

Study on Farmers' Microcredit Risk Cognition and Response Behavior

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Abstract

As an important financial tool to support the development of "agriculture, rural areas and farmers", microcredit has played a positive role in alleviating farmers' capital shortages and promoting agricultural production and rural economic development. However, in the actual operation process, farmers generally have problems such as insufficient risk awareness and lack of coping mechanisms in their credit behavior, which easily lead to risk events such as credit default and fund mismatch. Based on the theory of planned behavior, information asymmetry theory and behavioral finance, this paper constructs an analytical framework for farmers' microcredit risk cognition and coping behavior, systematically explores farmers' cognitive level of environmental risk, credit risk and operational risk, and identifies their behavioral paths and influencing mechanisms in risk coping. Through literature review and theoretical analysis, this paper finds that existing research mainly focuses on risk control of financial institutions, and pays insufficient attention to individual behavior of farmers, especially in the western region. The research of this paper not only enriches the theoretical exploration in the field of rural financial risk behavior, but also provides a reference for the formulation of more effective risk intervention policies.

Keywords

Microfinance, Farmer Risk Perception, Behavioral Finance, Theory of Planned Behavior, Rural Finance.

1. Introduction

In recent years, the country has continued to promote the rural revitalization strategy around the "three rural issues", and the sinking of financial resources to rural areas has become an important direction. In this process, microcredit has been given multiple functions to promote farmers' financing, enhance agricultural production capacity and activate rural markets. Especially for low- and middle-income farmers in western regions, microcredit provides a funding channel with "strong accessibility, low threshold and flexible use", which not only makes up for the lack of formal financial coverage, but also enhances its ability to buffer external shocks. However, with the widespread use of financial instruments, the risk issues behind them are becoming increasingly apparent.

As the final executors of microcredit, farmers' subjective cognition of loan risks and their actual response behaviors are directly related to whether credit funds can be used efficiently and sustainably. Compared with urban residents or business entities, farmers are generally at a disadvantage in terms of education level, information channels, financial management knowledge and risk awareness. In addition, the "acquaintance economy" and "relationship credit" in the rural social relationship structure will also interfere with their risk judgment, causing some farmers to show obvious blindness and irrationality in their borrowing behavior.

From the perspective of existing policy design and financial practice, mainstream risk management measures are still mainly centered around financial institutions, such as establishing a risk reserve system, optimizing loan approval processes, and introducing financial technology. However, less attention has been paid to individual farmers' risk identification capabilities and behavioral response paths. This asymmetric information between supply and demand further amplifies the externality of risk. Therefore, starting from the subjective perspective of farmers, studying their credit risk cognition and response mechanisms is not only an inherent need for financial risk prevention and control, but also an important part of promoting financial equity and rural governance modernization.

This study is based on the "farmer-centered" research paradigm, and attempts to reveal the psychological judgment and behavioral selection mechanism of farmers when facing credit risks from the perspective of individual cognition. By constructing a "cognition-behavior" analysis framework, the dimensions of farmers' risk perception, the formation logic, and the correlation between them and their coping behaviors are systematically examined.

In terms of theoretical significance, this paper introduces behavioral finance and planned behavior theory on the basis of traditional rural financial research, provides a diversified explanation path for the study of farmers' financial behavior, breaks the constraints of the "completely rational person" assumption, and deepens the understanding of irrational behavior patterns. In terms of practical significance, the research results help financial institutions and policymakers identify the micro-inducements of credit risks, optimize financial product design and publicity and education strategies, and enhance farmers' risk prevention and control capabilities, thereby promoting more accurate and efficient rural financial services and reducing systemic risks in the credit market.

In addition, this study uses Xi'an and its surrounding areas as sample areas, which is representative to a certain extent and can provide a reference experience basis for similar regions. It also has practical reference significance for the reconstruction of the rural financial ecology in the west.

This study uses questionnaire surveys as the main data source, and conducts empirical analysis in combination with qualitative interviews and basic data processing techniques. In terms of design, a stratified sampling strategy is adopted to select multiple administrative villages from representative agricultural counties around Xi'an to ensure the coverage and typicality of the sample. The survey content includes: basic demographic and economic characteristics of farmers, credit use, risk perception scores, coping behavior preferences, and perceptions of the policy environment.

