

Entrepreneurship and Credit Constraints: Evidence from Rural Households in China

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1. Introduction

Much of the interest in “entrepreneurs” by economists reflects a curiosity about the role of entrepreneurs in fostering innovation and economic growth (Schumpeter, 1934). Encouraging entrepreneurship is increasingly an essential strategy for promoting economic development. In all entrepreneurial policy frameworks, “seed money” is one of the most direct influential tools for promoting entrepreneurship. Moreover, bunches of study demonstrate that liquidity constraints have substantial effect on entrepreneurial behavior. For example, wealthier people are more inclined to become entrepreneurs (Evans & Jovanovic, 1989; Fairlie, 1999; Quadrini, 1999; Gentry & Hubbard, 2000); Inheritance or asset revenue predicts the increase of probability of becoming entrepreneurs and amount of capital employed in the new enterprise (Holtz-Eakin et al, 1994, Lanchflower & Oswald, 1998; Cagetti & De Nardi, 2006). Credit market is another way to relax liquidity constraints. Therefore, perfect financial market and sufficient credit supply will promote entrepreneurship (Black & Strahan, 2002; Hurst & Lusardi, 2004).

With huge rural population and mass less-developed rural economy, China attaches more importance on encouraging rural entrepreneurship as a main way to solve the ample rural labor surplus. By cautious estimation, about 40% of rural households in China face difficulty to access formal finance. Financial constraints had been commonly recognized as the main factor compressing the development of rural economy of China, especially with its dampening rural entrepreneurial dynamism. Therefore, China took great strength to reform rural financial system aiming at expanding rural financial supply in recent years. So do credit constraints hinder rural households from the transition to entrepreneurs? Will the relaxation of rural credit substantially increase rural households’ entrepreneurial activities so as to promote the development rural economy? This paper will make strength to answer the questions from both theoretical and empirical aspects.

This paper revises entrepreneurial decision model under liquidity constraints (Evans & Jovanovic, 1989) by introducing the minimum entrepreneurial cost and taking entrepreneurial ability as an exogenous variable. Different from that of Evans & Jovanovic(1989), it finds that the effect of credit constraints on entrepreneurial behavior is not monotonous, so it can’t guaranteed that the relaxation of credit constraints will increase entrepreneurial activities. The empirical evidence also rejects that credit constraints restrict entrepreneurial behavior. However, it indicates that credit constraints do have substantial impacts on rural entrepreneurship in term of structural changes. As a result, rural households with sufficient capital-replacement resources (such as land, human capital, etc.) are more inclined to undertake entrepreneurial activates.

This paper is organized as follows. Section II presents the model and discusses the entrepreneurial decision under credit constraints. Section III illuminates how we identify credit-constrained and entrepreneurial rural households. Section IV specifies the model to be estimated and empirically investigates the impacts of credit constraints on entrepreneurial decision based on micro survey data. Section V summarizes the main results and discusses policy implications.

2. The Model

Evans & Jovanovic(1989) firstly put forward entrepreneurial choice model under liquidity constraints. They concluded that liquidity constraints tend to exclude those with insufficient funds at their disposal from starting business. Based on their research, a group of people believed that relaxation of liquidity constraints will promote entrepreneurship (Fairlie, 1999; Quadrini, 1999; Gentry & Hubbard, 2000). However, Hurst & Lusardi (2004) rejected this point of view since wealth has far more complicated effects on entrepreneurship. On one hand, the increase of wealth will weaken the incentives for entrepreneurship so as to the less wealth struggle for starting business (Newman, 1995). On the other hand, wealth will affect the preference for risk and entrepreneurship, so the wealthiest tend to invest in activities with higher risk (Charles & Hurst, 2003; Carroll, 2002).

