Do Village Funds Improve Access to Finance for the Poor? Evidence from Laos

Sithanonxay Suvannaphakdy

Laos-Australia Development Learning Facility, Vientiane Capital, Lao PDR

Level 2, Vieng Vang Tower, Boulichan Rd, email: oud_sdy@yahoo.com

Abstract

This paper examines the effect of village funds in improving access to finance for the poor households in rural Laos. Village funds are analysed in comparison to competing financial institutions applying a multinomial logit model. The econometric results indicate that village funds reach the target group of poor rural households to a higher degree than competing financial institutions from the formal sector. The results also reveal that village funds provide loans to those kinds of borrowers who are more typical customers of informal than formal financial institutions; and that they play an intermediate role in bridging the gap in serving different credit demands of households by channelling loans to the shock-related borrowing purpose. However, this study does not find any evidence that village funds substitute informal lenders.

1. Introduction

Despite increasing efforts by the international community to reduce poverty and the achievement of poverty reduction in developing countries, further poverty reduction remains a challenging issue due in part to the lack of access to credit by poor households. This issue is also pronounced in Laos, where only 7% of adult population have accessed to credits from commercial banks (FinMark Trust and UNCDF 2014b). This is in part resulted from the limited outreach of commercial banks, which are concentrated in Vientiane Capital and provincial cities. Improving access to finance and deepening financial inclusion in Laos are necessary to mitigate shocks and safeguard the poverty gains achieved over the past 10 years (Pimhidzai 2015). The growing outreach of VFs in Laos presents an opportunity to examine whether they appear to be favouring the less poor over the poorest in society.

Given the potential of poverty outreach, microfinance has become one of the key policy instruments for delivering financial services in many developing countries.[1] Following these initiatives, the Government of Lao PDR (GoL) and its development partners[2] have revolutionized the rural credit market by establishing village funds (VFs) across the country since 2003. Between 2003 and 2007, the GoL injected LAK41.7 billion or about US$4 million[3] to establish 528 VFs in 47 poorest districts. Meanwhile development partners supported the establishment of more than 3,500 VFs in Laos. The number of VFs increased rapidly, from 4,113 VFs or 47% of total villages in 2009 to 4,815 VFs or 57% of total villages in 2013.[4] In terms of credit volume, VFs rank the first in microfinance credit market[5] with a market share of 66% in 2013 (BoL, 2010, 2014; GIZ, 2009, 2014).

The purpose of this paper is to examine the effect of VFs on improving access to finance for poor households in Laos. It aims to address the question: does the introduction of VFs as

simply one more microfinance institution improve access to finance for the poor households in rural areas? VFs are one type of microfinance institutions (MFIs), which promises to improve access to finance and reduce poverty by utilizing profit-making banking practices in low-income communities. While information asymmetries undermine banks' credit markets in places where potential customers have few assets to offer as collateral, MFIs provide uncollateralised loans with small amounts to poor households who traditionally excluded from formal borrowing through the group lending mechanism (Morduch 1999).

Empirical evidence on the development impacts of MFIs remains controversial. Cross-country studies reveal that MFIs serve the poor (Cull et al. 2007) and reduce poverty (Lacalle-Calderon et al. 2018). The positive impact of MFIs on poverty reduction is still unclear for country case studies. Khandker et al. (1998) find the positive impact of MFIs on income, production, and employment for rural people in Bangladesh, while Nghiem et al. (2012) find insignificant effects of MFIs on household income and consumption in Vietnam. Coleman (2006) indicates that MFIs are more likely to target wealthier people than poor people in Northeast Thailand.

This paper is the first study in Laos, which provides a rigorous analysis for assessing the performance of VFs with respect to rural poverty outreach. There is one study which evaluates the performance of VFs from their income-generating impact (Sayvaya and Kyophilavong 2015), that is, whether VFs raise household income and expenditure. The present study differs from Sayvaya and Kyophilavong (2015) in two ways. First, while the previous study evaluates the performance of this program from its impact, this paper assesses the performance of VFs from the outreach perspective. Second, while the previous study draws a sample from only one province of Laos, this paper draws a sample from all 18 provinces of Laos.

VFs in this paper are analysed in comparison to competing financial institutions applying a multinomial logit model. Household's choice of lender is determined by three sets of variables: characteristics of rural poverty outreach, loan characteristics, and characteristics of borrowers. These sets of variables have been found to be key determinants of household's decision in borrowing from formal and informal financial institutions. Previous studies comparing these two forms of financial institutions include Ghate (1992) on Asia, Pal (2002) on India, Barslund and Tarp (2008) on Vietnam, Mohieldin and Wright (2000) on Egypt, and Guirkinger (2008) on Peru. These studies reveal three features of household's choice of lender: (1) households borrowing from informal institutions have lower income, lower assets, less educated, and more frequent default than other households; (2) informal credit is less often used for productive purposes than for consumption; and (3) informal loan size seems to be smaller than the formal one.

For this reason, it is interesting to learn whether VFs in Laos play their intended role as microfinance institutions, which is positioned between formal and informal financial institutions. The analysis of descriptive statistics in this paper reveals four salient features of VFs: (1) they reach poor rural households better than banks; (2) characteristics of households borrowing from formal and informal lenders are different in education and amount of outstanding loans; (3) VFs diversify their loan portfolio for agricultural production (33%), non-agricultural production (26%), and shock-related borrowing (25%); and (4) VFs have smaller loan size and relatively more favourable collateral requirements than formal and other informal financial institutions.

