

Exploring the Practice Patterns, Operational Characteristics and Optimization Strategies of Rural Informal Finance in the Context of Digital Economy: Based on a Field Survey in Shandong, Hebei and Sichuan Provinces, China

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Abstract

Rural informal finance, as a beneficial supplement to formal finance, has always played an irreplaceable role. Based on the field survey data of Shandong, Hebei and Sichuan provinces in China, the study analyzes the practice patterns, operational characteristics and optimization strategies of rural informal finance in the context of digital economy. The study finds that rural informal finance exists in a variety of practice patterns, such as online private lending, informal financial organizations, online platform lending, etc., and presents operational characteristics such as digital forms, diversified groups, embeddedness in regional cultures, and relatively insufficient credit constraints. In the context of building a strong financial country and accelerating rural revitalization, the author proposes the optimization strategies of improving the structure of the rural credit system, constructing and implementing differentiated regulatory strategies, leading the rural informal finance to achieve the development of characteristics, and accelerating the gathering and development of rural financial professionals, aiming at helping the rural informal finance to achieve high-quality development.

Keywords

Digital Economy, Rural Informal Finance, Practice Patterns, Operational Characteristics, Optimization Strategies

1. Introduction

The twentieth CPC National Congress emphasized “advancing rural revitalization across the board”, and China’s rural finance is also in a critical period of transition from high-speed development to high-quality development. With the digitalization development entering a new stage, the construction of digital villages provides new historical opportunities for the development of rural finance. At the Central Financial Conference held in 2023, it was clearly proposed to accelerate the construction of a financial power, and rural finance as part of China’s financial system, in today’s economic and social development is still at a disadvantage in development, so it is necessary to accelerate the improvement of the supply-side reform of rural finance to solve the problem of “long-tail groups” in rural areas, the source of funds. The plight of the “long-tail groups” in rural areas. According to China’s Inclusive Finance Development Report of 2023, China’s existing financial system still has a lot of difficulties in meeting the multiple financial needs of rural subjects and forming healthy competition in the market. Against this backdrop, as a useful supplement to formal finance, rural informal finance still plays a crucial role in promoting rural development.

Owing to the vastness of China’s geographical area, there are obvious differences in the level of economic development of various regions. Therefore, the rural financial and non-financial systems in different geographical areas have their own characteristics, coupled with the rapid development of the digital economy, which has had a significant impact on rural informal finance, changing the overall pattern of rural finance to a certain extent, especially with the popularization of the Internet in rural areas, which has made it easier for rural informal finance to be integrated into the digital system. On the one hand, through the Internet, farmers are able to easily access non-traditional financial services such as online microfinance and network payments, breaking down geographical constraints and making it easier for more farmers to obtain financial support. On the other hand, the combination of the Internet and rural informal finance has also presented new features such as digitalization of forms and diversification of groups in solving the problem of financing difficulties of rural households. The existing literature has relatively neglected the above problems, especially the lack of local experience and development law research based on solid field research. Therefore, it is helpful to study the practice pattern of rural informal finance in the context of the digital economy, summarize its operational characteristics, and put forward targeted optimization strategies to promote the high-quality development of rural informal finance, so as to grasp the new situation of the rural financial industry adapting to the development of the digital economy era, as well as to coordinate the development of the digital economy and to promote the development of the rural financial industry in the digital economy. Therefore, it helps to grasp the new situation of rural financial industry adapting to the development in the digital economy era, and is also conducive to integrating the development and security of rural areas, and promoting the construction of a strong agricultural country and a strong financial country to a new level.

2. Literature Review and Theoretical Framework

At present, although the academic research on informal finance has made certain achievements, no systematic academic results have been formed in the field of rural informal financial development in the new context of the digital economy. Summarizing the existing results, the current academic research on topics related to this paper mainly covers the following aspects.

2.1. Study on the Definition and Characteristics of Informal Finance

Currently, domestic and foreign academics have a certain research basis for the definition of informal finance, but have not formed an effective consensus. The existing definitions of informal finance mainly involve comparative definitions and characteristic-oriented definitions.

The first is the definition of informal versus formal finance. The current mainstream view in the academic community is to use “whether the financial activity is under the supervision of a regulatory unit” as a criterion to make the distinction. [Tai \(2001\)](#), on the other hand, considers informal finance to be the part of finance that is not registered, recorded, or regulated outside of official control. [Jing \(2017\)](#) define it as informal financial organizations and their financing activities that are spontaneously established by market entities and operate outside the national financial regulatory system. These include rotating savings and credit associations (ROSCAs), pawnshops, private fundraising, informal private lending, informal bill discounting, and various foundations ([Qian et al., 2007](#)). They primarily serve as external financing channels for rural private enterprises and individual farmers, catering to the low- and mid-tier rural markets ([Ayyagari et al., 2010](#)). [Chen et al. \(2023\)](#) point out that informal finance refers to the collection of financial discourses that are outside the scope of regulation by the national financial regulatory authorities, created spontaneously by market players, and serve market players whose financial needs are difficult to be effectively met by formal finance ([Qiu & Chen, 2011](#)).

The second is a feature-oriented definition. That is to say, the characteristics of informal finance are summarized directly from formal finance. According to [McKinnon \(1973\)](#), the financial system of developing countries includes modern financial system and traditional financial system, the latter is represented by usury and money changers, and the traditional financial system corresponds to the informal financial system, and the concept of informal financial system is used in subsequent studies. In terms of characteristics, [Atieno](#) believes that informal finance has two main characteristics: one is outside the scope of supervision of the central bank and financial regulators; the second is the operation of standardized and has a certain scale. In China, scholars believe that: China’s informal finance has a clear difference from the formal financial mechanism of the four major characteristics, first of all, the coverage of the object: informal financial services cover all sectors of society; followed by the characteristics of the size of the market: informal financial market size is small, but widely distributed; and then is the operating mechanism characteristics: informal financial operating mechanism is flex-

ible, and has obvious localization characteristics; and finally, the capital of the financial system has two characteristics: first, outside the scope of central banks and financial regulators; second, the operation of standardized and have a certain scale. localization characteristics; and finally its capital source characteristics: the funds of informal finance mainly come from own capital (Liu & Zhang, 2024). In this characterization, the first three characteristics explain why informal finance can widely exist, and the last one points out the development bottleneck of informal finance.

Based on the literature, the author believes that rural informal finance is a form of finance that arises to meet the objective financial needs of rural economic entities, in which the main participants are rural residents, incoming rural migrant workers and the rural population going out for work, in which the financial activities are not effectively regulated by the financial authorities or the monetary authorities, and in which the mode of transaction, the term of the transaction, the interest rate, the mode of guarantee and other transaction mechanisms are flexible.

