

## China Rural Credit Market

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**Abstract:** Rural credit plays very important role in poverty alleviation, outcomes increase and welfare improvement. This paper focuses on the evolving rural credit market in China, where borrowing from the social network has been common but the recent economic transition has made this informal credit market inadequate in addressing rural credit needs. We try to identify the social and economic factors that explain the farmers' credit constraint and influence farmers' decisions to switch from informal to formal credit markets by analyzing the data which was collected from China. We found that the credit demand is significantly affected by household's production capacity as supported by the fact that household size, land size, head's education all significantly increase household's probability to borrow, but the impact of these factors varies considerably by credit market.

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### 1. Introduction

A number of previous theoretical literature dedicated to the analysis on rural credit, which is believed to play very important role in poverty alleviation, outcomes increase and welfare improvement. (Foltz, 2004, Diagne and Zeller 2000, Feder et. al., 1990, Carter, 1989,). Due to the special characteristics of agriculture (the cycle of production affluence by the seasons), the households must obtain credit to support their expenditures on agricultural inputs and some consumption. Credit access can significantly increase the ability of household with no or little savings to acquire basic agricultural inputs and improve outcomes.

Most of the research interests revolve around the positive impact of getting more credit access and negative consequences of suffering credit constrained. Feder (1990) found one additional Yuan of credit would yield 0.235 Yuan of additional gross value of output in China; Guiringer and Boucher (2007) found 57% of output loss associated with credit constraints in Peruvian. Several other literature also mentioned why household need more credit access (Feder 1990), how the credit access affects the household welfare (Diagne 2000), and the reasons that lead to credit constrains. Credit rationing (Carter 1989, Barham et al., 1996 Zeller et al., 2001), high interest rate and transaction cost (Foltz, 2004), collateral (Bell, Srinivasan and Udry, 1997), asymmetric information and also even the political reasons (Zander 1994) have been observed as the main obstacles of getting credit access or credit constrained. In a word, to create more economic opportunities and promote the level of warfare by removing these obstacles it is necessary to make agricultural and rural credit system easily accessible to households.

Since the rural credit is so important, it is not difficult to imagine how necessary it is for a country with apparently special characteristics whose economy at the same time develops very rapidly. While some previous research found that developing countries always have problem in generating and distributing credit to rural sector.(Tam,1988) China is this kind of country. There are, however, little theoretical and empirical literature on China rural credit. Only small number of literature have ever dedicated to this issue. Feder and Lau they published an influential empirical article that relies on data collected in 1987. Tam(1988) introduced how the two main rural institutions, Agriculture Bank of China(ABC) and Rural Credit Co-operatives (RCCs) perform in China rural finance. The data he used is not from the survey to household but from the financial institutions which can not reflect both the supply and demand, the quantity of credit the household need, and whether there is credit constrains or not.

We believe that the Complete and comprehensive researches on China rural credit is important not only for China itself but also for all countries which is engage in developing their economy especially the rural area economy and improving the household warfare as well. So in this paper, we develop 3 models to address 3 important aspects on China rural credit as follows: (i) the determinants of households borrowing from the formal or informal financial sectors in China; (ii) how much the borrowing can meet the needs of households; (iii) whether the households are constrained or not and the reasons on that.

### 2. China's Rural Finance

Before we exam the China rural credit, it is

necessary to introduce briefly about the status of rural finance which has never been done by previously literature. It is important not only because the unique rural financial system but also the important affect on rural credit access.

China, as we all known has 1.3 billion population, of which 57.01% is living in rural area. Most of the rural population are engaged in agricultural industry. In 1979, the “household responsibility system” became a crucial policy of Chinese government which symbolized the new economic reform spread to other economic area rather than agriculture, allowed the individual households “own” the land for fifteen years in the beginning, and now the period is 30 years and longer. The households can make their own decision to produce and deal with the surplus. The “household responsibility system” plays very important role in enhancing incentives and promoting efficient production. The “household responsibility system” made the agricultural output increase by 45% during the period of 1979 through 1984 when the first stage of reform were implemented. (Lin) Right after the reform, the interaction between the households and financial institutions became more and more dynamic. More liquidity (credit) is needed by the households to match their seasonal production and consumption and even social events.

Nowadays, China is engaged in building the “New countryside”, it is widely believed that more than 20 trillion Yuan (Chinese RMB) will be needed by the year of 2020 in China in this procedure. While according to recent police statistics, only 10.9% (Tang, 2008) of loan is used in the rural area in China. That is to say, majority farmers do not borrow in formal credit market, but in their social networks, like friends, relatives. Most rural households in China rely on the informal credit market. They use complex strategies to increase their productive capacity, improve the warfare, and smooth consumption. According to the literature, non-institutional sources contribute roughly half of the credit volume in rural areas (Jiang). Feder et al. (1989) reported non-institutional credit shares of between one-third and two-thirds in several study areas. Chen (2004) estimated that among all 240,000,000 rural family, only 15% get loans from formal sectors. This is entire different from the basic hypothesis, advanced by researchers, which formal credit is strong enough to crowd out the informal one. The informal sector is the recipient of “spillover” demand from the formal sector (Diagne, Zeller and Sharma, 2000, Bell, Srinivasan, and Udry, 1997). Boucher and Guirkinger, (2007) provide a similar opinion, informal credit is chosen because of the lower transaction costs and collateral risk. The reality in China nowadays is, formal credit has not enough power to crowd out the informal sector. In contrast,

the informal sector crowd out the formal sector because the lower or zero interest rate and flexible borrowing term and little restriction on using. This is one of the unique aspects of China rural finance. While with the rapid economic growth, informal credit supply may not be sufficient to meet the increased demand for relatively larger amount of credit as farmers start to enroll more diversified economic activities (e.g. high valued crops and off-farm self- employments).

