Discussion Paper No. 01/2005

Outreach of credit institutes and households'

access constraints to formal credit in

Northern Vietnam

Thomas Dufhues and Gertrud Buchenrieder

Department of Agricultural Development Theory
and Policy

Forschung zur Entwicklungsökonomie und -politik

Research in Development Economics and Policy

Centre for Agriculture in the Tropics and Subtropics

**Institute of Agricultural Economics and Social Sciences
in the Tropics and Subtropics**

- **Department of Agricultural Development Theory and Policy (490a)**
- **Department of International Agricultural Trade and Food Security (490b)**
- **Department of Farming and Rural Systems (490c)**
- **Josef G. Knoll-Visiting Professorship for Development Studies**

Table of Contents

List of Tables

List of Figures

Abstract

Most policy and research interest regarding rural credit markets revolves around the perception that poor households in developing countries lack access to credit, which is believed to have negative consequences for household welfare. An important feature of the rural credit market is that access to credit is easier for some groups than for others. The Vietnamese government supplied credit on preferential terms, particularly to rural households, through state-owned financial intermediaries. The share of the informal sector was thus considerably reduced from 78% (1992/93) of all outstanding loans to 54% (1997/98) in favor of the formal sector. However, there is evidence from other developing countries that credit constraints persist despite the expansion of rural finance. Hulme and Mosley (1996) state that there is increasing evidence that the poorest 20% of the population are excluded from rural credit programs. Thus, even in Vietnam the question remains: did the Vietnamese government succeed in reaching the poor, or do groups of people exist who are still access-constrained? Quantitative (N=260) and qualitative data collection took place between March 2000 and 2001. The quantitative data comprise cross-sectional household-level data from two different districts in Northern Vietnam. The poverty outreach of formal rural lenders was analyzed using Principal Component Analysis, while access to formal credit was investigated using a binary logit analysis. The poverty outreach of the formal lenders is quite satisfactory since about 50% of all predominantly poor rural households have access to formal credit. However, the poorest households are seldom clients of formal lenders. Yet, it is not their extreme general poverty that determines their access to formal credit. The results indicate that only certain aspects of poverty, e.g. low quality of housing, have an important influence on access to formal credit in Vietnam. The poorest households simply have much less demand for formal credit. Offering new credit products would only slightly improve the credit coverage of poorer households. More promising would be a specialized pro-poor extension service to widen the scope of their investment ideas and possibilities, combined with general improvement of the infrastructure. All in all, the most appropriate tool to incorporate poorer households into the formal financial system would be mobilization of savings. Nevertheless, the number of access-constrained households is surprisingly low. One reason for the low number is the weakening or eradication of former access constraints. Some access barriers do still exist, e.g. towards ethnic minorities or female-led households. To reduce these access barriers, the actions to be taken should be catering to the specific needs and the circumstances of those households that lack access.

Outreach of credit institutes and households' access constraints to formal credit in Northern Vietnam

Thomas Dufhues, Gertrud Buchenrieder

1   Introduction[1]

Most policy and research interest regarding rural credit markets revolves around the perception that poor households in developing countries lack adequate access to credit, which is believed to have significant negative consequences for various household-level outcomes. During the past 40 years, most developing countries and donors have set up credit programs aiming at improving rural households' access to credit. The vast majority of these programs, especially the so-called 'agricultural development banks', have failed both to achieve their objectives to serve the poor and to be financially sustainable institutions. An important feature of the rural credit market is that access to credit is far easier for some groups than for others. Meanwhile, most rural households in developing countries continue to rely on the informal market for their inter-temporal transfer of resources. Therefore, outreach of the financial institution and access to financial services have become a major issue in microfinance, and particularly in rural finance (Diagne et al. 2000, Sarap 1990).[2]

Formal rural credit is considered by Vietnamese government agencies to be a powerful tool for poverty reduction (Sida-MARD 1998). During the early 1990s, informal credit accounted for almost 80% of total outstanding loans in Vietnam (GSO 1995). The Vietnamese government tried to break the dominance of the informal sector and push development by supplying credit on preferential terms, particularly to rural households. The preferential credit was delivered mainly by state-owned financial intermediaries such as the Vietnam Bank for Agriculture and Rural Development (VBARD), the Vietnam Bank for the Poor (VBP) and the People's Credit Funds (PCFs).[3] In addition, the State Treasury implemented special sector

[2] The performance of financial intermediaries in terms of breadth and depth of poverty outreach is partly a function of a range of internal factors such as the type of services provided, the use of screening methods to identify the poor, the financial scope of the program, and the marketing strategy of the program (Zeller et al. 2003). Although there are more dimensions than depth and breadth of outreach (for a detailed overview see Navajas et al. (2000) and Schreiner (2002)), this research will focus mainly on depth and breadth of outreach. Since society places more weight on the poor than on the rich, poverty is a good proxy for depth (Navajas et al. 2000). The poorer the clients reached by the financial institute, the deeper the outreach (Zeller et al. 2003).
[3] On March 11, 2003, the VBP and the PCFs were replaced by the Vietnam Bank for Social Policies (VBSP) (Vietnam Economy 2003, World Bank 2003).

credit programs, e.g. the 120 Program to promote employment (Dufhues et al. 2004a). Initial signs of success of formal credit outreach were reported by the Vietnamese Living Standard Surveys, which stated that the share of the informal sector had been considerably reduced from 78% (1992/93) of all outstanding loans to 54% (1997/98) in favor to the formal sector (GSO 1995, GSO 2000). There is evidence from other developing countries that credit constraints persist despite the expansion of microfinance. For instance, Amin et al. (2003) find that microfinance institutes (MFIs) in Bangladesh do not really reach those who are credit-constrained. Recent research suggest that, in Vietnam, the success of pro-poor policies will depend on easing structural constraints such as access to credit (Glewwe et al. 2002, Livingstone 2000). However, deeper outreach usually increases not only social value but also social cost. As income and wealth decrease, it becomes more costly to a lender to judge the risk of a loan. This happens because, compared with the rich, the poor are more heterogeneous and less able to signal their ability and willingness to repay (Conning 1999). Moreover, the provision of income-generating credit leads to a bias in favor of the less poor, because they have better opportunities to use the loan profitably (Hulme and Mosley 1996). While modern microcredit programs are definitely more successful at reaching the poor than their predecessors, they are less successful at reaching the vulnerable poor.[4] Hulme and Mosley (1996) state that there is increasing evidence that the poorest 20% of the population are effectively excluded from microcredit programs.

While the Vietnamese government has so far failed to create sustainable rural financial institutions, it has succeeded in providing a huge share of the population with formal credit. However, despite the immense formal outreach, the distribution of formal credit in the northern provinces of Vietnam is very heterogeneous. In some villages, over 90% of households are served by formal credit, while in others just a few or none at all (Dufhues et al. 2002). The question thus remains: did the Vietnamese Government succeed in reaching the poor, or do groups of people still exist who are access-constrained?

The second section describes the conceptual framework, the analytical methods used and the sample composition. Section two starts with a discussion of collateral use in Vietnam and then continues with a description of the effective credit demand of the sample households. The last two chapters of this section discuss the outreach of rural lenders and access to formal

---

[4] Even with the use of group lending schemes, which are believed to have a good poverty outreach, the evidence suggests that the poorest people are excluded (Montgomery 1996).

loans by the households in this sample. The paper concludes with policy recommendations for improving outreach to access-constrained households.

2 Methodology and data

The following section describes the conceptual framework, followed by a description of the methodology used for the data analysis. Finally, the sample composition is presented.

2.1 Access constraints to formal rural credit - the conceptual framework

While the term outreach refers to the perspective of the financial intermediary and access refers to the point of view of the household, they both relate to the same thing: who is getting the credit (Vaessen 2001). Access constraints at the household level are mostly related to a lack of collateral (physical, human and/or social capital).[5] The capital endowment of a household is of enormous importance for the household's access to formal credit and to the outreach of rural lenders. Capital can be classified into three different categories, physical, human and social capital. The term physical capital refers to any non-human, infrastructural, financial, or natural asset needed to support livelihoods. Human capital represents the skills, knowledge, ability to labor and good health of individuals or households. Social capital is defined here according to Coleman (1999), who states that social capital is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of individuals who are within the structure. The characteristics of human and social capital are identified as 'capital' in order to underline the need for continuous investment and to emphasize the importance of these factors in generating future income, particularly for the poor.

Figure 1 shows the different kinds of capital/collateral. Different kinds of capital/collateral can substitute each other, but only to a certain degree. Nevertheless, the capital endowment of a household represents the basis for the collateral used by the lender. Informal lenders, for instance, in the absence of physical collateral, have always used human and social collateral. Formal lenders usually rely on physical collateral that can be easily sold, are not moveable, are of sizeable value, and ideally carry a legal title, such as land and buildings.[6]

---

[5] Access constraints can also be intermediary-based, in other words influenced for example by business policies or staff attitudes, hard and soft skills. A conceptual framework of client-related barriers versus program-related barriers is presented in Evans et al. (1999) and Vaessen (2001). However, this analysis focuses on the household level and rather neglects intermediary-based issues as they are reflected in the households' access constraints.

[6] Physical collateral has several functions, e.g. signaling credit worthiness. However its two main functions are: First, it insures the lenders' loan portfolio in case of default by borrowers. Second, it represents an incentive, enhancing the borrower's willingness to repay his loan (Bester 1987, Stiglitz and Weiss 1981).

3

Figure 1   Conceptual framework - the capital-collateral system
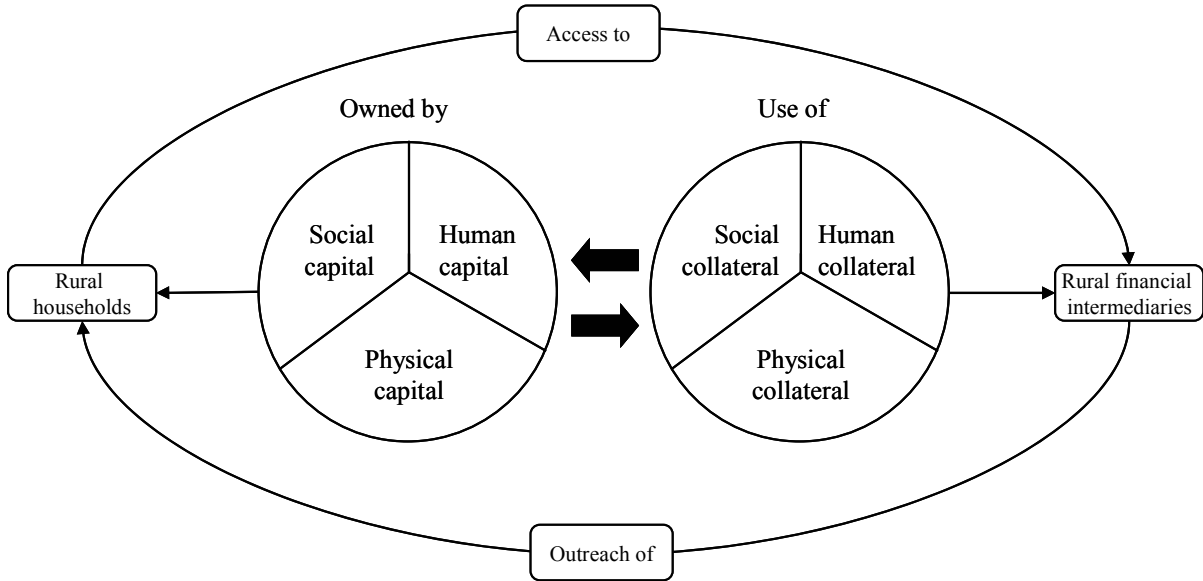
Source: Own figure

Physical capital and collateral: Collateral in the form of physical capital plays a key role in lending practices. It shifts a portion of the potential capital loss from the lender to the borrower (Binswanger and Sillers 1983). Lending institutions typically resort to legal options, such as seizing the property of the borrower or garnishing wages directly from the employer to enforce contracts. Regardless of the actual value of the asset owned by the borrower, the act of pledging assets and the consequent realization that they can be lost causes the client to repay the loan if possible (Ledgerwood 1999). Even if the collateral is almost never collected, this does not signal its lack of importance as an incentive device. If the threat is believable, there should be few instances when collateral is actually collected (Morduch 1999). Nevertheless, in most poor communities, such punishment fails for one of the two reasons: either the legal infrastructure does not support such action, or the borrower has no sizeable assets or wages (Karlan 2001).[7] This is a particular problem of MFIs, which systematically lend to low-income clients who usually have very few marketable assets. Traditional collateral such as property, land/land use certificates, or other capital assets is often not available. Therefore, the absence of physical capital, and thus collateral, has for a long time been seen as the major access constraint of lower-income households.