2.2. Study on the Causes and Driving Factors of Rural Informal Finance

The causes of rural informal finance and the driving factors of its development can be interpreted from both internal and external perspectives. The so-called “outside” is that the financial needs generated by the real social environment in rural areas provide fertile ground for the formation of rural informal finance; the so-called “inside” is the characteristics of rural informal finance itself and its special features compared with formal finance.

First, the impact of the real rural environment. The special economic and cultural background of China’s rural areas has given birth to the emergence and development of informal finance. First of all, the rural informal financial system originates from the real financial needs of rural areas, and is generated in the special economic and cultural background of rural areas in China, and evolves continuously with the changes in rural financial needs. Due to the closed character of China’s traditional rural economy and the small peasant economy of self-sufficiency after the impact of the market economy, the structure of farmers’ consumption expenditures has become increasingly complex, which mainly involves four aspects, such as building a house, children’s schooling, marriage, funeral, and treatment of diseases. The large financial needs of the above items have made it difficult for farmers to get financial satisfaction through traditional blood in-law relationships to support each other.

Secondly, the characteristics of rural informal finance and its impact on the specificity of formal finance. At present, the mainstream view in the academic community is that formal finance in rural areas may lead to financial repression and credit constraints, while informal finance can alleviate financial repression and credit constraints to a certain extent because of its simple procedures, lower

thresholds and other characteristics. For example, according to McKinnon's research, it is found that financial suppression is a special policy implemented in developing countries to suppress financial development, such as artificially low real interest rates by stipulating deposit and loan interest rates and implementing inflation; adopting credit rationing to allocate scarce credit funds; imposing strict control on financial institutions and setting a high legal reserve ratio; and implementing capital controls. From the above points, it is clear that formal credit is strictly defined for productive purposes and has a maturity close to the length of the production cycle, which makes the financial needs of farmers incompatible with the credit system of formal finance. There is a substitution effect between the formal and informal financial markets, coupled with the phenomenon of "loan-shyness" in the rural formal financial system, once farmers are constrained in the formal financial market, they can only expect to get the supply of funds in the informal financial market, which has led to the emergence of rural informal finance. This has led to the emergence of rural informal finance.

2.3. Study on the Mechanisms of the Digital Economy for the Development of Rural Informal Finance

At present, China's digital economy is developing rapidly. In this context, the digital economy has accelerated the birth of a new form of informal finance, and the academic community has also paid preliminary attention to the impact of the digital economy on the role of rural informal finance mechanism, which is mainly explained from the perspective of digital financial inclusion.

Existing studies have concluded that digital inclusive finance, as a brand new financial model, has brought a new dawn to solve the chronic problem of insufficient rural financial supply. Currently, the academic community mainly adopts Coase's transaction cost theory to explain the mechanism of digital inclusive finance on rural informal finance. According to this theory, the development of the digital economy ensures the safe operation of the financial sector by increasing the operational flexibility of financial institutions and markets, thus promoting the normal operation of financial institutions and markets. At this level, digital economy development has alleviated financial exclusion in rural areas to a certain extent and helped to reduce the cost of financial intermediation services, including commercial banks and microfinance institutions.

While there are various rural digital inclusive finance business models in practice, existing studies have mainly summarized them into three types. First, data-based financial platforms. The main business operation of this model is that technology finance companies utilize customers' consumption records and e-commerce product data to conduct online risk assessment, and combine the advantages of this risk assessment information with the capital advantages of traditional financial institutions to jointly lend to customers. The customer groups are mainly rural consumers, farmers and rural e-commerce companies, and the borrowed funds are mainly used for consumption (Du & Li, 2016). Second, "online +

offline” acquaintance lending. In this model, digital finance companies combine online big data customer balance sheet information with offline social capital to assess the credit risk of potential loan demanders and then issue loans. These loans fulfill the operational capital needs of mainly small and medium-sized rural producers and operators, small and medium-sized rural farmers and breeders, micro and small enterprises, and self-employed individuals. Third, the “Internet +” rural supply chain financial service model. Rural supply chain finance is based on the financing of accounts receivable from leading enterprises to upstream enterprises’ credit purchasing behavior, including pledge financing, factoring financing, asset securitization (ABS) and so on. In practice, the capital suppliers of rural supply chain finance include leading enterprises, commercial banks, and online lending companies. They provide financial services with the help of information technology, which is a typical model of rural digital inclusive finance. Although digital inclusive finance has expanded the scope of the rural financial market, some studies have argued that the credit assessment of digital inclusive finance still relies on the economic information of online farmers or agricultural producers, which is usually incomplete and a significant number of farmers have little experience in online sales and purchases, so the role of digital inclusive finance in solving the problem of rural financing difficulties is still limited.

In summary, the existing studies mainly focus on the theoretical analysis of the concept and characteristics of rural informal finance, and have made some progress in the mechanism of digitalization on rural informal finance, but there is insufficient research on the practice pattern and operational characteristics of rural informal finance in the context of digital economy. At the same time, a large number of studies prefer to analyze the formation and evolution of rural informal finance from the level of mechanism, and field research and empirical studies are relatively insufficient. Therefore, the marginal contributions of this study are: first, it investigates rural informal finance’s practice pattern across China’s eastern, central, and western regions, as well as its new forms and characteristics derived from the background of the development of the digital economy from the angle of field research, and fills in the gap between the development of the digital economy and the development of the digital economy, which is the most important area of research in this field. It fills in the gap between the mechanism analysis and the empirical investigation in this research field in the academic world. Secondly, based on the perspective of digital economy, we focus on the new features and causes of rural informal finance, and accordingly propose optimization strategies to promote the high-quality development of rural informal finance.

