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Research Article
The Peer Effects of the Usage of Credit Cards in Rural Areas of China: Evidence from Rural China

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This paper aims to explore whether the usage of credit cards has peer effects in rural areas of China. The results suggest that the usage of credit cards will be affected by the behavior of other farmers; namely, the usage of credit cards has peer effects in rural areas. We also verify that women, older, and low-academic farmers show stronger peer effects. The results emphasize that, compared with the mass farmers and vulnerable farmers, the usage of elite farmers is more likely to affect the same behaviors of other farmers. Our study contributes to prior literature by giving empirical insights into the consequences of peer effects on the credit card usage of farmers, which conduces to a better understanding of the financial decision-making of farmers. The research may provide a practical implication for the optimal design of policy interventions. On the one hand, banks and other financial institutions can promote innovative financial products in rural areas with the help of peer effects; on the other hand, regulators can regulate farmers' wrong financial behaviors by the social multiplier of peer effects to reduce systemic risks in rural finance.

1. Introduction

The imbalance between urban and rural economic development is a structural and historical issue in China. Insufficient rural economic development has restricted sustainable economic development, which is not conducive to the "rural revitalization" and "poverty alleviation" strategy of the Chinese government in rural areas. Various resources should be fully utilized to support rural economic development. Finance can provide strong energy to the rural economy with the functions of financing and risk management. On the one hand, it can provide financing services for rural economic development and farmers to alleviate insufficient capital. On the other hand, farmers can effectively deal with various risks in life. Financial products are the key hub for financial services and financial policies, which also act as the primary role in the rural financial system. At present, insufficient use of financial products and limited financial market participation are the main reasons why rural inclusive finance does not help farmers effectively.

It hinders the development of the inclusive financial system and weakens the role finance plays in poverty alleviation in rural areas. Therefore, we explore the peer effect of the farmers' cognition and usage of financial products in China and analyze farmers' how to make a financial decision in the background of low financial literacy and asymmetric information. Our paper provides a new perspective to promote farmers' financial product usage and offers helpful thoughts for deepening the potential of the existing financial system to enhance farmers' well-being. It has important reference value for accelerating regional coordinated development.

Rural areas are villages based on kinship and marriage in China. Farmers in the same village face similar risks and information status with similar cultural backgrounds and strong group consciousness. Farmers' economic decisions will be affected by others in the same village, showing peer effects. The peer effects mean that an individual's economic decision will be affected by the behavior of others. There is a convergence phenomenon in certain spaces, such as the same community [1, 2]. If individuals have similar cultural

backgrounds and value orientations, the peer effects will be more significant when they face the situation of lack of information and high risk [3]. At present, most of the research on rural financial inclusion and financial product participation focuses on market analysis frameworks such as revenue and cost. However, the factor of nonmarket interactions among farmers is neglected. Farmers usually have low financial literacy and a lack of rational decision-making ability. Thus, they will consider others' behavior as a useful offset to the irrationality and show peer effects in their decision-making. Therefore, studying the usage of rural financial products from the perspective of peer effects is of great significance. It is good for the development of rural inclusive finance and the promotion of innovative financial products.

The credit card is a financial inclusive tool commonly used in the current economy, whose overdraft function can be regarded as short-term financing for the holders. With flexible repayment methods such as minimum repayment and installment repayment, credit cards can act as a convenient and short-term financing tool. If farmers use credit cards reasonably, it will effectively ease their cash flow pressure and overcome financing difficulties. Compared with most financial products, credit cards are commonplace for urban residents, while they are still unacquainted for most farmers. Few of them can utilize them well, and some even do not hear about it.

Based on the Financial Education Development Foundation survey data on 137 villages in four southwestern provinces of China in 2018, this paper analyzes the usage of credit cards in rural areas from the perspective of peer effects. The probit model is used to explore the peer effects in the usage of financial products and to analyze the peer effects of different types of farmers. In addition, this paper subdivides the peer effects variables (PEV) into elite farmers, mass farmers, and vulnerable farmers to explore the mutual influence mechanism.

2. Literature Review

Since the advent of credit cards, credit cards have been a financial product commonly used by residents, and research on the holding and usage of credit cards (UCC) has also been abundant. Combining the previous research on credit card holding and usage, it is found that, under the framework of market analysis, scholars discuss the factors that affect the use of credit cards from the perspective of personal characteristics and family characteristics, such as resident income, age, education, gender, ethnicity, occupation, marriage, debt situation, financial knowledge, risk appetite, family size, family income, and related wealth accumulation.