---

[7] For instance, in socialist economies like China, land is collectively owned, preventing its use as collateral (Park and Ren 2001).

Human capital and collateral: At the household level, human capital is a factor of the amount and quality of available labor, which usually is defined in terms of the health and education levels of individuals. Lack of human capital is seen as an access constraint from the household side, as there is often a need to fill in application forms or draw up small business plans, and this requires a certain amount of human capital (see for instance Panjaitan-Drioadisuryo and Cloud (1999)). Human capital can compensate for a lack of physical collateral. Then, the decision of whether or not to grant the credit is based mainly on the profitability of the investment. However, this practice is still very uncommon among rural lenders. Usually staff lacks the appropriate skills to assess an investment reliably.

Social capital and collateral: The poor seldom have physical collateral to offer. The most common way to deal with this problem is by using social collateral. Here, the borrowers' reputation, or the social (and political) networks to which they belong, replace traditional physical collateral (Bastelaer van 2003, Panjaitan-Drioadisuryo and Cloud 1999). Usually this results in applying credit group schemes with joint liability.[8] Under an individual lending contract, if the borrower defaults, all he has to fear is the penalties the bank can impose, which, in the absence of collateral, simply means the denial of future loans. In group lending, he may also be exposed to the wrath of other group members (Besley and Coate 1995).

Infrastructure: The rural infrastructure influences both access to and outreach of credit equally, and is therefore not depicted in Figure 1. Infrastructure not only refers to the 'hard' infrastructure, like roads, but also to 'soft' infrastructure, such as legal frameworks. For instance, Fabbri and Padula (2003) found in a recent paper that lax legal enforcement increases the probability of poor people being access-constrained to formal credit in Italy.

2.2   Measuring outreach and access: econometric models

Principal Component Analysis (PCA):[9] The breadth of outreach of a microfinance institution is easy to measure (one simply counts the clients), but other dimensions of outreach, particularly poverty outreach, are more difficult to measure (Woller et al. 1999). A poverty assessment tool was developed in the late 1990s by the International Food Policy Research Institute (IFPRI), which uses the PCA as econometric instrument. The objective was to design

---

[8] Despite its popularity, group lending-oriented microfinance is not a panacea for solving all problems of access to financial services for the poor in developing countries. Not only specialized agricultural development banks are prone to the difficulties due to information asymmetries and moral hazard pointed out by institution economics; these problems can also occur in group lending. For a critical view of group lending see, e.g., Heidhues et al. (1997) and Schmidt and Zeitinger (1994).

[9] The next section is based on a review by Häuser et al. (2005).

a tool to assess the poverty level of the clients of a microfinance institution in relation to their non-clients (who represent the general population in its area of operation) to give a reliable assessment of the poverty outreach of the institution (Zeller et al. 2001, Zeller et al. 2005).

The PCA is a multivariate technique and its main objective is to reduce the dimension of the observations (Härdle and Simar 2003). Different correlated variables are aggregated into fewer uncorrelated principal components, which can be seen as indices. With this technique, most of the information contained in the data is represented in the new indices. The analysis can be viewed as a 'data reduction technique', since the set of original m variables is reduced to n principal components (PC), with $n \ll m$. This smaller number of components can then be used for interpretation purposes or for further data analysis. The procedure carried out by the analysis is to calculate new uncorrelated principal components by linear combinations of the original, correlated variables. This is done by deriving (standardized) weights for each indicator. In algebraic terms this means that:

$$PC_1 = w_{11} \, v_1 + w_{12} \, v_2 + \ldots + w_{1m} \, v_m$$
$$PC_2 = w_{21} \, v_1 + w_{22} \, v_2 + \ldots + w_{2m} \, v_m$$
$$PC_m = w_{m1} \, v_1 + w_{m2} \, v_2 + \ldots + w_{mm} \, v_m$$
With: w = calculated weight
$\quad\quad\;\; v$ = variable

Applied to poverty assessment, the PCA determines a subset of indicators that measure the relative poverty level of a household. In the end, a single indicator for each household is created that reflects the household's poverty status in relation to all other households of the sample (Zeller et al. 2005). With the weights of the PC_1 and the respective indicators, the poverty index is calculated for each household. Relative comparisons can then be drawn by ordering the households according to their poverty index. In this way, it is possible to identify which households are better or worse off than others. By creating terciles, quartiles or quintiles using the index, different wealth groups can be derived. The most important advantage of the PCA is that on the one hand it creates a single indicator that is easy to use for analysis, while at the same time this single indicator is not limited to the monetary aspect addressed by household expenditures as the conventional method of (income) poverty. The PCA technique allows to take the multiple dimensions of poverty into account and to integrate qualitative with quantitative variables. Therefore, indicators capturing different dimensions are included that measure changing conditions at different levels of welfare. These indicators can be categorized into three groups (Henry et al. 2003):

1. *Means to achieve welfare*

   This category includes indicators that reflect the earning capacities of a household. They are subdivided into human capital, social capital and ownership of assets.

2. *Basic needs*

   These indicators show the fulfillment of basic needs, such as health status, food, shelter and clothing, partly obtained by questions asking the respondent about his or her self-assessment of the situation.

3. *Other aspects of welfare*

   Security, self-assessment of (subjective) poverty, social status and the environment are captured in this group.[10]

Binary logit analysis: This research collects household-level credit market information to determine whether or not households are constrained as regards access to formal credit. Whether or not a household is access-constrained is depicted in the decision tree of effective credit demand (see Figure 9 in the Annex). Households that had access to formal credit were considered not to be access-constrained regardless of whether or not they originally wanted to borrow more than they were lent. In particular, non-borrowing households were asked their reasons for not borrowing or for having been rejected. Diagne et al. (2000) and Zeller and Sharma (2000) state that households may have chosen not to borrow even when they had access to credit, while others may have wanted to borrow, but had no access. For these reasons, one cannot equate observed demand with access. Finally, the sample households were classified into households with and without access to formal credit.

Regression models describe the relationship between a dependent variable and independent explanatory variables (Backhaus et al. 1996). Ordinary least square regression models consider the dependent variable to be continuous in nature, while the explanatory variables can be either continuous or categorical. But it is not uncommon that a dependent variable is binary in nature, i.e., that it can only have two possible values, one for the occurrence of an event, zero otherwise. In this case, the dependent (binary) variable is one for all households with access to formal credit and zero otherwise. A mixture of continuous and categorical variables may explain this dependent binary variable. Therefore, the econometric model used in this research work is a binary logit regression. In the binary logit regression model, the

---

[10] The adapted list of poverty indicators used in this research work can be found in Figure 10 the Annex.

predicted probabilities for the dependent variable will never be less than (or equal to) zero, or greater than (or equal to) one, regardless of the values of the independent variables.

The explanatory variables for the binary logit model and the hypotheses behind the choice of the explanatory variables are presented in Table 1. Descriptive statistics of these variables can be found in Table 7 in the Annex. As the variables have different units of measurement, the independent variables were standardized using z-transformation to make them comparable. In accordance with the theoretical framework, the variables have been sorted according to their character as indicators for the different forms of capital/collateral (see Section 2.1).

Table 1   Variables for the binary logistic regression model on credit access

Physical capital-related variables

1. Red or Green Books[*] (yes = 1; no = 0)   Red Books or Green Books, certifying a person's use rights to farmland and forests, are often demanded as collateral by rural lenders in Vietnam (Dufhues et al. 2004a). It is assumed that possession of a Red or Green Book will positively influence access to formal credit.

2. Agricultural land (m^2)   Land is an important form of collateral. However, most property rights relating to land have an informal character in developing countries. In the absence of Red Books, Vietnamese farmers can apply to the local People's Committees for special land use certificates. Only 8% of the loans were used wholly or partly for buying land. Hence, the endogeneity of the variable is negligible.

3. Value of houses (VND)   Houses can be used as formal collateral with a max. value of five million VND. Thus, this variable is assumed to positively influence access to credit. Only 4% of the loans were invested complete or partly into constructing houses. Hence, the endogeneity of the variable is negligible.

4. Government salary (yes = 1; no = 0)   Government salaries can serve as collateral (Dufhues et al. 2004a) and may therefore improve access to credit. Furthermore, government work in particular allows individuals to enhance their social network, helping them to stay informed about economic developments and new laws or policies (Alther et al. 2002, Dufhues et al. 2002), which may also facilitate access to credit.

5. Cash savings (VND)   In theory, savings can be used as collateral, too. However, nearly 100% of the savings in this survey are informal and cannot therefore easily be seized by a formal lender. Nevertheless, savings are the basis for accumulating physical capital and are therefore a good indicator of possession of physical capital. In addition, they are a good indicator for the repayment capacity of households and are therefore assumed to have a positive influence on access to credit.

Human capital-related variables

6. School years of HH head (years)   Better education is assumed to improve access to credit as loan application procedures demand a certain degree of formal education. Moreover, it is reasonable to expect that better educated households perform better in their investment activities. This was also shown in a recent paper by van de Walle (2003), who found that marginal benefit of irrigation increased strongly with the education of the household. Thus, better educated households are usually perceived as more creditworthy.

7. Vietnamese communication skills of the married couple (yes = 1; no = 0)   Vietnamese is the official language and used for the credit application procedure. The household head and his wife have to sign the credit contract. Therefore, it is assumed that households in which one of the two lacks the necessary language skills are more often access-constrained (in the event of only husband or wife existing in the household, his/her language capability is taken into account).

8.	Receiving agricultural extension service (yes = 1; no = 0)	Households who receive agricultural extension services are likely to gain better access to improved knowledge and are thus able to increase their human capital. But at the same time, households who do not receive agricultural extension are likely to have fallen through the village information network and are assumed to have a low social capital base.
9.	Active HH members (number)	Household members between 15 and 60 years for male members and 15 and 55 for female persons were counted as one workforce. These age lines represent the official retirement age in Vietnam. This indicator evaluates the labor capacity of the household and indicates human capital in the sense of labor force. Each investment activity demands additional labor. Households with a lower labor supply are assumed to have less access to formal credit.
10.	Share of non-farm activities in total yearly income (%)	A high share of non-farm activity in total income may indicate a shift from traditional farm activities towards more innovative non-farm investments. It also includes households with employment at government agencies, which demands a certain level of education and entrepreneurial skill. Therefore, it is assumed that households with a higher share of non-farm income also have a higher level of human capital. Income from day labor is excluded, as this does not require any human capital except for the labor itself.
11.	Lost working days due to illness (days/year/HH)	The number of lost working days per year within a household due to illness is a good indicator of the quality of human capital. The larger the number, the lower the human capital. It is assumed that households with a weaker human capital base are more often access-constrained.

Social capital-related variables

12.	Giving help (days/year/HH)	Receiving and giving help to friends and relatives is seen as an important indicator of social activity and of being a member of a social network, and thus of social capital, and this will positively influence the probability of having access to credit as households are better protected against income shocks.
13.	Receiving help (days/year/HH)	
14.	Interest-free informal credit (VND)	Small interest-free informal loans are not a substitute for formal loans (Section 3.2). Thus, borrowing from informal sources is usually not the result of an access constraint to the formal financial market. Possession of an informal interest-free loan is a good indicator of a functioning informal social network. However, it is also seen as a mechanism for coping with sudden shocks and it suggests that the household may have a lower repaying capacity and a low physical capital endowment. Thus, the *a priori* sign of the coefficient is ambiguous.
15.	Thai/Tay village (yes = 1; no = 0)	Considered them from a national point of view, the Thai and Tay ethnic groups are ethnic minorities. However, in the two research regions, Ba Be and Yen Chau district, the Tay and Thai are the ethnic majority. For instance, official positions in Ba Be are usually occupied by members of Tay ethnicity (Dufhues et al. 2002). Belonging to one of these ethnicities is seen as important social capital. Besides, anecdotal evidence suggests that there exists a constraining hierarchy among the ethnic groups in Northern Vietnam. For example in Ba Be, Tay and Kinh are the leading ethnic groups, followed by the Nung, Dao, or Hmong (Alther et al. 2002, Castella et al. 2002). Villages in the research region are of high ethnic homogeneity (see Table 2). Ethnic Thai or Tay usually dwell in valley positions or at medium-high altitudes with very similar agricultural production systems. Households not belonging to the regional ethnic majority but dwelling in a village mainly populated by them are also assumed to profit from this location. Therefore, household observations within a Tay/Thai village are not necessarily independent. However, significant differences can be expected between Tay/Thai villages and villages of other ethnic groups that are not captured by our data (e.g. different production systems). Therefore, households are grouped by Tay/Thai village to account for those differences. It is assumed that households dwelling in a Thai or Tay village are more privileged and therefore have better access to credit. Village fixed effects which are related to natural conditions (e.g. climate) are not viewed as relevant for access to credit in Northern Vietnam. An attempt is made to control for socio-economic village fixed effects, e.g. market access, by different variables, such as number of market visits.