For these reasons, the Chinese governments have set up credit programs aimed at improving rural households’ access to credit like other countries did over the past 40 years. But most of the programs are not successful. The “Agricultural Development Banks” that provide credit at subsidized interest rates, have failed both to achieve its objectives to serve the rural poor and be sustainable credit institution; “The Rural Credit Cooperatives”, the main access to credit in rural China, provides 87.5% of loans among all the rural financial institutions by June, 2005 (He Jiangbing). The deposit in RCCs is about 30,694 million Yuan by 2005 while at the same time the loan which is provided by RCCs is only 21, 968 million Yuan, the balance between them is 8,726 million Yuan. From this we can see, even the largest rural financial institutions provide no enough loans to households. “The Postal Savings Bank of China”, so-called “water pump”, provide no loans to farmers in rural area before March, 2006 when the reform began from then. The ABC, the biggest commercial bank of agriculture, has always been focusing on the city market before 2007. We will demonstrate the reasons why the households are constrained based on the survey on households.

This paper makes two main contributions. First we empirically examine the performance of China rural formal sectors. We present the determinants to borrow from formal or inform sector or even not borrowing by developing multinomial-Probit model. We found some important aspects for policy makers that lack of access to formal credit is not because of the collateral, interest rate ceiling rationing, and risk rationing but the imperfect formal credit supply system, for example, the variable we examined “distance to bank” is always Significant. So increasing the bank network distribution is one of the most necessary steps the official should take. Second, we conduct rigorous econometric analysis to further substantiate the descriptive findings with regard to the underlying determinants of credit access, credit rationing and sector choice, both probity models and a multinomial probity model are estimated.

### 3. Data

The present research relies on data collected by

face-to-face interview in November 2007 through March 2008 in Heilongjiang Province which is located in northeast of China. Agriculture in this province is important not only to the province itself but to the whole country. The total arable land in Heilongjiang province is 1.76 million Mu which ranks the first in the country. The overall grain production capacity has stabilized at above 35 billion kilograms every year in this province. Half of the commercial grain in China is provided by Heilongjiang Province which is the largest production base of the country. (Wang, 2008) The main agricultural products are rice, corn, soybeans and cotton. All the productions are planted only one season per year due to the cold climate. Since Heilongjiang is located on one of the three black soil belts in the world, the quality and quantity of agricultural productions can be guaranteed. So the data collected in this province has significance reference.

In this section, we briefly describe the basic information by analyzing the data and get to know the economic context of China rural credit. It is necessary to make some clarify on some variables. 471 data which were gotten at random from 28 villages are used in the sample. Totally, 19 variables are included in the regression. It shows that the average age of observed households is 43.98 years old. Since we interviewed the head of household, so the gender of male accounts for 83.44%. Male, especially in rural area has higher status in China. The average household size is 3.80. As demonstrated in table 1, the variable of children, 0.82 represents not the exact children of number a family has but the children who are educating. The number of educating children is one of important variables which show the deviation and the quality of borrowing. So the real number of children are usually bigger than 0.82. The number indeed affects the credit access of a family. The correlation between children and formal, informal credit and not borrowing are -0.0765, 0.1882, and -0.1344. It shows that the more educating children a family have the less access to formal credit. But they indeed need the credit to support their children to complete the school education. On the other hand, it also illustrates that the formal credit in China provides limited loan varieties to rural households. Of all the samples, the households who engaged in farming account for 49.26%, the percentage of non-agriculture households is 17.20%, and the households who engaged in both agriculture and no-agriculture account for 33.54%. The profession the households engaged in is the main concern of the formal financial institutions when they decide whether or not and how much credit to provide to them. The person whose job is not farming is really constrained or lack access to formal credit in China. Among all the observed samples, 29

households are the leaders of the village. They can usually get credit from formal sector by lower interest or longer term.