Findings from descriptive statistics are complemented by a multinomial logit model, explaining the use of credits from six financial institutions, including all major formal and informal financial institutions in rural Laos, by borrowing households. The econometric results

indicate that VFs reach the target group of poor rural households to a higher degree than competing financial institutions from the formal sector. The results also reveal that VFs provide loans to those kinds of borrowers who are more typical customers of informal than formal financial institutions; and that VFs play an intermediate role in bridging the gap in serving different credit demands of households by channelling loans to the shock-related borrowing purpose. However, this study does not find any evidence that VFs substitute informal lenders.

This research is mainly linked to three strands of literature. First, it basically applies the methodology of studies comparing the formal and the informal sector but it distinguishes poverty status of households using national poverty line rather than using a continuous variable of household income as Menkhoff and Rungruxsirivorn (2011). Second, this study is related to research which analyses the performance of MFIs with respect to their outreach. This research contributes to this literature by considering a case of small but growing economic importance of VFs in a least developed country. Third, this study adds to the earlier study on Laos' VFs by Sayvaya and Kyophilavong (2015). The earlier Lao study finds that the introduction of the VFs has a positive impact on household income and expenditure, but that the impact is statistically insignificant. Whereas the earlier Lao study analyses the welfare impacts of VFs, this research focuses on the market position of VFs relative to the other financial institutions and the role of VFs in reaching poor rural households.

The remainder of the paper is structured in four more sections. Section 2 provides a background on Laos' economic development. Section 3 presents a modelling strategy for assessing the effects of VFs on access to finance for poor rural households, explains main hypotheses of the study, and introduces the data used in the present research. Section 4 presents

empirical results from descriptive analysis and multinomial logit model, and draws policy implications for better targeting of VFs. Section 5 concludes the paper.

2. Laos' economic development

Over the period 2011-2015, Laos has achieved rapid economic growth, but partially achieved inclusive economic growth. Growth rate of the Lao economy, measured by the annual growth of real gross domestic product (GDP), recorded at 7.8% over the period 2011-2015, which was almost twice higher than the average growth rate of GDP (4.1%) for economies in East Asia and the Pacific over the same period. Sustaining rapid GDP growth raised the level of its real GDP per capita by 28%, increasing from US$1,216 in 2011 to US$1,557 in 2015 (World Bank 2017b). This is an encouraging result for utilizing economic growth as an instrument to narrow income gap across countries in the region and to fight poverty in poor countries.

Recent GDP growth in Laos showed a downward trend, falling from 8.0% in 2011 to 7.3% in 2015. The downward trend of GDP growth was associated with lower inflation rate, lower credit growth, and higher fiscal deficit. Inflation rate fell from 7.6% in 2011 to 1.3% in 2015, resulting from the pass-through of lower international fuel prices and a strengthening of the currency (IMF, 2017, p.3). Monetary policy was directed to increase growth of bank credit to the economy by imposing the interest rate caps on kip deposit and lending rates (World Bank, 2017a, p.8). Lower interest rate was expected to improve access to finance by small and medium-sized enterprises. But the effect of interest rate policy on credit demand was offset by lower growth of domestic economic activities. According to IMF (2017, p.31), the growth rate of bank credit to the economy dropped from 45.8% in 2011 to 16.8% in 2015. Meanwhile, fiscal policy was directed to reduce fiscal deficit, but the trend was reversed due to revenue shortfall. The share of fiscal deficit in GDP rose from 1.7% in 2011 to 2.7% in 2015.

Foreign direct investment (FDI) inflows have been increasingly becoming a major source of economic growth in Laos. FDI recorded LAK6.5 billion during 2011-2015 which accounted for 75% of total investment, while domestic private investment accounted for only 19% of total investment. About two thirds of FDI inflows concentrated in electricity and mining sectors. Main foreign investors include China (accounting for 39% of total FDI inflows), Vietnam (17%), Thailand (16%), Malaysia (9%), and Netherlands (7%). The resource-driven economic growth has changed the structure of outputs, but not the structure of employment. The share of employment in agriculture and forestry sector accounted for 70% in 2015, but value added from this sector accounted for only 17% of GDP. In contrast, employment in the manufacturing sector accounted for only 4% of total employment, but value added from this accounted for 9% of GDP. This indicates the need for improving productivity and promoting investment in manufacturing and service sectors to absorb surplus labour in agriculture.

One of the consequences of weak relationship between output and employment is the weak linkage between rapid economic growth and poverty reduction in Laos. Average GDP growth rate recorded at 7.1% for the period 2003-2007 and at 8.0% for the period 2008-2012 (World Bank 2017b). In contrast, poverty rate reduced by 1.18 percentage points per year for the period 2003-2007 (dropping from 33.5% in 2002-2003 to 27.6% in 2007-2008), about six percentage points less than the average GDP growth for the same period. The rate of poverty reduction reduced by 0.88 percentage points per year for the period 2008-2012 (dropping 27.6% in 2007-2008 to 23.2% in 2012-2013), about seven percentage points less than the average GDP growth for the same period (Pimhidzai et al. 2014).