We will take the static entrepreneurial decision model under liquidity constraints developed by Evans & Jovanovic(1989) as a basic analysis framework. Entrepreneurial earnings are

$$y = \theta \cdot k^\alpha, \quad \alpha \in (0,1) \quad (1)$$

Here θ is “entrepreneurial ability” and k is capital invested in business. Entrepreneurial earnings increase with the increase of capital investment, but the marginal product of capital decreases. An abler entrepreneur has a higher total product and a higher marginal product of capital at all levels of capital. Assuming the initial wealth is b , and then the entrepreneur needs credit capital of $(k - b)$ to invest k into business. An entrepreneur’s net income is

$$\pi = \theta \cdot k^\alpha - (1+r) \cdot (k - b) \quad (2)$$

If $k > b$, the entrepreneur is a net borrower. Under the assumption that he is risk neutral and there is no credit friction, his investment decision, k solves

$$\max[\theta \cdot k^\alpha - (1+r) \cdot (k - b)] \quad (3)$$

At an interior maximum, the first order condition is

$$\frac{\partial \pi}{\partial k} = \theta \cdot \alpha \cdot k^{\alpha-1} - (1+r) = 0 \quad (4)$$

This leads to the solution of k^*

$$k^* = \left(\frac{\theta \cdot \alpha}{1+r} \right)^{1/(1-\alpha)} \quad (5)$$

Then, we consider the condition with entrepreneurial capital threshold and under credit constraints. Firstly, rural households should satisfy the minimum requirement of x for initial capital to achieve the above output function, or they have to keep subsistence agricultural production and non-farm employment. The subsistence earnings without entrepreneurship are $\delta = A \cdot l_1^\beta + w \cdot l_2$. Here, l_1 , l_2 are the labor input in agricultural production and non-farm employment respectively, the total supply of labor is $L = l_1 + l_2$, and A is the difference for production resources. Secondly, rural households face credit constraints. Credit market is based on limited liability contracts. We assume each rural household can borrow up to an amount that is proportional to his wealth b ; the factor of proportionality is $(\lambda - 1)$ and rural household can expand his disposed capital maximum to $\lambda \cdot b$. So we have the discontinued net earning function as bellows

$$\pi = \begin{cases} A \cdot l_1^\beta + w \cdot l_2, & \text{if } \lambda \cdot b < x \\ \theta \cdot k^{*\alpha} - (1+r) \cdot (k^* - b), & \text{if } \lambda \cdot b > x, k^* \leq \lambda \cdot b \\ \theta \cdot (\lambda \cdot b)^\alpha - (1+r) \cdot (\lambda \cdot b - b), & \text{if } \lambda \cdot b > x, k^* > \lambda \cdot b \end{cases} \quad (6)$$

Here, the first equation means that credit constraints restrict rural households moving across the entrepreneurial capital threshold, which we called credit constraints I. The second equation presents that rural household can invest at optimal capital level k^* without credit constraints. The third equation indicates that rural households can start business but invest at limited level, which we called credit constraints II. The initial wealth is as follows respectively for the credit constraints I and II.

$$\begin{cases} \lambda \cdot b > x, & \text{free from credit constraints I} \\ k^* > \lambda \cdot b, & \text{free from credit constraints II} \end{cases} \quad (7)$$

Taking (5) into (7), the initial wealth b should hold

$$\begin{cases} b > \frac{x}{\lambda}, & \text{free from credit constraints I} \\ b \geq \frac{1}{\lambda} \cdot \left(\frac{\theta \cdot \alpha}{1+r} \right)^{1/\alpha}, & \text{free from credit constraints II} \end{cases} \quad (8)$$

Assuming rural household knows θ before he commits himself on whether to start a business, he will compare the earnings between entrepreneur and non-entrepreneur to make a decision. So he will choose to start a business if and only if his expected net income in doing so exceeds that from subsistence agricultural production and non-farm employment.

$$\theta \cdot (\lambda \cdot b)^\alpha - (1+r) \cdot (\lambda \cdot b - b) \geq A \cdot l_1^\beta + w \cdot l_2 \quad (9)$$

So his θ must satisfy

$$\theta \geq \frac{A \cdot l_1^\beta + w \cdot l_2 + (1+r) \cdot (\lambda \cdot b - b)}{(\lambda \cdot b)^\alpha} \quad (10)$$