Personal characteristics have a greater influence on UCC, and the influence of age and education on credit card holding has been widely recognized by scholars. Most scholars believe that credit card holding is negatively correlated with age [4, 5]. Loke et al. [6] pointed out that credit card holding has an inverted "U" relationship with age, the tendency to hold cards during the 35–56 age and the number of cardholders are higher than those of other age groups, and

card holding tendency weakens with age. Existing research shows that there is a significant positive relationship between the education level of residents and credit card holding, which is manifested in two aspects. First, the higher the education level of residents and financial knowledge of credit cards and risk identification and the stronger the coping ability, the higher the number of credit cards held and the frequency of use. Second, the credit management and credit records of highly educated people are generally better, making it easier to obtain credit cards from banks [7]. At present, the impact of residents' income, gender, and occupation on UCC has been controversial in the academic circle. Even though residents' income significantly affects UCC, the agreement has been reached in academia. However, whether the income of residents is positive or negative affects the issue of credit card holding, which is more controversial. Most scholars believe that income will positively affect personal credit card holding and usage [8, 9]. Most literature finds that women have more credit cards than men and UCC more frequently [10]. Tan et al. [11] believe that there is no significant relationship between UCC and individual gender. B. S. Divya [9] pointed out that the gender difference in middle-income groups is greater, and this conclusion eased the differences to some extent.

Some scholars have studied the impact of UCC from a racial perspective and found that race will have a certain impact on UCC. For example, African Americans are more inclined to use credit cards [12]. Studies have shown that residents' financial knowledge, marital status, occupational characteristics, length of work, and job stability all affect personal UCC [5, 13, 14]. Existing literature mainly studies the impact of family characteristics on credit card decision-making from the perspectives of family structure, family population size, family wealth attribution, and asset allocation. Shen et al. [15] pointed out that the increase in family size will significantly reduce the tendency to hold cards, while other scholars agree that the family size is positively related to residents' holding and UCC [16]. Sharpe et al. [14] pointed out that the size of the family population does not have a significant impact on credit card holding decisions, and the impact of household wealth accumulation on credit card holding decisions is not significant.

For the study of credit card decision-making, most of the literature is limited to individual self-characteristics, and it is less related to the influence of other individuals, which is inconsistent with the objective reality. Peer effects originate from the theory of social networks. The theory holds that the exchange of information between individual behaviors will constitute a complex network of social relations, which makes individual behavior decisions not independent but mutually influenced. For example, individual behavior decisions are often influenced by family members, neighbors, friends, or colleagues [17, 18]. Individual decision-making not only is affected by its characteristics but also tends to change due to the behavior of groups with similar characteristics, that is, "same groups" [19–22]. The "peer effects" studied in this paper mean that the interaction between people will directly affect the performance of related actors [2]. In the early days, research on peer effects was mainly

distributed in the field of pedagogy. Through different perspectives, scholars have studied peer effects on students' academic performance, noncognitive ability, and preference [23]. At present, research on peer effects extends to the fields of economics, management, and finance, involving company innovation, financial arrangements, and investment and financing behavior [20, 24]. It also includes individual stock market participation, gaming participation, entrepreneurial behavior, and donation behavior [25, 26]. In addition, some scholars have shifted their focus from the general performance of actors to the generation mechanism of violations and put forward suggestions to reduce negative social multipliers, such as personal crimes and corporate violation decisions [2, 27, 28]. Likewise, some scholars have proposed the impact of the peer effect on social structure from a more macroperspective. For example, Margaretic et al. [27] proposed that the peer effect strengthens the identity of groups, especially vulnerable groups, and thus strengthens social segmentation. Lu and Zhang [2] proposed that the peer effect exacerbates the inequities such as the gap between rich and poor, accumulation of human capital, and consumption of public goods.

In the above studies, although there have been more studies on credit cards, less attention has been paid to the peer effects on UCC, that is, whether the increase in peers will lead to an increase in the usage of financial products. At present, most research is to analyze its usage behavior within the framework of market analysis. Few scholars have studied farmers' credit card usage from the perspective of the peer effects. However, rural areas are always showing stronger peer effects of economic decisions. In addition, studies have proved that the behaviors of individuals will affect each other, but few studies have further analyzed which individuals are more susceptible to social interactions and which group behaviors are more likely to affect the behavior of others, thus making research lack reference value in practice. Therefore, to better explain the rural financial phenomenon, it is necessary to consider the mutual influence of farmers in economic decision-making.

3. Hypothesis Development

Studies have shown that when personal information and knowledge are lacking, they tend to take the initiative to seek help from social networks such as relatives, friends, neighbors, and colleagues. On the other hand, social networks contribute to the transmission of information between individuals and companies and affect investor sentiment, cognition, decision-making, and group behavior [29]. According to the Bayesian social learning theory model, social learning is divided into communicative and observational learning [30]. When farmers face an unknown financial product such as a credit card, through the social circle formed by kinship and marriage, farmers can consult and learn related knowledge. Compared with external information channels, farmers trust information obtained from relatives and friends more. The credit cognition of farmers in the same village will overflow through social networks, communication, and observing. That will enhance the credit cognition of farmers.

