

DOES THE METHOD OF ENTRUSTED LENDING VIA FARMER-BASED UNIONS FACILITATE LOW-INCOME HOUSEHOLDS' ACCESS TO BANK CREDIT? EVIDENCE FROM NORTHWESTERN VIETNAM

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ARTICLE INFO		ABSTRACT
Received:	07/4/2020	This paper aims to examine the hypothesis that the method of entrusted lending via farmer-based unions is significant to resolve information asymmetries and facilitate households' access to bank credit. This paper uses binary logistic regression models applied to data collected from a survey of 548 cinnamon households in Northwestern Vietnam. Results show that membership to a farmer-based union facilitates households' access to collateral-free credit. Unions help banks to better select creditworthy households, conduct group lending to reduce risk of default and transaction costs. The successful factor of unions can be explained by the fact that unions exploit local knowledge to conduct group lending, thereby help to resolve information asymmetries in farm credit markets. To bridge the credit gap, more regular trainings for the leaders of unions and the groups of credit and savings are needed. In addition, a digital database is useful to share reliable information between banks and unions regarding relevant entrustment issues. The results contribute to the practical actions by suggesting a feasible policy intervention for addressing the problem of information asymmetries in farm credit markets.
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PHƯƠNG THỨC CHO VAY ỦY THÁC QUA CÁC TỔ CHỨC NÔNG DÂN CÓ THỨC ĐẨY TIẾP CẬN TÍN DỤNG NGÂN HÀNG CỦA CÁC HỘ THU NHẬP THẤP KHÔNG? BẰNG CHỨNG TỪ VÙNG TÂY BẮC, VIỆT NAM

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THÔNG TIN BÀI BÁO		TÓM TẮT
Ngày nhận bài:	07/4/2020	Mục đích của bài viết này nhằm kiểm định giả thuyết cho rằng phương thức cho vay ủy thác thông qua các tổ chức của nông dân có ý nghĩa trong khắc phục bất cân xứng thông tin và thúc đẩy tiếp cận tín dụng ngân hàng của các hộ gia đình. Bài viết sử dụng mô hình hồi quy logistic, với dữ liệu được thu thập từ khảo sát 548 hộ trồng quế ở Tây Bắc, Việt Nam. Kết quả cho thấy thành viên trong các tổ chức nông dân tạo điều kiện cho các hộ gia đình tiếp cận với tín dụng ngân hàng không cần tài sản thế chấp. Các tổ chức hội giúp ngân hàng lựa chọn tốt hơn các hộ gia đình có nhu cầu vay vốn, tổ chức cho vay theo nhóm, qua đó giảm rủi ro và chi phí giao dịch. Thành công của các tổ chức hội có thể do họ đã khai thác kiến thức địa phương để tiến hành cho vay theo nhóm, qua đó giúp khắc phục bất cân xứng thông tin trong thị trường tín dụng nông nghiệp. Cần tổ chức các khóa đào tạo thường xuyên cho cán bộ của các hội và các tổ tiết kiệm, vay vốn để thu hẹp khoảng cách tín dụng; xây dựng sở dữ liệu số để chia sẻ thông tin giữa các ngân hàng và các hội liên quan đến các vấn đề ủy thác cho vay. Kết quả nghiên cứu cũng đề xuất các can thiệp chính sách khả thi để giải quyết vấn đề bất cân xứng thông tin trong thị trường tín dụng nông nghiệp.
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1. Introduction

Sufficient access to credit is crucial to improve farmers' income [1]. Unfortunately, access constraints have adverse effects on their ability to invest [2]. Lack of collaterals and high transaction costs due to information asymmetries have prevented a number of farm households from accessing to credit [3]. On the supply side, banks find it hard to evaluate the possible risks and repayment capacity of applicants. Banks face higher costs of selecting, controlling and enforcing borrowers to repay. In the field of rural credit, few studies examined on how to resolve the problem of information asymmetries to narrow the gap between credit demand and supply.

This study contributes to the literature by answering a main research question: Does the method of entrusted lending via farmer-based unions facilitate low-income households' access to bank credit? Lending entrustment means that farmer-based unions such as farmers' unions, women's unions receive entrusted fund from banks via entrustment agreement for lending to their clients.

