deep integration of traditional agriculture and modern agriculture by infiltrating production links, effectively extending the industrial chain and improving the integrity of the value chain[12][13].Therefore, digital inclusive finance can become the core engine driving the revitalization of rural industries in the Yangtze River economic belt by improving the efficiency

of technology empowerment and resource allocation, breaking the financing barriers of rural industrial development, activating the flow of production factors and promoting the modernization of the industrial chain.

2.2. Ecological Revitalization Orientation: The Transformation Path of Digital Financial Services

The Yangtze River economic belt is an important ecological barrier in China. Whether its rural industry can achieve green revitalization determines the ecological security of the basin and the livelihood of the people. The role of digital Inclusive Finance in promoting rural ecological revitalization is mainly reflected in three aspects: promoting innovation in capital allocation, promoting technological innovation, and strengthening infrastructure construction. In order to build an ecologically livable and beautiful countryside, we must improve the ecological environment of the countryside, effectively promote the treatment of soil pollution and maintain food security. These are eco agricultural projects that require a lot of investment, such as organic planting, resource utilization of livestock and poultry manure and so on. Their early investment is large and the return period is long, which will cause the problem of loan difficulty under the traditional financial system. In the context of the development of digital Inclusive Finance, we can develop low interest discount loans, revolving credit and other green financial products to reduce project risks and guide the flow of funds to eco-friendly fields. It is precisely because digital inclusive finance can introduce more funds into the construction of eco-friendly industries that we will have more capital to invest in green technology research and development. Support rural environmental protection enterprises to research and develop agricultural green technologies through the construction of special loans for science and technology finance. Through the integration of government subsidies, promote the transformation of bank credit technology to reduce the capital threshold, encourage the continuous optimization and diffusion of technology, and improve the efficiency of ecological governance. In addition, digital inclusive finance can also expand rural infrastructure financing channels through innovative service modes, effectively solve the financing difficulties, transform ecological advantages into green economic momentum, and create a benign development space for rural ecology[14].

2.3. Three Systems Synergy: Building a Virtuous Cycle Mechanism for Rural Revitalization

In the Yangtze River economic belt, digital Inclusive Finance, rural industrial revitalization and rural ecological revitalization are closely linked and complementary, and the lack of either will affect the overall effectiveness of Rural Revitalization. As a key bridge, digital inclusive finance can not only provide financial support for the development of rural industries, help the cultivation and integration of characteristic industries, but also guide funds to invest in ecological agriculture, clean energy and other fields through green finance, promote the transformation of industries to green and low-carbon, and improve the rural ecological environment. At the same time, industrial revitalization is the foundation of rural development. Its prosperity and development not only provides more rich application scenarios for digital Inclusive Finance, but also makes financial innovation more suitable for actual needs. The value-added effect brought by industrial development can promote ecological construction and provide a sustainable source of funds for pollution control and ecological protection. Rural ecological revitalization is also an important guarantee. A good ecological environment can not only improve the quality of agricultural products, build green brands, enhance industrial competitiveness, attract more financial resources to ecological friendly industries, but also derive some important financial innovation carriers, such as carbon sinks, green bonds, etc., to expand the development space of digital Inclusive Finance. Therefore, only the coordinated

promotion of the three can promote the sustainable revitalization of the villages in the Yangtze River economic belt.

3. The Dilemma of Coordinated Development of Digital Inclusive Finance, Rural Industry and Ecological Revitalization

3.1. The Dilemma of System Fragmentation under the Imbalance of Supply and Demand

The structural imbalance between the supply and demand of digital inclusive financial products and services is mainly manifested in the mismatch between the product design on the financial supply side and the actual demand for rural industry and ecological revitalization. From the supply side, financial institutions prefer to develop credit products with short service cycle, perfect mortgage guarantee and predictable cash flow. However, for projects with long payback period, low income elasticity and large risk exposure, such as ecological protection and restoration of the Yangtze River economic belt and agricultural green transformation, they often form a natural conflict with the risk preference of financial institutions. From the demand side, the integrated development of rural industry and ecological revitalization in the Yangtze River economic belt has spawned diversified financial demand, while the existing supply system is difficult to respond effectively. This mismatch between supply and demand not only causes the imbalance in the allocation of financial resources in the industrial and ecological fields, but also leads to the rupture of the core link of the three systems' coordination, which may lead to the dilemma of easy access to industrial financing and difficult financing of ecological projects, and the problem of industrial development at the cost of overdraft ecological construction, which fundamentally restricts the promotion of Rural Revitalization. At the same time, the current industrial foundation is weak, and there is still much room for progress in rural ecological construction, which also hinders their deep integration with digital Inclusive Finance to a certain extent.

3.2. The Dilemma of Convergence Blocking under the Data Barrier

The weak rural digital infrastructure and the lack of digital literacy of the main body form the technical bottleneck of the integration of three systems. The coverage of 5G network, Internet of things and other new facilities in remote villages of the Yangtze River economic belt is insufficient, which makes it difficult for some financial instruments to operate effectively and weakens the real-time evaluation ability of digital Inclusive Finance on industrial and ecological benefits. At the same time, some farmers and business entities have digital application barriers. Due to the low level of education, some remote rural groups in the Yangtze River economic belt have low acceptance and understanding of digital financial instruments such as mobile banking. The deeper problem lies in the lack of cross sectoral data sharing mechanism, the separation of agricultural production, ecological environment and financial transaction data, the difficulty of financial institutions to embed ecological indicators into the industrial financing risk control model, and the lack of financial capital flow data in the ecological supervision department, which restricts the collaborative efficiency.