Otherwise, the UCC of other farmers will increase the positive utility of the UCC of the farmers and reduce the negative utility. There are three specific channels as follows. First, the rural village in China is mainly composed of kinds of social relations based on marriage, blood relationships, and kinship. Farmers have the same cultural background and strong collective concept. Similar behaviors of other farmers in the same village are important indicators for their decision-making. When farmers take the first action, this "alternative" behavior makes farmers need to bear the negative effects of the deviation from the group and collectives as "outstanding birds." So farmers tend to choose similar behaviors in economic decision-making to keep the consistency with other farmers in the same village [3]. Therefore, the more the farmers use credit cards, the less the negative utility the user will feel from the deviation. Second, according to the theory of social learning, farmers can understand the potential benefits and possible losses by observing the UCC of others in the community. Thereby, it will alleviate the suppression of UCC caused by "fuzziness aversion" [28]. Third, by observing and imitating the credit card usage of other farmers in the same village, the farmer can learn the rules, skills, and procedures about credit cards. It will promote UCC in rural areas. In addition, the bank's credit card business has the characteristic of decreasing average costs in rural areas. The more the farmers use credit cards, the lower the cost of bank credit card supply. Thereby, it will increase the willingness of banks to provide credit cards.

Hypothesis 1. There is a peer effect on the UCC of farmers. That is, the more the farmers use credit cards in the village, the more they tend to use credit cards.

The UCC of farmers will be affected by other farmers, but different groups will have different impacts on them. Mainly through the three channels of learning, imitation, and anchoring effect, the economic decision of farmers is influenced by similar economic behaviors of other farmers. First, elite farmers in the same village (i.e., farmers with high education, high income, and high social capital) have stronger social networks and more positive incentives, so UCC of elite farmers has greater reference value and stronger demonstration effect. Therefore, farmers usually prefer UCC of elite farmers as a target to observe and imitate, thereby overcoming the vague aversion caused by lack of knowledge and lack of information. In addition, the economic behavior of elite farmers is usually more frequently concerned and referenced by other farmers. Compared with elite farmers, although the behaviors of mass farmers and vulnerable farmers will also affect the UCC of other farmers through the same channels, their demonstration effects are weaker and less concerned, especially for vulnerable farmers (i.e., farmers with low education, low income, and low social capital), and are usually far from the reference view. So, UCC of elite farmers in the same village can affect the UCC of other farmers more than mass farmers and vulnerable farmers.

Hypothesis 2. There are peer effects on the UCC of farmers, while the UCC of the elite farmers can affect the behavior of other farmers more.

4. Data and Methodology

4.1. Sample Selection and Data. The data comes from the Financial Education Development Foundation survey data on 137 villages in four southwestern provinces of China in 2018. The survey samples were selected in the southwest region, and the three-level stratified sampling method was conducted in cities, counties, and villages in each province in order of high, medium, and low per capita GDP. The selected samples were universal and representative. The survey covered four provinces in Sichuan, Yunnan, Guizhou, and Tibet and 16 cities, including Chengdu, Suining, Guiyang, Zunyi, Chuxiong, Yuxi, and Lhasa, covering 137 villages in 25 districts and counties, and finally obtained 2925 samples. Most notably, this survey inquiry was made face to face by electronic questionnaire loading in Android Pad with a quality control system that can record all the sound of the survey with every respondent and automatically deliver it back to the control terminal in the end. The control terminal can recognize and correct all the misconduct timely, which ensures the objectivity, authenticity, and standard operation of the survey. Otherwise, in the postaudit stage, 20% of the total samples were randomly selected to check by listening to the quality control system recording, and the other 20% were selected to do return tests by telephone. Finally, 90% of the samples passed the test.

4.2. Peer Effects Identification. If we want to identify peer effects from similar nonmarket interactions by empirical methods, the endogenous interactions, contextual interactions, and correlation effects need to be effectively identified [17]. First, endogenous interaction is the peer effects involved in this paper. It is the interpretation of a specific member by the performance of other members within the same group, emphasizing the influence and interaction between members. Most empirical studies identify the peer effects with the peer variables, which is the average of members in the same group. Second, contextual interaction means that a person's behavior is related to the exogenous characteristics of the group. Because they share common external characteristics such as income, education, and age, the economic decisions of individuals and others show convergence. The last is the correlation effect; that is, the members in the group with similar personal characteristics tend to make the same choice. Based on the research of Brock and Durlauf [31], our paper introduces the common external features of sample farmers' income, education, age, and so on into the model as a control variable to solve the situational interaction problem. Meanwhile, we add the peers' gender, age, education, social capital, and income into basic regression to deal with the correlation effects.