A case study was made from the cinnamon-farming households in Northwestern Vietnam. Cinnamon has been seen as the most aromatic medicinal plant with high concentration of essential oils, sweet flavour which are beneficial to health care [4]. Farmers need credit incentives to improve the quality of cinnamon materials which are later used in the pharmaceutical sector.

2. Methodology

2.1. Data collection

Cinnamon is mainly planted in Yen Bai province, which is home to the most vulnerable, socially excluded ethnic communities in the country [5]. The growing demand from international markets for high quality cinnamon products being used for food, medicine and essential oils also creates challenges for farm households who are involved in the growing stage of cinnamon trees. Van Yen from the Northwest, Van Chan from the West and Tran Yen from the Northern part of the province were the three districts selected for collecting primary data.

Table 1. *Decomposition of household sample size*

Districts	Communes	Sample households	Sampling rate (%)
Van Yen	Dai Son	73	13.32
	Vien Son	68	12.41
	Mo Vang	30	5.47
	Chau Que Ha	25	4.56
	Yen Phu	30	5.47
	Phong Du Thuong	25	4.56
	Xuan Tam	26	4.74
	Tan Hop	42	7.66
	Quy Mong	30	5.47
Tran Yen	Kien Thanh	30	5.47
	Y Can	30	5.47
	Dao Thinh	30	5.47
	Nam Lanh	28	5.11
Van Chan	Nam Muoi	28	5.11
	Nam Bung	25	4.56
	Son Luong	28	5.11
Total	16 communes	548	100.00

A household survey was made between August 2017 to March 2018, using a structured questionnaire focusing on the role of unions in facilitating household access to bank credit. The number of households was approximated to the proportion of cinnamon area based on

consultation with village leaders. The sample size contains 548 cinnamon producing households from 16 communes in three districts (Table 1). In addition, in-depth interviews with unions and banks are made to inquire information about credit access issues.

2.2. Conceptual framework

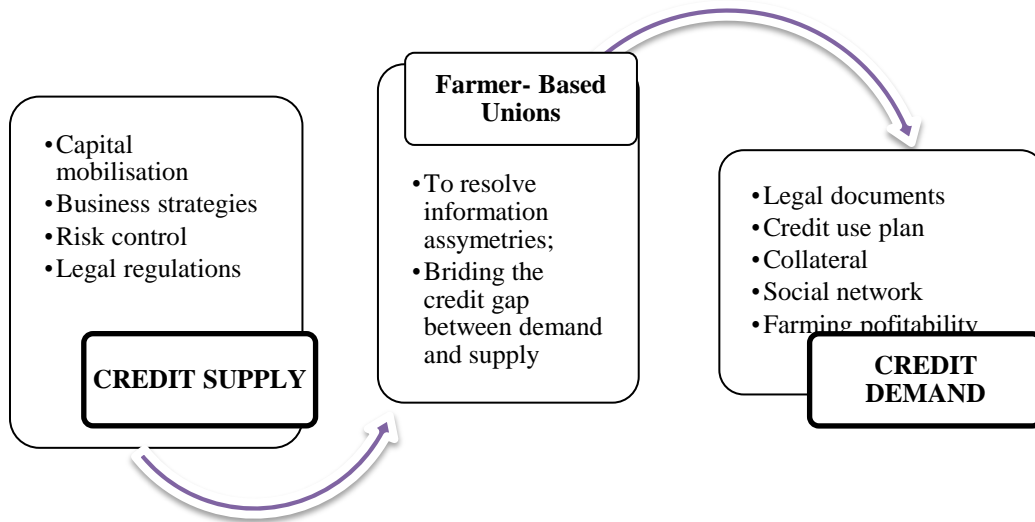


Figure 1. A conceptual framework of the study

(Source: own formulation)

In this study, the conceptual framework as shown in Figure 1 focuses on the role of farmer-based unions in bringing farmers and banks together. On the demand side, farmer's access to credit might depend on various drivers such as ethnicity, education of the household head, family size, farm size, access to trainings, property rights through land use certificates and access to bank accounts [6]. On the credit supply side, the lending decisions of banks depend heavily on their lending policies. To better serve clients, banks need to improve their credit transaction models, renew financial products and simplify the procedure in order to reduce transaction costs. These are precondition factors to sustain the monetary business activities for banks.