Poverty and income inequality remain critical issues for development in Laos. In 2012-2013, the majority of the poor were rural residents which accounted for 88% of total poor people.

By ethnicity, the proportion of the poor remained highest in Lao-Tai (44.4% of total poor people), followed by Mon-Khmer (40.3% of total poor people) and Hmong-Lu-Mien (12.1% of total poor people). By gender of household head, poverty headcount rate was significantly lower among female headed (17%) than male headed households (24%) (Pimhidzai et al. 2014). Income inequality is increasingly characterized by rising inequality within urban areas and between rural and urban areas. This is not well reflected in the aggregate indicator such as Gini coefficient, which slightly increased from 35.0 in 2007/08 to 36.2 in 2012/13. The increase of Gini coefficient was resulted from a slowdown of growth in incomes of the non-poor in rural areas rather than faster growth of incomes among the poor. This offset rising inequality in urban areas where growth of incomes of the non-poor was high.

3. Modelling strategy, hypotheses, and data

3.1 Modelling strategy

Following Menkhoff and Rungruxsirivorn (2011), this paper applies the multinomial logit model to link household's choice among lenders with rural poverty outreach (P_i), household characteristics (X_i) and loan characteristics (Z_j). The empirical multinomial logit model is specified as follows:

$$\text{Prob}(y_{ij} = k) = \frac{\exp(\alpha_k P_i + \beta_k X_i + \gamma_k Z_j)}{\sum_{m=1}^{6} \exp(\alpha_m P_i + \beta_m X_i + \gamma_m Z_j)} \tag{1}$$

where $\text{Prob}(y_{ij} = k)$ is the probability that household i chooses to borrow loan j from lender k. y_{ij} is a categorical dependent variable, which equals 1 for private commercial banks (CB), 2 for the state-owned Agricultural Promotion Bank (APB), 3 for formal microfinance institutions (MFI), 4 for village funds (VF), 5 for moneylenders, or 6 for source of borrowing from relatives,

friends and employers (RELA). Household choice of borrowing from VF is used a reference category of the dependent variable.

Equation (1) is a reduced-form equation for the use of credit from the six different sources. The observed choices of lenders represent the equilibrium outcomes in the credit market, which cannot be used to identify demand and supply factors. The equilibrium outcome is in principle determined by the decision of lender and the choice of borrower. P_i is a vector of characteristics of rural poor household i. X_i is a vector of socio-economic characteristics of household i. Z_j is a vector of characteristics of loan j.

The vector of characteristics of rural poor household includes two main variables: poverty status of household and area type of household location. The poverty status of household is a binary variable, which equals 1 for poor household or 0 for non-poor household. A household is classified as 'poor' if its average household income per capita per month is below the national poverty line of LAK200,000 per person per month or about US$25 per person per month. Non-poor household is used a reference category for the poverty status of household in the logit model. Area type of household location is a categorical variable, which equals 1 for urban area, 2 for rural without main road, or 3 for rural with main road. Households living in urban area are used a reference category for estimating the impact of area type of household location on household's choice of lender.

The vector of socio-economic characteristics of household includes six main variables: age of household head, education level of household head, household occupation, area of agricultural landholding, household credit history, and distance from village to district center. The age of household head is a continuous variable measured in years. The education level of household head is a categorical variable, which equals 1 for no education or incomplete primary

education, 2 for complete primary education, 3 for secondary education, or 4 for vocational or higher education. Households with no education or incomplete primary education are used as a reference category.

Household occupation is a categorical variable, which equals 1 for business owner, 2 for formal worker, 3 for informal worker, or 4 for farmer. The business owner is used as a reference group for household occupation. Area of agricultural landholding is a continuous variable measured in hectare. Household credit history is a binary variable, which equals 1 if the household has ever been rejected any loan from formal or informal financial institution or 0, otherwise. The distance from village to district center is a continuous variable measured in kilometer.

The vector of loan characteristics includes four variables of loan purpose: non-agricultural production loan, agricultural production loan, consumption loan, and shock-related loan. Non-agricultural production loan comprises loans for trade and buying land and house. Agricultural production loan comprises loans for buying livestock, farming equipment, and agricultural inputs such as seeds or fertilizer. Consumption loan comprises loans for living expenses, water/electricity/telephone bills, and buying household assets. Shock-related loan comprises loans for medical expenses, wedding, funeral expenses, and education or school fees. The non-agricultural production loan is used a reference category.

3.2 Hypotheses

The contribution of VFs on access to finance is tested with respect to two hypotheses. The first hypothesis tests whether VFs reach poor rural households better than formal financial institutions. In equation (1), the first hypothesis is true if the estimated coefficients on poverty status of household and dummies of rural areas (α) for formal financial institutions have negative

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signs and are statistically significant at least 10% level.

The combined effects of poverty status of household and dummy of rural area indicate the outreach of VFs to poor households in rural area. The negative sign on poverty status of household indicates that the relative probability of borrowing from formal financial institutions rather than VFs is lower for poor households than non-poor households. In other word, VFs reach poor households better than the formal financial institutions. Similarly, the negative sign on dummy of rural area indicates that the relative probability of borrowing from formal financial institutions rather than VFs is lower for rural households than urban households. In other word, VFs reach rural households better than the formal financial institutions.