16. Only female HH members going to the market (yes = 1; no = 0)	Who goes to the market is regarded as important factor for gaining access to certain social networks and for gathering essential credit information. Particularly when only women go to the market, the household as a whole may be excluded from important information. But this might also be an indicator of a weak human capital base, as the male household head could be dead, have left the family, or be physically or mentally incapable of going to the market. Hence, it is assumed that when only female household members go to the market, the chance of being access-constrained is higher.
17. Age of the household (years)	This variable can go in two directions. On the one hand, it may be that the older the household, the wider and stronger the social network of the household members and thus, the greater its political influence and its ability to gather credit-relevant information. On the other hand, however, younger households may be better educated or more dynamic. Thus, the *a priori* sign of the coefficient is ambiguous.

Infrastructure-related variables

18. Remoteness (km)	This variable measures the distance in kilometers of rural households from the district center where formal bank branches are located. Hung and Giap (1999) state that the distance to the nearest bank branch strongly influences access.
19. Market visits per month (numbers)	The frequency of market visits by household members is assumed to be an indicator of high social activity. Frequent market visits may also increase the chance of receiving essential credit information, e.g. on the availability of loans (Dufhues et al. 2002). The frequency of market visits of course also depends on the infrastructure connection and the remoteness of the household's dwelling.
20. Different markets visited (numbers)	The number of different markets visited is an indicator of the breadth of a household's information networks. It is assumed that the broader the network, the more relevant information is available to the household for receiving a credit. The number of markets visited also depends on the infrastructure connection and the remoteness of the household's dwelling.

Poverty-related variables[**]

21. Poverty index	Anecdotal evidence suggests that even credits that are targeted at the poor seem to be bypassing the poorest groups (Neefjes 2001, World Bank and DFID 1999). Thus, poorer households are assumed to have less access to formal loans.
22. Supply of day labor (yes = 1; no = 0)	Poor agricultural laborers and other day-laborer (for instance in road construction) are assumed to be more often access-constrained due to their low social standing (Fallavier 1994). Nevertheless, this may be also an indicator of lack of agricultural land and thus of physical capital.
23. Receiving aid from government (yes = 1; no = 0)	Only very poor or very vulnerable households receive food/equipment aid from the government. It is thus assumed that these households have less access to formal credit. However, anecdotal evidence suggests that it is not always the people with the greatest need who receive the help, but those who also have good contacts with village authorities, pointing to a certain degree of social capital, so the *a priori* sign of the coefficient is ambiguous.

Note: *Land is owned by the state in Vietnam. Nevertheless, the government allocates land use certificates to farm households, the so-called 'Red Books' for agricultural land (valid for 20 years) and, 'Green Books' (valid for 30-50 years) for forest land. Farmers are allowed to sell or rent land use certificates, or pass them on to children (Luibrand 2002).

**Poverty usually refers to a lack of human, social, and physical capital. Therefore, some variables that indicate a lack of a mixture of the different forms of capital partly capture the influence of poverty on access to formal credit.

HH = household

2.3   Regional focus and sampling procedures

Data collection took place from March 2001 to March 2002. Detailed financial market data were collected at the household level, including information on household, farm, and business activities, assets, savings and borrowing transactions with both formal and informal sources,

and households' perceptions of their formal sector borrowing opportunities. The survey also documented household consumption and labor market participation.

Two research sites were selected, namely Bac Kan province (Ba Be district) and Son La province (Yen Chau district). Both provinces are located in the mountainous regions of Northern Vietnam and are among the poorest provinces of the country (World Bank 1999). Ba Be district is a very remote area and has only recently (in 1999/2000) gained access to regional and interregional markets. Farmers produce mainly for subsistence and a large proportion of them may be considered poor. Due to the creation of the Ba Be National Park (close to Ba Be town), huge resettlements took place, aggravating the socio-economic problems in the region. The Yen Chau district has a much better connection to regional markets (Son La town) and even to greater Hanoi, and therefore offers a good contrast to the situation in Ba Be district.

Table 2   Research areas and sample composition

Province and district	Commune	Village	Main ethnic minority	Number of households per village	Selected households	
					Number	%
Province Ba Kan, district Ba Be	Dia Linh	Pac Nghe 1	Tay (97%)	76	36	47
	Nghien Loan	Khau Nen	Nung (89%)	36	19	53
	Xuan La	Thom Meo	Tay (93%)	84	43	51
		Khuoi Khi	Dao (100%)	40	20	50
Province Son La, district Yen Chau	Sap Vat	Sai	Thai (85%)	80	42	53
		Na Pa	Thai (100%)	64	33	52
		Dong	Thai (100%)	48	25	52
	Chieng Hac	Bo Kieng	Hmong (100%)	20	13	65
	Chieng Pan	Than	Kho Mu (100%)	38	20	53
		Tat Heo	Thai (100%)	16	9	56
			Interviewed households in total:		260	

Source: Own data

The communes and villages were stratified in accordance with pre-defined selection criteria to ensure a good degree of variance in the sample. These criteria are:

- being located at different altitudes (valley, middle slope and top position), to obtain different stages of market access, ecological zones and ethnic minorities,
- being engaged in different phases of the land allocation process (land allocation completed or not completed, percentage of households with land use certificates), and
- having different shares of households with non-farm activities.

An overview of the sample in both regions is given in Table 2. Half of all households in each village were randomly selected after being stratified according to their living standard into five categories using official poverty data from the village headmen.[11]

3   Outreach of and access to formal rural lenders in Vietnam

The following section first discusses the general use of collateral by formal lenders in Northern Vietnam. The situation as regards effective credit demand is then presented in Section 3.2, followed by the outreach of rural lenders (Section 3.3) and econometric analysis of access-constrained households (Section 3.4).

3.1   Collateral use

The main collateral demanded by lenders in Vietnam is physical collateral in the form of land use certificates (Red and Green Books). Social collateral in the form of references is also a widespread requirement, particularly in Northern Vietnam, and both forms are often intermingled.[12]

In Vietnam, lenders face enormous difficulty in enforcing pledges and mortgages (Riedel 2000, UNDP 1999). Banks are not usually allowed to seize land from defaulting farmers, even if the use rights have been pledged. It is more or less impossible to evict farmers and auction their land because of the lack of legal infrastructure and resistance from local authorities (Wolz 1997). Only a few cases exist where land has been liquidated in the event of a farmer's collapse (Duong and Izumida 2002). It appears that the underdeveloped legal framework does not prove effective for the use of physical collateral as a risk management tool (Gottwald and Klump 1999). Nevertheless, the VBARD still insists on land use certificates as collateral and relies mainly on the psychological pressure related to the possibility of losing land.[13] As the liquidation of collateral is almost impossible in practice (although this may not be known to the farmers), rescheduling of the loan is often the only possibility for the credit officer to avoid designating a loan as overdue, not performing, or lost. Therefore, rescheduling of loans in VBARD/VBP is extremely high (Izumida and Duong 2001, VBARD and Danida 1999). According to Binswanger and Sillers (1983), farmers, and

---

[11] The Vietnamese government classifies every household once a year according to its living standard into one of five categories: hungry, poor, medium, better-off, and rich (Dufhues et al. (2002) and Geppert and Dufhues (2003)).

[12] A detailed description of the use of different kinds of physical collateral in the credit procedures of rural lenders in Vietnam can be found in Dufhues et al. (2004a).

[13] In contrast to VBARD practice, the government and VBARD headquarters state that households can take out loans of less than ten million VND without any collateral (see VBARD (2001)).

particularly poor farmers, in developing countries are almost universally risk-averse and often reluctant to put their assets at stake as collateral for a loan. However, as Dufhues et al. (2004a) found, even poor farmers in Northern Vietnam are not afraid to pledge their land use certificates as collateral. They may be convinced that their investment will not fail or, more likely, they believe that the bank will not seize the land even if they have difficulty repaying their loan.

Officially, the VBP uses solely group lending schemes with joint liability for delivering its loans (VBP 1999).[14] Anecdotal evidence, however, revealed that in some cases of so-called 'hungry' households, which are officially excluded from access to VBP loans as they are considered too poor, the credit officers insist on collateral in the form of land use certificates, too. In this sample, over 25% of all VBP credits (N=94) were secured by physical collateral in various forms. The so-called joint liability credit groups are not working effectively, as some of the regulations enforced by the VBP seem to neutralize the peer pressure that is important for good credit repayment records. In everyday practice, the group members are not held liable for each other; the person who fails to repay the loan is simply expelled from the group and no negative consequences are imposed on the other group members. As joint liability does not work in the case of VBP, and physical collateral fails to achieve its intended purpose in the case of VBARD, both require guarantees from local authorities in the form of 'certificates of good conduct' and they rely on an extensive network of non-bank local officials, who support the banks in screening, monitoring, and enforcing the loans (Dufhues et al. 2002). However, supervision of these structures can be difficult. For instance, Todd (1996) reported that when a loan officer who was at the same time president of the local political committee resigned, 100 borrowers defaulted as a result. Thus, the delegated task of putting pressure on borrowers does not always work, as the substitution of physical collateral by social collateral leads to a delegation problem in which the lender must concern itself with whether or not the third party charged with imposing social sanctions will actually carry out this task (Bond and Rai 2002).

In summary, physical collateral works solely through the psychological pressure it exerts. The social collateral of joint liability groups does not work at all. The only form of collateral that seems to work is social collateral in the form of pressure exerted by local authorities and in the form of denial of future credit in the event of default. However, it remains questionable

how long this pressure can be maintained. Anecdotal evidence from the World Bank (2003, 2004b) suggests that in poor communes 70% of households default in their installment payments to VBSP, while around 30% default in their payments to VBARD.

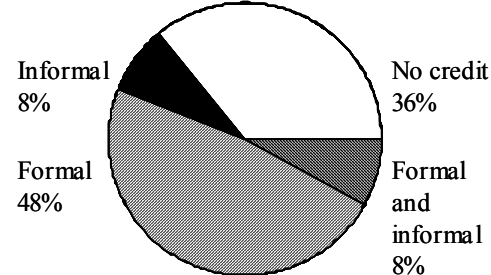## 3.2   Effective formal credit demand[15]

In total, 56% of all households in the sample (total N=251) have had an effective demand for formal credit (Figure 2). This clearly demonstrates the enormous breadth of outreach of the formal financial sector in Vietnam. Only a mere 16% of households are involved in the informal market and 23% of the total loans in this sample are borrowed in the informal sector. Duong and Izumida (2002) found that in their survey an even lower number, namely 17% of all loans, were extended by informal sources, and the World Bank (2003) states that the majority of households have access to formal credit in one way or another. These figures stand in contrast to the observations made in many other developing countries, where the informal sector is still the biggest supplier of financial services. As one important factor for the reduction of the informal sector from about 80% in the early 1990s to around 20% today, McCarty (2001) mentioned 'crowding out' by the VBARD and VBP, both of which have extended their outreach enormously in recent years. Nevertheless, the VBP has done this at the cost of financial sustainability. On the one hand, crowding out moneylenders who charge usury interest rates is a very welcome effect. However, not all moneylenders charge usury interest rates. So, crowding out the informal sector can have very negative effects by destroying informal financial networks without replacing them with a sustainable formal alternative. In Vietnam these informal structures have been replaced by formal ones, but the questions remains: are they sustainable in the long run? The VBP was recently replaced by the VBSP, which will continue the policy of the VBP. It is just a matter of time when the VBSP will become unsustainable, as its interest policy cannot cover its costs. Diagne et al. (2000) state that policies and financial institutions should be designed to complement the informal market rather then to replace it.