First-order condition of right side of (10) yields

$$g'(b) = \frac{(1+r) \cdot (\lambda-1)(\lambda \cdot b)^\alpha - \lambda \cdot \alpha \cdot (\lambda \cdot b)^{\alpha-1} \cdot [A \cdot l_1^\beta + w \cdot l_2 + (1+r) \cdot (\lambda-1) \cdot b]}{(\lambda \cdot b)^{2\alpha}} \quad (11)$$

The complicated nature of the condition stems from the non-monotonous relationship between θ and b . The solution for $g'(b) = 0$ is

$$b^* = \frac{\alpha \cdot (A \cdot l_1^\beta + w \cdot l_2)}{(1+r) \cdot (\lambda-1)} \quad (12)$$

When $b < b^*$, initial wealth b has negative effects on entrepreneurial ability θ by weakening incentives (Newman, 1995). When $b > b^*$, initial wealth b has positive effects on entrepreneurial ability θ by increasing risk and entrepreneurial preference (Charles & Hurst, 2003; Carroll, 2002).

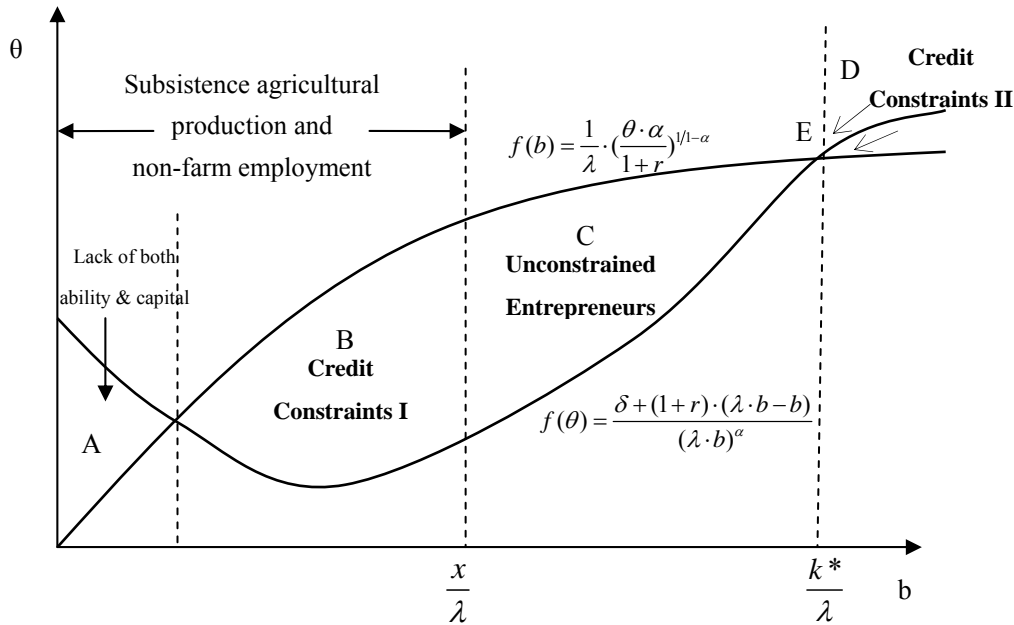


Figure 1 Entrepreneurial Choice under Credit Constraints

We can identify the occupation partition under credit constraints according to (8) and (10). As it shows

in Fig. 1, if $f(\theta) > \frac{\delta + (1+r) \cdot (\lambda \cdot b - b)}{(\lambda \cdot b)^\alpha}$, rural household holds adequate entrepreneurial ability to

start business; if $f(b) > \frac{1}{\lambda} \cdot \left(\frac{\theta \cdot \alpha}{1+r}\right)^{1-\alpha}$, rural household possesses sufficient capital for

entrepreneurial activities. Meanwhile, there is minimum wealth requirement for $\frac{x}{\lambda}$ entrepreneurship.