To bridge the credit gap between demand and supply, local unions assist banks with accessing information regarding farming performance and households with credit source availability. The partnerships between banks, unions and farmers allow each partner to encourage their strengths and have been seen as a promising instrument for farming investment.

When credit demand and supply are connected, banks can serve more clients, increase loan disbursement volumes and earn profits. To the demand side, credit helps borrowers expand investment and improve the quality of farming products. The narrowing credit gap can serve an important role in rural economic development and poverty reduction.

2.3. A binary logistic regression model

Theoretically, if the projected benefit to apply credit is positive, then a household might choose to apply credit and vice versa. The net benefit can be denoted by Z_i^* , which is a latent variable reflecting the net benefit of using credit.

$$C_i = 1 \text{ if } Z_i^* = \beta X_i + \varepsilon_i > 0, 0 \text{ otherwise} \quad (1)$$

Where: C_i denotes the credit status of the household which equals one if the household accessed bank credit and otherwise zero. Credit access status is explained by household endowments. Mathematically, the probability of taking out a loan is written as follows:

$$\text{Probability of taking out a loan}_i = F(W_i) = \int_{-\infty}^{W_i} \frac{1}{\sqrt{2\pi}} \exp(-s^2/2) ds \quad (4)$$

For $-\infty < W_i < \infty$; $W_i = Z_{ni}^* \beta_n$

β is a k by 1 vector of parameters to be estimated. Z_{ni}^* is the n by k matrix of the explanatory variables. In reality, Z_{ni}^* is not observable and only C_{ni} variable for accessing to a loan is observable. To measure the probability of accessing credit, this study applies a logistic model. The dependent variable, a dichotomous variable (with and without access to credit), is assumed to be linearly related to explanatory variables. The model is described as:

$$\ln P = \ln \left[\frac{P}{1-P} \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon_i \quad (5)$$

Where: \ln = natural logarithm, P = probability of accessing to credit, $1-P$ = probability of not accessing credit, β_n = coefficients of explanatory variables, X_n = predictor variables, and ε_i = error term. The explanatory variables of access to credit by cinnamon households are derived from a literature review and local consultants (Table 2).

Table 2. Description of selected variables

Dimension	Variables	Definition and measurement	Type ^a	Expected signs
Cinnamon farmers	Age	Age of the household head (years)	C	+
	Age square	Age squared of the household head, (years squared)	C	+/-
	Education	Number of years in school (years)	C	+
	Ethnicity	Ethnicity of the household head (=1 if the household head is the Kinh majority; 0 otherwise)	D	+/-
Cinnamon households	Union	Membership status of local unions (=1 if the household has at least one person who is a member of a women's union or a farmers' union; 0 otherwise)	D	+
	Household size	Total number of family members (persons)	C	+
	Distance to main market	The distance in kilometres from the house to the nearest bank	C	-
	Market visits	Frequency of market visits per week (visits)	C	+
	Cinnamon farm size	Total cinnamon farm size (hectares)	C	+/-
	Collateral requirement	If the loan needs to be secured by a red book (1=Yes, 0 otherwise)	D	+
	Bank account	Ownership of a bank account (=1 if the household has a bank account and 0 otherwise)	D	+
	Training	A dummy that equals one if the farmer attended a training course (e.g. farming technical assistance)	D	+
	Van Yen	Capture geographical indication of cinnamon production (=1 if households locate in Van Yen district, 0 otherwise)	D	+
	Van Chan	Dummy =1 if households locate in Van Chan district, 0 otherwise	D	-

Note: ^aD = discontinuous variables; C = Continuous variables

2.3.1. Variable of interest

Union membership is a variable of the most interest. In Vietnam, women's unions and farmers' unions represent a very specific feature of the country's political and socio-economic landscape and serve a major role in financial inclusion in Vietnam. Union membership enhances

family networks which perform key functions as gateways to the formal credit and direct marketing channels [7]. It is hypothesized that being a member of unions can give cinnamon households a higher chance to access to credit, particularly preferential credit.