2.4. Theoretical Framework

The core of the theoretical framework of this paper is to find the mechanism of the digital economy for rural informal finance, and to identify the practice pattern and operational characteristics from the mechanism. According to the previous article, there are both endogenous and exogenous reasons for the emergence of

rural informal finance. Therefore, the author introduces credit rationing theory, acquaintance society theory and information asymmetry theory to construct a theoretical framework for the essential causes of rural informal finance. First, according to Baltensperger's conclusion: credit rationing is a situation in which the borrower's demand for credit remains unsatisfied even though the borrower is willing to pay all the price and non-price conditions in the credit contract. It emphasizes that the price conditions of the credit contract are given by the bank and are not subject to government constraints. At the same time, in addition to price conditions, credit contracts impose very complex non-price conditions, such as guarantee clauses. Thus the credit rationing theory results in a mismatch between supply and demand in the credit market, which leads directly to the formation of informal finance. Secondly, the theory of acquaintance society shows that the vernacular nature of Chinese society makes "familiarity" an important feature of vernacular society due to the limitation of locality. Therefore, the theory of "acquaintance society" exposes the possible informal formation of financial transactions from a sociological point of view, which is an important reason for the succession and transfer of risks in rural informal finance. Further analysis reveals that rural informal finance in the vernacular society may be manifested in the following ways: some farmers ignore the importance of material proofs of loan such as debit notes and arrears in their acquaintance lending behaviors, which may cause their own losses; Thirdly, the theory of information asymmetry: the theory of information asymmetry provides a basis for the emergence of informal finance from the perspective of information economics. Considering that compared with informal finance, the quality of formal financial borrowers and other information often can not be fully grasp, which to a certain extent on the lenders caused a certain moral hazard and adverse selection risk, so in the asymmetric information on the influence of lenders tend to be more inclined to informal finance. At the same time for the lender, compared to the bank, the lender for acquaintances, relatives, etc. have more comprehensive information grasp, and thus may avoid the bank to turn to individuals for financial lending behavior. This has led to the emergence of rural informal finance to a certain extent.

In the context of the digital economy, the interaction between digital finance and rural informal finance has led to the emergence of a new practice pattern and operational characteristics of rural informal finance. The two are mainly reflected in complementary and substitution effects. In terms of complementary effects, digital finance forms service stratification and efficiency enhancement with informal finance through function filling and technological empowerment. Specifically, mobile payment, P2P lending and other digital financial tools cover the rural market that traditional financial institutions have failed to reach, and differentiate and complement the services of informal finance, such as lending to friends and relatives and informal rotating savings club; at the same time, digital platforms reduce information asymmetry, and help private lending intermediaries and other informal financial organizations to realize online operations and optimize their service efficiency.

The substitution effect, on the other hand, is manifested in the competitive

squeeze of digital finance on informal finance in terms of price and trust mechanisms. For example, digital credit products such as WeChat Micro-Loan and online business loans have diverted the demand for high-interest loans from informal finance with lower interest rates, and their standardized contracts have weakened the trust advantage of informal finance, which relies on geographic relationships. Nonetheless, the two are not completely opposed to each other, and there is a growing trend of synergistic evolution. On the one hand, informal financial institutions such as rural mutual fund cooperatives have formed a hybrid service model of “offline relationship + online tools” by accessing the digital payment system; on the other hand, the credit data of farmers accumulated by digital finance provides a reference of risk pricing for informal finance, realizing data symbiosis.

Through field research and combined with theoretical analysis, the author attributes the business of online private lending, online platform lending, rural informal financial organizations and rural informal financial institutions, and summarizes the operational characteristics of digitalization of its forms, diversification of its groups, geographical and cultural embeddedness, and the relative insufficiency of credit constraints in the context of digital economy. In summary, **Figure 1** shows the theoretical framework of this paper.

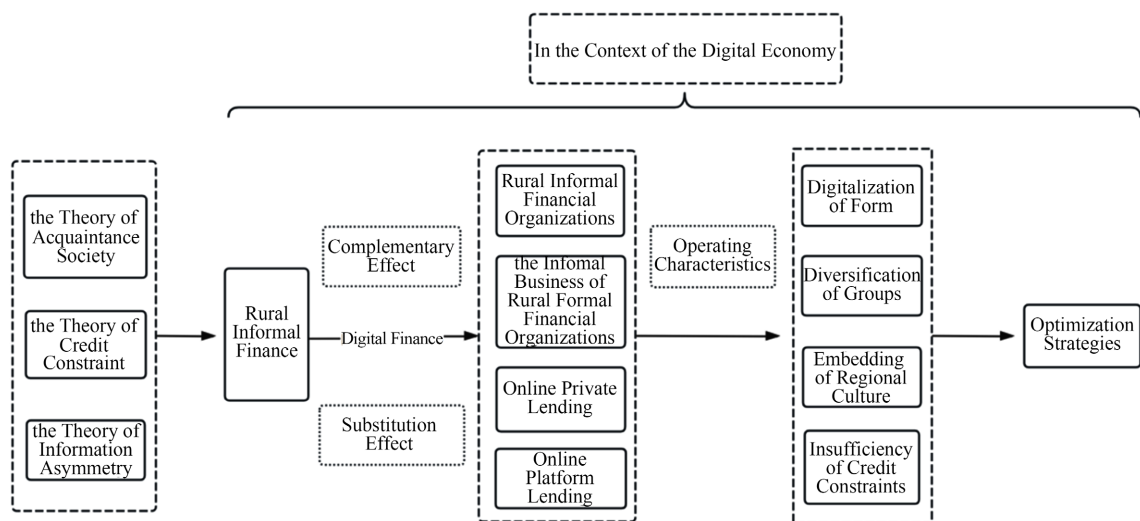


Figure 1. Theoretical framework of this paper.

3. Analyzing the Practice Patterns of Rural Informal Finance in the Context of Digital Economy

3.1. Data Sources and Survey Description

Based on the theoretical framework and taking into account the characteristics of the fieldwork respondents and the distribution of the survey sites, the research team designed the questionnaire from the dimensions of the existence of local rural informal finance, the practice pattern of rural informal finance in the context of the digital economy, and the degree of digitization of the traditional rural informal finance (see **Table 1**).

Table 1. Analysis of key questions in the questionnaire.

Standardized layer	Problem layer	Options layer
Borrowing channels and purposes	How much of your total borrowing in the last three years has been from banks?	All; more than half; half; less than half; none
	Which of the following sources do you prefer to borrow money from now?	Borrowing from relatives and friends; borrowing on online lending platforms such as WeChat Micro-Loan, Alipay Jiebei; online banks such as MicroBank; lending institutions with high interest rates but easy procedures; economic organizations with which you have business dealings; going to a local bank for a loan; and others
	Purpose of the most recent loan?	Agricultural production; lending money to children; medical treatment; wedding/funeral; buying a house and car; children's schooling; contracting land to grow greenhouses and open farms; small businesses such as supermarkets, barbershops and garment factories; and others
The impact of the digital economy on farmers' private lending behavior	After I can use WeChat Alipay, will I borrow money and transfer it directly on my phone?	Will; No, no, no, no. Face-to-face. Take the cash
	After you can use WeChat and Alipay, do you borrow more or less money online between relatives and friends?	It's gotten more; It's gotten less; No significant change
	After you can use WeChat Alipay, has the amount of money you can borrow online between relatives and friends become bigger or smaller?	It's getting bigger; Getting smaller; No significant change
	After you can use WeChat Alipay, does it take longer or shorter to pay back money after a relative or friend has borrowed it?	Longer; shorter; no significant change
Degree of digitization of rural informal financial institutions or organizations	Are there any informal savings and loan organizations or institutions (e.g., microfinance companies, mutual fund societies, private money changers, informal rotating savings club, water companies, etc.) in your village or town?	No; not known; heard of, as; having as
	Whether such informal savings and loan organizations or institutions have conducted business through online channels (e.g., APP, WeChat apps, websites, etc.)	Yes, called; no