The three lines divide the entrepreneurial decision into four districts of A, B, C, and D. In district A, rural household keep subsistence agricultural production and non-farm employment due to lack of

both ability and capital. In district B, rural household can't transform into entrepreneur because of credit constraint I with in sufficient wealth for acquiring threshold capital. In district C, rural household can invest at optimal level without any constraints. In district D, an abler rural entrepreneur has higher entrepreneurial investment demand but his investment is compressed to $\lambda \cdot b$ by credit constraints II.

3. Identifying credit constrained and entrepreneurial households

This paper uses data Rural Financial Survey conducted by Development Research Centre of the State Council (DRC) in 2005 to investigate the extent of credit constraints and its impacts on entrepreneurial decision of rural households in China. The data consist of 1962 rural households covering 180 villages of 29 provinces in China, among which 773 households (accounting for 39.4%), 483 households (accounting for 24.6%) and 706 households (accounting for 36.0%) are respectively from east, middle and west China.

3.1 Identifying credit constrained households

According to Kon & Storey (2003) and Petrick(2004), there are a large group of borrowers who never apply bank credit because they pessimistically believe that they would be rejected, which they called "discouraged non-borrowers". This paper also considers them as being credit constraints since the demand depression is due to long-term formal credit constraints. So the credit constraints can be divided into two categories: supply-side constraints and demand-side constraints.

Table 1 The Frequency of Credit Constrained Households

	Demand-side Constraints		Supply-side Constraints	Overall Credit Constraints
	transition cost rationed	risk rationed	quantity rationed	
Frequency of constrained households	260	106	340	632
Proportion of the constrained (%)	13.87	5.66	18.14	33.72
Total	321 (17.12%)		340	632

The data provides us with very detailed information about rural households' willingness for credit, reasons for non-application of credit, reasons for rejection of loans, loan acquirement from formal and informal finance, and so on. This paper makes a deep analysis about credit decisive procedure of rural households and establishes a framework to identify different kinds of credit constraints. Similar to Boucher, Guirkingner & Trivelli (2005), we distinguish credit constraints as transition cost rationed, risk rationed and quantity rationed. A farmer who has positive notional demand but zero effective formal demand because of transaction costs is called *transaction cost rationed*, which includes those "discouraged non-borrowers". The borrower is *risk rationed* when he voluntarily withdraw from the credit market due to risk aversion and preference for certain reservation activity. The borrower is *quantity rationed* when the amount of acquired loans can't satisfy his investment demand. According

the above definition, the transaction cost rationed and the risk rationed can be attributed to demand-side constraints, and the quantity rationed belongs to supply-side constraints. Table 1 shows the result of the constrained rural households. 33.72 percent of rural households are credit constrained, among which demand-side constraints and supply-side constraints accounting for 17.12% and 18.14% respectively.

3.2 Identifying Entrepreneurial Households

Most studies defined entrepreneurs as those who start up enterprises or are self-employment. However, different from urban household, rural household is not wage-earner but self-employment in nature. Therefore, self-employment is not a good indicator for rural entrepreneurs. According to the “creative destruction” theory of Schumpeter, entrepreneurs are those who make a transition to new modes and disrupt the original steady state. Therefore, as for rural household, entrepreneur ranges from inventors who create new products or even new industries, conduct advanced production, update traditional operation and so on, to local business of starting restaurants and retail stores.

Three characteristics are used to identify entrepreneurial households. 1) Those who take themselves as specialized breeding households or business households are defined as *entrepreneurs I*; 2) those whose net operating revenue exceed 30 thousand yuan and prime operating revenue account for more than 80% or 60% (planting revenue accounting for more than 80% or breeding or business revenue accounting for 60%) are defined as *entrepreneurs II*; 3) those whose productive asset exceed 20 thousand yuan are defined as *entrepreneurs III*. Then, it finds from the data that entrepreneurs I, II and III respectively account for 20.29%, 6.22% and 4.54% of total sample. If the farmer belongs to any kind of the above three entrepreneurs, he is determined as an entrepreneur. So the total entrepreneurial proportion is about 27.98% in rural China (See Table 2)

