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Urban Bias in Reverse: Have Urban Small Enterprises Been Neglected by Policy Makers and Bankers in Thailand?

1 Introduction

For decades the Thai government has undertaken considerable effort to increase lending to small farmers. Direct and indirect support of the government-owned Bank for Agriculture and Agricultural Co-operatives (BAAC) has led to an impressive institutional record in terms of outreach and sustainability. The substitution of physical collateral with the mutual liability of village group members plays a key role in this success and enabled even numerous highland farmers and ethnic minorities to access BAAC credits. As a result, BAAC claims to reach almost 85% of all farm households in the country (BAAC 1997). Other credit granting institutions under government control and support include the Krung Thai Bank, agricultural and non-agricultural co-operatives, farming groups, the Marketing Organization of Farmers and the Thai Tobacco Monopoly.

The Thai rural economy has undergone considerable development and is much more diversified in terms of income sources and entrepreneurial activities than ten or twenty years ago. Nevertheless, there is no such institution comparable to BAAC focusing on non-agricultural small-scale activities in both rural and urban areas of the Kingdom. In 1993, BAAC somewhat widened its scope of lending to include agricultural-related activities into the eligible borrowing purposes and, only recently, also non-agricultural activities. Borrowers' main profession still has to be farming, however (Sacay et al. 1996). Small entrepreneurs engaged in production, trading and service businesses in *urban* areas have apparently been neglected by researchers and policy-makers. Are they the forgotten half of the country's poor in terms of financial assistance? Compared to rural entrepreneurs, especially farmers - only little information is available on urban small entrepreneurs and particularly their financial behaviour, needs and constraints. In view of the fact that financial promotion schemes are missing in urban areas of Northern Thailand we have to suppose that those urban small entrepreneurs who are not creditworthy in the sense of commercial banks are forced to rely on their own funds and the informal sector.

Informal sector institutions reach out to market segments that often remain ignored by formal sector institutions and play an important role in financing consumption and investment needs of (not only) poor households. Informal financial services frequently come at high rates of interest (which can be explained by elevated administrative, risk and moneylenders' opportunity cost of capital), thus imposing a hefty financial burden on poor borrowers.[1] It

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[1] In the urban markets of Northern Thailand, for instance, a 40 to 60 days credit, payable in daily installments, carries an interest rate of 20% flat. In rural Chiang Mai, commercial moneylenders mostly charge 3 to 5% per month.

remains an important goal, therefore, to improve small enterprises' access to affordable formal financial services.

The major hypothesis underlying this research is that up to now, financial assistance has benefited rural entrepreneurs almost exclusively. BAAC – the institution dominating the rural microfinance sector in Thailand -, for instance, has replaced physical loan guarantees with the mutual guarantee of joint liability group members. Due to the absence of institutions targeting poverty groups in urban areas, it can be expected that *urban* borrowers and non-borrowers show more pronounced differences in "traditional" access variables (such as the value of household and business assets, the level and composition of household income and the educational level of household members) than *rural* borrowers and non-borrowers. The aim of the analysis is to identify the two sets of characteristics that separate borrowers from non-borrowers in urban vs. rural areas. This information will be useful in (re)designing future financial assistance schemes in such a way to improve agricultural *and* non-agricultural entrepreneurs' access to financial institutions in both, rural *and* urban areas of Thailand.

2 Hypotheses, Research Sites and Definitions

2.1 Hypotheses

According to their location, small enterprise households have been separated into two groups, namely urban and rural ones. Two hypotheses regarding urban and rural small enterprises' access to formal financial institutions will be tested:

There is a set of variables separating small entrepreneurs with access to formal financial institutions from those who do not borrow from formal lenders. The set of variables is different for the urban and rural areas.

Traditional variables associated with households' access to formal lenders (such as level and composition of household income, the value of household and business assets and the educational background of household members) discriminate more powerfully between *urban* borrowers and non-borrowers. These variables distinguish in a less reliable way *rural* borrowers from non-borrowers.

2.2 Research Sites and Household Samples

Northern Thailand not only displays very unevenly developed rural areas but also accommodates major Thai cities, such as Chiang Mai, Chiang Rai and Pitsanulok. Therefore, it makes a particularly suitable case to compare urban with rural areas. Due to its marked rural-urban gradient, Chiang Mai Province was selected as research region for this study. The province embodies a pronounced urban centre - the provincial capital Chiang Mai is Thailand's second biggest city -, often better-developed lowland villages and generally less developed villages in the up- and highlands. For the rural sample three villages were selected, namely Muang Chum (Mae Tang district) Huai Sai (Chom Thong district) and Kongsang

(Omkoi district). The urban research site was confined to the boundaries of the town district (amphoe muang; see Map 1).