2.3.2. Control variables

Age and age square of household heads might link to knowledge, experience, economic decision-making and life cycle to earn income [8].

It is hypothesized that educated household heads are more active to respond to the market and run their cinnamon farming activities more effectively. Educated farmers are expected to be more likely to perceive credit use, implying positive correlations between educational level and access to credit [9].

Ethnic minorities, making up 15% of the population in Vietnam have lower living standards than 'majority' Kinh and Hoa households [10]. The government has granted preferential credit to ethnic minorities in substantial efforts to promote equal development among ethnic groups of the country. This study therefore assumes that ethnic minorities are more likely to receive preferential credit but less likely to receive commercial credit.

Larger households might also imply a higher number of labourers and higher income. It is therefore assumed that households with a larger number of members are more likely to have access to credit.

Poor access to roads and transport has a severe impact on marketing of farming products [11]. The study assumes that the further distance to the nearest market centre is negatively associated with access to formal credit for cinnamon households.

A larger farm size is more efficient compared to smaller farms due to the economics of scale. However, smaller farms might be easier to manage compared to larger farms, implying a negative correlation between farm size and access to credit. This study assumes that there could be a positive or negative correlation between farm size and access to credit.

Collateral, often seen as prerequisite to receiving loans from financial institutions, reflects the security against a loan for future business performance. Commercial banks use collateral to mitigate the inherently risky repayment of borrowers. Therefore, it is hypothesized that collateral in terms of land use certificates will be positively correlated with cinnamon farmers' access to Agribank credit.

Having a bank account encourages rural households to accumulate savings and increase their financial literacy [12]. This study hypothesized that households with access to bank accounts relax their borrowing constraints from banks.

Agricultural training can reduce access barriers to credit and eliminate misuse of agriculture credit. Thus, this study hypothesized that there is a positive relationship between access to training and access to credit for farmers.

Geographical indications encourage quality and reputation attributable to farming products [13]. It is therefore hypothesized geographical identities of cinnamon farming in Van Yen have a positive impact on farmers' access to credit.

3. Results and discussion

3.1. Main characteristics of households

The characteristics of sampled households are presented in Table 3. Among cinnamon households with access to credit, 11.86%, and 39.78% have access to Vietnam Bank for Agriculture and Rural Development (Agribank) and Vietnam Bank for Social Policy (VBSP) credit respectively. Farmers need credit in order to pay for labour during harvesting seasons, purchase grass-cutting machines, sawing machines, bark dryer, storage facilities and improved drying yards. The credit duration depends on the policy of the bank, the type of credit and the

amount of credit applied for. A farmer can apply for the Agribank credit by completing an application form and providing collateral in the form of land and houses with proof of land title (red books).

Table 3. Main characteristics of sampled farmers and households

Dimension	Variable	Van Yen (n=319)	Van Chan (n=109)	Tran Yen (n=120)	Overall (n=548)
Cinnamon farmers ^a	Age (years)	44.8 (10.85)	40.6 (9.88)	47.1 (10.74)	44.4 (10.83)
	Education (years)	6.2 (3.98)	7.4 (4.33)	6.7 (2.89)	6.5 (3.87)
	Ethnicity (0-1)	0.28 (0.45)	0.18 (0.38)	0.40 (0.49)	0.28 (0.45)
Cinnamon households ^a	Union (0-1)	0.22 (0.42)	0.19 (0.39)	0.32 (0.47)	0.24 (0.42)
	Household size (persons)	4.6 (1.57)	4.9 (1.74)	4.3 (1.48)	4.6 (1.60)
	Distance to main market (km)	5.7 (5.69)	21.6 (11.54)	4.9 (3.01)	8.7 (9.40)
	Market visits (visits per week)	1.74 (1.33)	1.11 (1.02)	1.51 (1.39)	1.56 (1.31)
	Cinnamon farm size (hectares)	2.7 (3.36)	0.9 (1.10)	1.4 (1.22)	2.1 (2.78)
	Collateral requirement (0-1)	0.16 (0.37)	0.17 (0.38)	0.25 (0.43)	0.18 (0.39)
	Bank account (0-1)	0.09 (0.28)	0.09 (0.28)	0.27 (0.44)	0.13 (0.33)
	Training (0-1)	0.14 (0.35)	0.11 (0.32)	0.26 (0.44)	0.16 (0.37)
	Agribank (%)	14.73	7.34	8.33	11.86
	VBSP (%)	32.28	45.87	54.16	39.78