Table 2 The Frequency of Entrepreneurial households

	Entrepreneurs I	Entrepreneurs II	Entrepreneurs III	Total Entrepreneurs
Frequency	398	122	89	527
Proportion to total sample (%)	20.29	6.22	4.54	27.98
Proportion to total entrepreneurs (%)	75.52	23.15	16.89	100

4. Empirical Estimation and Results

4.1 Structural Equation Estimation

It is very difficult to separate the effect of credit constraints on entrepreneurial choice because of the correlation among credit constraints, family income and entrepreneurial choice. Firstly, family income has an influence on preference for credit and risk and it is also an important indicator for financial institution evaluating borrowers’ reimbursement ability. Secondly, family income affects both

household's liquidity ability and tendency for entrepreneurship. And entrepreneurial activities help increase family's income by catching new opportunities for extra profit. Thirdly, on one hand, credit constraints may hinder the transition to entrepreneurs by compressed funds under minimum entrepreneurial capital requirement; on the other hand, entrepreneurial household may more easily suffer credit constraints since more funds demand from entrepreneurial activities. Hurst & Lusardi(2004) made a strength to solve the endogeneity problem by introducing two instrumental variables of inheritance and housing capital gain. This paper follows their steps and also uses structural technique to investigate the relationship between credit constraints and entrepreneurial choice. The model for estimation is

$$prob(Entre = 1) = \Phi(Z) = \int_{-\infty}^Z \phi(v)dv \quad (13)$$

$$Z = \alpha + \beta X + \gamma C^* + d_1 M + d_2 R + \mu \quad (14)$$

$$C^* = a + b \cdot Dis + c \cdot Mem + \varepsilon \quad (15)$$

Here, (13) and (14) is *Probit* probability model of entrepreneurial choice. C^* is dummy variable for credit constraints, which means rural household is credit constrained if $C^* = 1$ or unconstrained if $C^* = 0$. Two instrumental variables are used for estimating C^* , which are respectively the distance to financial institution (Dis) and membership for rural credit cooperatives ($Mem = 1$ or $Mem = 0$). Other variables are explained as follows: X is a vector presenting the nature of rural households, including log of average family income or wealth ($LnAY$), gender, age, and education (*dummy for high school or college*) for household head, operational land areas, children in schools ($NChildS$), dependent ratios, et al.; M is a vector of local market condition, including numbers of local enterprises ($NEnts$) and distance to nearest markets (DM); R is dummy variable respectively for east, middle and west regions.

Table 3 shows the estimation results for the credit constraints on entrepreneurial choice. Although different estimated models are tried and credit constraints are decomposed into demand-side and supply-side, it can't find evidence that credit constraints directly restrict rural household's transition to entrepreneur. However, it finds that demand-side and supply-side constraints affect entrepreneurial activity in different direction. It seems demand-side credit constraints restrain entrepreneurial behavior while supply-side credit constraints are consistent with entrepreneurial choice. It implies that there is nonlinear relationship between credit constraints and entrepreneurship probably resulting from the structural nature of credit constraints. Although the estimated parameters by structural equation with instrumental variables (Model II) are still insignificant, there is obvious improvement of significance for demand-side credit constraints. Anyway, it can't tell from the results that credit constraints won't have effects on entrepreneurial choice. The insignificance of the estimated results may stem from the imperfectly control endogenous variables, or incompletely decomposition of credit constraints.