As for the existence and practice pattern of rural informal finance, the research team mainly conducted a side survey on the borrowing channels and purposes. On the one hand, this criterion level question can reflect the distribution of borrowing channels and purposes in today's rural society; on the other hand, this criterion level question also examines the practice pattern of rural informal fi-

nance in the context of digital economy; for the setting of the question on the practice pattern of rural informal finance in the context of digital economy, the research team investigates the impact of the digital economy on the widespread private lending and borrowing activities in the rural areas, and on the development of online lending in the rural areas. The research team mainly investigated the impact of the digital economy on the widespread private lending and borrowing activities of informal financial organizations in rural areas, and also further investigated the development of online lending in rural areas.

From the survey, the impact of the digital economy on private lending and borrowing includes the impact of the frequency of borrowing and lending using social platforms such as WeChat Alipay, the impact of the amount, and the impact of the lending cycle. The impact of the digital economy on rural informal financial institutions can reflect the degree of integration of different rural informal financial practice patterns with the digital economy.

From July 2023 until after the Spring Festival in 2024, the research team traveled to Sichuan, Hebei and Shandong provinces in turn, visiting Chengdu, Dazhou, Shijiazhuang, Qinhuangdao and Heze successively to conduct field research and survey hundreds of villagers. The author adopted the method of questionnaire survey and field interviews to collect and organize the data. 482 questionnaires were collected in the pre-survey, and 425 valid questionnaires were screened out after checking the completeness of the questionnaires and logical consistency of the questionnaires, with an effective questionnaire rate of 88.17%; 607 questionnaires were collected in the formal survey, and 546 valid questionnaires were screened out, with an effective questionnaire rate of 89.95%.

Here, the reason why the author chose Shandong, Hebei and Sichuan as the research sites is because the sites basically cover the east, middle and west of China, and at the same time cover villages at different stages of rural economic development in China, which is conducive to regional horizontal comparisons and a comprehensive overview of the practice patterns of rural informal finance. Among the valid questionnaires collected, 32%, 35% and 33% of the questionnaires were from Shandong, Hebei and Sichuan respectively. At the same time, the author categorized the survey respondents into three groups: new agricultural business entities, individual businessmen and ordinary villagers according to different main sources of income. Among the recovered valid questionnaires, the proportion of these three groups is 29%, 14% and 57% in turn.

Through the questionnaire survey and field interviews, the author finally classified rural informal finance in the digital economy into four major practice patterns: online private lending, rural informal financial institutions, informal business of rural formal financial organizations, and online platform lending. Among them, considering the geographical differences, the specific practice patterns in Sichuan, Hebei and Shandong provinces have both differences and similarities. According to the 546 valid questionnaires of the formal research and the field visit research, the distribution of rural informal finance practice patterns in the three provinces is as follows (see [Table 2](#)):

Table 2. Sample distribution of rural informal finance practices in Hebei, Shandong and Sichuan provinces.

Practice Patterns/ Provinces	Internet private lending	Rural informal financial institutions	Informal financial operations of rural formal financial institutions	Online platform lending
Shandong	++++	+	+	+++
Hebei	++++	+++	/	+
Sichuan	++++	+	++	+

Note: + indicates the degree of relative quantity; the more +, the more the corresponding practice sample is relatively more numerous in the province; / indicates that the relevant practice sample was not surveyed.

From the previous research on rural informal financial practices in Shandong, Hebei and Sichuan provinces, we can see that private lending is still the main form of rural informal finance in the three provinces; among them, it is worth noting that, in addition to private lending, in Shandong Province, the relatively high frequency of online platform lending; in Hebei Province, the relatively high frequency of rural informal financial institutions; in Sichuan Province, the relatively high frequency of informal business of rural formal financial organizations; and in Sichuan Province, the author will examine the different types of rural informal financial patterns in detail. Sichuan Province, the relatively high frequency of the informal business of rural formal financial organizations, the following author will examine the different types of rural informal finance patterns in detail.

3.2. Types of Practice Patterns in Rural Informal Finance in the Context of the Digital Economy

3.2.1. Internet Private Lending

In traditional private lending, the lending relationship between relatives and friends mostly relies on kinship and geography, and its role is somewhat limited with frequent population movements. Although most of China's traditional private lending is low-interest or interest-free, traditional private lending is mainly confined to the circle of acquaintances, and the borrower also needs to compensate for the lender's funds by providing some obligatory help, gifts and so on. With the development and maturity of Internet finance, the demand for traditional private lending has decreased compared to the initial period, while more and more private lending is paid by transferring money through WeChat, Alipay and other platforms. This kind of online lending relying on online virtual communities breaks the geographical limitation of social networks existing in traditional private lending, greatly expands the scope of online private lending, and has its unique advantages compared with traditional private lending. From the results of the field survey, among the 546 valid questionnaires in the formal research, only 112 people said that "borrowing money from relatives and friends will not be transferred directly through WeChat, Alipay, etc., but will be transacted face-to-face in cash," which accounted for 20.5%; in addition, when asked about "using WeChat, Alipay, etc.," only 112 people indicated that they would not transfer money directly through WeChat, Alipay and so on, but would transact in cash face-to-face.

After using WeChat and Alipay, the number of times relatives and friends borrow money online has increased or decreased, “After using WeChat, Alipay and mobile banking, the amount of money relatives and friends borrow online has become larger or smaller” and “After using WeChat, Alipay and mobile banking, the amount of money relatives and friends borrow online has become larger or smaller” and “After using WeChat, Alipay and mobile banking, the amount of money relatives and friends borrow online has become larger or smaller”. “After relatives and friends have borrowed money, has the time to pay back become longer or shorter?” The distribution of options is relatively balanced, so the emergence of digital payment tools such as WeChat and Alipay does not have a significant impact on the frequency, amount and repayment time of private borrowing activities in the regions studied, for example, “borrowing from relatives and friends” is still the main method of borrowing in Sichuan and Hebei, accounting for 55.2% and 46.9% of the total, respectively. 46.9%. In Shandong, the proportion of private borrowing decreased, accounting for 20.9%.

