Social Capital, Financial Literacy and Lending Behaviour of Farmers with Different Incomes--Evidence Based on CHFS 2015 Data

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Abstract: Using microdata from the China Household Financial Survey Project (CHFS 2015), a negative binomial model is used to study the impact of social capital and financial literacy on the lending behavior of farmers with different incomes. The study found that the positive impact of social capital on the formal borrowing behavior of low- and middle-income farmers was significant, while the impact on informal borrowing behavior and both types of borrowing behavior of high-income farmers were not significant. Financial literacy has a significant positive effect on formal lending behavior only for high-income farmers. Financial literacy has a significant positive effect on formal lending behavior only for high-income farmers.

Keywords: Social capital; Financial literacy; Lending behaviour of farmers with different incomes

1 Introduction

Solving China's "three rural" problems is inseparable from the strong support of rural finance, but there is difficulty in borrowing money among China's farmers, the serious problem of unaffordable financing, the loan financing gap is huge. China's financial institutions acquire 20% of their deposits from the countryside, but the agricultural loans granted for only 4% of the country's total financial loans (Wang Tingrui, 2010) [1]. Farmers' lending is of high importance to

agricultural production. Currently, social capital and financial literacy are now widely studied by domestic and international scholars as these two factors have a significant impact on farmers' lending behavior. Xiuhua Wang and Kailai Tan (2012)[2] found that social capital could significantly ameliorate the asymmetric information between borrowers and lenders, thus increasing the opportunities for private lending. Using data from CHF2013, Zaihua Wu et al (2017)[3] found that the frequency and amount of borrowing by urban and rural households increased with financial literacy.

This paper discussed the following: Section 2 is a theoretical analysis and research hypothesis; Section 3 explains variable selection and descriptive statistics; Section 4 analyzes the empirical results, and Section 5 provides a conclusion.

2 Theoretical analysis and research hypotheses

Social capital plays the role of "collateral", which can alleviate the problem of adverse selection in the absence of collateral (Madajewicz, 2010). Financial literacy can lead households to be more willing to participate in loan markets (Huston, 2012) [4], which can also lead to more valuable access for households. of information (Calcagno, Monticone, 2015) [5]. This paper attempts to analyze the role of social capital and financial literacy.

(1) First, social capital has more impact on formal loans to farmers；Farmers with high-income levels tend to have a lower demand for capital in their production and a lower probability of borrowing behavior. Therefore, these make them less responsive to borrowing even when social capital is abundant (Zhang Heng et al,

2018) [6]. Based on this, this paper proposes a hypothesis H1.

H1: There is a significant positive effect of social capital on low- and middle-income farmers' borrowing from formal financial institutions, but no significant effect on farmers' informal borrowing and high-income farmers' borrowing.

(2) The impact of financial literacy on the likelihood of accessing loans from formal financial institutions is greater than that of borrowing from informal sources, and this impact is more pronounced for farmers' access to loans from formal financial structures. (Zhu Xue Ming, 2019)[7]. Based on this, this paper proposes the hypothesis H2.

H2: Financial literacy has a more significant positive effect on formal lending behavior than informal lending behavior among farmers of different incomes.

3 Data sources, variable selection and model setting

3.1 Data sources

This paper uses questionnaire data from the nationwide sampling project conducted by the China Household Finance Survey and Research Center of Southwest University of Finance and Economics (CHFS2015) in 2015 as initial data.

3.2 Selection of variables

The dependent variable in this paper is whether the farmers have ever borrowed from formal and informal financial institutions. The independent variables in this paper are social capital and financial literacy. This paper used the approach of Liang Shuang et al (2014)[8] to measure social capital using the social capital index, choosing the three dimensions of social capital: social network, personal prestige and family relationships. This paper used Sarma's (2010) axiomatic approach to synthesise financial inclusion indices to construct the following financial literacy index：

In particular, the selection of indicators for the financial literacy index is divided into four dimensions, namely financial knowledge, financial skills, financial experience, and financial capability. The controlled variables in this paper are age, gender, marital status, education level, cultivation acreage, labor force size, household income, and household assets.

3.3 Statistical description of variables

Table 1 illustrates the descriptive statistics of the other

independent variables involved in this study. As shown in Table 1, the interviewed farmers were significantly more prone to conduct informal borrowing. The mean values of social capital and financial literacy of the surveyed farmers were 2.81 and 0.08, respectively. The mean value for the region is about 1.9, indicating that slightly more farmers were interviewed in the east than in the other two regions. In terms of household income and assets, there is a large standard deviation, which reveals a large degree of inequality in the income and asset allocation of our farmer households.

Table 1. Descriptive statistics and description of the variables

Variable	Average value	Standard deviation	Number of samples
Formal lending practices	0.0504	0.2189	8207
Informal lending practices	0.1033	0.3044	8207
social capital	2.8110	0.5433	8207
financial literacy	0.0864	0.0912	8207
region	1.9421	0.7992	8207
age	54.61	12.1645	8207
Square of age	3130.446	1353.656	8207
genders	1.11	0.3069	8207
marital status	2.28	1.0456	8207
Education level	2.57	0.9750	8207
Cultivation acreage	6.96	15.0658	8207
Labour force size	1.52	1.1022	8207
Household income	9.1732	1.4795	8207
Household assets	10.39	1.6145	8207

3.4 Modeling

This study used a negative binomial model to run six different regressions on social capital, financial literacy and two types of lending behavior of farmers with different incomes, and finally uses a logit model for robustness testing.