Note: ^a Mean value with standard errors in parentheses;

^b Percentage of respondents who have previously obtained credit from the type of provider

Farmers can also apply for a preferential credit program, offered by the VBSP subsidised by the Vietnamese government. To obtain credit from the VBSP, an applicant needs to be in the list of applicants approved by the commune people's committees. All 39.78% of households which received preferential credit need to be membership in credit and savings groups to receive credit through unions such as women's unions or farmers' unions.

3.2. Lending characteristics by banks

Lending characteristics of two banks are presented in Table 4. The VBSP has disbursed loans according to the governmental lending program. Households received subsidies from preferential credit programs. The overdue debt of credit disbursed through local unions from the VBSP is much lower than that of the Agribank.

The Agribank still relies on collateral in the form of land use certificates. One difficulty for households is due to the problem of family separation leading to a case that many households do not have a certificate of land use rights. Multi-generation families separate and one land use certificate is used for multiple smaller size families, meaning that only one can use the land use certificate to apply for credit.

Table 4. *Lending characteristics by banks*

Characteristics	VBSP	Agribank
Targeted clients	Poor and near-poor households; 11 lending programs	Wealthier households; enterprises; cooperatives and farms
Maximum amount	50 million dong	Credit value not exceeds 70% of collateral value
Overdue debt	0.39% of total amount disbursed	3% of total amount disbursed
Duration	3-5 years	Flexible, depends on contracts
Monthly interest rate (%)	0.65%-0.90%	Around 1%, flexible, depends on credit contracts
Collateral requirement	No collateral requirement	Strictly collateral requirement (fixed assets or land use certificate)
Lending model	Group lending via women's and farmers' unions	Individual lending
Lending conditions	Based on the governmental targeting and policies	Based on market mechanism
Loan repayment	Monthly or quarterly repayment Interest rate collection and principal at the communal branches	Month or quarterly repayment Interest rate collection and principle at the bank branches
Capital availability and borrower selection	Depend on government budget The bank is less involved in selecting borrowers	Depend on deposit mobilization The bank is closely involved in selecting borrowers

3.3. *The role of farmer-based unions in facilitating households' access to bank credit*

The results from a logistic estimate of the probability that a household has access to credit are presented in Table 5. Results show that access to Agribank credit is not contingent upon union membership. It depends on the availability of collateral, stable income and a good business plan. However, membership to a union is significant at 1% and positively related the probability of households' access to preferential credit. In other words, cinnamon households that join a union have a higher probability of accessing preferential credit. The finding in this study conforms to previous studies with data collection in other countries. Social unions also serve as the guarantee to improve their members' access to credit without asset collateral security in rural Philippines [14]. Frequent meetings in group lending can serve as insurance to strengthen the ability of smallholder farmers to access financial services [15].

The education of household heads is positively associated with access to Agribank credit ($P < 0.05$). More educated households and might run their agribusiness more effectively.

Ethnic minorities are more likely to access credit, particularly preferential credit. This result could be explained by the fact that preferential credit in Vietnam mainly targets the ethnic minority households who need capital but are normally bypassed by commercial banks.

Collateral in the form of land ownership is positively correlated with cinnamon households' access to Agribank credit ($P < 0.01$), but non-significant with preferential credit ($P > 0.10$). This finding collaborates with those of in-depth interviews with banks which showed that secure property rights could be used as one of the most reliable lending criteria for the Agribank.