Over 40% of households are not engaged in the formal financial sector. Zeller and Sharma (1998) state that some rural households simply do not apply for a loan because of the expectation that they will be turned down. This statement was supported by the work of Buchenrieder and Theesfeld (2001) in a similar research setting in Northern Vietnam. The

---

[14] The VBSP, the successor of the VBP, will continue to provide physical collateral-free loans to certain target groups (Vietnam Economy 2003).

14

empirical results of their research showed that a lack of bankability from the perspective of the clients exists. This may foster the assumption that there is still a need to extend the credit outreach of the formal financial sector still further. Looking at Figure 3, it becomes evident that this figure must be reassessed. A mere 16% of the households in the sample are access-constrained. When farmers were asked directly why they do not borrow in the formal sector, three answers were given most frequently: 1. afraid of debt; 2. have no collateral; 3. lack of knowledge. While 'lack of knowledge' clearly refers to a lack of human capital and 'no collateral' to a lack of physical capital, 'afraid of debts' refers to a mixture of human, physical, and social capital, namely a deficit in the risk-bearing capacity of a household.

Figure 2	**Percentage of households using different credit sectors**	Figure 3	**Access-constrained households (formal financial sector)**

Source: Own figure
Note: N=251
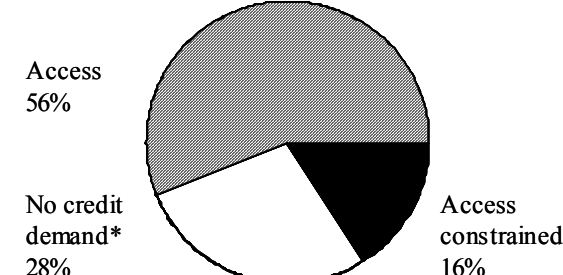
Source: Own figure
Note: N=251
*Households with no credit demand but access to the formal financial sector.

The great success of formal credit outreach in Vietnam is clearly due to credit-delivering technologies that reach out far into the rural area, e.g. offering group loans at the local level, but also due to the strong promotion of credit by the government. Finally, the very low interest rates, which are highly subsidized, are increasing effective demand and thus outreach.

Figure 4, Figure 5, and Figure 6 show that the market segments of the informal and formal credit markets are clearly separated in terms of interest rate, loan term, and loan amount. The informal market is separated into two different segments, first a 'no interest rate' segment and second a 'high interest rate' segment.[16] Within the first segment, small amounts of money are

---

[15] Formal credit is defined as credit from the formal and semi-formal financial institutes, VBARD, VBP, and the State Treasury. However, as the State Treasury disbursed only few credits, it is excluded in the later analysis.

[16] However, some households are paying an interest rate in the informal sector that exactly matches the formal rate. Usually these households have a close friend or a relative who borrowed in the formal sector and passed on part of the loan to a friend, who is then charged the formal interest rate.

lent out to family members or friends at zero interest. These credits are usually used for consumption and are one method of coping with emergencies or an unexpected shortage of cash. The second segment is served by traditional moneylenders. They charge interest rates clearly above the rates of the formal sector (about three to four times as much). While loans from the moneylender are usually very short-term, loans from family members or friends are either short-term or open-ended. Households using moneylenders have either fallen through the informal safety net or they have to borrow more than their social network can provide, e.g. in the event of expensive surgery needed by a family member. The biggest share of formal loans is usually used for investment or productive purposes.[17]

Figure 4   Interest rates per month of formal and informal credits

Black bars:
Informal credits (N = 44)

Crosshatched bars:
Formal credits (N = 144)
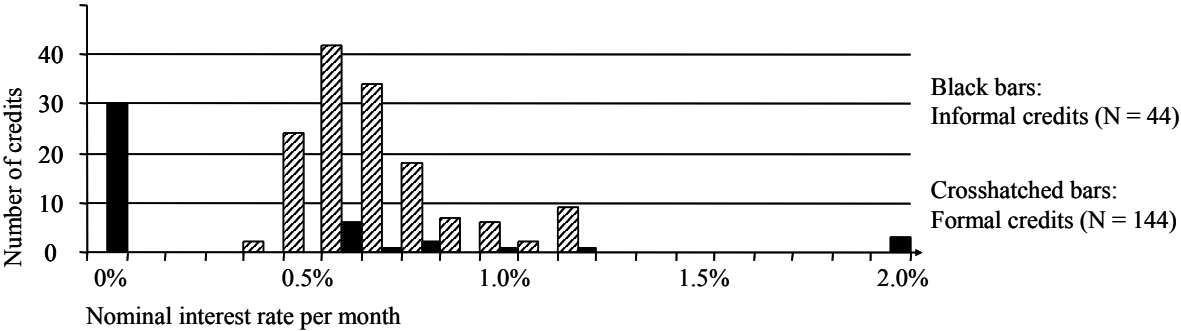
Source: Own figure

Figure 5   Formal and informal credit terms

Black bars:
Informal credits (N = 44)

Crosshatched bars:
Formal credits (N = 144)
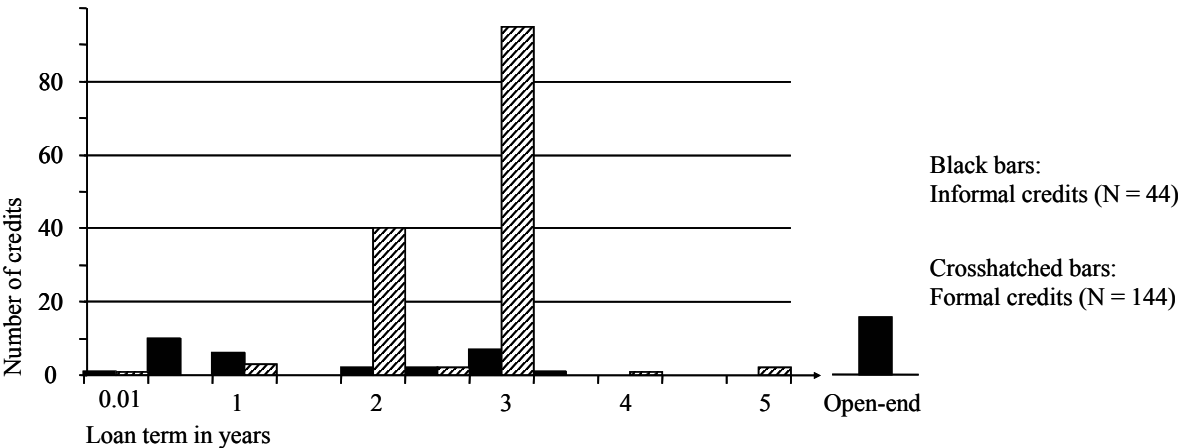
Source: Own figure

---

[17] After financial reforms at the beginning of the nineties, the real interest rate became positive in 1992 (Senanayake and Ho 2001). Since then, however, the real interest rates have been gradually fallen (Dufhues et al. 2004a).

16

Formal and informal credits are imperfect substitutes for each other. In particular, formal credit reduces, but does not completely eliminate, informal borrowing (Diagne 1999). Neither of the informal segments, the 'no interest' or the 'high interest' segment, can be reached by traditional credit products, and it would be probably a drain of public recourses if the Vietnamese government tried to do so. But the two segments could probably be reached by financial products other than credit. For instance, the lower segment could be served by client-adapted savings products, and the moneylender segment by a functioning social security system.

Figure 6   Loan size of formal and informal credits in VND millions
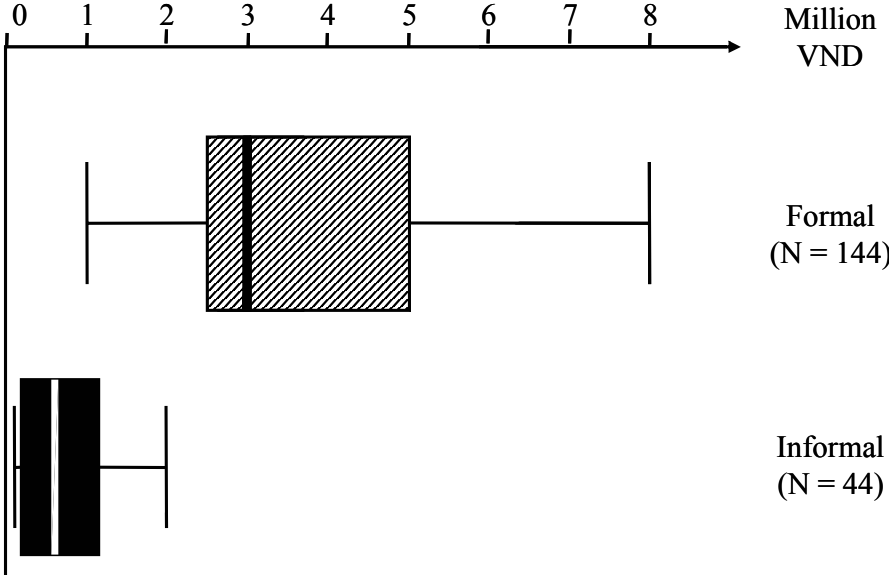
Source: Own figure
Note: 1 million VND = 70 US$ at time of survey (average conversion rate)

3.3   Credit outreach

The poverty outreach of the formal lenders is analyzed using a poverty index calculated with the PCA. Households that have no effective credit demand in the formal financial sector are the reference group. These households were first ranked according to their poverty index and then sorted into five groups of equal size. The lowest quintile incorporates the poorest households and the upper quintile embraces the better-off families. When assessing the poverty outreach of microfinance institutes at the household level, only new clients should be included in the analysis in order to rule out any impact that could have occurred due to the

financial services obtained from the lender and that could have led to a change in the poverty status of the client (Matin et al. 1999).[18]

When looking at new clients of the formal financial sector, it is clear that better-off households are over-represented and that the poor and poorest households are under-represented (Table 3). Nevertheless, clients are considered, only the poorest group is under-represented. This might indicate a shift by formal lenders towards the better-off households.[19] Of course this is a rather naïve comparison, as any impact of the program is neglected. But assuming that there is no impact, the comparison would hold, and if a positive impact is assumed, the gap would in fact widen. Only in the case of a negative impact would the gap decrease. Discussions with farmers did not reveal any wide-scale negative credit impacts. Thus, the last option is unlikely to be realistic. Hence, it is likely that there is a shift towards the better-off clientele. Whether this shift is actively influenced by formal lenders, or rather passively, as all creditworthy poor households are already clients, remains unanswered.

Table 3   Depth of outreach of formal lender clients

	← increasingly poor/increasingly rich →				
	Group 1	Group 2	Group 3	Group 4	Group 5
No clients, reference group (N=111)	20%	20%	20%	20%	21%**
Effective access (new clients) (N=40)	0%	13%	28%	40%	20%
Effective access (all)* (N=140)	5%	24%	22%	26%	23%
VBP clients (N=94)	4%	30%	23%	27%	16%
VBARD clients (N=35)	6%	9%	26%	23%	37%

Source: Own data
Note: *Including VBP, VBARD, and State Treasury clients.
             **Because of rounding, the figures may not add up to 100%.

When looking at Table 4, it is clear that the poorest group (namely group 1) is clearly less often served by formal credit than the other groups. Only 24% of the households belonging to the poorest group have a formal loan. Surprisingly, the other poverty groups are more or less equally served. The VBP uses a targeting system which focuses on the poor but excludes the poorest, and the VBARD focuses on non-poor households (Dufhues et al. 2002). However, if the poorest have collateral in the form of land use certificates they can usually access credits

---

[18] Henry et al. (2003) suggest using only clients who received a loan within the past three months. However, most of the loans in this sample are invested in livestock production – mainly pigs, cattle or buffaloes (Dufhues et al. 2004b). Initial profits are not expected within the first six to seven months. Thus, it is safe to consider clients who received a loan within the last seven months as unbiased by poverty impacts of the loan. These households are grouped in Table 3 as 'new clients'.

from the VBP and VBARD (see Section 3.1). Nevertheless, the poorest households in this survey seem to have difficulty accessing formal bank loans in comparison to wealthier households, which corresponds to international experience (see Section 1). On the one hand, as stated by MOLISA and UNDP (2004), bank staff and local authorities fear that the poorest will fail to pay back their loans. On the other hand, many of the poorest households may simply not demand the credit products on offer. The most realistic scenario is probably a mixture of low creditworthiness and low demand, a scenario also supported by research in other developing countries. For instance, Navajas et al. (2000) state that in Bolivia the poorest households are less likely to be assessed as creditworthy and/or to demand loans of the type offered by the industry.