Map 1: Chiang Mai Province
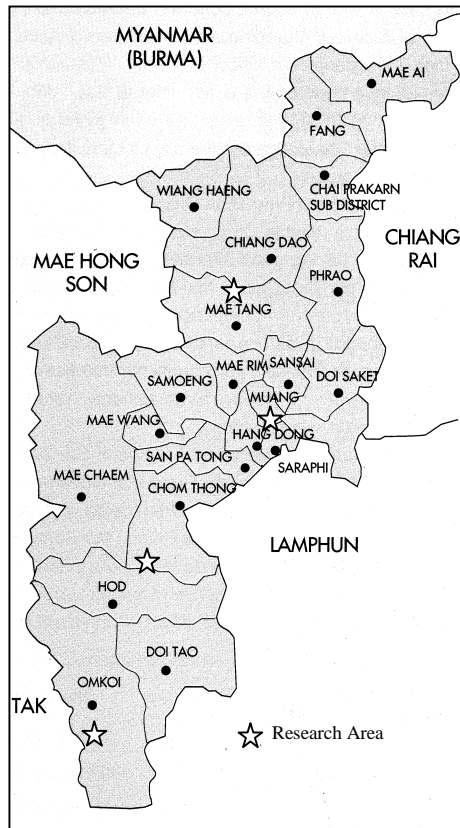
The population of Muang Chum and Huai Sai are ethnic Thais in its entirety. The villages are relatively well developed and connected to the provincial infrastructure. Almost all fields in these two villages are furnished with land titles granting farmers full legal ownership rights on their land. Tobacco and, to a lesser extent, rice are the main cash crops in Muang Chum. The longan fruit is the main cash crop in Huai Sai; it is cultivated by almost all households to a larger or lesser extent. Rice is the second most important crop but it is grown for subsistence purposes almost exclusively. A considerable share of the household income in both villages is derived from agricultural and non-agricultural salary work and small non-agricultural enterprises. The third research village, Kongsang, is located in Omkoi district in the southern highlands of the province. The village consists of two settlements: Kongsang itself and Huai Haeng which only recently was administratively integrated into Kongsang village. The Hmong tribe economically dominates the main village of Kongsang. The Karens followed the Hmong and to a large extent make their living from daily labour on the Hmong's fields. Whereas the Hmong have settled permanently in Kongsang, many Karen households still migrate whenever economic opportunities arise.

Rural households were selected randomly based on village household lists. Household were included in the sample provided that there was at least one household member operating a small enterprise according to the definition below. In the urban area, household sampling had to be conducted differently. Many urban small enterprises are informal in nature and per definitionem not registered with any kind of government institution. Small enterprise households had to be selected in a more practical manner and in such a way that the sample would cover all economic sectors, different enterprise sizes and locations throughout the town district. It was the enterprises' location in the town district that was decisive for households to be included into the urban sample. The sample, therefore, comprises a minor number of households residing outside the boundaries in the town district but earn (part of) their income within. In the period between August 1997 and October 1998, a total of 116 rural households were interviewed, of which 50, 51 and 15 reside in villages Muang Chum, Huai Sai and Kongsang, respectively. The urban sample comprises 111 households.

2.3 Definitions

2.3.1 Small Enterprise

In this study, the term "enterprise" is meant to be a unit of economic activity that - in the form of self-employment - is directed at the pursuit of profit on a long-term basis and involves a strong element of personal or capital risk. A *small* enterprise is deemed to be one, which employs up to five non-household members at the time of the survey. This quantitative definition will include more qualitatively oriented ones such as "micro-enterprise", "cottage industry" and "informal enterprise" (see for example Arun 1992; Schmidt and Zeitinger 1994; Setty 1991). The definition will be broader, though, in that it also includes those enterprises that are small but formal and/or apply modern technology. In this way, a wider spectrum of enterprises will be addressed, i.e. also those with a presumed higher development potential than those operated by the hard-core poor.