The second hypothesis tests whether VFs' loans substitute informal loans. One of the key objectives of VFs is to reduce the reliance of the poor on informal moneylenders. The substitution of informal loans with VFs' loans is more likely to improve household welfare given that informal moneylenders typically charge high interest rates on loans and eat into the savings of borrowers (Mallick 2012). Islam et al. (2015) examine how availability of microfinance influences households' borrowing from informal sources in village economies in Bangladesh and find that less poor households have reduced their reliance on informal borrowing. In contrast, Menkhoff and Rungruxsirivorn (2011) examine the effect of VFs on access to finance in Thailand and find that low-income households are unlikely to shift their borrowings from informal lenders to VFs.

In equation (1), the second hypothesis is true if the estimated coefficients on loan characteristics (γ) for informal financial institutions have negative signs and are statistically significant at least 10% level. The negative sign on dummy of consumption loan, for example, indicates that the relative probability of borrowing from informal financial institutions rather

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than VFs is lower for consumption loan than non-agricultural production loan. In other word, VFs serve households who need consumption loan better than the informal financial institutions.

3.3 Data

Data used for the analysis in this paper come from FinScope Survey implemented by the in-country programme of UNCDF MAFIPP ('Making Access to Finance more Inclusive for Poor People'), financially supported by the Australian Department of Foreign Affairs and Trade, and overseen by a national Steering Committee chaired by the Bank of Lao PDR (central bank). The survey aimed to measure and profile the levels of access to financial services by all adults in Laos (18 years and older), across income groups and other demographics. The sample contained 2,040 households drawn from all provinces in Laos. The survey was conducted from November 2014 to January 2015 and designed in three stages. First, villages were selected with probability proportional to size using the 2013 population number of households as a measure of size. Second, households were drawn from the selected villages. Third, a person aged 18 years and older was drawn from each selected household (FinMark Trust and UNCDF 2014a).

The household sample used in this study is a subset of total sample of FinScope. It contains 409 households or 20% of total sample of FinScope, which have borrowed money from formal and/or informal financial institutions. The sample has 463 loans for these households. One household is counted at each institution where it is borrowing (and in case of two loans from one source it is counted just once). The sample contains six lending sources: private commercial banks, state-owned Agricultural Promotion Bank, microfinance institutions, village funds, moneylenders, and source of borrowing from relatives, friends and employers. In the following analysis, the financial institution refers to all six lending sources; the formal financial institution

refers to CB, APB, and MFI; the semi-formal financial institution refers to VF; and the informal financial institution refers to ML and RELA.

4. Empirical results

In this section, the effect of VFs on access to finance for poor rural households is analysed in two stages. The first stage utilizes descriptive statistics to gauge the position of VFs in relation to other financial institutions in the Laos' rural credit market. The second stage applies the multinomial logit model to assess their poverty outreach and substitution of informal lending.

4.1 The position of village funds as a lending institution

The analysis of descriptive statistics in Table 1 reveals four salient features of VF. First, VF reaches poor rural households better than CB and APB. Panel A of Table 1 presents rural poverty outreach of the six sources and the last column of the table reports the outreach of the average borrowing households. The degrees of rural poverty outreach are clearly different, in particular in the cases of CB and VF. For the case of CB, their borrowers earn much higher household income per capita than the national poverty line (LAK200,000 per person per month). As a result, loans from commercial banks reach only 13% of poor households and about 59% of rural households. By contrast, VF seems to be used by low-income borrowers which give VF an intermediate position between formal (CB, APB, MFI) and informal institutions (ML, RELA). As a result, VF reaches about 31% of poor households and 71% of rural households.

[Table 1 near here]

Second, characteristics of households borrowing from formal and informal lenders are different in education and amount of outstanding loans (Panel B, Table 1). For the case of CB,

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their borrowers with a degree of vocational or higher education account for 40% of total borrowers, and have the highest outstanding loans per household in the sample. In contrast, borrowers from VF with a degree of vocation or higher education account for only 32%, and have outstanding loans less than half of CB's borrowers. Both formal and informal financial institutions are, however, not much different in terms of the age of household head, agricultural landholding, occupation and distance from village to district center. Borrowers of six financial institutions are about 40 years old, possess about two hectares of agricultural land, engage in farming, and live in villages with distance less than 20 kilometers far away from the district center.

Third, borrowing purpose of VF is different from both formal and informal financial institutions (Panel C, Table 1). VF diversifies their loan portfolio for agricultural production (33%), non-agricultural production (26%), and shock-related borrowing (25%). CB and APB lend relatively more for agricultural production. MFI lends for non-agricultural production. ML and RELA lend for consumption and shock-related purposes, respectively.

Finally, VF has smaller loan size and more favourable collateral requirements than formal and other informal financial institutions (Panel D, Table 1). The loan size of VF is LAK 20 million, which is about three time smaller than that of CB (LAK62 million). In addition, about 24% of VF's loans do not require any collateral. The rest 76% of VF's loans requires collateral, which is mostly in the forms of other assets (38%) and land (30%). In contrast, the most frequently used collaterals for CB's loans are land (51%) and other assets (34%).