Table 4 Outreach of formal credit by poverty group

	← increasingly poor/increasingly rich →				
	Group 1 (N=29)	Group 2 (N=56)	Group 3 (N=53)	Group 4 (N=58)	Group 5 (N=55)
Households with access per group	24%	61%	58%	62%	58%

Source: Own data

The two banks, the VBP and VBARD, serve clearly under-proportionately the poorest group of the sample population (Table 3). This finding is also confirmed by Izumida (2003), who states that the so-called 'hungry' households have rarely been reached by the VBP. However, in line with their different target groups, both have a different depth of poverty outreach. If one considers the two lower quintiles as fairly poor and the three upper quintiles as fairly rich, then almost 40% of all poor households in the sample were reached with credit by the VPB. This is also confirmed by the World Bank (2004a), which states that the VBP has been fairly successful in reaching the poor. Fairly may be interpreted as a noticeable outreach to the poor, although it is still an under-proportionate outreach. However, the aim of being a 'Bank for the Poor' is obviously not being achieved, as two-thirds of the VBP's clients in this sample are not considered poor.[20] Another way of measuring depth of outreach is the loan amount and loan term. Smaller amounts or shorter loan terms usually mean greater depth (Charitonenko et al. 2004, Schreiner 2002). Considering only the loan term, one might think that the VBARD

---

[19] Almost three-quarters of the new loans were made by the VBP. Thus, a targeting bias through VBARD, which focuses more on the better-off clientele, can be excluded.
[20] Official data on this issue are much more optimistic. For instance MOLISA and UNDP (2004) state that three-quarters of the subsidized loans are delivered to poor households.

has deeper outreach, with an average loan term of 2.5 years compared to 2.9 years in the case of the VBP. Nevertheless, there are two facts that contradict this. First, the interest rate is higher in the case of VBARD loans. As a result, farmers probably try to keep the loan term as short as possible, and second, the loan terms are more negotiable in the case of VBARD loans (Figure 7 and Figure 8). The VBP loans are 'one-size-fits-all' loans. Furthermore, VBP loans are clearly smaller than VBARD loans, suggesting that VBP has a higher depth of outreach than VBARD. The average loan amount of a VBP loan is 2.8 million VND (177 US$) per credit group member compared to 6.6 million VND (420 US$) from VBARD. Nevertheless, Christen et al. (1995) point out that scale determines whether significant outreach to the poor can be achieved. The VBP not only has greater depth of outreach, but also greater breadth. Two-thirds of all loans in this sample are disbursed by the VBP and only one-quarter by the VBARD.[21] Thus, considering only Northern Vietnam, the VBP reaches deeper into the poorer part of the population than the VBARD.

Figure 7	Loan term of formal credits in years	Figure 8	Loan amount of formal credits
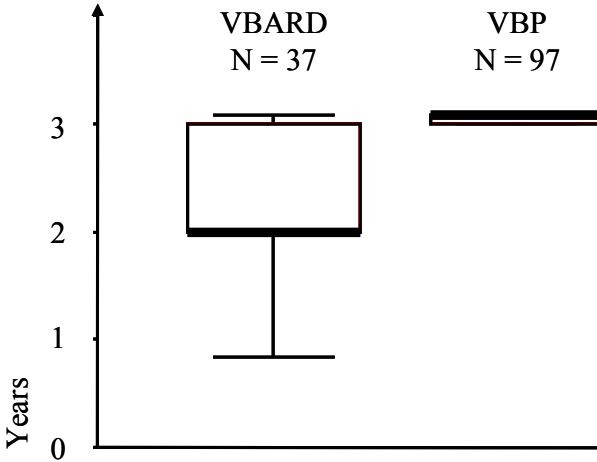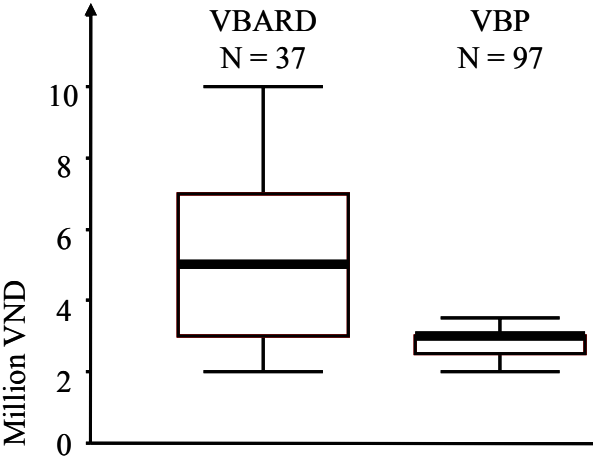
Note: Own figure

Note: Own figure

3.4   Credit-constrained households

Of the 260 households interviewed, nine households were dropped prior to the analysis and eleven were excluded during the analysis due to missing values. Thus, the parameters are estimated on the basis of 240 households. A binary logit model is used, where the dependent variable is one for all households with access to formal credit and zero otherwise. The

---

[21] However, when considering national data the VBARD has a much bigger breadth of outreach then the VBP.

dependent variable is derived following the decision tree in the annex Figure 9. The list of regressors is presented in the earlier section (see Table 1 in section 2.2). From 23 potentially influential parameters, eight variables have a significant influence in the model presented. These variables are displayed in Table 5. The model predicted 92% of all observations correctly (Table 6). In the group of access-constrained households, the percentage of correctly predicted cases was good, at 71%; it was very good, at 96%, in the group of households with access to the formal financial market. The overall fit of the model is satisfactory, with a Nagelkerke R^2 of 0.619. The correlation tables showed no problems due to multicollinearity between independent variables.

Table 5   Parameters influencing households' access to formal credit - binary logit estimation

		Standard error	Significance	Exp(B) odds ratio
Physical capital-related variables				
1. Red or Green Books	(yes = 1; no = 0)	0.229	0.049	1.570
2. Agricultural land	(m^2)	0.506	0.247	1.798
3. Value of houses	(VND)	1.119	0.051	8.919
4. Government salary	(yes = 1; no = 0)	0.390	0.438	0.739
5. Cash savings	(VND)	1.720	0.686	2.005
Human capital-related variables				
6. School years of HH head	(years)	0.415	0.419	1.399
7. Vietnamese communication skills of the married couple	(yes = 1; no = 0)	0.824	0.954	1.048
8. Receiving agricultural extension	(yes = 1; no = 0)	0.284	0.230	1.407
9. Active household members	(numbers)	0.310	0.321	0.735
10. Share of non-farm activities in total yearly income	(yes = 1; no = 0)	0.354	0.623	0.840
11. Lost working days	(days/year/HH)	0.482	0.823	0.898
Social capital-related variables				
12. Giving help	(days/year/HH)	0.348	0.703	1.142
13. Receiving help	(days/year/HH)	0.261	0.023	0.553
14. Interest-free informal credit	(VND)	0.597	0.100	0.374
15. Thai/Tay village	(yes = 1; no = 0)	0.770	0.004	9.007
16. Market visits only by females	(yes = 1; no = 0)	0.304	0.018	0.488
17. Age of the household	(years)	0.287	0.622	0.868
Infrastructure-related variables				
18. Remoteness	(km)	0.393	0.006	2.916
19. Market visits per month	(numbers)	0.868	0.041	5.897
20. Different market visited	(numbers)	0.416	0.233	1.642
Poverty-related variables				
21. Poverty index	(index)	0.462	0.553	1.315
22. Day labor	(yes = 1; no = 0)	0.331	0.353	0.735
23. Receiving aid form government	(yes = 1; no = 0)	0.239	0.858	0.958
Chi-square	107.309			
Nagelkerke R Square	0.619			
Observations in model	240			

Source: Own data

Note: Variables over a significance level of 0.1 are considered to be not significant.

Table 6   Classification of correctly predicted access to formal credit-constrained households

	Predicted		Percent correct
Observed	0	1	
0	27	11	71.1
1	8	194	96.0
Overall percent correctly predicted			92.1

Source: Own data
Note: The categories of the dependent variable are: 0 = No access to formal credit; 1 = Access to formal credit.

Physical capital: In contrast to other countries, lack of physical capital in the form of farmland is not a significant access constraint.[22] However, the possession of land use certificates is significant, but the influence is the lowest of all significant variables. In the 1990s, one of the most important access constraints to formal rural credit in Vietnam was the lack of physical collateral in form of land use certificates (Hung and Giap 1999). Today, land use certificates seem to have lost most of this influence. The ongoing dissemination of 'Red/Green Books' in recent years has brought an increasing number of households into possession of assets that are useable as collateral, and this has broadened the possible outreach dramatically (Dufhues et al. 2004a, McCarty 2001).[23] Moreover, the main supplier of formal loans in the research area is the VBP, which tries to rely totally on social collateral (section 3.1 and 3.3). This explains the fact that possession of land use certificates appears to have little influence on access to formal credit. Nevertheless, households without certificates may still have difficulties in accessing formal loans, particularly from the VBARD.[24]

A high-value home has much greater influence on the likelihood of obtaining access to formal credit than land use certificates. Housing is probably used as a visible indicator of the general wealth of the household and can easily be assessed by local officials or credit officers. Furthermore, houses can be used as formal collateral.[25] This may explain the considerable influence of the value of housing on the likelihood of obtaining access to formal credit. The visible wealth of a household seems to be very important for its access to credit.[26]

---

[22] For instance, Sarap (1990) found that the smaller size of land holdings in India has an adverse effect on the access of small farmers to formal credit institutions.

[23] In this sample, 89% of the households have a Red Book and/or a Green Book.

[24] Lack of collateral was also mentioned by access-constrained households as a reason for self-exclusion.

[25] However, in this sample only one case was found where the house was used as collateral for a VBARD loan.

[26] The housing status of a household must not be equated with its poverty status. Geppert and Dufhues (2003) and Simanowitz (2000) stated that the appearance of housing is an insufficient indicator for poverty, for instance housing could be completely debt-financed.

Human capital: None of the human capital-related variables is significant. Particularly surprising is the fact that the variable 'school years of HH-head' is not significant, as research from other developing countries, e.g. Evans et al. (1999), Sarap (1990), and Vaessen (2001), support the opposite notion. Moreover, illiteracy levels in Vietnam remain high among the poor ethnic minorities, and in more remote parts of the country, especially in the northern mountains (Bhushan et al. 2001). This may indicate that the formal credit application process is not in itself a market entry barrier any more to poorly educated customers. Group credits from the VBP have probably eradicated this access constraint. Within the group credit scheme, only the credit group leader who submits the credit proposal needs a certain degree of literacy (Dufhues et al. 2002). Furthermore, investments are not usually very innovative and revolve mostly around conventional enterprises in animal production. Thus, a high amount of human capital does not seem necessary to carry out those investments.

Social capital: Dwelling in a Thai/Tay village has the highest influence on the likelihood of having access to formal credit. As mentioned above, from a national point of view Tay and Thai are ethnic minorities. However, in the two research areas these minorities represent the majority and occupy many key positions in the local administration, including the district bank branches. It is not surprising, therefore, that inhabitants of non-Thai/Tay villages have a significantly higher chance of being access-constrained then the ethnic majority in Ba Be and Yen Chau respectively. However, privileged access to credit may be related not only to ethnicity, but also to the fact that the predominant farming system in these villages is paddy rice production. Paddy rice production was for long time seen by local officials and bank staff as a farming system with a high developmental priority. Thus, inhabitants of these villages were likely to obtain easier access to formal credit. Moreover, these villages usually have a better market connection and are thus more easily accessed by bank staff, which also promotes access to loans.

The numbers of days of informal help and the amount of interest-free informal loans that a household receives from its social network may both be indicators of a functioning social network, but they may also lower the chance of gaining access to formal credit. A functioning informal social network has apparently no positive influence on the likelihood of obtaining access to formal credit. But high use of the social network is obviously a strong indicator of an income shock or a shock that negatively influences the repaying capacity of the

23

household.[27] The incidence of shocks either raises the chance of being assessed by local authorities as not creditworthy or adds to the self-exclusion tendency of households.