In addition, there are usually reflection problems, selection biases, and attrition biases in the empirical estimation of peer effects. We use the IV-probit model to solve the reflection problems referring to the existing literature [2, 26]. And it can also overcome the problems of measurement error, reflectivity, and leakage error. Since China's unique household registration system restricts the free movement of the population, the selection bias caused by self-selection has little effect on the results of the estimation of peer effects.

4.3. Empirical Models. To test the hypothesis, this paper constructs the probit model to investigate whether there are peer effects of UCC of farmers.

$$\text{ccus}_i^c = \beta_0 + \beta_1 \text{pccu}_{-i}^c + \beta_2 X_i^c + \beta_3 Y_{-i}^c + \beta_4 Z_i^c + \varepsilon_i^c, \quad (1)$$

where pccu_{-i}^c is the peer effects variable of credit card usage (PEV); ccus_i^c is the credit card usage dependent variables, which are the UCC of the farmers. The coefficients α_1 are the key indicators to identify whether UCC has peer effects. X_i^c is a group of control variables related to individual characteristics, Y_{-i}^c is a group of peer variables related to the personal characteristics of other interviewed farmers in the same village, and Z_i^c is a group of variables related to the characteristics of villages where farmers are located.

Meanwhile, we are also interested in whether UCC of the farmers from different groups in the same village shows different results; we estimate models (2).

$$\text{ccus}_i^c = \eta_0 + \eta_1 X_1^c + \eta_2 X_2^c + \eta_3 X_3^c + \eta_4 M_i^c + \eta_5 Y_{-i}^c + \eta_6 Z_i^c + \varepsilon_i^c. \quad (2)$$

In model (2), X_1^c, X_2^c, and X_3^c are the main explanatory variables, expressed by pccu_{-i}^{cj} (PEV of the elite farmer's UCC), pccu_{-i}^{cm} (PEV of the mass farmer's UCC), and pccu_{-i}^{cw} (PEV of the vulnerable farmer's UCC). M_i^c is the personal characteristics of the farmers, Y_{-i}^c is a group of peer variables related to the personal characteristics of other interviewed farmers in the same village, and Z_i^c is a group of variables related to the characteristics of the village where the farmers are located. In all our tests, we include province-fixed effects.

4.4. Variable Definition and Description. The definition and description of the variables involved are shown in Table 1. Explained variables: UCC is defined as whether farmers use a credit card. The question in the questionnaire is "Have you used a credit card? (1) used; (2) not used." If the rural residents use credit cards, the value is 1; otherwise, the value is 0.

Explanatory variable: the core explanatory variable in this paper is the PEV of UCC of the rural residents. The PEV of UCC is defined as the average value of UCC of other farmers in the same village, except for the sample. We calculate the PEV of UCC as follows:

$$\text{pccu}_{-i}^c = \sum \frac{\left(\text{ccus}_j^c - \text{ccus}_i^c\right)}{(N-1)}, \quad (3)$$

TABLE 1: Variable description.