The dependent variable (Response) is selected as the likelihood of whether the farmer borrows or not, Ai is the independent variables, using social capital (SC), financial literacy (FL) and the interaction term between social capital and financial literacy (SC × FL) are the

core explanatory variables, and a set of controlled variables Zi is selected to construct the empirical model used in this paper.

4 Results and Analysis

4.1 Influence of social capital and financial literacy on the lending behavior of different income farmers

In this paper, according to Hong Wang (2020) [9]'s criteria for dividing China's income groups, 29,000 and 150,000 were used to divide farm households into low-middle and high-income farm groups for regression. As shown in Table 2, there is an inverted U-shaped relationship between both the borrowing behavior of farm households and their age, and social capital has a significant positive effect on low-middle income farm households' borrowing behavior from formal financial institutions, while it has an insignificant effect on farm households' informal borrowing and high-income farmers. This proves H1 and consistent with the findings from Heng Zhang et al (2018). The reason is that, for low- and middle-income farmers, formal financial institutions place equal importance on resources in terms of social capital, such as the borrower's social network, in addition to collateral and guarantees for loans. For high-income farmers, high incomes can meet their daily production needs, and even high social capital does not constitute a reason or

incentive to borrow from financial institutions.

Financial literacy only has a significant positive effect on formal lending behavior of high-income farmers. Therefore, H2 is only consistent with the situation of high-income farmers, indicating that for high-income farmers, high financial literacy helps farmers to master the details of bank loan procedures, interest rates and guarantees, reducing the financial exclusion problem caused by information asymmetry, and since there is great uncertainty in informal financial lending, high-income farmers with high financial literacy tend to borrow formally.

The interaction term for social capital and financial literacy has a negative effect on farm borrowing behavior for all income groups, but only a significant effect on formal borrowing for high-income farmers. As the financial literacy of high-income farmers improves, farmers with high social capital will significantly reduce their borrowing from formal financial institutions. On the other hand, high-income farmers with high social capital are themselves at a higher level of income and social status, so their demand for loans is not high. Meanwhile, the improvement in financial literacy may make them good at controlling risks, so their incentive to borrow is reduced on the premise of low demand for loans.

4.2 Robustness test

The results were analyzed using the logit model

Table 2. Regression results for social capital, financial literacy and two types of lending behavior of farmers with different incomes

	Low-income farming households		Middle-income farming households		High-income farming households	
	(1)	(2)	(3)	(4)	(5)	(6)
social capital	0.6335***	0.0629	0.4627**	0.1482	0.9336	0.2439
financial literacy	3.9537	1.9446	1.1043	2.3514	48.6209**	15.3442
Social capital xfinancial literacy	-0.5543	-0.431	-0.1140	-0.7541	-16.0710**	-3.8735
region	0.4170***	0.1651***	0.5404***	0.2888***	0.5658	0.4379
age	0.0248	0.0474*	0.0778	0.0413	-0.2284*	-0.0227
Square of age	-0.0006	-0.0007***	-0.0010*	-0.0007	0.0017	0.0002
genders	-0.0349	-0.3354**	0.3011	-0.0018	-0.4512	-0.2132
marital status	-0.0726	0.0627	-0.0126	0.1031	-0.1192	0.2234
Education level	-0.0613	-0.0820*	-0.1609*	-0.1180	-0.2233	-0.3281
Arable land	0.0145***	0.0133***	0.0052***	0.0053***	-0.0025	-0.0023
Labour force size	0.2733***	0.2765***	0.3704***	0.3127***	0.3151*	-0.1898
Household income	0.0242	-0.0850**	0.6066***	0.5295***	0.5066*	0.4785
Household assets	0.0441	-0.1155***	0.0413	-0.1585***	0.0871	-0.2082

Note: ***, ** and * indicate significant at the 1 per cent, 5 per cent and 10 per cent levels, respectively.

regressions. As shown in Table 3, social capital had a significant positive effect on the formal lending behavior of farmers of different incomes in all six models. While financial literacy still has a significant positive relationship only with the informal lending behavior of high-income farmers, and the interaction term of social capital and financial literacy still has a significant positive effect only on the formal lending behavior of high-income farmers. This is generally consistent with the results in Table 2. Therefore, the conclusion is robust.

Table 3. Results of robustness tests

	Low-income farming households		Middle-income farming households		High-income farming households	
	(7)	(8)	(9)	(10)	(11)	(12)
social capital	0.6526***	0.0698	0.5265**	0.1792	1.7963*	0.2875
financial literacy	3.4321	2.0933	0.7580	2.7514	93.2878***	20.0212
Social capital x financial literacy	-0.2940	0.0360	0.0540	-0.8615	-30.3245***	-4.9029

Note: ***, ** and * indicate significant at the 1 per cent, 5 per cent and 10 per cent levels, respectively.

5 Conclusion

The study found that social capital has a significant positive effect on formal borrowing behavior of low- and middle-income farmers, a non-significant effect on informal borrowing behavior, and a non-significant effect on both types of borrowing behavior of high-income farmers. Financial literacy has a significant positive effect on formal lending behavior only for high-income farmers. Both also have only a significant negative interaction effect on the formal borrowing behavior of high-income farmers.

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