In households where only female persons go to the market (i.e. the wife of the household head or a female household head), the chance of being access-constrained is higher then in other households. On the one hand, this may be caused by a lack of human capital, as the male household head is mentally or physically unable to go to the market. While the number of missed working days due to illness is not significant, the permanent absence of an important member of the workforce such as the male household head may be more important. Moreover, the absence of the male household head can be easily observed by local authorities or bank staff and may indicate a problem inside the household, which may lower its creditworthiness. On the other hand, women probably have less access to official information networks than men.[28] Households of low social standing are often excluded from information networks and thus lack important information. Vaessen (2001) draws similar conclusions from a research study in Nicaragua. One reason mentioned by households that are access-constrained to formal credit is lack of information.

Infrastructure: Surprisingly, the variable 'distance to the district capital with the nearest bank branch' is positive. Former research in Vietnam, e.g. by Hung and Giap (1999), has shown that remoteness is an access constraint to formal credit. Nevertheless, many programs around the world are set up specifically to serve the under-served. They locate where financial services have long been weak (Morduch 1999). In the case of Vietnam, those areas are/were certainly the more remote areas. Through the VBP and special credit programs, the Vietnamese government has pushed credit outreach for poverty reduction in favor of remote communes. Minot (2000) states that poverty is more pronounced in places that are more remote from markets and cities. Obviously program placement is not random, and remoter villages or communes with a higher share of poverty are preferred. However, Alther et al. (2002) state that the poorest villages may not necessarily be located inside the poorest communes. Poor villages in wealthier areas may have less access to government services.

The variable with the third highest influence is 'frequency of market visits'. The high influence in this case may be explained by the lack of information about credit application procedures and availability in the village, as described in Dufhues et al. (2002). Farmers use

---

[27] The use of informal borrowing may also be seen as an indicator of poverty. However, other research, e.g. by Ruthven (2001), has shown that reciprocal lending is not necessarily related to poverty.
[28] McCarty (2001) points out that the vast majority of rural loans are given to men.

market days not only for buying and selling, but also for exchanging information and keeping relations and networks alive. Dufhues et al. (2002) also showed that good relations with commune officials or the credit officer are essential for receiving credit. These contacts are most likely to be established and maintained on market days. This finding is supported by Vaessen (2001), who found that access to certain information and networks in Nicaragua is essential for receiving credit. The more often a household goes to the market, the more investment ideas the household may develop. Consequently, the bigger its demand for credit and the lower its self-exclusion tendency is likely to be.

Poverty:[29] A very surprising result is that the poverty variable does not have a significant influence on the chance of a household being access-constrained. For instance, former research by Duong and Izumida (2002) concluded that the poor have great difficulty in accessing formal credits. Furthermore, the descriptive statistics in section 2.2 indicate that particularly the poorest households tend be excluded. On the one hand, this may be explained by the fact that the Vietnamese government has made major efforts to increase the supply of formal credits to the rural poor, and clearly these efforts have been successful. On the other hand, the poorest households may potentially be able to obtain access to formal credit, but they do not demand it as their investment possibilities are very limited, their debt-taking capacity is low and their risk-aversion is high.[30]

4   Conclusions and policy recommendations

This research paper has contributed to enhance our understanding of the broad outreach of formal rural lenders in Northern Vietnam. Compared to a decade ago, the informal market

---

[29] Better access to credit potentially reduces the incidence of rural poverty via a positive impact of the credit itself and, in the case of not borrowing, via access to consumption loans at times of income shocks. Therefore, poverty is endogenous to credit access and the inclusion of a poverty index would result in biased coefficients. However, in this case study, endogenity of poverty is expected to be negligible for two reasons: first, in the past, formal Vietnamese lenders did not disburse consumption loans. Second, Quach et al. (2003, 2004) found in their studies only a very small impact of formal credit on household welfare in Vietnam. As mentioned in Section 3.3, households who received a formal loan within the last seven months are likely to be unbiased by poverty impacts of the loan. Therefore, a new model was calculated with a sub-sample of households. In this sub-sample, households that had a formal loan with duration of more than seven months were excluded. The results from this model also indicate that poverty status had no influence on the likelihood of a household being access-constrained to formal credit.

[30] First the poverty index variable was squared and then multiplied by its original value, which can also be negative, to give a higher weight to the extreme cases. Second a dummy variable for the lowest quintile of the poverty index was incorporated in the regression instead of the poverty index itself to give a higher weight to the poorest households. But, in both cases the poverty variable turned out to be not significant. However, when dropping all variables except the poverty index as explanatory variable, this variable becomes significant. This indicates that poverty does play a role but its single dimensions or characteristics which are already reflected by

now plays only a minor role. The poverty outreach of the formal rural lenders is satisfactory (e.g. about 50% of the households belonging to the two lower poverty quintiles have effective credit demand). However, the outreach analysis has shown that the poorest households are seldom clients of formal lenders. Only slightly more than 20% of the poorest households are served by formal lenders, while among the wealthiest quintile this proportion is around 60%. When considering access to formal credit, this figure must be re-evaluated. As the logit analysis revealed, general poverty (as captured with the poverty index) does not significantly influence access to formal credit. The results indicate that only certain aspects of poverty, e.g. low quality of housing, have an important influence on access to formal credit in Vietnam. Thus, the poorest households use formal credit less often, but are not significantly more often access-constrained. This means that the poorest households simply have much less demand for the types of formal credit products on offer. Improving credit products or offering new credit lines would only slightly improve the credit coverage of poorer households. A more promising approach would be to introduce a specialized pro-poor extension service to widen the scope of their investment ideas and opportunities, combined with a general improvement in the infrastructure. One factor that very positively influenced access to formal credit was the connection to the market. A good market connection serves credit outreach in a twofold manner: first, households have better access to credit-relevant information; and second, through better market access they may find new investment opportunities. The most appropriate tool to incorporate poorer households into the formal financial system would the mobilization of savings. As stated by several scholars, all people can save, even the poorest of the poor, and therefore deposit services have deeper outreach than credit (Charitonenko et al. 2004, Schreiner 2002, Zeller and Sharma 2000). Moreover, Dufhues et al. (2004a) revealed an enormous and unmet demand for formal savings among the rural population in Northern Vietnam.

Nevertheless, the number of access-constrained households is surprisingly low. One reason for the low number is the weakening or eradication of former access constraints. A major access constraint in the last decade was lack of collateral. Land use certificates are nowadays widespread and they have only limited influence on access to formal credit. If the process of issuing land use certificates is finally completed and/or if the VBARD and the VBSP enforce their national policy of granting collateral-free loans, the number of households without

---

other variables in the model turn out to be more important. As mentioned above the correlation table did not reveal any problematic correlations between the independent variables.

access to the formal financial market due to lack of land use certificates will dwindle, and the importance of land use certificates as physical collateral will become even less important. Other access constraints, namely remoteness (distance to the nearest bank branch) and literacy requirements of the household head, have been eradicated through locally disbursed group credits. However, considering the anecdotal reports of very low repayment rates, the price of eradicating these access constraints has likely been a decrease in sustainability of the formal lenders. As Von Pischke (1991:83) points out:

> "Binding financial constraints to the formal sector are not necessarily anti-developmental. If they stand in the way of bad investment, they are socially beneficial. For the financial system to make good loans and allocate funds for high-return investments, it must reject poor proposals, unfit applicants, and low-return investments. To generate good loans requires a highly selective screening of applicants."

Nevertheless, some barriers to access continue to exist. To reduce these access barriers, locally-oriented rather than general actions should be taken, catering to the needs and the circumstances of those households which lack access, particularly ethnic minorities and female-led households. Such measures will be particularly useful within the organizational structure of the lenders themselves. Dufhues et al. (2002), for example, suggested employing ethnic minority credit officers, which would create more awareness of those groups inside the institution. Furthermore, special female credit officers for female-headed households could work in the same direction. However, the recent efforts of the Vietnamese government, for instance the establishment of the VBSP, represent an attempt to broaden access in general. But this increase in outreach will go hand in hand with an increase in access to credit for non-creditworthy households, thus resulting in decreased repayment rates. Moreover, it is questionable whether households that do not have access today, or do not demand the existing products, will demand credits from the VBSP. If rural lenders in Vietnam were one day forced to work in a competitive environment according to market principles, there would be a great chance that large parts of the population would be access-constrained as a result of previous loan defaults.

Whether the breadth and depth of formal credit outreach that was financed by enormous government subsidies contributes to poverty reduction, however, remains a subject for future research. Finally, it should be borne in mind that the conclusions drawn in this paper are based on a rather small and regionally limited sample. Therefore, further confirmation of the results by a larger and more representative study would be desirable.

References

Alther, C., J. C. Castella, P. Novosad, E. Rousseau, and T. T. Hieu. 2002. Impact of accessibility on the range of livelihood options available to farm households in mountainous areas of Northern Vietnam. In *Doi Moi in the mountains - Land use changes and farmers' livelihood strategies in Bac Kan Province, Vietnam.* Castella, J. C. et al. (ed.): 121-146. Hanoi, Vietnam: The Agricultural Publishing House.

Amin, S., A. Rai, and G. Topa. 2003. Does microcredit reach the poor and vulnerable? Evidence from Northern Bangladesh. *Journal of Development Economics* 70 (1): 59-82.

Backhaus, K., B. Erichson, W. Plinke, and R. Weiber. 1996. *Multivariate Analysemethoden - Eine anwendungsorientierte Einführung.* Berlin, Germany: Springer-Verlag.

Barham, B. L., S. Boucher, and M. R. Carter. 1996. Credit constraints, credit unions, and small-scale producers in Guatemala. *World Development* 24 (5): 793-806.

Bastelaer van, T. 2003. Does social capital facilitate the poor's access to credit - A review of the microeconomic literature. Social Capital Initiative Working Paper No 8. Washington DC, USA: The World Bank.

Besley, T., and S. Coate. 1995. Group lending, repayment incentives and social collateral. *Journal of Development Economics* 46 (1): 1-18.

Bester, H. 1987. The role of collateral in credit markets with imperfect information. *European Economic Review* 31 (4): 887-899.

Bhushan, I., E. Bloom, N. H. Huu, and N. M. Thang. 2001. Human capital of the poor in Vietnam. Manila, Philippines: Asian Development Bank.

Binswanger, H. P., and D. A. Sillers. 1983. Risk aversion and credit constraints in farmers' decision-making: A reinterpretation. *Journal of Development Studies* 20 (1): 5-21.

Bond, P., and A. Rai. 2002. Collateral substitutes in microfinance. Mimeo. Accessed October 2004 at http://www.cid.harvard.edu/cidpublications/limits-july2.pdf.

Buchenrieder, G., and I. Theesfeld. 2001. Improving bankability of small farmers in Northern Vietnam. *Savings and Development* 24 (4): 385-403.

Castella, J. C., T. Q. Hoa, O. Husson, V. H. Nam, and D. D. Quang. 2002. The declining role of ethnicity in farm household differentiation: A case study from Ngoc Phai Commune, Cho Don district, Bac Kan Province, Vietnam. In *Doi Moi in the mountains - Land use changes and farmers' livelihood strategies in Bac Kan Province, Vietnam.* Castella, J. C. et al. (ed.): 47-71. Hanoi, Vietnam: The Agricultural Publishing House.

Charitonenko, S., A. Campion, and N. A. Fernando. 2004. *Commercialization of microfinance: Perspectives from South and Southeast Asia.* Manila, Philippines: Asian Development Bank (ADB).

Christen, R. P., E. Rhyne, R. Vogel, and C. McKean. 1995. Maximizing the outreach of microenterprise finance: An analysis of successful microfinance programs. Washington DC, USA: United States Agency for International Development (USAID).

Coleman, J. S. 1999. Social capital in the creation of human capital. In *Social capital: A multifaceted perspective.* Dasgupta, P. et al. (ed.): 13-39. Washington DC, USA: The World Bank.

Conning, J. 1999. Outreach, sustainability, and leverage in monitored and peer-monitored lending. *Journal of Development Economics* 60 (1): 51-77.

Diagne, A. 1999. Determinants of households' access to and participation in formal and informal credit markets in Malawi. FCND Discussion Paper No 67/1999. Washington DC, USA: International Food and Policy Research Institute (IFPRI) - Food Consumption and Nutrition Division (FCND).

Diagne, A., M. Zeller, and M. Sharma. 2000. Empirical measurements of household's access to credit and credit constraints in developing countries: Methodological issues and evidence. FCND Discussion Paper No 90/2000. Washington DC, USA: International Food and Policy Research Institute (IFPRI) - Food Consumption and Nutrition Division (FCND).