In terms of data processing, this study mainly uses Excel for preliminary data sorting. In the analysis process, relying on basic statistical methods such as classification summary, frequency distribution, mean comparison, and cross statistics, the distribution differences in risk perception and behavior among different groups are revealed. At the same time, by setting logical screening conditions, the influence path of variables such as education, income, and experience on farmers' risk perception is explored.

Compared with the establishment and parameter estimation of traditional complex models, this paper pays more attention to "intuitive operability" and "undergraduate feasibility", emphasizing the interpretability and practicality of the analysis results. In addition, in order to improve the authenticity and explanatory power of the research, it also combines the interview data of typical farmers to verify and supplement some questionnaire results, so as to enhance the depth and thickness of the research.

2. Literature Review & Theoretical Framework

Previous studies on microcredit risk have predominantly focused on financial institutions, with scholars such as Li Jianjun[1] advocating improved credit approval models to reduce default rates. Giné and Karlan[2] examined loan design mechanisms as a means of mitigating risk. However, research from the borrower's perspective, especially smallholder farmers, remains insufficient. The prospect theory developed by Kahneman and Tversky has been useful in explaining irrational decision-making, and recent Chinese scholars like Wang Xu and Xu Ruilin have begun applying behavioral finance frameworks to rural credit behavior[3][4][5]. Still, there is a lack of field-based evidence from rural western China.

To fill this gap, this study integrates multiple theoretical frameworks, including the Theory of Planned Behavior (TPB), information asymmetry theory, and behavioral finance. TPB explains how farmers' intentions are shaped by attitudes, subjective norms, and perceived control. Information asymmetry theory highlights the structural disadvantage of farmers in accessing reliable credit-related information. Behavioral finance underscores how cognitive biases and emotional responses affect decision-making[6]. Together, these theories provide a comprehensive lens for understanding how farmers perceive risks and respond to credit-related risks[7].

3. Research Hypothesis

Based on the above theoretical analysis and literature review, this paper proposes the following three core research hypotheses:

H1: Farmers' risk perception level is significantly affected by their education level, household income, and credit experience.

That is, the cognitive level is not homogeneous, but is closely related to individual background variables and has significant structural differences. Farmers with higher education and income are more likely to accurately identify multiple types of credit risks and have stronger risk identification capabilities.

H2: Farmers with higher risk awareness levels are more likely to adopt rational risk coping behaviors such as insurance and reducing borrowing.

Farmers' behavioral responses are not isolated, but based on subjective cognition. A high level of cognition can guide them to actively participate in agricultural insurance, reduce high-risk financial operations, and thus form a benign financial behavior model.

H3: External support (such as policy publicity and financial service perfection) can positively regulate farmers' risk coping behavior.

External institutional and environmental factors indirectly improve the quality and initiative of farmers' coping behaviors by influencing information availability and financial product awareness, thereby reducing the probability of irrational behaviors.

4. Empirical Analysis

4.1. Data Design

To ensure the authenticity and representativeness of the research, this paper uses a questionnaire survey as the core data source, covering three typical agricultural counties around Xi'an (Zhouzhi, Huxian, and Gaoling). A total of 280 questionnaires were distributed, and 265 valid questionnaires were collected, with an efficiency of 94.6%. The survey subjects were mainly rural household heads with agricultural planting or breeding experience, taking into account the balance of gender, age, education and income characteristics.

The questionnaire structure includes four modules: (1) basic characteristics of farmers (gender, age, education, family size, annual income, etc.); (2) credit experience (whether to apply, loan amount, purpose, etc.); (3) risk perception dimension (scoring and evaluation of environment, market, and credit risk); (4) coping behavior (insurance participation, capital allocation adjustment, help-seeking behavior, etc.); (5) external factors (financial publicity exposure, service convenience, etc.). The questionnaire design combines the dimensions of the theory of planned behavior, adopts the Likert 5-point rating scale, and supplements it with open-ended questions to capture individual perceptions and experiences.

4.2. Analytical Methods

Since the research mainly uses Excel for data processing, the analysis method emphasizes operability and interpretability. It mainly includes:

Frequency statistics: Perform distribution statistics on all key variables to understand the overall level of risk perception; Mean comparison analysis: Compare the mean values of risk scores between groups with different characteristics (e.g., education level, income) to determine whether there are significant differences; Screening logic test: Based on the set conditions (such as "cognitive score>3"), observe the central tendency in behavioral selection.