Above are the variables about the basic background of households. The remainder variables are related to the credit more directly. Land, the most important variables decided the ability to get liquidity especially from formal sector. The bigger of the land size the easier to get loan from formal credit such as RCCs or ABC. The reason is that the formal sector in China they develop credit business under the instructions from national central bank or governmental policy. One of the policy requirements are the loan must be provided for agricultural production purposes. The RCCs and ABC should focus on the rural market and provide service for rural households who are engaged in agriculture industry. As mentioned previously, the reason why informal credit exist is because of the basic hypothesis advanced by most of the publications, government interest rate ceilings, collateral requirements and higher transaction costs. (Boucher and Guirking 2007; Mohieldin and Wright 2000; Udry 1997; Conning 1996; Hoff and Stiglitz 1990) These factors are the main reasons why informal sector can develop smoothly and can charge higher interest. Sometimes the interest is uncontrolled. Things, however, are entire different in China. From our data, 43.31% households borrow from informal sector, of which 111 households are charged at zero interest. This makes not only economic but also cultural sense. In china, links between relatives and friends are much tighter that the household can get easier access from informal sector, especially when they face constrained to the formal sector which has limitations on use, term and etc. The formal sector in China is also different from others. The interest rates for agricultural loans are fixed somehow. Every formal institution like ABC, for example, should executive the basic interest rates which is 5.21% plus 30% of increase at least. Another different variable between formal sector and informal sector is the credit term. The mean of formal credit term is 10.98, while the mean of informal credit is 21.25 which is not the arranged period according the contract (sometimes, it is only a verbal agreement) but the real return term. Compare to the formal sector, the term of informal sector is obviously more flexible. If the household cannot return the loans on time, the lenders (usually are the relatives and friends) will usually allow the borrowers to extend the term. The reasons for this kind of unique phenomenon happens a lot mostly because of the special culture of China that lasts thousands of years already. When liquidity is need, the first choice of households is not the formal institutions but the relatives and friends. But with the development of economy and the increasing credit

need, this kind of situation has been changing a lot. Since the informal credit cannot meet the needs of households' credit demand anymore, so reform on formal credit aiming at building a perfect rural financial system is necessary.

#### 4. Model

In this study we conduct econometric analyses to identify factors affecting farmers' access to credit as well as borrowers' choice between alternative sources of credit. We further analyze whether credit market access and quantity borrowed are sufficient to meet farmers' credit demand. Probit model is used for both types of analysis.

We first treat farmers' choice of whether to borrow any credit or not as well as their decision on which credit markets to borrow credit from as three independent binary decision. In particular, we use three separate probit models to estimate the probability of a farmer borrowing from formal credit markets, borrowing from informal credit markets, and not borrowing, respectively. To determine what factors influence farmers with regard to each of the three decisions, we first define three latent variables,

i.e. borrowing index,  $y_s^*$ , such that

$$y_s^* = X_i \beta_s + e_s \quad (1)$$

where the subscript  $s$  takes on value of 1, 2, and 3, representing the choice of borrowing from the formal credit markets, borrowing from the informal credit markets, and not borrowing, respectively. For example,  $y_1^*$  represents the latent, formal credit borrowing index.  $X$  is a vector of factors that would potentially influence the choice of credit sources. The subscript  $i$  indexes individual farmers.  $\beta$  is slope parameters, and  $e$  is errors, assumed to follow normal distribution.

We do not observe  $y_1^*$  but rather  $y_1$  which takes on the value of 1 if the farmer chooses to borrow from formal credit markets, and it takes on the value of 0 if not. The probit model of the formal credit market choice is specified as follows:

$$y_1 = \begin{cases} 1 & \text{if } y_1^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

The probit models for the other two decisions (i.e., borrowing from informal credit markets and not borrowing) can be defined in the similar fashion. Given the fact that farmers are facing three exclusive choices, we further estimate a multinomial model which models the three choices simultaneously. We

use the choice of informal credit as the base and compare the choices of formal credit and no borrowing with the base.

The potential factors that may influence farmers' borrowing decisions include the demographics (age, gender, and education) of the household head, household characteristics (household size, number of dependent schooling children, farm size, and dummies of sectors, namely, agriculture, non-agriculture, and agriculture and non-agriculture combined). The cost of borrowed funds measured by village level interest rate is also included. In addition, distance to the nearest bank is included to capture the transaction costs of borrowing from formal credit markets. Distance to banks may also reflect the availability of formal credit supply. Finally, a dummy variable for whether the household members are the village leader is included to capture the social capital, borrowing capacity of the households.

To further investigate whether the credit supply from the formal and informal credit markets is sufficient to satisfy farmers credit demand, we estimate another probit model using the credit

constraint indicator  $y_c$  as dependent variable, which takes on the value of 1, when the credit supply is perceived to be sufficient and 0 otherwise. In addition to the same regression as included in the credit choice models, the amount of funds borrowed is also included as a regression because the more a household borrows, the less credit constraint it faces.

#### 5. Conclusions

Recognizing the limited knowledge about the functioning of rural credit markets in China, especially on the demand side of the markets, this paper aims to fill this gap based on a recent household survey. A few interesting findings emerged from our study. First, formal and informal credits coexist in rural China without clear evidence of one superseding the other. Second, households' decisions on whether to borrow credit and from which market to borrow are mainly determined by households' production capacity and the transaction costs. Increasing the accessibility of formal credits by reducing the transaction costs is an essential step to improve formal credit sector. Finally, there is evidence that the credit markets are functioning below their potential as the credit demand of a significant number of households are not being satisfied. And those who are likely to need the credit the most (with more land and off-farm opportunities) are most likely to be constrained. Findings in this study have significant policy implications for addressing the credit demand and supply in rural China.



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