	Abbrev	Variable	Definition
Explained variables	ccus	Usage of credit card	Whether farmers use credit cards, the corresponding question is "Do you use credit card? 1. Not used; 2. Used." If you choose "1," the value is 0; otherwise, it is 1.
Explanatory variables	pccu	Peer variables of usage of credit card	The average usage level of credit cards of other farmers in the same village except the sample farmers. The method is to add and average usage of credit cards of other farmers except the sample farmers.
Individual characteristics	tpay	Total household expenditure	The total household expenditure of the sample farmers, "What is the average total expenditure of your household in the past three years?" Unit: Yuan.
	tincome	Total household income	The household income of the sample farmers, "What is the average total income of your household in the past three years?"
	age	Age	The age of the sample farmers is corresponding to the question "What is your age?"
	sex	Sex	The gender of the sample farmers corresponds to the question "What is your gender? 1. Female; 2. Male." If you select "1," the value is 0; otherwise, it is 1.
	edu	Years of education	The education years of the sample farmers, corresponding to the question "What is your education level?" Calculate the education years of the sample farmers according to their education years.
	sc	Social capital	For the social capital of the sample farmers, the corresponding questions here are "Do you or your family work in government departments? 1. None; 2. I am; 3. Family is in," "you or your family work in financial institutions? 1. None; 2. I am; 3. Family is in," and "you or your family is a village cadre? 1. None; 2. I am; 3. Family is." If you choose "1" for each question, the value is 0. If "2" is selected, the value is 1. If "3" is selected, the value is 2. Add the three question assignments to calculate the social capital of the sample farmers.
	tp	Family size	The household population of the sample farmers corresponds to the question "How much is your family?"
	loandemand	Loan demand	For the loan demand of the sample farmers, the corresponding question is "Do you have a loan demand? 1. No; 2. Yes." If you select "1," the value is 0; otherwise, it is 1.
Neighborhood characteristics	peersex	Peer variables of gender	The average gender status of other farmers in the same village except the sample farmer. The method is to average the gender of other interviewed farmers other than the sample farmer.
	peerage	Peer variables of age	The average age of other farmers in the same village except the sample farmer. The method is to add up and average age of the other farmer other than the sample farmer.
	peersc	Peer variables of social capital	The average social capital of other farmers in the same village except the sample farmer. The method is to add up and average the social capital of other interviewed farmers except the sample farmers.
	peeredu	Peer variables of years of education	The average years of education of other farmers in the same village except the sample farmers. The method is to add up and average the years of education of other interviewed farmers except the sample farmers.
	peertincome	Peer variables of family income	The average total income of other farmers in the same village except the sample farmer. The method is to add up and average the total income of other farmers other than the sample farmer. Unit: Yuan.
Community characteristics	cuntraffic	Village traffic situation	The traffic situation of the village where the sample is located. The corresponding question is the interview of the village committee director in the community questionnaire. The corresponding question is "What is the traffic situation of the village? 1. Not good; 2. Good." If "1" is selected 0, otherwise 1.
	cunwifi	Network status	The wireless signal coverage status of the village where the sample is located. The corresponding question is the interview of the village committee director in the community questionnaire section. The corresponding question is "What is the network status of the village? 1. Not good; 2. Good." If "1" is selected 0, the value is 0; otherwise, it is 1.
	pdistance	Distance from the provincial government	The distance from the village committee where the sample is located to the provincial people's government, measured by Google Maps, unit: km.

where ccus$_i^c$ indicates the usage of credit cards of the sample, C indicates the village sample belongs to, and N indicates the total number of farmers in the village.

Control variables: we introduce three kinds of control variables to more accurately calculate the peer effects on the usage of credit cards. The first kind is the characteristics of the sample, including education, age, gender, social capital, family population, income, expenditure, loan demand, and other variables. The second is neighbors' characteristics, including the average value of education, age, gender, social capital, and income of other farm households except for the sample. These variables are used to deal with situational interaction. The third is village variables. Aiming to control the influence of the correlation effect, we introduce the traffic status, WIFI coverage status, and the distance of the village from the committee location of the provincial government.

Table 2 gives the descriptive statistics of the variables.

5. Peer Effects of Regressions

The baseline regression is listed as follows. Columns (1)–(3) of Table 3 report the regression results of the relationship between PEV and UCC. Column (2) includes individual characteristics, group characteristics, and community characteristics in column (1). Column (3) includes regional characteristics. The results show that the coefficient of pccu in all columns is significantly positive, which indicates that farmers' UCC has peer effects. Therefore, Hypothesis 1 is proved.

In terms of control variables, the gender, years of education, social capital, and family income of rural family policymakers have a significant positive impact on UCC of rural residents. The age and financing experience of family decision-makers have a significant negative impact on UCC of rural residents.

6. Instrumental Variable Regressions

This part will use the instrumental variable method to solve the endogenous problem and better estimate the impact of UCC [26, 32].

We use the average value of third-party payment usage (pthirdpay) of other farmers and the average value of mobile banking usage (pphonebank) of other farmers as instrumental variables. Because third-party payments such as Alipay and mobile banking usually have credit card product introductions, credit card processing ports, and UCC and repayment services in the login interface, thereby increasing UCC of the farmers, they meet the requirements of relevance. pthirdpay and pphonebank will affect the UCC of others in the same village, but it will not affect the sample farmer's UCC. At the same time, it is not related to the current random disturbance item and meets the requirements of exogenous. Therefore, it is reasonable to take pthirdpay and pphonebank as instrumental variables for PEV of UCC to meets the "exogenous" requirement. Columns (1)–(4) of Table 4 report the estimated results using instrumental variables, and columns (2) and (4) add the regional control in columns (1) and (3), respectively. The results show that PEV of UCC is positive and significant,

which is consistent with the results in Table 3. The coefficient of the first stage instrumental variable is significantly positive, and the p-value is less than 0.05, thus proving the effectiveness of the instrumental variable; the F-values are all bigger than 15, thus rejecting the assumption that it is a weak instrumental variable.

