Preferential Microcredit and Poverty Outreach in the Northwestern Mountainous Region of Vietnam

Xuan Luan Do[a], Siegfried Bauer[b]

a Justus-Liebig University Giessen, Inst. of Farm and Agribusiness Management - Project and Regional Planning, Germany. Email: doxuanluan@gmail.com
b Justus-Liebig University Giessen, Inst. of Farm and Agribusiness Management - Project and Regional Planning, Germany. Email: Siegfried.Bauer@agrar.uni-giessen.de

Introduction

Vietnam is a developing country in the Southeast Region of Asia. More than 75 per cent of Viet Nam's poor live in rural areas, and more than 30 per cent of rural households in the country's poorest locations are poor (Vietnam's General Statistics Office, 2012). Microcredit is considered as an appropriate instrument to alleviate poverty, but the provision of credit to the extremely poor may be so risky that micro-credit institutions tend to refuse lending to these clients. Consequently, the trade-off between financial sustainability and depth of outreach is existent (Manfred Zeller & Richard L.Meyer, 2002; Cull et al., 2011). In other words, focusing on sustainability might ignore the provision of credit to the poorest or eliminate the social goals of credit institutions. The tradeoff can provide useful information to policy markers to decide whether or not to subsidize micro-credit institutions. If credit institutions target the poor but face the problem of sustainability, then subsides might be necessary. However, if subsidized institutions do not reach the poor, the Government and other fund donors who have concerns over poverty reduction could reconsider finance uses by such those credit institutions.

In Vietnam, lack of collateral is till a major constraint of the poor to access credit. Therefore, Vietnamese Government established the Vietnam Bank for Social Policy (VBSP) on 4th October 2002 and its subsidized preferential credit programs have so far provided free-collateral loans to the poor and near-poor of the country. VBSP's operating network stretches from the headquarters down to provinces, districts and communes. The bank has conducted preferential lending through entrusted organizations like local Women Unions and Farmer Unions. Savings and credit groups, established by those organizations, are the main VBSP's channels of delivering preferential loans. The Government has strong concerns over poverty reduction effect and poverty targeting of the program. In this context, the paper examines the program's depth of poverty outreach in the poorest region of Vietnam - the Northwestern Mountainous Region.

Material and Methods

The study used data from the Vietnam Household Living Standard Survey which was carried out in 2012. The selected research area is Yen Bai province which is one of the poorest provinces in the country in general and in the Northwestern region in particular. Of the total 500 randomly selected households, 200 were clients and 300 were non-clients.

In order to evaluate the poverty outreach of preferential credit, Principal Component Analysis (CPA) was employed. This approach's main idea is reduce the dimensionality of the dataset and define how the different indicators can be well combined to compute a relative poverty status of a particular household (Henry et al., 2003). PCA extracts a linear combination which best describe the indicators in household dataset to transform them into one single relative poverty index which is measured as follow:

$$P_j = w_1X_1 + w_2X_2 + w_3X_3 + ….+ w_nX_n$$

Where: w_1, w_2, w_3…w_n are the weights specified such that the poverty score index accounts for the maximum variances in $X_1, X_2,…X_n$ (Henry et al.,2003). Since this variance could be increased indefinitely by simply increasing the coefficients, a restriction must be placed on them, generally that their sum of squares is one. Weights refer to the relative contribution of each indicator to the general relative poverty of households. Weights are defined by the eigenvectors of the correlation matrix. The analysis is then equivalent to calculation of the component from the original variables after these have been standardized. The principal component can be interpreted by inspecting the eigenvectors defining them. Because the original variables have very different measurements, relative poverty score is computed as long as those variables have been standardized for the original observations for an individual household. Standardized variables have a mean of zero and a standard deviation of one. X_n is computed by this following formula:

$$X_n = \frac{x_n - u_n}{s_n}$$

Where x_n is the value of the variable of households in dataset, μ_n and s_n are the mean and standard deviation of the variable for the whole dataset. The final result of PCA is a single index which represents a specific poverty score for each individual household as well as the relative poverty status of that household relative to other households in the whole sample. A household which has a lower relative poverty score indicates that it is relatively poorer than the other one who has a higher score.