2.3.2 Formal and Informal Financial Institutions in Chiang Mai Province

Formal and informal financial institutions are generally separated from each other by the quality of regulation and supervision they are subject to. In a very narrow definition, only those institutions could be classified as formal that are subject to central bank regulation and supervision. By this definition, we would have to classify BAAC as informal: although the Ministry of Finance holds close to 100% of its shares, lawmakers have exempted it from central bank regulation and supervision. In like manner, the classification of cooperatives or hire-purchase dealers into formal or informal financial institutions might seem far less straightforward than such a narrow definition might suggest.

Graph 1: Formal-Informal Continuum of Financial Institutions in Chiang Mai Province
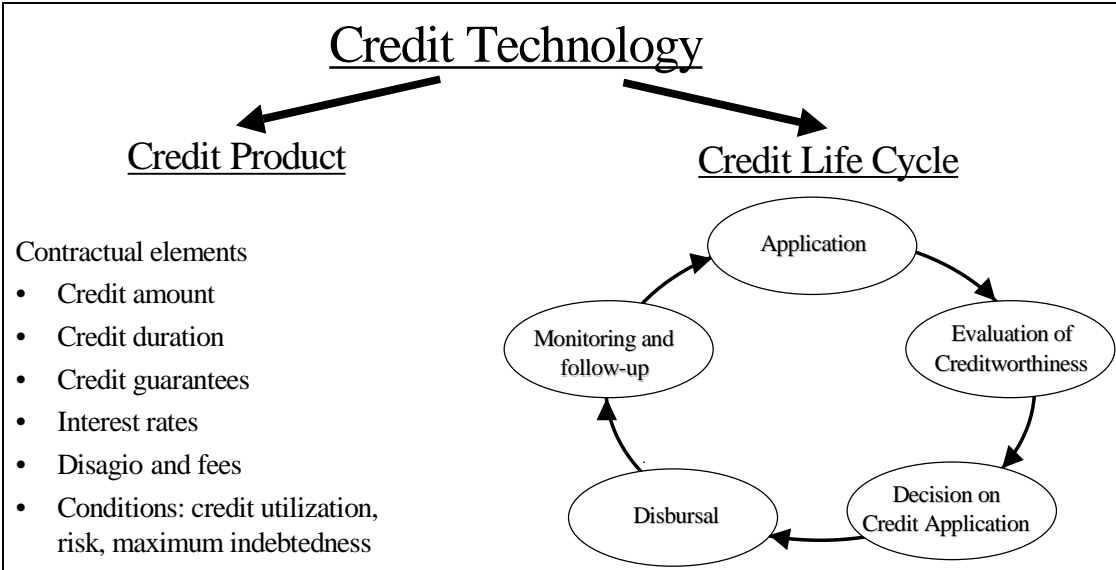
Source: Erhardt 1999.

To account for the gradual transition from closely supervised to completely unregulated institutions in Thailand, it seems more appropriate to view financial institutions along a

formal-informal continuum. In Chiang Mai Province, this continuum ranges from commercial banks and the Bank for Agriculture and Agricultural Co-operatives (BAAC), over co-operatives, public and private (illegal) pawnshops to moneylenders, traders, len shares (the Thai form of rotating savings and credit associations, ROSCAs in short) and, finally, friends and family members (see Graph 1).

Table 1: Formal lenders in urban and rural areas

Type of institution	Urban area	Rural area
Commercial banks	✓	✓
Finance companies	✓	✓
BAAC		✓
Agricultural cooperatives		✓
Non-agricultural cooperatives	✓	✓
Tobacco stations		✓
Farmer groups		✓
Government pawnshops	✓	

In this study, the term "formal" will be applied in a wider sense. We want to prove the hypothesis that past efforts in developing the financial market for small enterprises have facilitated rural households' access to financial services rather than those located in urban areas. For that reason, the term "formal" will not only be applied to credit institutions subject to central bank supervision but also to those being supervised, regulated or operated by any other Thai official body. Table 1 presents the formal financial institutions that offer credit services in the urban and rural sample areas.

2.3.3 Credit

"Credit" is generally understood to be a contractual agreement in which a borrower receives something of value and agrees to repay the lender at some later date. The analysis below will be undertaken on the household level rather than on the level of individual entrepreneurs. A household is classified as having access to formal financial institutions if at least one household member borrowed from and/or repaid a credit to a formal institution.