Dufhues, T., P. T. M. Dung, H. T. Hanh, and G. Buchenrieder. 2002. Information and targeting policies and their principal-agent relationships - The case of the Vietnam Bank for the Poor. *Quarterly Journal of International Agriculture* 41 (4): 335-362.

Dufhues, T., F. Heidhues, and G. Buchenrieder. 2004a. Participatory product design by using Conjoint Analysis in the rural financial market of Northern Vietnam. *Asian Economic Journal* 18 (1): 81-114.

Dufhues, T., U. Lemke, and I. Fischer. 2004b. *Constraints and potential of livestock insurance schemes - A case study from Vietnam.* Research in Development Economics and Policy. Discussion Paper No 05/2000. Stuttgart, Germany: Grauer Verlag.

Duong, P. B., and Y. Izumida. 2002. Rural development finance in Vietnam: A microeconomic analysis of household surveys. *World Development* 30 (2): 319-335.

Evans, T., A. M. Adams, R. Mohammed, and A. H. Norris. 1999. Demystifying non-participation in microcredit: A population-based analysis. *World Development* 27 (2): 419-430.

Fabbri, D., and M. Padula. 2003. Does poor legal enforcement make households credit-constrained? FAME Research Paper No 81. Geneva, Switzerland: International Center for Financial Asset Management and

Engineering (FAME). Accessed October 2003 at
http//:www.nccr-finrisk.unizh.ch/media/pdf/fabbri_creditconstrained.pdf.

Fallavier, P. 1994. Developing microfinance institutions in Vietnam - Policy implications to set up an enabling environment. M.A. Thesis. Vancouver, Canada: School of Community and Regional Planning, University of British Columbia. Accessed June 2004 at
http://www.arts.uwaterloo.ca/~vecon/download/fallavier/mfi_vnm.pdf.

Geppert, M., and T. Dufhues. 2003. *Visualizing rural financial market research in Northern Vietnam through pictures*. Research in Development Economics and Policy. Discussion Paper No 02/2003. Stuttgart, Germany: Grauer Verlag.

Glewwe, P., M. Gragnolati, and H. Zaman. 2002. Who gained from Vietnam's boom in the 1990's? *Economic Development and Cultural Change* 50 (4): 773-792.

Gottwald, K., and R. Klump. 1999. Financial reform in Vietnam: Lessons from the Asian crisis. Passau, Germany: Universität Passau.

GSO. 1995. *Vietnamese Living Standard Survey 1992/93*. Hanoi, Vietnam: General Statistical Office (GSO), Statistical Publishing House.

GSO. 2000. *Vietnamese Living Standard Survey 1997/98*. Hanoi, Vietnam: General Statistical Office (GSO), Statistical Publishing House.

Härdle, W., and L. Simar. 2003. *Applied multivariate statistical analysis*. Berlin, Germany: Springer Verlag.

Häuser, I., T. Dufhues, and G. Buchenrieder. 2005. *Reliability and applicability of different poverty measurements - A case study from Northern Vietnam*. Research in Development Economics and Policy. Discussion Paper (forthcoming). Stuttgart, Germany: Grauer Verlag.

Heidhues, F., and G. Schrieder. 1998. Rural development and financial markets in Romania. Paper presented at the 46th International Atlantic Economic Conference (IAES) in Boston, October 8-11, 1998. Boston, USA: IAES.

Heidhues, F., B. Sossoh, and G. Schrieder. 1997. Transaction costs of group and individual lending as an influencing factor of access: The case of poverty oriented microfinance in Cameroon. Sacramento, USA: Paper presented at the 22nd International Conference of Agricultural Economists (IAAE) on food security, diversification, and resource management: "Refocusing the role of agriculture". August 10-16, 1997.

Henry, C., M. Sharma, C. Lapenu, and M. Zeller. 2003. *Microfinance poverty assessment tool*. Washington DC, USA: The World Bank.

Hulme, D., and P. Mosley. 1996. *Finance against poverty - Volume 1*. London, UK: Routledge.

Hung, B. D. V., and B. M. Giap. 1999. Country Report: Microfinance sector in Vietnam. Hanoi, Vietnam: Asian Development Bank (ADB).

Izumida, Y. 2003. Programmed lending for social policies - Challenges for the Vietnam Bank for Social Policies. Report No. 03-F-02. Tokyo, Japan: The University of Tokyo.

Izumida, Y., and P. B. Duong. 2001. Measuring the progress of rural finance in Vietnam. *Savings and Development* 15 (2): 139-166.

Karlan, D. S. 2001. Social capital and group banking. Cambridge, USA: Massachusetts Institute of Technology (MIT), Department of Economics.

Ledgerwood, J. 1999. *Sustainable banking with the poor - Microfinance handbook - An institutional and financial perspective*. Washington DC, USA: The World Bank.

Livingstone, I. 2000. Agriculture, small enterprise development and poverty eradication in Vietnam. *Journal of the Asia Pacific Economy* 5 (3): 173-189.

Luibrand, A. 2002. *Transition in Vietnam - Impact of the rural reform process on an ethnic minority*. Frankfurt am Main, Germany: Peter Lang Verlag.

Matin, I., D. Hulme, and S. Rutherford. 1999. Financial services for the poor and poorest: Deepening understanding to improve provision. Finance and Development Research Programme. Working Paper No 9. Manchester, UK: University of Manchester, Institute for Development and Policy Management.

McCarty, A. 2001. Microfinance in Vietnam: A survey of schemes and issues. Hanoi, Vietnam: Department for International Development (DFID) and the State Bank of Vietnam (SBVN).

Minot, N. 2000. Generating disaggregated poverty maps: An application to Vietnam. *World Development* 28 (2): 319-331.

MOLISA, and UNDP. 2004. Taking stock, planning ahead: Evaluation of the national targeted program on hunger eradication and poverty reduction (135). Hanoi, Vietnam: United Nations Development Program (UNDP).

Montgomery, R. 1996. Disciplining or protecting the poor? Avoiding the social costs of peer pressure in micro-credit schemes. *Journal of International Development* 8 (2): 289-305.

Morduch, J. 1999. The microfinance promise. *Journal of Economic Literature* 37 (December): 1569-1614.

Navajas, S., M. Schreiner, R. L. Meyer, and C. Gonzalez-Vega. 2000. Microcredit and the poorest of the poor: Theory and evidence from Bolivia. *World Development* 28 (2): 333-346.

Neefjes, K. 2001. Poverty reduction amongst ethnic minorities in the mountainous areas of Vietnam - Reaching targets. Paper presented at the Poverty Task Force Workshop 17.-19.09.2001. Hanoi, Vietnam: United Nations Development Programme (UNDP).

Panjaitan-Drioadisuryo, R. D. M., and K. Cloud. 1999. Gender, self-employment and microcredit programs - An Indonesian case study. *The Quarterly Review of Economics and Finance* 39 (5): 769-779.

Park, A., and C. Ren. 2001. Microfinance with Chinese characteristics. *World Development* 29 (1): 39-62.

Quach, M. H., A. W. Mullineux, and V. Murinde. 2003. Microcredit and household poverty reduction in rural Vietnam: A cross-sectional study. Paper presented at the Development Studies Association (DSA) International Conference in Glasgow, 9-11 September 2003. Devon, UK: Development Studies Association.

Quach, M. H., A. W. Mullineux, and V. Murinde. 2004. Rural credit and household poverty reduction in Vietnam: Evidence using panel data from household surveys. Paper presented at the International Conference on Access to Finance, 28-29 October 2004. Brussels, Belgium: World Savings Bank Institutes.

Riedel, J. 2000. The role of the state and the market in the economy of Vietnam. Hanoi, Vietnam: Ministry of Planning and Investment (MIP) and United Nations Development Program (UNDP).

Ruthven, O. 2001. Money mosaics: Financial choice and strategy in West Delphi squatter settlement. Finance and Development Research Programme Working Paper No. 32. Manchester, UK: Institute for Development Policy and Management, University of Manchester.

Sarap, K. 1990. Factors affecting small farmers' access to institutional credit in rural Orissa, India. *Development and Change* 21 (2): 281-307.

Schmidt, R. H., and C.-P. Zeitinger. 1994. Critical issues in small and microbusiness finance. Paper presented at the seminar on financial services and the poor: U.S. and developing country experience. September 28-30. Washington DC, USA: The Brookings Institution.

Schreiner, M. 2002. Aspects of outreach: A framework for discussion on the social benefits of microfinance. *Journal of International Development* 14 (5): 591-603.

Senanayake, S. M. P., and D. P. Ho. 2001. What makes formal rural financial institutions successful in Vietnam? *Savings and Development* 15 (4): 475-489.

Sida-MARD. 1998. Strategy for rural financial services. Hanoi, Vietnam: Sweden International Development Agency (SIDA) and Ministry of Agriculture and Rural Development (MARD).

Simanowitz, A. 2000. Targeting the poor - Comparing visual and participatory methods. *Small Enterprise Development* 11 (1): 29-39.

Stiglitz, J. E., and A. Weiss. 1981. Credit rationing in markets with imperfect information. *American Economic Review* 71 (3): 393-410.

Todd, H. 1996. *Cloning Grammen Bank: Replicating a poverty reduction model in India, Nepal and Vietnam.* London, UK: Intermediate Technology Publications.

UNDP. 1999. Completion of Vietnam's legal framework for economic development. Hanoi, Vietnam: United Nations Development Program (UNDP).

Vaessen, J. 2001. Accessibility of rural credit in Northern Nicaragua: The importance of networks of information and recommendation. *Savings and Development* 25 (1): 5-32.

van de Walle, D. 2003. Are returns to investment lower for the poor? Human and physical capital interactions in rural Vietnam. *Review of Development Economics* 7 (4): 636-653.

VBARD. 2001. Leaflet on guidelines, pre-conditions, and procedures for loans at the VBARD (available only in Vietnamese). Hanoi, Vietnam: Vietnam Bank for Agriculture and Rural Development (VBARD).

VBARD and Danida. 1999. Agriculture sector program support - Vietnam - Component description document. Hanoi, Vietnam: Government of Vietnam and Vietnam Bank for Agriculture and Rural Development (VBARD) and Danish Ministry of Foreign Affairs (Danida).

VBP. 1999. Vietnam Bank for the Poor - Annual Report. Hanoi, Vietnam: Vietnam Bank for the Poor (VBP).

Vietnam Economy. 2003. Vietnam's social policy bank established. March 12, 2003. Vietnam Economy /2003.

von Pischke, J. 1991. *Finance at the frontier - Debt capacity and the role of credit in the private economy.* Washington DC, USA: The World Bank.

Woller, G., C. Dunford, and W. Woodworth. 1999. Where to microfinance? *International Journal of Economic Development* 1 (1): 29-64.

Wolz, A. 1997. The transformation of rural finance systems in Vietnam. Discussion Paper No 60. Heidelberg, Germany: Universität Heidelberg, Forschungsstelle für Internationale Wirtschafts- und Agrarentwicklung e.V. (FIA).

World Bank. 1999. Vietnam attacking poverty - Vietnam development report 2000. Hanoi, Vietnam: The World Bank.

World Bank. 2003. Poverty - Vietnam development report 2004. Hanoi, Vietnam: The World Bank.

World Bank. 2004a. Financial sector policy issue note: Vietnam Bank for Social Policies. Hanoi, Vietnam: The World Bank.

World Bank. 2004b. Governance - Vietnam development report 2005. Hanoi, Vietnam: The World Bank.

World Bank, and DFID. 1999. Vietnam, voices of the poor; synthesis of participatory poverty assessments. Hanoi, Vietnam: The World Bank and Department for International Development (DFID).

Zeller, M., and M. Sharma. 1998. Rural finance and poverty alleviation. Food Policy Report. Washington DC, USA: International Food Policy Research Institute (IFPRI).

Zeller, M., and M. Sharma. 2000. Many borrow, more save, and all insure: Implications for food and microfinance policy. *Food Policy* 25 (2): 143-167.

Zeller, M., M. Sharma, C. Henry, and C. Lapenu. 2001. An operational tool for evaluating poverty outreach of development policies and projects. FCND Discussion Paper No 110/2001. Washington DC, USA: International Food Policy Research Institute (IFPRI) - Food Consumption and Nutrition Division (FCND).