Results and Discussion

Table 1 below presents the results of principal component analysis. The second column of the table shows the correlation coefficients between selected variables and the benchmark indicator – the per capita clothing and footwear expenditure. The benchmark indicator is choosen because it reflects a stable and high linear correlation with total consumption expenditure (Carla Henry et al 2003; Manfred Zeller & Richard L.Meyer 2002). This indicator also represents a comprehensive measure of welfare at the household level in many cultures including Vietnam. Results indicate that all those variables have strong correlation with the benchmark variable.

The third column reports component loadings which represent the level of correlation between the selected variables and the first component. The first component is selected because it accounts for the largest proportion of total variability in the set of indicators used. Results show that most variables load quite strongly to the first component as indicated by the absolute value of loadings above 0.30 which all satisfy the minimum value of 0.180. The negative correlation coefficients between family size, agricultural labors and the first component indicate that households with larger family sizes and higher number of agricultural labors are more likely to be relatively poorer than others. The remaining variables have positive correlation coefficients with the benchmark indicating that improvements in these variables could improve the relative poverty status of households.

The Eigen value is greater than one which satisfies the requirement of principal component analysis. In addition, the first component explains the majority variances of the dataset (71.23%).

The Kaiser – Meyer – Olkin (KMO) test is an index for comparing the magnitudes of observed correlation coefficients with the magnitudes of partial correlation coefficients. The smaller the value of the index, the less appropriate the model. In this analysis, KMO equals 0.823 which is greater than 0.6 indicating the adequacy of the sampling. It reflects that all variables used are appropriate to measure one common component.

Table 1: Results of Principal Component Analysis

Variables (1)	Correlation coefficient (2)	Factor loadings (3)
Per capita clothing and footwear expenditure (VND million)	1	0.687
Total area of land owned (ha)	0.22***	0.51
Value of house owned (VND million)	0.30***	0.67
Type of toilet arrangement (Binary, 1= households use suilabh or flush toilet with specific tank and sewage pipes; 0 = otherwise)	0.32***	0.70
Main source of water for cooking and drinking (Binary, 1= households use tap water or purchased water in tank; 0= otherwise)	0.17***	0.49
Kind of cooker (Binary, 1= Households use gas or electric cooker; 0= otherwise)	0.24***	0.65
Family size (persons)	-0.12***	-0.34
Educational level of household head (years in school)	0.14***	0.30
Number of agricultural labors in last 12 months (persons)	-0.20***	-0.58
Value of livestock (buffalo, pigs, horse)	0.25***	0.58
Value of transportation- related assets (motocycles, bicycles)	0.21***	0.59
Value of electronic assets (Tivi, video players, electric cookers, fans, radio)	0.38***	0.72
Eigen value		6.79
Variance explained		71.23
Kaiser-Meyer-Olkin (KMO)		0.823

*Note: *** indicates significance level at 5%.*

Source: own calculations

The relative poverty score is calculated for each individual household. A household with a higher relative poverty score is relatively wealthier than others. In this analysis, the lowest poverty score equals -4.88 and the highest poverty score equals 4.82. In order to use these scores for evaluating the poverty outreach of preferential credit, 300 non-borrowers who represent for general population are sorted in an ascending order based on their poverty scores. Then, these households are assigned into 5 different groups. The top fifth is called the wealthiest group and the last fifth is called the poorest group. Each group accounts for 20 percent of total non-client households. The cut-off scores between two groups are also constructed. Based on these cut-off values, 200 household borrowers are then assigned into five different groups based on their relative poverty scores. The proportion of each client group is then calculated and compared to that of non-client group to evaluate the depth of outreach. Proportions with values above twenty percent indicate higher outreach within the quintile, while proportions below twenty percent indicate disproportionately lower outreach (Zeller et al., 2002). Results are reported in the Figure 1 showing that preferential credit reaches a quite deep outreach with a half of all successful access households (70%) belong to three poorer groups. Moreover, the poorest (15%), the better off (18%) and the richest borrowers (12%) are underrepresented among borrowers of preferential