No distinction is being made for credits that are used for investment and consumptive purposes: As a rule, the business and private household sphere of low-income people form a financial unit. Due to the fungibility of money it is not possible to trace one Baht obtained from, say a commercial bank or a local moneylender to a specific investment or consumptive purpose (Pischke 1991). It is difficult, if not impossible, to draw a clear and unambiguous line between investment and consumption. Although at first sight we do not recognise a direct investment-return-cycle, food and health expenses, too, basically serve to maintain the productivity of labour - the most important and sometimes only productive factor of poor and low-income groups. For that reason also those credits taken for purposes other than financing agricultural and non-agricultural investments, inputs and marketing cannot be straightforwardly labeled consumption credits (Heidhues 1995).

The survey considers all credits that fall into the one-year reference period ending on the day the household was interviewed; it considers all those credits that were disbursed before and repaid during the one-year reference period or that were disbursed and completely repaid within the one year reference period or that were disbursed within the one-year reference period and have not yet been (completely) repaid.

3 Empirical Analysis

Out of the total 227 households interviewed, 44.1% urban as well as between 46.7% and 76.0% rural households borrowed from formal sources (see Table 2), i.e. slightly more than half of the total sample households (54.2%) had access to formal financial institutions according to above definition.

Table 2: Urban and rural household samples

Research Area	Sample size	Formal borrowers	
		Number	%
Urban	111	49	44.1
Rural	116	74	63.8
Muang Chum	51	29	56.9
Huai Sai	50	38	76.0
Kongsang	15	7	46.7
Total	227	123	54.2

In the following, the first hypothesis will be tested stating that in the urban and rural area there is a different set of household characteristics differentiating entrepreneurs with access to financial services from entrepreneurs who do not borrow from formal lenders. Univariate differences between borrower and non-borrower characteristics will be analysed using one-way ANOVA. Subsequently, a discriminant analysis will be run for each geographic region in order to identify the relative influence of these characteristics on households' access to financial institutions.

3.1 Univariate Differences between Borrowers and Non-Borrowers

Important household characteristics that supposedly affect access to formal financial institutions have been grouped into (1) socio-economic characteristics, (2) characteristics concerning households' asset holding and (3) the sources and levels of household income and expenses (see Table 3). The discriminatory power of *individual* variables to differentiate borrowers from non-borrowers will now be tested using one-way ANOVA. The analysis has been carried out separately for the urban and rural samples in order to identify those variables that separate borrowers from non-borrowers in each of the two regions. In the case of a single variable, the final significance test of whether or not a variable discriminates between borrowers and non-borrowers is the F-test. F is essentially computed as the ratio of the between-groups variance in the data over the pooled within-group variance. If the between-group variance is significantly larger then there must be significant differences between the means. Table 3 displays the F-values and the corresponding significance levels for our urban and rural borrowers and non-borrowers.

Individual socio-economic variables do not discriminate significantly between *rural* borrowers and non-borrowers. *Urban* borrowers, on the other hand, are significantly better educated and the households are significantly larger than those of non-borrowers. Although the value of total household assets as well as the area and value of titled land differ significantly in both regional samples, the associated significant levels are higher in the urban area (1% as compared to the 5% level in the rural area). Urban borrowers and non-borrowers show significant differences in the means of all variables that capture the level and composition of household income - an exception being made by the farming income and budget surplus. Farm revenues of urban households play a subordinate role anyway. It is

surprising, though, that not even the farming income of rural households turned out to be significantly different between borrowers and non-borrowers.

In sum we can conclude that it is especially in the urban area where significant differences exist between the sample means of borrowers and non-borrowers, as proved firstly by the larger share of significant variables and, secondly, the higher levels of significance for all those variables that simultaneously discriminate between borrowers and non-borrowers in both regions. Urban borrowers are better educated than non-borrowers and show significantly higher incomes and asset values. Rural borrowers predominantly differ from non-borrowers by the value of land and overall household assets. This appears to indicate that the urban financial market requires specific characteristics from potential borrowers to be successful. The rural financial market is non-discriminatory regarding characteristics pertinent to good-debt risks while the urban market is.

3.2 Relative Importance of Individual Household Characteristics in Explaining Access to Credit: A Discriminant Regression Approach

Binary discriminant regression analysis investigates whether there are significant group differences between two groups with respect two or more variables.[2] The method allows to answer the question whether or not there are significant group differences with respect to certain variables, and it helps to identify the variables which do in fact explain differences between groups? (Backhaus et al 1996).