4.2 The contribution of the village funds

This subsection shows that VF improves access to finance for poor rural households compared to the formal financial institutions. We identify poverty status of household, area type of household

location, and loan characteristics served by VF relative to other institutions, which would then allow us to draw an inference about outreach of VF and its substitution of informal lending. The multinomial logit model with robust standard errors clustered by household[6] is applied to analyse the factors underlying the decision by borrowing households to utilize credit from the six distinguished financial institutions.

4.2.1 Rural poverty outreach

VF reaches the target group of poor rural households better than formal financial institutions. As to the poverty status of households, the estimated coefficients on dummy of poor household for CB and APB are negative and statistically significant. Other things being equal, the relative probability of borrowing from CB rather than VF is 69% lower for poor households than for non-poor households.[7] Similarly, the relative probability of borrowing from APB rather than VF is 62% lower for poor households than for non-poor households (Table 2). In other word, poor households are more likely to get credit from VF rather than banks.

[Table 2 near here]

As to the geographical outreach, VF reaches the target group of households in rural area better than formal financial institutions. The estimated coefficient on dummy of rural with road for CB is negative and statistically significant, indicating that the relative probability of borrowing from CB rather than VF is 54.8% lower for households in rural area with main road than for those in urban area (reference category). In addition, the estimated coefficients on dummy of rural without road for APB and MFI are negative and statistically significant, indicating that the relative probability of borrowing from APB and MFI rather than VF is 93.4%

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and 100.0%, respectively, lower for households in rural area without main road than for those in urban area (Table 2).

Our result reveals that poverty outreach of VFs in Laos performs moderately well. This is consistent with existing microfinance literature in other countries. Using surveyed data on VFs from three Northern provinces in Thailand, Menkhoff and Rungruxsirivorn (2011) find that VFs reach the target group of lower income households better than commercial banks, while they reach the group of households with similar income level as the Bank for Agriculture and Agricultural Cooperatives, credit union and informal lenders. Using a dataset of 124 microfinance institutions in 49 countries, Cull et al. (2007) find a trade-off between poverty outreach and profitability of MFIs. In particular, MFIs earn profits while serving the poor, but a trade-off emerges between profitability and serving the poorest. This finding is also supported by Hermes et al. (2011), who find that less efficient MFIs are more likely to reach poor households better than more efficient ones. Efficient MFIs are characterized by low average loan balances and high proportion of female borrowers.

In Laos, the relatively high degree of VFs' poverty outreach compared to banks could be attributed to small loan size and contractual risk. VFs provide small amount of loans to poor borrowers. In contrast, banks target non-poor households rather than poor households, which imply that they do not provide flexible products and services to meet the income and expenditure patterns of small poor borrowers. To determine the effect of income poverty on CB's lending, we compute the marginal effect of dummy of income poverty for CB, which is -0.115. This indicates that the probability of borrowing from CB is on average about 11.5 percentage points lower for poor households than for non-poor households. The marginal effect of dummy of income poverty

for APB is also negative, but it is not statistically significant. This suggests that APB does not discriminate poor and non-poor borrowers (Table A.1).

In addition, poor households may prefer VFs to banks because of contractual risk. To deal with contractual risk, VFs may utilize the same lending mechanism as informal lenders, which do not require substantial assets as collateral. According to Guirkinger (2008), informal lenders substitute screening and monitoring for contractual risk for the borrower to overcome adverse selection and moral hazard, which are facilitated by their physical and social proximity to borrowers and the economies of scope resulted from the engagement in other credit-related activities. In contrast, banks require collateral that poor households do not have. Land remains the predominant form of collateral, but poor households are less likely to have clear titles to their land, and hence limited access to bank credit by the poor.

4.2.2 Substitution of informal lenders

VFs play an intermediate role in bridging the gap rather than substitute informal lenders in serving different credit demands of poor households. As to poverty outreach, VF provides loans to borrowers with similar income level as those of MFI and informal financial institutions. The estimated coefficients on dummy of poor household for MFI, ML and RELA are negative, but not statistically significant at any conventional level. As to loan purpose, VF mainly channels loans to the shock-related borrowing purpose, while APB and ML mainly provide loans for agricultural production and consumption purpose, respectively. The estimated coefficient on dummy of shock-related borrowing for ML is negative and statistically significant at 10% level. Other things being equal, the relative probability of borrowing from ML rather than VF is 68% lower for shock-related borrowing purpose than for non-agricultural production purpose (Table 2).

Our result reveals that the magnitude of the substitution of VFs for informal lenders in Laos is more than twice lower that in Thailand. Menkhoff and Rungruxsirivorn (2011) show that loans from VFs in Thailand are channelled to both production and consumption purposes, which partially substitute the agricultural production loan from informal lenders. Their point estimate on the agricultural production loan for ML shows that the relative probability of borrowing from ML rather than VF is 54% lower for agricultural production purpose than for non-agricultural production purpose. In contrast, our result in Table 2 indicates that the relative probability of borrowing from ML rather than VF is only 18% lower for agricultural production purpose than for non-agricultural production purpose. The limited substitution of VFs for informal lenders in Laos could be attributed to the bureaucratic character of VFs.