3.3. Synergy Barriers under Imperfect Credit System

The lag of rural credit system construction has become a major obstacle to the coordinated development of the three systems, which is highlighted by the fact that credit data are scattered in many fields, such as agricultural subsidies and credit records, but lack of a unified collection platform and integration mechanism. This makes it difficult for financial institutions to convert environmental benefits into credit enhancement basis when evaluating industrial projects with good ecological environment, making the application for loans still limited by traditional mortgage guarantee. The structural lack of this credit evaluation system makes it difficult for

digital Inclusive Finance to develop financial products linked with ecological value, and it is difficult for rural industries to obtain green financing due to the lack of ecological credit empowerment. Ecological revitalization projects are also deterred from social capital due to the opaque credit status of the participants, which ultimately hinders the synergy between financial resources, industrial elements and ecological protection, and restricts the benign interaction of the three systems.

3.4. The Decline of Synergy Efficiency Caused by Regional Heterogeneity

As far as the Yangtze River economic belt is concerned, there are differences in the development level of digital Inclusive Finance, industrial structure characteristics and ecological protection positioning between the upper, middle and lower reaches of the belt, which also hinders the coordinated development process of digital Inclusive Finance, rural industry and ecological revitalization to a certain extent.

The development of digital Inclusive Finance in the downstream region is relatively mature, the industrial foundation is relatively strong, and it has also made some achievements in ecological protection; The development level of the middle reaches is in the middle and is in the transition stage; The upstream region is relatively lagging behind. This difference makes it difficult for digital Inclusive Finance to form an effective link between regions, rural industries can not obtain balanced financial support, and ecological revitalization is also lack of synergy due to unbalanced regional development, which affects the coordinated development of the three in the Yangtze River economic belt.

4. Research on the Path of Collaborative Development of Digital Inclusive Financial Services, Rural Industry and Ecological Revitalization

4.1. Optimize Digital Inclusive Financial Products and Services

To solve the problem of supply and demand mismatch between digital Inclusive Finance and rural industry and ecological revitalization, we need to actively build a multi-dimensional and three-dimensional financial adaptation system. The most important thing is to deepen the industry finance docking mechanism and move the service port of financial institutions to the key node of the rural industrial chain. For example, for the unique agricultural industrial clusters in the Yangtze River economic belt, seasonal short-term financing products can be launched accordingly, which can not only meet the seasonal capital demand, but also avoid the liquidity trap of traditional financial products. It is particularly noteworthy that we should continue to integrate the blockchain traceability data, make full use of satellite remote sensing and IOT dynamic business information, build a three-dimensional rural credit portrait system, accurately assess the credit status of rural enterprises and farmers, and improve the availability and accuracy of financial services.

4.2. Strengthening the Construction of Rural Digital Infrastructure and Improving Digital Literacy

We will increase investment in the construction of digital infrastructure in rural areas, and continue to improve the coverage, depth and digitization of digital Inclusive Finance. The government should issue special subsidy support policies to guide communication operators to expand their business to remote rural areas, build 5G base stations and broadband networks, optimize the stability of network signals and reduce communication charges, and gradually narrow the digital divide between urban and rural areas. It is also necessary to establish a systematic digital literacy cultivation mechanism, which can organize skilled personnel, returning youth and other talents to guide the villagers to master the operation of mobile payment and other financial instruments. At the same time, it is also necessary to strengthen

the villagers' awareness of information security, carry out fraud prevention education, so that the masses can not only use digital services, but also know how to avoid risks, truly alleviate the digital divide, and let the villagers enjoy digital dividends.

4.3. Promoting the Construction of Rural Credit System

We must strengthen the foundation of rural credit. It is necessary to build a rural credit information platform to integrate fragmented information scattered in various departments, such as agricultural subsidies and microcredit records, and build digital credit files for each farmer and cooperative to make the information live. At the same time, we can gradually introduce a third-party credit evaluation agency to score and rate the new agricultural business entities with scientific methods, so as to make financial institutions feel more at ease when lending and increase the amount of loans. It is necessary to strengthen punishment, increase the cost of dishonesty, and establish a good rural credit system for dishonesty such as deliberate default and loan fraud.

4.4. Promoting Regional Synergy to Alleviate the Constraints of Heterogeneity

To solve the problem of unbalanced regional development, it is necessary to strengthen regional cooperation, break regional restrictions, and promote the coordinated development of digital Inclusive Finance, rural industry and ecological revitalization according to local conditions. For example, through government matchmaking, developed provinces in downstream regions can "pair up" with villages in less developed provinces, and the Internet banking experience and blockchain technology in developed regions can be transplanted to less developed regions to promote the common development of regional digital Inclusive Finance. In terms of Industrial Synergy, the upstream and downstream are linked into a community of interests through the inclusive characteristics of digital Inclusive Finance. In terms of ecological revitalization, we can not sweep the snow in front of our door. We can establish cross basin ecological protection and construction projects, jointly promote ecological restoration and environmental governance, and improve the overall ecological quality of the region. So as to promote the coordinated development of the three systems of the Yangtze River economic belt and help the overall revitalization of rural areas.

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