Table 3 Estimated Effect of Credit Constraints on Entrepreneurial Choice

	Model I			Model II		
	Overall	Demand-side	Supply-side	Overall	Demand-side	Supply-side
Credit Constraints	.0632978 (0.65)	-.0188415 (-0.16)	.159787 (1.33)	.7743906 (0.49)	-1.029516 (-1.10)	.6918537 (1.03)
Ln AY	-1.081565*** (-4.52)	-1.053841*** (-4.38)	-1.066224*** (-4.42)	-1.141389*** (-3.23)	-.8722542*** (-3.05)	-1.046656*** (-4.22)
(Ln AY)2	.0821368*** (5.83)	.0807885*** (5.70)	.0816239*** (5.76)	.086394*** (3.97)	.0696416*** (4.11)	.0804595*** (5.50)
Age	-.0088366** (-2.00)	-.0086836** (-1.97)	-.0084563** (-1.91)	-.0065312 (-1.20)	-.006778 (-1.41)	-.0061099 (-1.24)
High school	.2198994** (2.04)	.2076314** (1.93)	.2115355** (1.96)	.2548876* (1.72)	.1688004 (1.42)	.2273131** (2.02)
College school	.1275315 (0.71)	.1217584 (0.68)	.1241521 (0.69)	.1573508 (0.83)	.1902972 (0.98)	.165617 (0.89)
Female	.3351413*** (2.87)	.3117869*** (2.66)	.3224245*** (2.75)	.3958219** (2.14)	.2824335** (2.18)	.3648707*** (2.94)
NChildS	.136153* (1.82)	.1426102* (1.91)	.1383205* (1.85)	.1319049 (1.22)	.1710377** (2.15)	.1453131* (1.80)
Land Areas	.0086663** (2.34)	.0087608** (2.37)	.0083043** (2.24)	.0060625 (0.92)	.0080971** (2.02)	.0062834 (1.40)
NEnts	.000166 (1.58)	.0001742* (1.66)	.0001678 (1.59)	.0001169 (0.75)	.0002189* (1.86)	.0001532 (1.42)
DM	-.0039106 (-0.98)	-.0034434 (-0.86)	-.0035079 (-0.88)	-.0054947 (-0.70)	.0022006 (0.38)	-.0021722 (-0.53)
East	-.3169679*** (-2.64)	-.339047*** (-2.83)	-.3220816*** (-2.68)	-.2246663 (-1.01)	-.3671004*** (-2.71)	-.2590273* (-1.93)
West	-.1446615 (-1.22)	-.1523625 (-1.28)	-.1610418 (-1.36)	-.0703727 (-0.40)	-.2752886 (-1.53)	-.1857449 (-1.40)
Constant	2.493549** (2.34)	2.387816** (2.23)	2.387156** (2.21)	2.261306** (2.00)	1.822179 (1.55)	2.079532* (1.87)
Observations	1016	1015	1013	967	967	965
LR	155.841	156.756	157.863	145.396	146.445	145.635
McFadden's R2	0.134	0.135	0.137	0.132	0.133	0.132
Count R2	0.784	0.786	0.786	0.223	0.226	0.194
AIC	1.016	1.013	1.013	1.019	1.018	1.020

Notes: ***, ** and * present significant respectively at 1%, 5% and 10%.z-vale is in parentheses.

Model I is general *Probit* probability model; Model II is structural equation with instrumental variables.

4.2 Independent Estimation of Constrained and Unconstrained

As it pointed out in the above, credit constraints may have substantial influence on entrepreneurial activities that can't directly observe and identify by overall sample estimation. This part separates the sample into constrained and unconstrained group for comparison analysis. The estimation model is

$$\left\{ \begin{array}{l} \text{prob}(\text{Entre} = 1) = \Phi(Z^u) = \int_{-\infty}^Z \phi(v)dv, Z^u = \alpha + \beta X + d_1M + d_2R + \mu, \text{ if } C^* = 0 \\ \text{prob}(\text{Entre} = 1) = \Phi(Z^r) = \int_{-\infty}^Z \phi(v)dv, Z^r = \alpha + \beta X + d_1M + d_2R + \mu, \text{ if } C^* = 1 \end{array} \right. \quad (16)$$