Above, individual household characteristics and their power to discriminate between borrowers and non-borrowers has been analysed using one-way ANOVA. The discriminant regression run below will disclose the relative contribution of individual variables in differentiating between borrowers and non-borrowers when these variables are analysed simultaneously.

3.2.1 Variable Selection

As shown above, several household characteristics differ considerably between rural and urban areas. In order to identify the set of variables that discriminates borrowers from non-borrowers in each region, one discriminant analysis each will be run on the urban and rural sample households. In order to explain as much variation between the sample means of borrowers and non-borrowers in each region, an individual set of explaining variables will be entered into each regression. Some of the variables, particularly the sub-categories of the income and asset values, are highly collinear and have to be excluded. Table 4 gives an overview on the variables entered into the analyses and their expected relationship with access to formal financial institutions.

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[2] If one wants to find out whether there are significant group differences with respect to individual variables the t-test (two groups case) or analysis of variance (three or more groups) can be used.

Table 3: Descriptive statistics: Urban and rural borrowing and non-borrowing households

Region / Household characteristics	Urban Borrowers (means)	Non-borrowers (means)	F-value		Rural Borrowers (means)	Non-borrowers (means)	F-value	
(1) Socio demographic characteristics								
Household size (persons)	4.4	3.8	3.41	*	4.14	4.43	0.70	
Average age (years)	32.8	32.3	0.08		38.8	36.2	1.02	
Average years of education	10.5	8.5	6.00	***	5.0	4.6	0.63	
Dependency ratio	0.40	0.37	0.50		0.40	0.34	1.31	
Number of illiterates	0.2	0.1	0.85		0.5	0.9	3.20	
(2) Asset holding								
Total assets (Baht)	6,350,446	980,268	7.32	***	1,296,713	818,012	5.13	**
Area of titled land (rai)	4.9	0.5	5.80	***	4.0	2.5	3.77	**
Value of titled land (Baht)	5,031,224	670,726	6.89	***	1,028,928	641,667	3.91	**
Business assets (Baht)	325,726	59,233	7.91	***	29,708	18,738	0.52	
Household assets (Baht)	442,291	142,684	28.17	***	106,845	69,423	2.22	
Financial assets (Baht)	387,481	67,578	2.15		43,326	37,278	0.12	
(3) Income and expenses								
Total income (Baht)	403,885	219,106	9.80	***	111,407	69,362	0.91	
Per capita income (Baht)	94,717	64,453	6.95	***	37,941	17,756	0.88	
Farm revenues (Baht)	9,122	565	2.22		52,277	38,883	2.26	
Non-farm business revenues (Baht)	1,453,597	639,481	7.653	***	118,968	41,106	2.42	
Salaries and wages (Baht)	60,968	17,901	11.01	***	22,685	26,270	0.24	
Government employee (dummy)	0.18	0.03	7.37	***	0.20	0.12	1.31	
Food expenses (Baht)	99,884	75,135	9.19	***	28,792	23,807	3.30	*
Total household expenses (Baht)	328,748	157,450	18.20	***	101,584	68,607	4.94	**
Budget surplus/deficit (Baht)	75,137	61,655	.06		9,822	754	.039	
Number of households	49	62			74	42		

Notes:

1) Superscripts denote significance levels of 1% (***), 5% (**) and 10% (*).

2) The Baht exchange rate fluctuated considerably during the time of the field work (Jul. 1997 – Oct. 1998); it amounted to Baht 36.93 per USD on Oct. 30th, 1998.

Table 4: Variables in discriminant regressions

Household characteristic	Variable	Expected relationship	Regional sample Urban	Rural
Socio-economic characteristics				
Household size	Number of household members	+ / -	✓	✓
Age	Average age of household members	+ / -	✓	✓
Educational level	Average years of schooling (including tertiary education)	+	✓	✓
Literacy	Number of illiterate household members	-	✓	✓
Location in Huai Sai village	Household resides in the village Huai Sai (dummy variable)	+		✓
Location in Kongsang village	Household resides in the village Kongsang (dummy variable)	+		✓
Asset holding				
Titled land	Value of titled land	+	✓	✓
Financial assets	Sum of (1) savings at financial institutions, (2) outstanding credit given to others and (3) cash kept at home	+ / -	✓	✓
Household income				
Farm revenue	Value of farm production	+		✓
Non-farm enterprise revenue	Revenues from non-farm businesses	+	✓	✓
Salary and wages	Total salary and wage income	+	✓	✓
Government employee	One or more household members employed at government agencies	+	✓	✓