Ownership of a bank account is positively and strongly ($P < 0.01$) correlated only with the access to overall credit and preferential credit. This result is consistent with the expectations, given that savings account is a component of rural financial inclusion. However, only 21% of adults and only 6% of the poor in Vietnam have bank accounts, which is very low compared to other countries in the world [16].

Being located in the most well-known cinnamon district was found to be the most significant variables influencing access to Agribank credit. The significant regional dummy variable

suggests a higher granted credit in Van Yen compared to other districts. The explanation could be geographical indications of cinnamon products certified by the government to improve the cinnamon product management system, increase economic value for cinnamon products and generate income for farmers.

Table 5. *The impact of membership in farmer-based unions and other relevant factors on credit accessibility by cinnamon households*

Dimension	Variables	Estimated coefficients (Standard error)		
		Agribank	VBSP	Overall
Cinnamon farmers	Age (years)	0.0319 (0.1321)	-0.0647 (0.0790)	-0.0474 (0.0874)
	Age square (years squared)	-0.00007 (0.0014)	0.00048 (0.0008)	0.00020 (0.0009)
	Education (years)	0.1015 (0.0518)**	-0.0484 (0.0338)	-0.0106 (0.0389)
	Ethnicity (0-1)	-0.0151 (0.3916)	-0.5960 (0.2879)**	-0.9433 (0.3793)**
	Union (0-1)	0.0783 (0.4115)	3.4985 (0.3252)***	6.1209 (1.0309)***
	Household size (persons)	-0.1255 (0.1169)	0.0797 (0.0746)	0.0472 (0.0905)
	Distance to main market (km)	0.0279 (0.0244)	0.0018 (0.0129)	0.0088 (0.0143)
Cinnamon households	Market visits (visits)	0.1324 (0.1220)	-0.0980 (0.0970)	-0.1213 (0.1374)
	Cinnamon farm size (hectares)	0.0243 (0.0686)	-0.0624 (0.0501)	-0.0746 (0.0596)
	Collateral requirement (0-1)	3.7384 (0.3889)***	0.4602 (0.2859)	5.8104 (1.0348)***
	Bank account (0-1)	0.0591 (0.4695)	1.0413 (0.3355)***	1.0544 (0.4114)**
	Training (0-1)	-0.4861 (0.4927)	.05014 (0.3085)	0.5303 (0.3668)
	Van Yen (0-1)	1.4007 (0.4690)**	-0.7460 (0.3036)**	-0.3833 (0.3712)
	Van Chan (0-1)	-0.5095 (0.7228)	0.0860 (0.3881)	-0.4928 (0.4756)
Model specification	Intercept	-6.2317* (3.0661)	1.1107 (1.8139)	0.9092 (2.0220)
	Percent correctly predicted (N=548)	91.79%	80.47%	85.77%
	Likelihood ratio test chi2, (14 degrees of freedom)	152.12***	235.97***	393.06***

*Note: The dependent variable is a 0-1 indicator of access to credit where 1= access to credit' Standard errors are in parentheses with the estimates; * Significance at a 10% level; **Significant at a 5% level; ***Significance at a 1% level.*

4. Conclusions and policy implications

Access to credit for farm households is a key part of the rural development and poverty reduction process. However, lack of access to credit remains a big challenge for farm development in general and for the cinnamon farming in particular. This study examines whether membership in a farmer-based union can facilitate household's access to credit.

The findings show that households need credit improve investment and the quality products which are later used for health care needs. Membership in a farmer-based union facilitates farmers' access to collateral-free credit. It is therefore necessary to encourage farmers to join the unions to have convenient access to credit. Another finding is that commercial banks are hesitant to expand credit and require tangible collateral in the form of red books to be present as the most important condition for giving loans.

Findings in this study provide insights for designing credit schemes for farm households in similar situations in other lower-income economies. The key lesson drawn is to take advantage of local knowledge to conduct group lending. Lending through farmer-based unions can address the problem of information asymmetry in farm credit markets. To enhance the role of farmer-based unions, trainings are crucial to enhance their capacity in financial management. Union staffs need to be equipped with knowledge to support farmers in running more profitable businesses.

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