7. Robustness Checks

In the existing research, some scholars have toke human expenditure as an indicator to indirectly measure the characteristics of the farmer's peer effects [33]. However, this indicator has the following defects. On the one hand, the expenditure does not promote mutual learning and communication between farmers. On the other hand, observation between farmers is an important channel for imitation and learning. Human expenditure cannot accurately measure this behavior. Therefore, this paper uses the questionnaire question "Will your financial decision be affected by the financial decisions of others in the same village? 1. Yes; 2. No" instead of PEV of UCC in the above OLS regression. If the farmer chooses "Yes," it will be assigned a value of 1; otherwise, it will be assigned a value of 0, and this variable is defined as replace. The estimation results in columns (1)-(2) of Table 5 show that the coefficients are still significantly positive, which shows that the impact of PEV of UCC is robust.

Otherwise, we take the simulated sampling test methods to prove the robustness and accuracy of baseline regression [26], which is constructing the virtual community. Then, calculate the false peer effect variables and reestimate the baseline regression. If the coefficient of false peer effect is not significant, it will prove the robustness of the above regression result. The simulation sampling steps are as follows. First, randomly select sample farmers from a different village in the same county. It is the virtual community, and then calculate the "peer variables" of the virtual community according to the above calculation method. That is the false peer effect (fpccu). Second, replace the explanatory variable (pccu) in the baseline regression with the false peer effect variable (fpccu) and regress again. Finally, observe whether the coefficients of the virtual peer variables are significant. Columns (3)-(4) of Table 5 report the simulated sampling test results. Column (3) is the result without the fixed effects, and column (3) is with the fixed effects. Both the coefficients of false peer effect variable are not significant, which shows that the baseline regression is robust.

Finally, we divide all farmers into large-scale family groups and small-scale groups according to the family size. The results are in columns (5)-(6) of Table 5. No matter the large family size group or a small family size group, the coefficients of PEV are all significantly positive, which is consistent with the baseline regression. The result further proves the robustness of the results again.

8. Heterogeneity Analysis

This paper makes group regression according to the gender, education level, and age of the decision-makers in the

Table 2: Variable description.

Variables	Mean	Median	Standard deviation	Minimum	Maximum	Obs
ccus	0.132	0	0.339	0	1	2435
pccu	0.132	0.105	0.099	0	0.538	2435
tpay	37,216	30000	26,376	5000	100000	2435
tincome	54,053	40000	58,346	2500	300000	2435
age	48.90	50	13.13	25	71	2435
sex	0.591	1	0.492	0	1	2435
edu	7.868	9	4.085	0	19	2435
sc	0.962	0	1.456	0	5	2435
tp	4.818	5	2.197	1	12	2435
loandemand	0.721	1	0.448	0	1	2435
peersex	0.590	0.577	0.169	0.0400	1	2435
peerage	48.90	49.60	6.458	23.58	63.27	2435
peersc	0.992	0.950	0.601	0	3.556	2435
peeredu	7.872	7.880	1.616	3.143	12.56	2435
peertincome	57894	52000	29777	9043	240000	2435
cuntraffic	0.824	1	0.381	0	1	2435
cunwifi	0.929	1	0.256	0	1	2435
pdistance	147.9	133.1	106.0	10.90	408	2435

Table 3: Estimation results of the peer effects.

Variables	ccus (1)	ccus (2)	ccus (3)
pccu		4.558*** (12.923)	4.466*** (10.554)
tpay		$\leq$0.001 (1.093)	$\leq$0.001 (1.042)
tincome		$\leq$0.001** (2.404)	$\leq$0.001** (2.438)
age		−0.006* (−1.840)	−0.006* (−1.828)
sex		0.131* (1.751)	0.129* (1.724)
edu		0.038*** (3.334)	0.039*** (3.339)
sc		0.033 (1.301)	0.034 (1.323)
tp		0.029* (1.778)	0.029* (1.809)
loandemand	4.484*** (15.522)	−0.162** (−2.175)	−0.164** (−2.215)
peersex		−0.140 (−0.629)	−0.155 (−0.686)
peerage		0.007 (1.089)	0.006 (0.756)
peersc		−0.024 (−0.323)	−0.010 (−0.119)
peeredu		−0.025 (−0.806)	−0.036 (−0.996)
peertincome		−0.001** (−1.983)	−0.001 (−1.483)
cuntraffic		−0.032 (−0.320)	−0.023 (−0.226)
cunwifi		0.028 (0.183)	0.055 (0.356)
pdistance		$\leq$0.001 (1.329)	$\leq$0.001 (0.702)
Constant	−1.819*** (−32.390)	−2.137*** (−4.392)	−2.024*** (−3.228)
Regional control	No	No	Yes
Observations	2435	2435	2435
Pseudo R-squared	0.104	0.150	0.151

* Note:*,**, and*** indicate significance at the 10%, 5%, and 1% levels, respectively. The number in parenthesis is T value. The same goes for subsequent tables.

sample families to observe whether the peer effects of farmers' UCC will show differences with gender, education level, and age under different control variables.