credit programs, while the less poor and the medium are strongly over-represented (55%). The poorest household group seems to be still ignored by preferential credit.
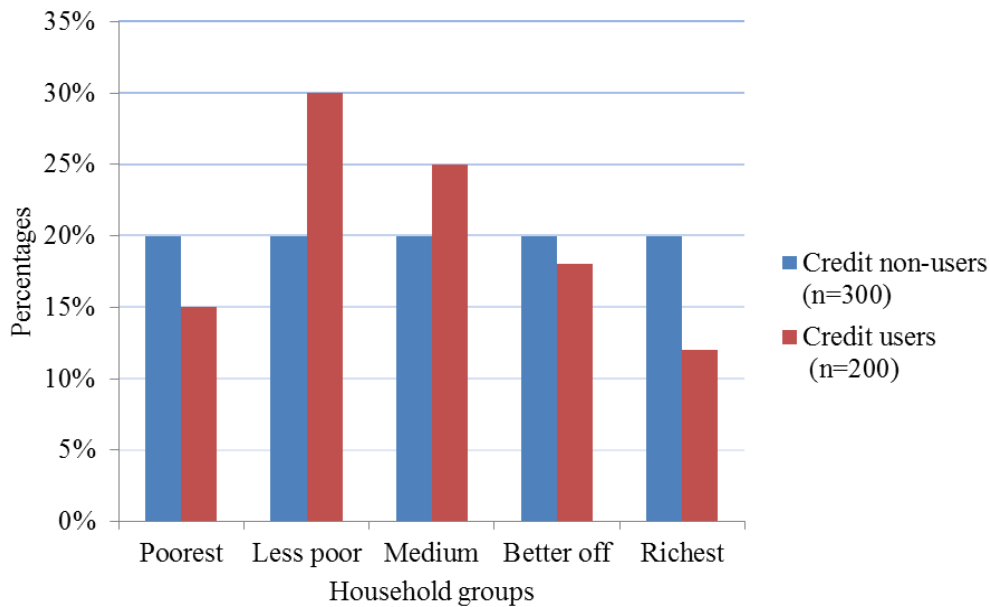

Figure 1: Poverty Outreach of Preferential Credit

Source: own calculations

Conclusion and Outlook

In general, the depth of outreach by preferential credit programs is quite consistent with their missions to serve the poor and the near-poor households. However, the poorest of the poor seem to be still underserved by preferencial credit. The findings carry two important policy implications. Firstly, because the preferential credit programs target the poorer and face the problem of sustainability, so the governmental subsidies could be necessary. Secondly, in order to target the poorest households, loan policies and credit service packages should be redesigned to be accessible by those vulnerable households.

References

CARLA HENRY et al (2003).Microfinance Poverty Assessment Tool, International Food Policy Research Institute, World Bank.

CULL, R., DEMIRGUC-KUNT,A.,&MORDUCH,J.(2011). The effect of regulation on MFI profitability and outreach. World Development, 39(6), 949–965.

GENERAL STATISTICS OFFICE – GSO (2012). Vietnam General Statistic [Online], http://www.gso.gov.vn

MANFRED ZELLER & RICHARD L.MEYER (2002). The Triangle of Microfinance, The John Hopkins University Press Baltimore and London.

MANFRED ZELLER et al (2002). An Operational Tool for Evaluating the Poverty Outreach of Development Policies and Projects, The Triangle of Microfinance, The John Hopkins University Press Baltimore and London.