3.2.2. Informal Financial Organizations

The informal financial organizations referred to here are non-banking organizations or institutions that conducted financial business in rural areas before the spread of the Internet, such as private cooperatives, water companies, private money changers, and so on, which were already widely present in rural areas. However, after the popularization of the Internet, with the rapid development of formal finance and Internet finance, the number of traditional informal financial organizations or institutions has been drastically reduced, and some of them have completely died out or have been transformed into formal new rural financial institutions such as microfinance companies, village banks, and rural informal rotating savings club. For example, of the 425 valid questionnaires in the pre-survey, only 34 people said “there is a local informal rotating savings club”, accounting for 8%; 34 people said “there is a local private money changer”, accounting for 8%. Of the 546 valid questionnaires in the formal survey, 238 people said “whether there are informal savings and loan organizations or institutions (such as microfinance companies, mutual fund societies, private money changers, informal rotating savings club, water companies, etc.) in their villages and towns”, with 52.06% of the respondents choosing “no”; 52.06% choosing “no”; and 52.06% choosing “no”. The proportion of those who chose “no” was 52.06%; the proportion of those who chose “don’t know” was 40.69%; only 4.61% of farmers said they had heard that there were such organizations and institutions, and 2.64% said there were such organizations and institutions.

3.2.3. Informal Financial Operations of Rural Formal Financial Organizations

1) Informal Finance and Operations of Village Banks

Village bank is to meet the development of agriculture, rural areas and farmers, service local small and medium-sized enterprises of commercial banks, but the

existing policy shall not be cross-county absorption of deposits and loans. However, in recent years, with the rapid development of the Internet, coupled with the current major financial institutions have been sinking business, rural credit unions market positioning is also quite similar to the positioning of the village bank, many village banks face greater competitive pressure. Some village banks, in order to get rid of competitive disadvantages, rely on third-party technology companies to create third-party Internet financial platforms. 2021 In January, the CBRC and the People's Bank of China issued a regulation that commercial banks are not allowed to carry out deposit business through non-self-operated network channels. As a result, village banks have had to take down their online savings products and instead develop their own WeChat small program platform. The financial business conducted by some village banks with the help of the Internet has broken through geographical restrictions and absorbed more savings deposits for village banks at a higher interest rate level, creating the so-called informal financial business.

2) Informal Financial Operations of Microfinance Companies

At present, the operation and management of rural informal financial organizations in less developed areas are extremely irregular. For example, in our offline research in S city, S province, we found that the establishment of local loan organizations is very simple, and three or five people can fund a microfinance intermediary organization. During the survey, we found that when issuing loans, borrowers with local ID cards and hukou documents could obtain loans ranging from 50,000 to 500,000 RMB. Borrowers are managed on the basis of experience, and their business is often done through simple verbal agreements or informal contracts guaranteed by an intermediary.

3) Informal Financial Operations of Rural Mutual Fund Cooperatives

Rural financial mutual societies are community-based mutual banking and financial service institutions authorized by the banking supervisory and regulatory authorities and formed by citizens who voluntarily take up shares. The main business of rural mutual funds societies is to provide deposit, loan and settlement services to their members. During the investigation, it was found that a mutual fund society in City B, Province H, also provided loan services at high interest rates to non-members because it disposed of idle funds while earning high interest returns.

4) Network Platform Lending

In academia, financial activities in online social scenarios in a broad sense include online social crowdfunding, online social lending, online social funds, online social insurance, and online social banking (Meng et al., 2020). And the online lending we examine here refers to online social micro-lending with two-way anonymous fund financing. Cybersocial microlending includes P2P and other microfinance activities based on online social relationships. The two-way anonymity mechanism allows borrowers and lenders to be unaware of each other's real identities, and borrowers and lenders are matched through registra-

tion and authentication on their respective platforms. Users log on to the social network platform and, after identity verification, publish relevant information in their social circles and send loan applications, stating the general purpose of the funds, the period of use, and the level of interest they are willing to pay, etc. Other community members decide whether to lend and the amount of funds to be lent based on the disclosed information and their own financial situation; the borrower and lender open an account with a third-party payment platform to complete the disbursement of the funds, and the social network platform does not have direct access to the funds. The lending and borrowing parties open accounts on third-party payment platforms to complete the payment of funds, and the social network platforms do not have direct access to the funds; in the process of the gradual deepening of network socialization, the author's investigation found that unregulated, non-micro-credit platforms for individual lenders and private loans have appeared on the new social video platforms, such as "TikTok" and "rednote". The platforms are not regulated, and there are no personal lenders or private loans on the platforms. At the same time, the demand side of the funds can also post relevant information on the platform, and those who are interested in providing loans can leave messages in the comment area or send private messages to get in touch with each other, so as to establish a lending relationship. Due to the gradual deepening of the degree of Internet in rural areas, the acceptance of online lending in rural areas is increasing and showing a rising trend. Among the findings of the three provinces, the phenomenon of online lending is most frequent in Shandong, amounting to 79% of the number of researchers. Next, the phenomenon of online lending in Hebei and Sichuan also accounted for 10%~20% of the number of researchers.

4. Operational Characteristics of Rural Informal Finance in the Context of the Digital Economy

The author summarizes the operation characteristics of rural informal finance in the context of digital economy through the analysis of the research questionnaire and interview results. Compared with the traditional rural informal finance, the rapid development of the digital economy has made rural informal finance "magnificently transformed" with the help of digital means, presenting a new practice pattern, and making rural informal finance present the operational characteristics of digitalization of forms, diversification of groups, embeddedness in regional cultures, and relatively insufficient credit constraints.