First, column (1) of Table 6 is the empirical results of the peer effects of male family decision-makers. Column (2) is the empirical results of the peer effects of female family decision-makers. The results show that, compared with the male family decision-maker, the male family decision-maker has stronger peer effects on UCC. The reason may be because the group effect of credit card use breadth plays a role more through group reference and

social comparison, while male farmers have a wider social circle and a stronger tendency to seek common ground in social comparison.

Second, the age of family decision-makers also has a certain influence on UCC. Columns (3) and (4) of Table 6 show the grouping regression results according to the age of family decision-makers. Column (3) is the empirical results of UCC for the elderly group who are older than 45. And column (4) is the empirical results of UCC for the younger age group whose age is below 45. The results show that, compared with the family decision-maker who is a young

TABLE 4: Instrumental variable estimation results of the peer effects of residents.

Variables	ccus (1)	ccus (2)	ccus (3)	ccus (4)
pccu	3.337*** (4.965)	2.348** (2.320)	3.428*** (4.948)	1.699*** (3.577)
Control variables	Yes	Yes	Yes	Yes
Regional control	No	Yes	No	Yes
Constant	−1.690*** (−15.549)	−1.500*** (−2.726)	−1.703*** (−15.336)	−1.402** (−2.565)
F-value of first stage	743.79	68.29	932.35	64.48
pthirdbank	0.486*** (27.273)	0.410*** (20.476)		
pphonebank			0.42*** (30.534)	0.340*** (18.964)
Observations	2435	2435	2435	2435

TABLE 5: Robustness testing.

Variables	ccus (1)	ccus (2)	ccus (3)	ccus (4)	ccus (5)	ccus (6)
Replace	0.145** (2.161)	0.132* (1.946)				
fpccu			−0.211 (−0.604)	−0.143 (−0.358)		
pccu					4.110*** (9.094)	5.300*** (9.166)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Regional control	No	Yes	No	Yes	No	Yes
Constant	−1.440*** (−3.315)	−1.073* (−1.828)	−1.265*** (−2.679)	−1.002* (−1.696)	−1.791*** (−2.701)	−2.853*** (−3.728)
Pseudo R-squared	0.066	0.092	0.063	0.091	0.133	0.177
Observations	2435	2435	2435	2435	2435	2435

TABLE 6: Estimation results of the peer effects of family decision-maker's gender.

Variables	ccus Male (1)	ccus Female (2)	ccus Elder (3)	ccus Young (4)	ccus More education (5)	ccus Less education (6)
pccu	4.757*** (10.646)	4.629*** (7.868)	3.941*** (8.171)	5.148*** (9.818)	3.856*** (8.967)	6.005*** (9.596)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Regional control	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−1.953*** (−3.248)	−2.615*** (−3.091)	−2.393*** (−3.569)	−2.312*** (−2.757)	−2.645*** (−4.053)	−1.669** (−2.083)
Observations	1,439	996	1388	1047	1321	1114
Pseudo R-squared	0.154	0.163	0.131	0.173	0.120	0.202

group, the elderly group shows stronger peer effects. On the one hand, the social tendency and social frequency of younger farmers are stronger. On the other hand, it is because young farmers have less credit card knowledge, have more open hearts, and are more likely to be affected by the emotions of others.

Finally, we grouped the total sample with the education. If the sample has more than 9 years of educational experience, it is classified as the highly educated group. Or it belongs to a low-academic group. Columns (5) and (6) of Table 6 show the grouping regression results according to the education of family decision-makers. Column (5) is the empirical results of the highly educated group, and column (6) is for the low-academic group. Compared with the family decision-maker with the high education, the low-education farmer shows stronger peer effects. It is because farmers in

the low-education group have weaker financial knowledge reserve, inductive analysis, and autonomous learning ability, so they prefer to acquire relevant knowledge and information through communication and imitation with farmers in the same village.

9. Peer Effects from Different Groups

From the perspective of practice, our research should be more in-depth. Therefore, this section will subdivide the peer variables of farmers' UCC to explore which groups are more likely to affect other farmers in the same village. Farmers' decisions will be affected by the same or similar behaviors of other farmers. It can be seen that different groups in the village have different influences on the economic decision-making of farmers. Aiming to explore the

TABLE 7: Estimation results of the peer effects of farmer types.

Variables	ccus (3)	ccus (4)
pccu_{-i}^{cj}	3.298*** (3.433)	3.117*** (3.186)
pccu_{i}^{cm}	2.255*** (8.086)	2.274*** (7.592)
pccu_{i}^{cw}	1.385*** (5.642)	1.222*** (4.209)
Control variables	Yes	Yes
Regional control	No	Yes
Constant	−2.101*** (−4.267)	−1.908*** (−2.967)
Observations	2435	2435
Pseudo R-squared	0.138	0.139

impact of which farmers on other farmers' UCC is the most, this part decomposes the peer variables into elite farmers' peer variables, mass farmers' peer variables, and vulnerable farmers' peer variables.