4.2.3 Household characteristics

VFs serve households with characteristics similar to banks. These household characteristics include education, occupation, agricultural landholding and credit history. The estimated coefficients on household characteristics are not statistically significant at any conventional level for CB, APB, and RELA. In contrast, VF differs from MFI and informal lenders. MFI appears to serve farm households with older household head, and those working in the formal sector. ML serves households whose credits have ever been rejected by financial institutions.

RELA serves households with long distant to district center. The estimated coefficient on distance for RELA is positive and statistically significant at 1% level. A ceteris paribus increase in 1 kilometer of distance increases the relative probability of borrowing from RELA rather than VF about 3.15% (Table 2). The marginal effect of distance for RELA is 0.003, indicating that a

1-kilometer increase in distance raises the probability of borrowing from RELA by 0.3 percentage points (Table A.1).

4.3 Policy implications

The main result of this study is that VFs provide financial services better than existing formal financial institutions. The VF program in Laos was started with two motivations: stimulating demand and improving access to finance in 47 poorest districts of the country. The demand-stimulus objective of VFs has not yet achieved as our result shows that loans from VFs are mainly used for shock-related purpose, but not for consumption or agricultural production purpose. In addition, the objective of improving access to finance has moderately achieved as our result shows that loans from VFs reach poor rural households better than banks, but similar to MFIs and informal lenders. This implies that the degree of targeting could be improved, as VFs do not necessarily reach poor rural households and female-headed households better than MFIs and informal lenders, and do not provide loans to customers with similar household characteristics and similar credit demands as those of MFIs and moneylenders.

There are two possible reasons for the imperfect targeting in Laos: low political ambition and lack of information for targeting the poor. Regarding the low political ambition, VFs have been officially promoted by the Government of Lao PDR as part of the "Developed Village" policy (BoL and UNCDF, 2016, p.4) since 2003, but they have not yet been centralized and fully regulated by the Bank of Lao PDR (BoL). Currently, there are three government agencies in charge of VFs: BoL, Rural Development Office of the Ministry of Agricultural and Forestry, and Lao Women Union. Each of them designs their own regulation for governing VFs. Since 2016, there has been an initiative to centralize all VFs under the BoL's financial inclusion roadmap (BoL and UNCDF 2016), but such initiative has made slow progress due in part to the need for

restructuring the institutional design of BoL to take greater responsibility of VFs across the country.

Regarding the lack of information for targeting the poor, there are two aspects for improving VF-targeting approach. First, our result reveals that poverty outreach of VFs is not better than MFIs and informal lenders, which implies the need for imposing and enforcing membership eligibility criteria. One of the membership eligibility criteria should be based on an objective poverty measure such as household income or expenditure per capita, female-headed household, maximum allowable landholding, or other measures of wealth. This should be complemented with the selection of new committee members annually so that they do not become entrenched in their positions. Better information on poverty measure and more active VF committees to target the poor should improve the effectiveness of poverty outreach of VFs.

The second aspect for improving VF-targeting approach relates to the loan purpose of VFs. Our result reveals that the use of VFs' credits for consumption and agricultural production is significantly lower than that of formal and informal financial institutions, which implies the need for increasing VFs' credits for consumption and production. On the supply side, VFs should have a greater flexibility of borrowing terms and conditions such as amount of credit, interest rate and maturity. On the demand side, villagers should receive clearer and more frequent public announcements of the VF's goals and target group, which could be made by district authorities or the NGO fieldworkers. More favourable term and condition of credits coupled with increased public awareness of VF's goals could encourage the use of VF's credits for smoothing household consumption and investing in productive activities in rural area.

5. Conclusions

This paper examines whether the introduction of village funds (VFs) in rural Laos has realized

its ambitions. This study contributes to this discussion by providing a cross-sectional approach comparing VFs with competing financial institutions. The econometric results indicate that VFs reach the target group of poor rural households to a higher degree than competing financial institutions from the formal sector. The results also reveal that VFs provide loans to those kinds of borrowers who are more typical customers of informal than formal financial institutions; and that they play an intermediate role in bridging the gap in serving different credit demands of households by channelling loans to the shock-related borrowing purpose. However, this study does not find any evidence that VFs substitute informal lenders.

The results in this paper, however, highlight the need for better targeting of VFs for two reasons. First, VFs do not necessarily reach poor rural households and female-headed households better than MFIs and informal lenders (moneylenders and relatives). Second, VFs do not provide loans to customers with similar household characteristics and similar credit demands as those of MFIs and moneylenders. To overcome these issues, the study proposes better customer targeting based on the objective poverty measure and more flexible borrowing terms and conditions for consumption and production.

Poverty outreach of VFs in Laos may provide some stimulus for other countries to think about following the same institutional support. VFs were started with minimal support from the government and extensive supports from bilateral and multilateral donors and NGOs. However, there are at least two issues which need to be addressed before definite conclusions on successful VFs can be drawn. First, can VFs finance their own operations without compromising their mission to reach out to the poor? The end of subsidies from donors and NGOs means that VFs tend to strike for financial self-sufficiency by targeting non-poor households rather than poor

households. Second, do VFs have a measurable impact on the social and economic situation of

the poor? This could feed into the possible integration of VFs into poverty-reduction programme.