Table 4 Entrepreneurial Decision under Constrained and Unconstrained Conditions

	Model III		Model IV	
	Constrained	Unconstrained	Constrained	Unconstrained
Ln AY	-2.086983 ^{***} (-3.52)	-0.804795 ^{***} (-2.71)	—	—
(Ln AY) ²	0.139498 ^{***} (3.99)	0.067119 ^{***} (3.91)	—	—
Asset	—	—	0.3461724 ^{***} (5.12)	0.3948602 ^{***} (7.83)
Age	-0.0030825 (-0.40)	-0.0106435 [*] (-1.92)	-0.0050096 (-0.72)	-0.0088423 [*] (-1.76)
High school	0.5220955 ^{***} (2.80)	0.036709 (0.27)	0.4351658 ^{***} (2.64)	-0.024067 (-0.19)
College school	0.3848891 (1.23)	-0.0053048 (-0.02)	0.409285 (1.52)	0.3060708 [*] (1.63)
Female	0.1295478 (0.58)	0.3635305 ^{***} (2.59)	-0.0412755 (-0.21)	0.1579018 (1.24)
Dependent Ratio	—	—	0.291859 (0.92)	0.2619982 (1.24)
NChildS	0.0950605 (0.75)	0.1636986 [*] (1.73)	—	—
Land Areas	0.0144187 ^{**} (2.51)	0.0043078 (0.82)	0.0118446 ^{**} (2.56)	-0.0002156 (-0.36)
NEnts	0.0003795 ^{**} (2.49)	-0.0000617 (-0.35)	0.0003607 ^{**} (2.50)	-0.0000415 (-0.23)
DM	0.0004923 (0.09)	-0.0076221 (-1.30)	0.0053155 (0.96)	0.0011436 (0.25)
Informal credit	0.046082 (0.29)	-0.2187457 [*] (-1.66)	0.0200078 (0.14)	-0.1497953 (-1.30)
East	-0.6026669 ^{***} (-2.79)	-0.1876651 (-1.26)	-0.5038032 ^{**} (-2.58)	-0.1699224 (-1.24)
West	-0.3027475 (-1.54)	-0.0515085 (-0.34)	-0.3099078 [*] (-1.80)	-0.0584871 (-0.43)
Constant	6.499903 ^{**} (2.54)	1.46403 (1.08)	-4.243666 ^{***} (-5.26)	-4.303257 ^{***} (-7.31)
Observations	351	665	425	781
LR	69.125	106.878	65.725	99.349
McFadden's R2	0.172	0.141	0.134	0.109
Count R2	0.786	0.789	0.767	0.748
AIC	1.027	1.021	1.065	1.075

Notes: ***, ** and * present significant respectively at 1%, 5% and 10%. z-value is in parentheses.

Model III use average income measuring family wealth while Model IV use asset.

As it presents in Table 4, some important variables have different effect on entrepreneurial activities for two groups. It proved that credit constraints might affect entrepreneurial behavior but in an indirect way. The main results are summarized as bellows.

Firstly, education, land areas and numbers of local enterprises are significant only in constrained group. Therefore, credit constraints won't have direct and monotonous effect on entrepreneurial activities because of endogenous relationship and widespread capital replacement by other factors. Under strict credit constraints, human capital and land resources will be used to replace capital, so rural households more educated, endowed with ample farm land and embedded in favorable business environment are

more inclined to be entrepreneurs.

Secondly, informal credit won't enhance entrepreneurial activities but have negative effect on it. Informal credit is another primary source for financing and plays a very important role in smoothing liquidity constraints in rural China. It is estimated that there are 50-60% of rural households borrowed from informal financial sectors and the informal credit accounts for about 70% of their loans. However, informal credit presents no credit constraints relaxation effect for entrepreneurship. The main reason is that informal credit took place more in the case of living assistance, income smoothing and social guarantee. So it can't predict active entrepreneurial activities but low capability of business.

Thirdly, female is significant only in the unconstrained model. It implies that the entrepreneurial ability is easily restricted by credit constraints for female households head because woman is more risk aversion.

Fourthly, the estimated parameter is negative for east region in constrained group. However, east region has comparatively well-developed economy in China with highest entrepreneurial probability. The negative effect may be explained as credit constraints have substantial impeditive effect on entrepreneurship in dynamic economy. The credit of east areas is mainly used for production purpose and more related with entrepreneurship, so entrepreneurial decision is more sensitive to credit constraints.