Three variables, education, social capital, and income, were selected to construct the elite index by factor analysis. According to the ranking of the index value, the first quarter of sample farmers with financial index scores are defined as elite farmers (j), the last quarter are defined as vulnerable farmers (w), and other farmers are defined as mass farmers (m). The calculation is as follows. If the farmer is a nonelite farmer, the value is $N = n_j$; otherwise, the value is $n_j − 1$, where j represents the sample farmers and n_j is the number of elite farmers in village c. Two variables ccus_j^c represent the UCC of elite farmers, respectively. PEV of UCC of elite farmers in the same village are expressed as

$$\mathrm{pccu}_{-i}^{cj} = \sum_{j \neq i}^{n_j} \frac{\mathrm{ccus}_j^c}{N}. \quad (4)$$

Similarly, if the farmer is a nonvulnerable farmer, the value is $N = n_w$; otherwise, the value is $n_w − 1$, where w is the sample farmer and n_w is the number of vulnerable farmers in the village c. Two variables ccus_w^c represent the UCC of vulnerable farmers, respectively. PEV of UCC of vulnerable farmers in the same village are expressed as

$$\mathrm{pccu}_{-i}^{cw} = \sum_{w \neq i}^{n_w} \frac{\mathrm{ccus}_w^c}{N}. \quad (5)$$

If the farmer is a nonmass farmer, the value is $N = n_m$; otherwise, the value is $n_m − 1$, where m is the sample farmers and n_m represents the number of mass farmers in the village. Two variables ccus_m^c represent the UCC of mass farmers, respectively. PEV of UCC of mass farmers in the same village are expressed as

$$\mathrm{pccu}_{-i}^{cm} = \sum_{m \neq i}^{n_m} \frac{\mathrm{ccus}_m^c}{N}. \quad (6)$$

In Table 7, regression results show that the peer variables of elite farmers, mass farmers, and vulnerable farmers all significantly promote the UCC of farmers. In contrast, the peer variables of elite farmers have the strongest influence in promoting other farmers' UCC. Through the above analysis, Hypothesis 2 is proved.

10. Conclusion

In this paper, we explore whether the usage of financial products has peer effects in rural areas of China. From the perspective of gender, age, and education, we analyze the heterogeneity of the peer effects. According to the grouping of elite farmers, mass farmers, and vulnerable farmers, we report peer effects of farmer type.

Our empirical evidence reveals that farmers' usage of credit cards shows the peer effects; that is, farmers' credit card usage will be significantly affected by other farmers' credit use in the same village. The peer effects of family decision-makers for female farmers are stronger than those of male decision-makers; family coordinators for low-academic farmers are stronger than those of high-education farmers; peer effects of household decision-makers for older farmers are stronger than those of family decision-makers or young farmers. Compared with the mass farmers and vulnerable farmers, the role of elite farmers is more obvious. It is more likely to affect the same behavior as other farmers. To a certain extent, this conclusion can be analogized to the participation of farmers in other financial products in decision-making; that is, there are peer effects in the participation of farmers in financial products.

We will provide a reference for commercial banks and other financial institutions. When promoting electronic inclusive finance and other innovative financial products in rural areas, the behavioral characteristic is taken into consideration. Through the promotion of differentiated key populations, the cost of promotion can be greatly saved, and the effect of supporting agriculture can be rapidly expanded. The government should pay attention to the peer effect of farmers, and the policy effect can be expanded through the social multiplier effect. Financial institutions or related organizations should pay attention to the peer effect and effectively identify vulnerable groups and groups that are easily affected by others, thereby expanding the financial education investment effect. Because the bad financial behavior in rural areas will affect the financial behavior of other farmers through the peer effects, the government and financial institutions can manage the bad financial behavior by cutting off the peer effects of bad behavior in the countryside.

Admittedly, this study has several limitations. First, the data used were from rural areas in west China. Although the data has qualified validity and reliability, future studies would benefit from samples from other regions to better understand the peer effects of farmers in the usage of credit cards. Second, the actual channel of how regional peer effects work is a very interesting yet challenging question. Due to data availability, we fail to further study the mechanism of how the peer effects work. Some mediators should be considered in future research. Besides, peer effects always work through social networks, so it is important to identify the key points of these networks. That will be an interesting and significant topic for further study.

Data Availability

The data used to support the findings of this study have not been made available because the data belong to the People's Bank of China confidential data. According to the Law of the People's Republic of China on the Protection of Secrets and relevant copyright agreements of the People's Republic of China, the authors may use the data for research with the approval of the People's Bank of China but shall not disclose the source data to any third party.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

The authors contributed equally to this work.

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