Table 1. Descriptive statistics on borrower and loan characteristics by lending institution

Variable	CB	APB	MFI	VF	ML	RELA	Average borrower
Panel A: Rural poverty outreach							
Household income/ capita, monthly (LAK)	1,902,062	2,608,662	703,250	576,965	528,162	439,713	1,114,835
Proportion of poor households	13%	13%	23%	31%	27%	32%	24%
Households by area type (%)							
Urban	41%	48%	45%	29%	29%	22%	33%
Rural without road	9%	1%	0%	11%	5%	6%	6%
Rural with road	50%	51%	55%	60%	66%	73%	61%
Panel B: Household characteristics							
Age of household head	45.2	49.2	51.2	46.5	43.4	43.4	45.5
Proportion of female-headed households (%)	6%	0%	5%	8%	7%	5%	5%
Household head's education level							
No education or incomplete primary	10%	7%	18%	8%	7%	20%	12%
Primary	38%	39%	23%	51%	52%	49%	45%
Secondary	12%	13%	32%	8%	11%	8%	11%
Vocational or higher	40%	40%	27%	32%	30%	23%	32%
Household occupations							
Business owners	22%	15%	9%	22%	36%	15%	20%
Farm	61%	70%	55%	63%	50%	68%	63%
Formal wage	13%	12%	27%	8%	7%	7%	10%
Informal wage	5%	3%	9%	7%	7%	10%	7%
Area of agricultural landholding (hectare)	2.4	2.4	2.2	2.5	1.7	2.0	2.2
Proportion of households with credit's rejected history (%)	5%	1%	5%	3%	11%	7%	5%
Outstanding loans per household (LAK million)	53.1	18.8	32.5	19.4	15.7	12.0	25.2
Distance from village to district (KM)	15.4	15.6	12.5	15.6	19.5	24.8	18.7
Panel C: Purpose of borrowing (%)							
Non-agricultural production	24%	12%	36%	26%	27%	18%	22%
Agricultural production	50%	69%	23%	33%	21%	23%	37%
Consumption	18%	12%	18%	15%	45%	25%	22%
Shock-related borrowing	8%	7%	23%	25%	7%	35%	19%
Panel D: Characteristics of loan contract							
Loan size (LAK million)	61.7	24.1	24.9	19.8	11.7	13.2	27.1
Collateral requirement (%)							
Land	51%	55%	48%	30%	24%	17%	35%
House	3%	2%	0%	1%	2%	2%	2%
Other assets	34%	25%	19%	38%	33%	31%	32%
Salary and future earning power	4%	8%	19%	7%	2%	9%	7%
None	8%	11%	14%	24%	39%	40%	25%

Source: Author's calculation using data from FinScope Survey.

Table 2. Estimated results from multinomial logit model predicting the choice of lender by borrowing household

	CB	APB	MFI	ML	RELA
Rural poverty outreach					
Poor household	-1.1796***	-0.9709**	-0.0860	-0.3706	-0.4908
	(-2.92)	(-2.11)	(-0.12)	(-0.83)	(-1.37)
Area dummies					
Rural without road	-0.5045	-2.7208**	-14.3779***	-0.3405	-1.0917
	(-0.84)	(-2.36)	(-18.14)	(-0.41)	(-1.70)
Rural with road	-0.7941*	-1.1656**	-0.3211	0.1504	-0.2448
	(-1.92)	(-2.37)	(-0.42)	(0.32)	(-0.60)
Household characteristics	(-2.92)	(-2.11)	(-0.12)	(-0.83)	(-1.37)
Age of household head	-0.0175	0.0219	0.0470**	-0.0168	-0.0217
	(-1.16)	(1.24)	(2.01)	(-1.08)	(-1.60)
Household head's education level					
Primary education	-0.6687	-0.4420	-1.3453	0.3660	-0.5343
	(-1.16)	(-0.64)	(-1.56)	(0.53)	(-1.06)
Secondary education	-0.0745	0.5539	0.7082	0.6952	-0.3417
	(-0.09)	(0.61)	(0.70)	(0.76)	(-0.45)
Vocational or higher education	-0.3199	0.0253	-0.7594	0.2353	-0.7197
	(-0.51)	(0.04)	(-0.89)	(0.32)	(-1.23)
Household occupations					
Farm household	0.1254	0.6659	1.4966*	-0.4768	0.5506
	(0.26)	(1.15)	(1.67)	(-0.98)	(1.20)
Informal-wage household	-0.1903	-0.0481	1.9282	-0.5636	0.5526
	(-0.24)	(-0.05)	(1.62)	(-0.74)	(0.82)
Formal-wage household	0.3806	0.6399	1.9716**	-0.5263	0.3876
	(0.64)	(0.97)	(2.10)	(-0.70)	(0.64)
log(Area of agricultural landholding)	0.1304	0.0052	-0.0361	-0.2266	-0.2665
	(0.54)	(0.02)	(-0.10)	(-0.81)	(-1.05)
Credit's rejected history	0.7534	-0.0465	0.7260	1.4548*	0.7361
	(0.85)	(-0.04)	(0.68)	(1.71)	(0.85)
Distance from village to district (KM)	0.0190	0.0221*	-0.0012	0.0245**	0.0310***
	(1.64)	(1.66)	(-0.05)	(2.01)	(3.07)
Loan characteristics					
Agricultural production loan	0.7882*	1.7186***	-0.5239	-0.1975	0.0190
	(1.78)	(3.40)	(-0.71)	(-0.39)	(0.04)
Consumption loan	0.4580	0.6949	-0.0771	1.1671**	0.7296
	(0.92)	(1.10)	(-0.09)	(2.34)	(1.57)
Shock-related borrowing	-0.8488	-0.2005	-0.4442	-1.1223*	0.5774
	(-1.59)	(-0.29)	(-0.57)	(-1.82)	(1.39)
Constant	1.4869	-1.7949	-3.6163**	0.1226	1.399
	(1.52)	(-1.58)	(-2.26)	(0.11)	(1.52)
Pseudo R^2	0.13				
Wald Chi2 (80)	2334***				
Number of observations	104	67	22	56	142