5. Concluding Remarks

Through both theoretical and empirical analysis, it finds no evidence that credit constraints restrict the entrepreneurial choice of China's rural households. The reason may come from tow sides. First, rural households are self-employment in nature and the capital threshold of being entrepreneurs is very low. And in this paper, we give a very broad definition for entrepreneurial households. Moreover, China's rural households have independent land contract right, which provide them with great freedom to arrange it for entrepreneurial activities. Second, entrepreneurial choice depends more on entrepreneurial ability than funds sufficiency. That is to say, this paper supports Schumpeter's view that entrepreneurship won't be depressed by credit constraints. Those with great entrepreneurial ability can create innovative solutions for credit constraints, for example, finding other sources of funds instead of financial institution, mobilizing replacement resources for capital, and so on. Therefore, in constrained model, land areas and human capital have substantial positive effect on entrepreneurial choice.

Although capital is a critical factor for entrepreneurial activities and financial depression is a serious problem of rural China, our research rejects that the relaxation of credit will stimulate the dynamism of entrepreneurship. To develop entrepreneurial economy in rural China, something is more important than financial support, such as education, capability building, innovative environment construction, and et al. However, it does not mean that financial development and deepening is unnecessary. Credit constraints will restrain rural households from making advanced investment and conducting expanded reproduction, so as to inhibit their income raising.

It should be cautious to conclude the relationship between credit and entrepreneurship. The analysis shows the entrepreneurial ability first decrease and then increase with the wealth increase. But it focuses on less wealthy farmers. There may be even more subtle and complicated variation if

considering a larger range of wealth distribution. Our model differentiates credit constraints I and credit constraints II, but it can't make the corresponding partition in estimated model because of difficulty to measure the minimum entrepreneurial funds. It will be valuable to estimate the entrepreneurial capital threshold according to different entrepreneurial categories. In addition, the result is based on static model of entrepreneurship. Further research to extend the model into dynamic one and considering asset accumulation over the life cycle will be useful.

REFERENCES:

1. Banerjee, A.(2001): "Contracting Constraints, Credit Market and Economic Development", Working paper 02-17, [Online].Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=306990
2. Black, S. E.and Strahan, P.E.(2002): "Entrepreneurship and Bank Credit Availability", *Journal of Finance*, Vol. 57(6), 2807-2833
3. Boucher, S., Guirkinger, C. & Trivelli, C. (2005): "Direct Elicitation of Credit Constraints: Conceptual and Practical Issues with an Empirical Application to Peruvian Agriculture", Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Providence, July, Rhode Island
4. Cagetti, M. and De Nardi, M. (2006): "Entrepreneurship, Frictions, and Wealth". *Journal of Political Economy* , Vol. 114 (5), 835-870
5. Carroll, C. D. (2001): "Theory of the Consumption Function, with and without Liquidity Constraints", *Journal of Economic Perspectives*, Vol. 15, No. 3, 23-45
6. Charles, K. K. and Hurst, E(2003): "The Correlation of Wealth across Generations", *Journal of Political Economy* , Vol.111, 1155-82
7. Evans, D. S. and Jovanovic, B. (1989): "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints", *Journal of Political Economy* , Vol. 97(4), 808-827
8. Gine', X and Townsend, R. M. (2004): "Evaluation of financial liberalization: a general equilibrium model with constrained occupation choice", *Journal of Development Economics*, Vol. 74, 269– 307
9. Holtz-Eakin, D., Joulfaian, D., and Rosen, H. S. (1994): "Sticking it out: Entrepreneurial Survival and Liquidity Constraints", *Journal of Political Economy*, Vol. 102(1), 53- 75
10. Hurst, E. and Lusardi, A. (2004): "Liquidity Constraints, Household Wealth, and Entrepreneurship", *Journal of Political Economy*, Vol. 122(2), 319-347
11. Klapper, L., Laevena, L., and Rajan, R. (2006): "Entry Regulation as a Barrier to Entrepreneurship", *Journal of Financial Economics*, Vol. 82 (3), 591-629
12. Newman, A. (1995): Risk-bearing and "knightian" entrepreneurship, mimeo, Columbia University
13. Paulsona, A. L. and Townsend, R. (2004): "Entrepreneurship and Financial Constraints in Thailand", *Journal of Corporate Finance*, Vol.10, 229– 262