Zeller, M., M. Sharma, C. Henry, and C. Lapenu. 2005. An operational method for assessing the poverty outreach performance of development projects: Results of case studies in Africa, Asia and Latin America *(in print)*. *World Development*

Zeller, M., M. Wollni, and A. A. Shaban. 2003. Evaluating the poverty outreach of development programs: Results from case studies in Indonesia and Mexico. *Quarterly Journal of International Agriculture* 42 (3): 371-383.

Annex

Table 7 **Descriptive statistics of the independent variables for the binary logistic regression model on credit access**

Variable name	Unit	Minimum	Maximum	Mean	Std. deviation
1. Red or Green Books	(yes/no)	0.00	1.00	0.89	0.32
2. Agricultural land	(1000 m^2)	0.00	65.00	9.51	7.82
3. Value of houses	(Mill. VND)	0.00	130.00	10.11	12.92
4. Government salary	(yes/no)	0.0.0	1.00	0.13	0.33
5. Cash savings	(Mill. VND)	0.0.0	55.00	1.48	5.57
6. School years of HH head	(years)	0.0.0	14.00	5.20	3.02
7. Vietnamese communication skills of the married couple	(yes/no)	0.0.0	1.00	0.83	0.38
8. Receiving agricultural extension service	(yes/no)	0.00	1.00	0.82	0.39
9. Active HH members	(numbers)	0.50*	7.00	2.83	1.26
10. Share of non-farm activities in total yearly income	(%)	0.00	100.00	15.17	21.51
11. Lost working days due to illness per year/HH	(days)	0.00	509.00	42.46	58.29
12. Giving help per year/HH	(days)	0.00	200.00	36.26	30.75
13. Receiving help per year/HH	(days)	0.00	300.00	25.76	36.96
14. Interest-free informal credit	(Mill. VND)	0.00	18.00	0.18	1.36
15. Thai/Tay village	(yes/no)	0.00	1.00	0.72	0.45
16. Market visits only by female HH members	(yes/no)	0.00	1.00	0.36	0.48
17. Age of the household	(years)	1.00	81.00	19.66	14.14
18. Remoteness	(km)	1.50	24.00	10.48	7.47
19. Market visits per month	(numbers)	0.00	30.00	5.63	6.46
20. Different markets visited	(numbers)	0.00	5.00	1.13	0.47
21. Poverty index		-1.82	3.09	0.00	1.00
22. Supply of day labor	(yes/no)	0.00	1.00	0.35	0.48
23. Receiving aid from government	(yes/no)	0.00	1.00	8.76	0.28

Source: Own data

Note: *Households containing only persons over the retirement age were counted as having 0.5 workforces.
HH = household

Figure 9   Decision tree of the effective credit demand in the formal sector
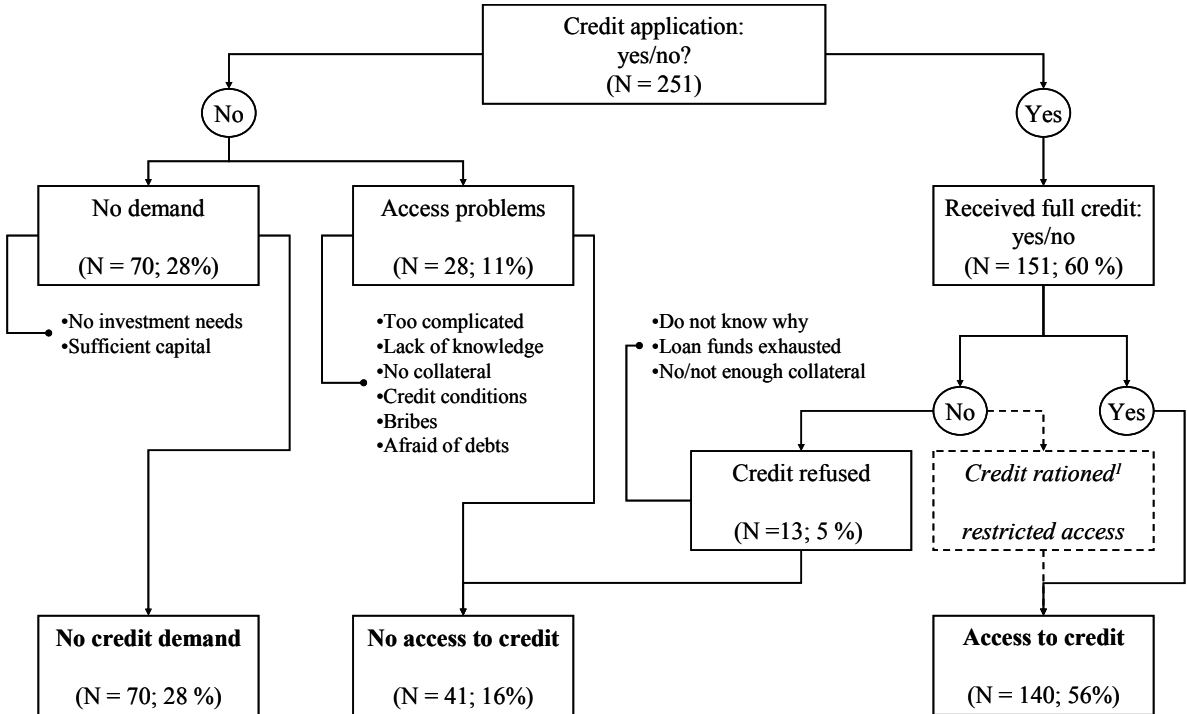
Source: Adapted from Barham et al. (1996) and Heidhues and Schrieder (1998)
Note: [1]Credit-rationed households do have access to the formal financial system and are therefore not separated in the analysis. Besides, in one research area (Ba Be) not a single household was rationed. Nine households were excluded from the sample because of missing values. This decision tree includes the formal and semi-formal financial institutes, VBARD, VBP, and the State Treasury.

Figure 10   Principal Component Indicators

Ten indicators were chosen for the PCA, including the benchmark indicator, three asset-related variables, one food-related variable, two dwelling-related variables and three indicators related to human resources. The poverty component is given by:

$$
\begin{aligned}
PC1 = \quad & 0.587 * \text{per person expenditure on clothes and footwear} \\
+ \quad & 0.674 * \text{total value of assets per person} \\
+ \quad & 0.662 * \text{value of electronics and appliances per household (HH)} \\
+ \quad & 0.596 * \text{value of transportation-related assets per HH} \\
- \quad & 0.497 * \text{months without enough to eat per year} \\
+ \quad & 0.531 * \text{type of roof} \\
+ \quad & 0.566 * \text{electricity supply} \\
+ \quad & 0.675 * \text{percentage of adults with only primary education} \\
+ \quad & 0.592 * \text{percentage of adults with college education} \\
+ \quad & 0.542 * \text{percentage of literate adults}
\end{aligned}
$$

This equation accounts for 35.4% of the total variance of the original data.

Recent Discussion Papers

No. 01/1999   Heidhues, F. and G. Schrieder, *Rural Financial Market Development.*

No. 02/1999   Heidhues, F., C. Karege, B. Schaefer and G. Schrieder, *The Social Dimension of Policy Reforms.*

No. 03/1999   Heidhues, F., W. Erhardt, A. Gronski and G. Schrieder, *The Social Dimension of Policy Reforms and World Bank Case Studies.*

No. 04/1999   Erhardt, W., *Credit for Poor and Low-Income Entrepreneurs in Urban and Rural Northern Thailand.*

No. 05/1999   Senahoun, J., F. Heidhues and D. Deybe, *Structural Adjustment Programs and Soil Erosion: A Bio-Economic Modelling Approach for Northern Benin.*

No. 06/1999   Kyi, T. and M. von Oppen, *An Economic Analysis of Technical Efficiency of Rice Farmers at the Delta Region in Myanmar.*

No. 07/1999   Schrieder, G., J. Munz, and R. Jehle, *Rural Regional Development in Transition Economies: Country Case Romania.*

No. 08/1999   Hartwich, F. and T. Kyi, *Measuring Efficiency in Agricultural Research: Strength and Limitations of Data Envelopment Analysis (DEA).*

No. 09/1999   Hartwich, F., *Weighting of Agricultural Research Results: Strength and Limitations of the Analytic Hierarchy Process.*

No. 01/2000   Neubert, D., *Poverty Alleviation as Intervention in Complex and Dynamic Social Fields.*

No. 02/2000   Neef, A., C. Sangkapitux and K. Kirchmann, *Does Land Tenure Security Enhance Sustainable Land Management? - Evidence from Mountainous Regions of Thailand and Vietnam.*

No. 03/2000   Breitschopf, B. and G. Schrieder, *The Development of the Rural Nonfarm Sector in Transition Economies – Implication of Capital Intensity on Labor Productivity and Employment.*

No. 04/2000   Erhardt, W., *Urban Bias in Reverse: Have Urban Small Enterprises Been Neglected by Policy Makers and Bankers in Thailand?*

No. 05/2000   Senahoun, J., F. Heidhues and D. Deybe, *Impact of Agricultural Policy and Food Security: An Agricultural Sector Modelling Approach for Benin.*

No. 06/2000   Heidhues, F., *Globalisierung, Einkommensverteilung und ländliche Regionalentwicklung in Entwicklungsländern.*

No. 07/2000   Heidhues, F., *The Future of World, National and Household Food Security.*

No. 08/2000   Buchenrieder, G. (née Schrieder) and I. Theesfeld, *Improving Bankability of Small Farmers in Northern Vietnam.*

No. 09/2000   Dufhues, T.B., *Economic Appraisal of Sugarcane Production in Peasant Households in the Son La Province, Northern Vietnam.*

No. 10/2000   Heuft, A. and G. Buchenrieder (née Schrieder), *Decentralisation in Peru's Agricultural Policy: A Critical Review from 1993 to 1998.*

No. 01/2001   Knüpfer, J., *Landnutzungsentscheidungen ethnischer Minderheiten im Kontext der institutionellen Rahmenbedingungen Nordthailands.*

No. 02/2001   Daude, S., *WTO and Food Security: Strategies for Developing Countries.*

No. 03/2001   Knüpfer, J. and G. Buchenrieder, *Rural Poverty Alleviation Through Non-farm Income in Transition Economies.*

No. 04/2001   Dufhues, T., P.T.M. Dung, H.T. Hanh, and G. Buchenrieder, *Fuzzy Information Policy of the Vietnam Bank for the Poor in Lending to and Targeting of the Poor in Northern Vietnam.*

No. 01/2002   Brüntrup, M. and F. Heidhues, *Subsistence Agriculture in Development: Its Role in Processes of Structural Change.*

No. 02/2002   Alker, D. and F. Heidhues, *Farmers' Rights and Intellectual Property Rights – Reconciling Conflicting Concepts.*

No. 03/2002   Buchenrieder, G., J. Knüpfer and F. Heidhues, *A Cross-Country Comparison of Non-farm Rural Employment in the Balkans.*

No. 04/2002   Knüpfer, J., S. Xhema und G. Buchenrieder, *Armutsreduzierung durch Einkommens-diversifizierung - Eine Studie im ländlichen Kosovo.*

No. 01/2003   Dufhues, T., G. Buchenrieder, F. Heidhues and Pham Thi My Dung, *Towards demand-driven financial services in Northern Vietnam: A participatory analysis of customer preferences.*

No. 02/2003   Geppert, M. and T. Dufhues, *Visualizing rural financial market research in Northern Vietnam through pictures.*

No. 01/2004   Nguyen Manh Hai and F. Heidhues, *Comparative advantage of Vietnam's rice sector under different liberalisation scenarios – A Policy Analysis Matrix (PAM) study.*

No. 02/2004   Breisinger, C. and F. Heidhues, *Regional Development Perspectives in Vietnam – Insights from a 2002 Provincial Social Accounting Matrix (SAM).*

No. 03/2004   Basu, A.K. and M. Qaim, *On the Distribution and Adoption of Genetically Modified Seeds in Developing Countries.*

No. 04/2004   Fischer, I., *Media Supported Communication in Agricultural Extension and Participatory Rural Development in Northern Thailand*

No. 05/2004   Dufhues, T., U. Lemke and I. Fischer, *Constraints and Potential of Livestock Insurance Schemes – A Case Study from Vietnam*

No. 06/2004   Neef, A. and D. Neubert, *Assessing Participation in Agricultural Research Projects: An Analytical Framework*

No. 01/2005   Dufhues, T. and G. Buchenrieder, *Outreach of credit institutes and households' access constraints to formal credit in Northern Vietnam*