5. Results Analysis

5.1. Summary of Questionary with Farmers



Figure 1. Farmer's Credit Risk Perception Score Distribution

According to Figure 1, the overall risk perception is low, with significant differentiation. In terms of "natural risk perception", the average score is 2.9, "market risk perception" is 2.6, and "credit risk perception" (i.e. understanding of the consequences of default) is only 2.3. This shows that most farmers lack a systematic understanding of the risks themselves, especially the institutional risks (such as repayment responsibilities).

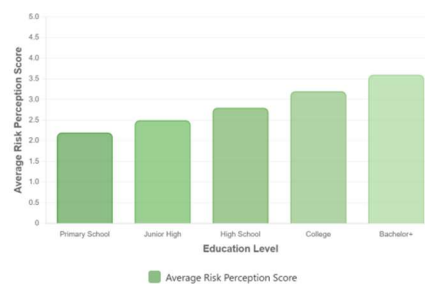


Figure 2. Average Risk Perception Score by Education Level

The risk perception of the high-educated and high-income groups is significantly higher (Figure 2). The mean comparison shows that the risk score of farmers with a bachelor's degree or above is significantly higher than that of farmers with a junior high school education or below (3.5 vs

2.4), and the risk score of the group with an income of more than 100,000 yuan is generally higher than that of the group with an income of less than 20,000 yuan. This verifies the H1 hypothesis[8].



Figure 3. Insurance Purchase by Risk Perception Level

There is a positive correlation between risk perception and behavioral choice(Figure 3). Among the samples with "perception score>3", more than 62% said they "have purchased or considered purchasing agricultural insurance", while among the samples with "score<2", the proportion was only 15%. In addition, the high-perception group is more inclined to reasonably control the loan amount and savings behavior, which indirectly confirms H2[9].

The effect of external publicity is limited but has potential. Only 28% of the samples indicated that they were "frequently exposed to risk publicity information", but the risk scores of this group of people were generally higher, indicating that financial education and policy publicity have a significant positive guiding effect, verifying H3[10].

These analysis results show that there is a clear correlation between farmers' risk perception and coping behavior, and individual differences and information availability are key variables affecting behavioral patterns.

5.2. Summary of Interviews with Farmers

In order to further verify the reality and accuracy of the questionnaire survey results, this paper randomly interviewed a representative farmer in Chang'an District, Lantian County and Huyi District of Xi'an City. The interviews focused on their microcredit experience, risk perception and actual coping behavior.

Interviewee 1 (farmer in Chang'an District, male, 52 years old, high school education):

"I borrowed 30,000 yuan to raise livestock a few years ago, but the price of pork fell that year and I basically lost money. I think the loan is risky, but many people in the village said, 'It's better to borrow than not to borrow,' so I just followed suit." The farmer believes that he roughly understood the loan contract, but did not realize that market fluctuations would directly affect his repayment ability. Later, he participated in agricultural technology training at his own expense and said, "I don't borrow money easily now. I will settle the accounts before I dare to move."

Interviewee 2 (farmer in Lantian County, female, 45 years old, junior high school education):

"Someone from the bank came to give a lecture but we older people couldn't quite understand it. I took out the loan mainly to buy seeds and fertilizers. If the weather is good, I can make some money, but if there are pests and diseases, I will lose everything." She admitted that she did not have a clear understanding of the consequences of loan default. "I heard that some people were

blacklisted, so I'm a little scared." She prefers to reduce the loan amount, "If it can be avoided, then don't use it."

Interviewee 3 (farmer in Huyi District , male, 38 years old, college degree):

"I have insurance, but it only covers natural disasters, not market prices. One year, potato prices plummeted, but I still had to repay the loan, which was very painful." He emphasized the importance of financial knowledge, "Many villagers are not sensitive to loans and think they are free. In fact, risk control is very important." He suggested that "the government should combine case studies when giving lectures and use local dialects more often so that farmers can listen."

In summary, the interview content further confirms the core findings of the questionnaire survey: there are significant differences in farmers' risk awareness levels, and they generally lack systematic coping strategies; some farmers show characteristics such as blind borrowing and vague understanding of information, highlighting the importance of risk education and policy design.