4.1. Digitization of Forms

In the context of the digital economy, the digitalization of rural informal finance has become increasingly distinctive, and these features are reflected in the following three areas:

The first is the application of digital means, the traditional rural informal finance from the original face-to-face cash lending and borrowing into the network

form of lending and borrowing, that is, through the third-party payment platforms such as WeChat payment, Alipay, and other digital forms of realization, such as the traditional rural informal finance in the private borrowing and lending is now mainly through WeChat, Alipay transfer realization; at the same time, most of the traditional rural informal financial institutions are to take the combination of online digital processing and offline processing, and completely online digital processing to carry out financial business. Second is the construction of digital financial ecology, in the context of the digital economy, the digitalization of rural informal finance is not only a unilateral act of financial institutions, but also involves the participation of the government, science and technology enterprises, farmers and other parties. Such as benefiting from the advantages of low cost of information dissemination and easier access to information on the Internet, the new forms of rural informal digital finance derived from the Internet, mainly including specialized network lending platforms and “scenario-based” network lending, the former including such as pat loans, Renren loans and other network lending platforms; compared to the former, the “scenario-based” network lending platforms include the following Compared with the former, “scenario-based” online lending is more popular, such as the establishment of scenes injected into Taobao, WeChat, Jingdong and Joyo to cling to tens of millions or even hundreds of millions of mobile terminals, such as Alipay Chant, Alipay Jiebei, WeChat Micro-Loan, JD BaiTiao and TikTok Fangxinjie. Finally, digital features have, to a certain extent, disintermediated rural informal financial activities, realizing “peer-to-peer” lending and borrowing through digital networks, allowing borrowers and lenders to borrow directly and reducing reliance on intermediaries in informal financial institutions.

4.2. Diversity of Groups

With the popularization of the Internet and mobile phones in rural areas, people have become more dependent on online social networks to carry out lending activities. Informal financial activities in the context of the digital economy may be carried out anonymously or over long distances and across regions, weakening traditional social constraints and relational pressures based on kinship and geographic proximity, and at the same time, with the help of digital technology and online platforms, they are more convenient and quicker to carry out and easier to lend and borrow on a wide scale. In addition to lending and borrowing between people with kinship or geographicties, the reliance on social networks also refers to the network community through the network and know the network, in the case of both sides to establish a certain degree of trust, lending and borrowing activities will be generated, so that the group of informal finance is gradually expanding. In the context of the digital economy, the author summarizes this characteristic in the following three aspects:

The first is the diversification of lending entities. One of them is individual borrowers: traditional rural informal financial lending is dominated by individual bor-

rowers, who often turn to informal financial channels because they are unable to obtain loans from formal financial institutions. With the development of the digital economy, the needs of individual borrowers are no longer just survival needs, but have become more diversified and personalized, such as the development and enjoyment needs for knowledge and skills upgrading, personal growth chain, and quality of life, etc.; the second is the new agricultural management body: with the advancement of the modernization of agriculture, there is a gradual increase in the number of new agricultural management bodies in the rural areas, including family farms and farmers' professional cooperatives. These business entities need financial support to expand production and introduce new technologies, but due to a lack of collateral or credit history, they often have difficulty in obtaining sufficient loans from formal financial institutions, and thus become an important borrowing group in rural informal finance; third, micro, small, and medium-sized enterprises (MSMEs): in rural areas, MSMEs are an important force for economic development. However, due to their small size and the difficulty of guaranteeing operational efficiency, they also tend to be difficult to obtain the favor of formal financial institutions. In the context of the digital economy, rural informal finance provides these MSMEs with more flexible and convenient financing channels.

The second is the diversification of investor groups. One of them is local residents: local residents account for a certain proportion of investors in rural informal finance. They provide financial support for rural economic development by participating in private lending and investing in mutual funds. The second is foreign investors: with the gradual opening and standardization of the rural informal financial market, more and more foreign investors are paying attention to this field. They may share the fruits of rural economic development by investing in rural informal financial institutions and participating in rural financial projects.

Finally, there is the diversification of service providers. The first is traditional lending entities: such as lending between individuals and financial support within the family, these traditional lending methods are still widely available in rural areas; the second is new rural financial organizations: in the context of the digital economy, some new rural financial organizations have begun to emerge, such as rural capital mutual aid societies, microfinance companies and so on. These organizations use digital technology to provide more diversified financial services in rural areas; and thirdly, fully digitalized network lending, such as WeChat Micro-Loan, Douyin Fangxinjie and other network lending platforms.

In addition, the characteristics of group diversification have complicated the lending relationship between people, and the phenomena of serial lending and circular lending have appeared, showing the characteristics of flattening and expansion.

4.3. Regional Cultural Embeddedness

In the course of the research, the author found that rural informal financial activities have significant regional cultural embeddedness, this feature is mainly re-

flected in the following two aspects:

The first is financial transactions based on geographic, kinship, and business ties. Rural informal financial activities are often deeply rooted in local geographic, blood and business relationships. This network of relationships provides a natural foundation of trust for financial transactions, allowing borrowers and lenders to engage in financial activities in the absence of formal safeguards. In the era of digital economy, although the transmission of information has become more convenient, this mode of financial transactions based on interpersonal relationships has not been completely replaced, but rather strengthened by the application of digital means. For example, through digital platforms such as social media and instant messaging tools, borrowers and lenders are able to more easily communicate information and build trust, thereby facilitating the conclusion of financial transactions.

The second is the influence of regional culture on financial behavior. According to the theory of acquaintance society, the rural informal financial activities mainly based on private lending are built on blood and geography, thus showing certain regional characteristics, however, due to the differences in local folk culture, different regions also show different regional characteristics. Through interviews, it is understood that the main purpose of borrowing funds in the eastern region for the wedding and funeral, especially for the bride price in rural areas up to hundreds of thousands of such activities for the locally recognized major events, most of the money needed in the relatives and friends and other local people to borrow, followed by young people in the network platform for borrowing, and appeared to use relatives and friends of the credit line for their own borrowing phenomenon. In the process of research, the purpose of borrowing in Sichuan and Chongqing accounts for a relatively high proportion of consumption and entertainment expenses, such as chess and mahjong activities. In the process of interviews, the research team learned that the form of weddings and funerals in the rural areas of Sichuan and Chongqing is simpler than that in the eastern part of the country, and the vast majority of the rural residents can carry out with the savings of their families. The uncertainty of consumer entertainment borrowing is greater, and it is more difficult to borrow locally. In the course of local research, it was found that some rural residents would borrow through intermediaries such as rural informal financial institutions, such as water companies, and secondly, some young and middle-aged people would borrow through online platforms. In addition, in the research in rural areas of Sichuan, we found that there are foreign migrants in the local construction of villages, up to three to five years of work time limit so that they are integrated into the local “circle of life”, and the local residents also have lending activities; and is located in the central part of the Hebei region in the course of the research of its rural informal financial activities did not find a significant regional concentration of characteristics. There is no significant regional concentration of informal financial activities in the central Hebei region.