Note: *z*-statistics in parentheses. *, **, *** indicate 10%, 5%, 1% significance level, respectively.
Source: Author's estimation.

Appendix

Table A.1. Marginal effects of estimated results from multinomial logit model predicting the choice of lender by borrowing household

	CB	APB	MFI	ML	RELA
Rural poverty outreach					
Poor household	-0.1150**	-0.0382	0.0227	0.0239	0.0185
	(-2.15)	(-0.88)	(0.85)	(0.69)	(0.40)
Area dummies					
Rural without road	0.1073	-0.1763***	-0.0476**	0.0420	-0.0649
	(1.10)	(-3.28)	(-2.51)	(0.56)	(-0.84)
Rural with road	-0.0647	-0.0947**	0.0058	0.0564*	0.0393
	(-1.37)	(-2.03)	(0.19)	(1.81)	(0.78)
Household characteristics					
Age of household head	-0.0025	0.0035**	0.0023**	-0.0008	-0.0036**
	(-1.41)	(2.23)	(2.42)	(-0.74)	(-2.10)
Household head's education level					
Primary education	-0.0545	0.0021	-0.0373	0.0725*	-0.0422
	(-0.72)	(0.04)	(-1.05)	(1.95)	(-0.64)
Secondary education	-0.0422	0.0604	0.0487	0.0566	-0.1154
	(-0.45)	(0.82)	(0.83)	(1.08)	(-1.23)
Vocational or higher education	-0.0070	0.0429	-0.0216	0.0492	-0.1087
	(-0.08)	(0.75)	(-0.58)	(1.31)	(-1.48)
Household occupations					
Farm household	-0.0290	0.0483	0.0350*	-0.0943**	0.081
	(-0.50)	(1.03)	(1.82)	(-2.12)	(1.35)
Informal-wage household	-0.0569	-0.014	0.0699	-0.0918	0.1149
	(-0.63)	(-0.20)	(1.33)	(-1.61)	(1.31)
Formal-wage household	0.0191	0.0351	0.0603*	-0.1007*	0.0316
	(0.26)	(0.68)	(1.83)	(-1.83)	(0.44)
log(Area of agricultural landholding)	0.0410	0.0063	0.0016	-0.0150	-0.0462
	(1.58)	(0.27)	(0.14)	(-0.75)	(-1.40)
Credit's rejected history	0.0402	-0.0789	0.0073	0.0907*	0.0304
	(0.41)	(-0.67)	(0.23)	(1.85)	(0.31)
Distance from village to district (KM)	-0.0001	0.0004	-0.0009	0.0005	0.0030***
	(-0.05)	(0.38)	(-0.99)	(0.56)	(2.66)
Loan characteristics					
Agricultural production loan	0.0831	0.1730***	-0.0484	-0.0590	-0.0838
	(1.46)	(4.15)	(-1.47)	(-1.55)	(-1.46)
Consumption loan	-0.0249	0.0113	-0.0348	0.0987**	0.0365
	(-0.44)	(0.29)	(-0.90)	(2.09)	(0.59)
Shock-related borrowing	-0.1172**	-0.0068	-0.0231	-0.0899**	0.2248***
	(-2.17)	(-0.17)	(-0.55)	(-2.39)	(3.19)

Note: z-statistics in parentheses. *, **, *** indicate 10%, 5%, 1% significance level, respectively.
Source: Author's estimation.

Notes

[1] At the global level, the total number of MFIs reporting to MIX Market recorded at 1,033 institutions from 103 countries in 2015, 33% of these institutions were from Latin America and the Caribbean and 19% from South Asia. The reporting MFIs reached 116.6 million borrowers with a gross loan portfolio of US$92.4 billion (Khamar 2017).

[2] The key development partners include GIZ, International Labor Association (ILO), United Nations Development Programme (UNDP), World Bank, and Asian Development Bank (ADB).

[3] This accounted for 0.1% of gross domestic products (GDP).

[4] VFs have been classified as 'semi-formal MFIs' because they are supported by government agencies but are not regulated by the Bank of Lao PDR (central bank) or other financial authorities.

[5] The microfinance credit market includes formal MFIs and VFs.

[6] The robust standard errors clustered by household allow for possible correlation of the error term within each household due to the use of multiple loans contracted by one household.

[7] 69% = [exp(-1.1796) – 1] x 100.

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