6. Problems and Cause Analysis

The risk awareness foundation is weak and misunderstandings are widespread. Most farmers still view loans as "emergency funds" or "unrestricted benefits" and lack a clear understanding of the credit constraints and long-term responsibilities behind the loans. Some farmers even said that "as long as the village does it together, we will do it", reflecting the interference of rural collective behavior on individual judgment, and they rely heavily on "word of mouth" information channels, which makes them easily misled.

There is a lack of risk education mechanism and fragmented information dissemination. Farmers interviewed generally reported that the publicity content on loan risks was scattered, lacking in relevance and practicality, and mostly in the form of "discussing documents at meetings", lacking an expression method that was close to farmers' language and experience. In addition, some rural financial service points lacked professional personnel, resulting in farmers lacking effective consultation and guidance when facing credit contracts and insurance products, and the problem of information asymmetry persisted.

Irrational lending behavior is frequent and social factors are significant The study also found that in rural society, "face culture" and "herd mentality" have a significant impact on loan behavior. For example, a farmer said, "I saw my neighbor borrow money to raise sheep and make money, so I followed suit," but later found that lack of experience led to losses. This "anchoring bias" and "overconfidence" are typical biases pointed out by behavioral finance, and are also an important reason for the current high incidence of irrational borrowing by farmers[11][12].

7. Countermeasures and Suggestions

7.1. Systematically Promote the Rural Financial Knowledge Popularization Project

The popularization of financial knowledge should be incorporated into the rural governance and education system, and a joint publicity mechanism of "village committee-agricultural technology-financial institution" should be established. It is encouraged to use case-based lectures that are easy for farmers to understand, and to improve farmers' awareness of financial risks through modern channels such as radio, WeChat groups, and short videos.

7.2. Optimizing Credit Product Design and Contract Mechanism

Financial institutions are encouraged to launch loan contracts with "segmented risk warnings" and "picture and text interpretations" to clarify different risk types and their consequences, and

enhance the transparency and readability of the contract content. At the same time, "risk-related products" such as agricultural insurance and loan guarantee services are promoted to farmers to increase risk coverage.

7.3. Improving the Human and Technical Equipment of Financial Service Points

Improve the quality and service capabilities of financial personnel at grassroots service points, set up an "agricultural loan consultant" system in high-frequency loan areas, and ensure that farmers can get clear risk interpretation and personalized suggestions before taking out loans. At the same time, promote the coverage of mobile terminals and digital risk warning systems to improve the accessibility of rural financial technology services.

7.4. Establishing a Three-way Collaborative Governance Mechanism among Government, Institutions and Farmers

The government should play a guiding role in the release of risk information, credit project evaluation and the construction of a tiered credit system for farmers. Financial institutions should be responsible for technical services and product implementation. Farmers should participate in financial cooperation in an organized manner (such as farmers' cooperatives) to achieve a transformation in governance from a "passive prevention and control" model to an "active co-governance" model[13][14].

8. Conclusion

This paper conducts a systematic study on farmers' microcredit risk cognition and coping behavior. Combining questionnaire surveys with theoretical analysis, it reveals that farmers show obvious cognitive deficiencies and irrational behavior when facing multi-dimensional credit risks. The study found that education level, information availability and institutional support are key factors affecting risk cognition; and differences in cognitive levels further lead to differentiation in coping behaviors. External support can effectively buffer the behavioral risks brought about by cognitive differences and provide necessary support for the risk management system.

This article enriches the application of planned behavior theory and behavioral finance in rural credit scenarios at the theoretical level, and provides actionable suggestions for policymakers and financial service providers at the practical level.

Although this study strives to use extensive data and rigorous methods, it still has certain limitations: (1) The sample area is mainly around Xi'an, and the regional representativeness needs to be expanded; (2) The questionnaire is cross-sectional data and cannot dynamically track cognitive changes; (3) No in-depth modeling of mediating variables such as social networks and village governance has been conducted.

Future research can be further expanded in the following directions: first, conduct long-term follow-up surveys, introduce behavioral intervention experiments, and observe the dynamic evolution of risk cognition; second, combine big data and behavioral recording technology to achieve accurate identification and prediction of risky behaviors; third, introduce collective variables such as cooperatives and village rules to study the impact path of social structure on individual cognition.

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