4.4. Relative Lack of Credit Constraints

While the informal financial sector has shown a certain degree of vitality in the

booming digital economy, the relative underdevelopment of the rural credit system still poses a significant challenge. In particular, the traditional rural informal financial model often lacks the support of formal legal instruments, and relies more on a deep interpersonal networks of reciprocity and the credibility of intermediaries, a mechanism that promotes the flow of funds while also harboring information asymmetry-induced moral hazard and adverse selection. In view of the limitations of the rural population in terms of cultural level, financial knowledge and judgment, the herd effect and follower behavior are particularly significant in the rural financial market, therefore, strengthening moral self-discipline and informal norms among neighbors has become the key to improving the rural credit environment.

Entering the Internet era, new forms of informal finance such as Internet lending have emerged rapidly, and although they have broadened financing channels to a certain extent, some platforms have inadvertently relaxed the criteria for credit assessment of borrowers in order to pursue performance indicators and rely on strong collection mechanisms. The research has revealed that some rural residents, when engaging in Internet lending, have taken a chance, intending to evade their repayment responsibilities, even in the face of fierce collection methods, which ultimately led to the lending platforms giving up on recovery, a phenomenon that profoundly reflects the weakness of the current credit constraints mechanism in the field of informal finance.

5. Optimization Strategies to Promote High-Quality Development of Rural Informal Finance

In the context of promoting common prosperity, the development of rural finance in China should firmly grasp the essential requirement of “financial services for the real economy”. However, as an important part of rural finance, rural informal finance, in the process of development, there are problems such as low utilization of financial resources, improper supervision, serious homogenization of financial products and services, and a shortage of qualified rural financial professionals. In the new development stage, there is an urgent need for rural informal finance to achieve long-term stable and high-quality development to serve the revitalization of rural industry. Therefore, the author proposes the following optimization strategies, taking into account the operational characteristics and development limitations of rural informal finance and the inherent requirements for achieving high-quality development.

5.1. Improving the Construction of the Rural Credit System

In the era of digital economy, the construction of a rural credit system has been accelerated by digital means, and a sound rural credit system can help to combine social factors such as blood and geography with financial quantitative factors such as credit level when carrying out rural informal financial activities, so as to improve the efficiency of the utilization of rural informal financial resources.

First of all, the construction of digital infrastructure in China’s rural areas is

still imperfect, so enhancing network coverage and broadband speed in rural areas through government guidance, enterprise participation, social capital investment and other means is an important aspect of the current construction of regional infrastructure, in particular accelerating the construction of digital infrastructure in rural areas in the central and western parts of the country. On this basis, integrate resources for local realities, rely on big data, cloud computing and other modern information technologies, and build a financial information database for enterprises and individuals that comprehensively covers rural areas. With the increasing digitization of the rural production and living system, on the one hand, relying on the advantage of low cost of information in the digital economy, multi-dimensional information, such as online transaction data, social evaluation, and credibility of merchants, is incorporated into the credit system, so as to form a more comprehensive, detailed, and dynamic credit portrait of rural residents. On the other hand, it introduces and cultivates high-level fintech talents, and carries out strict quality control and security screening of data with the help of blockchain's tamper ability and distributed storage characteristics. It prevents data falsification and information abuse, provides solid technical guarantee for the construction of rural credit system, and improves the authenticity and security of credit data.

With the continuous improvement of the rural credit system and the acceleration of rural urbanization, the traditional social structure of acquaintances is gradually fading, while the importance attached to creditworthiness is significantly rising. Against this backdrop, rural informal financial activities will no longer rely solely on social relations such as geography and blood ties when considering loan recipients, but will pay more attention to the borrower's quantitative credit level. This shift has led to more precise and reasonable loan disbursement, which has not only reduced the bad debt rate and the risk of renegeing on loans, but also improved the efficiency of the utilization of financial resources, and promoted the sustainable and high-quality development of rural informal finance.

5.2. Building and Implementing a Differentiated Regulatory Strategy

Rural informal financial institutions have operational characteristics and unique advantages that are different from those of formal finance, so differentiated regulatory strategies should be implemented in order to avoid the negative effects of "one-size-fits-all" regulation that may exacerbate the lack of financial services, thereby enhancing the sustainable development of rural informal finance.

Rural informal financial institutions have significant advantages over formal finance in terms of access to information, flexibility, cost-efficiency and meeting diversified financial needs. These advantages are based, on the one hand, on the structure of the rural community of acquaintances and, on the other hand, on an appropriate regulatory environment for rural informal finance. In order to achieve the balance between the development advantages and safety of rural informal fi-

nancial institutions, financial regulators should adopt differentiated and refined regulatory strategies to balance the development vitality and risk control of rural informal finance. They should be alert to potential financial risks brought about by insufficient supervision, but also avoid insufficient supply of financial services or obstruction of innovation due to excessive financial supervision, so as to enhance the sustainability of the survival of rural financial institutions and the sustainability of the development of financial services. For example, in terms of interest rate pricing, the interest rates of rural informal financial institutions are higher than those of formal banks, reflecting the supply and demand of funds unique to the rural financial market and the risk management costs of informal financial institutions. Therefore, financial regulators should, on the premise of respecting the laws of the market, guide informal financial institutions to reasonable pricing within the framework of legal compliance through policy tools such as the setting of interest rate guideline zones and risk compensation mechanisms. At the same time, they should strengthen the crackdown on loan-sharking and other illegal behaviors, so as to prevent loan-sharking and other unlawful behaviors from infringing on the legitimate rights and interests of farmers and rural small and medium-sized enterprises (SMEs). In conclusion, the regulatory authorities should uphold the regulatory concept of “encouraging innovation, preventing and controlling risks, and promoting development”, and make full use of the cutting-edge information technology means in the digital economy era, such as big data and cloud computing, to build an intelligent regulatory system, implement differentiated regulatory strategies, and fully stimulate the enthusiasm and creativity of rural informal financial services for the development of the rural industry.

5.3. Leading the Characterization Development of Rural Informal Finance

After conducting research, the author found that, on the one hand, the distribution of rural informal financial practices is culturally embedded and geographically heterogeneous; on the other hand, there is a homogenization problem within rural informal finance, and financial products and services are undiversified, so we should promote the innovation of differentiation of rural informal finance to achieve the development of special characteristics, and reshape the rural informal financial products and services system.