3.2.1.1 Socio economic characteristics

In both discriminant regressions, the household size (total number of household members) has been entered in the discriminant regression. The household size can have opposite effects on households' access to financial institutions:

- If increasing household sizes went alongside with both a higher household income and a higher degree of income diversification, households would become creditworthier in the sense of formal lenders.
- If larger households had a higher number of economically active persons, investment opportunities and credit demand could be higher.
- Larger, economically diversified households could generate higher incomes, thus reducing demand for external credit.

Households' age structure is captured by the average age of household members. In both regional samples, borrowing households are slightly "older", i.e. more advanced in the life cycle, than non-borrowing households, even though univariate analysis did not proof significant differences. The influence of age on households' access to formal finance is linked to the educational level of the household. The educational level is captured by average years of schooling (including tertiary education) of all adult household members.[3] Although borrowing households are generally better educated in both regions, only urban sample means

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[3] The age of 15 years has been chosen to distinguish between children and adults because the Labour Protection Act of 1998 establishes the age of 15 as the age limit for a working child.

turned out to be significantly different in univariate analysis. Since educational possibilities in Thailand have considerably improved during the last decades, it might well be possible that in multivariate analysis borrowing household turn out to be "younger" than non-borrowing households. The educational level is furthermore captured by the number of illiterate household members. The variable will be entered into the discriminant analysis even though univariate statistics did not reveal significant differences between borrowers and non-borrowers. It remains to be tested if this variable contributes to explaining group differences when simultaneously analysed with the other household characteristics.

In order to capture the location of rural households in individual villages, two additional dummy variables have been entered in the rural discriminant regression. If these variables contribute to explain a substantial share of group differences between borrowers and non-borrowers, we could conclude that rural households' access to formal financial institutions to some extent is the result of political decision making, i.e. the fact that certain financial institutions were arbitrarily set up in some areas but not in others. One of these variables captures households' residence in the remote village Kongsang. It must be expected that the Kongsang variable contributes to explain a sizable part of group differences: many villagers have access to BAAC in spite of households' relatively low educational level, asset value and annual income. The Huai Sai variable, on the other hand, is expected to contribute to the explanation of group differences because, besides BAAC, also the farmers' group has managed to reach out to a larger number of poorer households. The village Muang Chum forms the excluded category against which households location in the other two villages will be tested.

3.2.1.2 Household Assets

Household wealth is captured by the value of household assets at the time of the survey as well as the household income gained throughout the one-year period ending on the day of the survey. Since many of the asset variables are highly correlated we will enter the value of titled land as a discriminatory variable here. In view of the fact that titled land is the most important form of collateral required by commercial banks, BAAC and cooperatives, it can be expected that the variable discriminates well between borrowers and non-borrowers. We will furthermore enter the value of financial assets into the regression, consisting of savings at financial institutions, outstanding credit given out to others and the amount of cash money kept at home. The expected direction of discrimination is not clear: On the one hand, high financial assets could indicate a high level of self-financing and consequently low demand for external funds. On the other hand, many households showed a high liquidity preference with the purpose of making provisions for unforeseen emergencies. In this case, a high value of financial assets does not rule out that households further increase their liquidity by additional borrowing.

3.2.1.3 Sources and Level of Household Income

In order to capture the size of entrepreneurial activities it seems appropriate to include the amount of farm revenues (in the case of rural households) and the amount of non-farm business revenues. This variable furthermore serves as an indicator of rural households' income diversification. The amount of salary and wages measures the income earned without entrepreneurial risk. It is expected that the higher the degree of income diversification the likelier households are considered creditworthy in the sense of formal lenders. Commercial banks even require borrowers to secure potential loans with the personal guarantee of government employees. Univariate statistics has proved that the number of government employees per household is significantly higher in the urban borrowing households. Presumably due to the substitution of physical collateral by group guarantees (BAAC and farmers' groups) the variable did not turn out to be significant in the rural area however. Since some households also borrow from commercial banks the variable might still prove to be significant when analysed simultaneously with other household characteristics.