The development of rural informal finance should be guided by the need to satisfy the financial needs of rural residents, actively explore financial union models suitable for the development of local agricultural industrialization, and innovate the types of financial products and service models. Coordinate the formulation of regional rural financial development planning, for the East and Central regions with high quality of rural informal financial development, should continue to give full play to the market, talent, technology and other aspects of the first-mover advantage, to better serve the rural industrialization, urbanization process of the demand for funds; and in the relatively backward development of the western region,

should be targeted to the implementation of financial policies and support mechanisms, to guide the return of rural financial resources and human resources. In the relatively backward western regions, financial policies and support mechanisms should be implemented to guide the return of rural financial and human resources and human resources, and to better meet the basic needs of rural households and their productive financing needs. In addition, to deeply grasp the nature of its geographical and cultural embeddedness, under the premise of risk control, the innovation authority of rural informal financial institutions should be appropriately decentralized, allowing them to develop and design simple and convenient rural financial products and services according to the local actual situation, so that they can effectively meet the financial needs of different subjects, different industries, different amounts of money, and different periods of time, and to enhance the match between the supply of and demand for rural finance. The rural financial supply and demand matching degree has been strengthened. For example, it has developed mutual-help financial products based on geographic and blood relations, or designed customized loan programs for specific consumption habits (such as weddings, funerals, culture and entertainment), so as to effectively meet the diversified financing needs of rural households. In addition, interregional financial exchanges and cooperation should be actively promoted to accelerate the reasonable flow of rural financial resources between regions, and to promote the equalization and characteristic development of rural informal finance.

5.4. Accelerating the Gathering and Development of Rural Financial Professionals

Rural financial professionals are key to promoting the high-quality development of rural informal finance. Rural financial professionals play an important role in providing accurate credit support to rural households, improving financial literacy in rural areas and stimulating intrinsic rural vitality.

In order to promote the overall optimization of the rural financial ecology and the high-quality development of rural informal finance, efforts should be made to accelerate the construction of rural financial personnel in the following areas. First, we should speed up the establishment of a sound mechanism for the return of rural labor. Actively cultivate grass-roots workforce that “understands the three rural areas” and introduce corresponding incentive policies to broaden the channels for the introduction of financial talents to attract more financial talents to work in rural areas through policy guidance and incentive mechanisms. Encourage village cadres, village committee members, college student village officials and rural economic leaders to actively participate in the rural financial work in the capacity of “financial assistant”, to provide them with reasonable management subsidies and performance appraisal, so as to enhance their sense of mission and sense of achievement in serving rural revitalization. Secondly, it is necessary to accelerate the human capital transformation of rural practitioners. Utilizing modern information technology such as the Internet, big data, artificial intelligence,

etc., new teaching modes such as distance education, online learning and simulated practical training are carried out to improve the efficiency and effectiveness of training. Local governments should also introduce a series of policy measures to support the human capital transformation of rural practitioners, such as providing training subsidies and entrepreneurial support funds to reduce their learning costs. Third, we should actively promote outstanding financial talents to the countryside. Such as building an information base of rural financial professionals, to achieve effective integration and optimal allocation of human resources, to provide support for the accurate matching of financial talents needed in rural areas. While solving the difficult employment problems of today's graduates, help new agricultural business entities, individual business households, etc. to use personalized loan programs to obtain financial support from financial institutions to promote the revitalization of rural industries. Through the cultivation of financial literacy of farmers, the financial ecology of rural areas will be gradually optimized, the potential vitality of financial development in rural areas will be stimulated, and the long-term, stable and high-quality development of informal finance in rural areas will be promoted.

6. Research Conclusion and Future Prospects

6.1. Main Findings

Relying on field research data from Shandong, Hebei and Sichuan provinces, this study systematically comprehends and analyzes the practice patterns and operational characteristics of China's rural informal finance in the context of the digital economy, and proposes targeted optimization paths based on the findings.

The study shows that, firstly, digital technology has been deeply embedded in the rural financial soil, promoting the reconstruction of the informal financial ecology, and shaping four types of typical practices represented by online private lending, informal financial organizations, informal business of formal financial institutions, and online platform lending. Secondly, the operation mechanism of rural informal finance presents distinctive digital empowerment characteristics, which is manifested in the synergistic evolution of the digitization rate of lending forms, the degree of group diversification and regional cultural embeddedness, and presents the dual characteristics of path dependence and institutional inertia among different regions. Finally, the relative lack of credit constraint mechanisms has led to the risk of bad debts and regulatory lag in the informal finance sector, which has become the core bottleneck constraining rural informal finance from realizing high-quality development and risk-controllable operation. The above findings not only depict the structural changes of the rural informal financial ecosystem in the era of digital economy, but also provide empirical evidence and policy implications for improving China's rural financial service system, optimizing the resource allocation mechanism, and serving the rural revitalization strategy.

6.2. Research Limitations

It should be noted that, limited by the research design, sample acquisition and

time cost, the research in this paper still has certain limitations. First of all, the research samples are mainly concentrated in Shandong, Hebei and Sichuan provinces, although the geographical distribution of the three places in the east, middle and west is highly representative, but considering the complexity of China's rural financial ecology and the significant differences in the level of economic development between regions, the extrapolation of the research conclusions is still faced with constraints. In particular, some financial behaviors with regional characteristics, such as the special financing needs formed by rural migrant workers returning to their hometowns to start their own businesses in Sichuan, and the lending network under the industrial clusters in Hebei County, may weaken the applicability and explanatory power of the study's conclusions to other types of agricultural economic zones and even border and ethnic minority regions.

Secondly, this paper has not yet compared China's rural informal finance experience with other developing countries where informal finance plays an important role during the socio-economic transition period, and lacks an international comparative perspective, which limits the theoretical generalizability of the study's conclusions and the depth of the comparative analysis, to some extent. The lack of cross-country comparative research also makes the characteristics of rural informal finance in China and the logic of the institutional background and social structure behind it have not yet been fully interpreted.

6.3. Future Research Directions

Based on the above shortcomings, future research can be expanded and deepened in the following aspects: first, the spatial scope of the empirical investigation should be further expanded, prioritizing the inclusion of rural samples from the developed coastal regions in southeast China and the less developed regions in northwest China, so as to strengthen the regional breadth and external validity of the research conclusions, and to avoid the inference bias due to the regional concentration. Second, it is recommended to strengthen the comparative research with international experiences, especially focusing on developing countries with similar rural economic structures to China, and analyze the influence of different institutional backgrounds and social networks on the operation mechanism of informal finance, so as to enhance the theoretical explanatory power and international applicability of local experiences.

In addition, along with the continuous evolution of financial technology and digital infrastructure, future research should also pay attention to the application of blockchain, smart contracts, artificial intelligence credit risk control and other emerging technologies in the credit constraints and risk management of rural informal finance, so as to further enrich the understanding of the logic of rural financial governance in the digital economy environment, and to promote the effective connection between academic research and policy making.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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