3.2.2 Discriminant Analysis Results

3.2.2.1 Test of the Discriminant Function

Before examining the individual discriminant function coefficients we will have to test the discriminant function as a whole. When running a discriminant regression, the values of the variable coefficients are chosen in such way that the discriminant scores differ as much as possible between the groups, i.e. the regression maximises the ratio of the between-groups sum of squares to the within-groups sum of squares. The canonical correlation coefficient measures the degree of association between the discriminant scores and the groups. The share of the variation in the discriminant scores that can be explained by the discriminant function can easily be computed by squaring the canonical correlation coefficients given in Table 5.

Table 5: Summary of discriminant functions

	Urban	Rural
Group centroids		
Borrowers	0.708	0.328
Non-borrowers	-0.566	-0.578
Eigenvalue	0.409	0.193
Canonical correlation	0.539	0.402
Wilks' Lambda	0.710	0.838
Chi-square	34.777	19.035
Significance level	1%	10%

The function applied for the urban area is more powerful in separating borrowers from non-borrowers, as shown by the share of explained variation (amounting to 29% as compared to only 16% for the rural regression). The most frequently used criterion to test the statistical significance of the discriminant function is Wilks' lambda. Wilks' lambda is computed as the proportion of the variance not explained to the total variance.[4] Small (high) values therefore indicate that the discriminant

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[4] This applies for discriminant regression run on only two groups. If the regression includes three or more groups, several discriminant functions are considered simultaneously. In this case Wilks' lambda is computed as the product of the univariate Wilks' lambdas for each function.

function has a high (small) variability between (within) the groups. In order to test the significance of the functions Wilks' lambda can be transformed into a variable that has approximately a chi-square distribution. The two discriminant functions have chi-square values of 34.777 and 19.035 resulting in significance values of 1% for the urban and 10% for the rural function (see Table 5). The null hypothesis stating that the population means of the borrowers and non-borrowers groups are equal can be rejected. We have to keep in mind that the urban model apparently fits the data far better than the model applied for the rural household data.

This conclusion would be in line with the above stated hypothesis that the variables separate urban borrowers from non-borrowers better than rural households. Even if the discriminant functions have proved to be significant, they do not necessarily have to discriminate well between the groups, however (e.g. Backhaus 1996; Norusis 1994). An additional test of the discriminant functions' performance therefore has to be carried out by comparing households' group membership as *predicted* by the discriminant function with the group membership actually *observed* in the sample (Table 6), i.e. to compare the correct and incorrect classifications. Again it becomes clear that the urban regression performs far better than the rural one. It classifies 81.1% of the cases correctly, as compared to only 66.4% by the regression run for the rural sample. These numbers have to be compared to the prior probabilities (i.e. the expected rate of (in)correct classification by chance alone) which, in our two groups case, amounts to 50%. In sum, both regressions clearly outperform by-chance classification; the urban regression turned out to, firstly, be significant at a higher significance level and, secondly, manages to correctly classify a higher share of sample households.

Table 6: Classification results

Observed	Predicted	Urban			Rural		
		Borrowers	Non-borrowers	Total	Borrowers	Non-borrowers	Total
Number	Borrowers	34	15	49	46	28	74
	Non-borrowers	6	56	62	11	31	42
Percentage	Borrowers	69.4	30.6	100.0	62.2	37.8	100.0
	Non-borrowers	9.7	90.3	100.0	26.2	73.8	100.0
Cases correctly classified (%)		81.1			66.4		

These results are in line with the hypothesis stated above: in the urban area, borrowing and non-borrowing to a large extent can be explained by the household characteristics included in the model. Although also the rural regression is significant, it explains a smaller share of between-groups variance and indicates that the variables included in the model are less important in gaining access to formal financial institutions.

3.2.2.2 Interpretation of the Discriminant Coefficients

Group differences between borrowers and non-borrowers have been *detected* proving the statistical significance of the discriminant regressions. In the following group differences

will be *explained* by taking a look at the discriminant function coefficients. The discriminative power of *individual* variables has been tested above. Due to possible interdependencies between individual household characteristics, variables that have proven not to be significant individually might still have high discriminatory power when analysed *jointly* with other variables. The discriminant coefficients indicate the influence of variables on the discriminant variable. When discriminant coefficients are standardised,[5]: they can be interpreted as follows: the larger the standardized coefficient, the greater the contribution of the respective variable to the discrimination between groups, i.e. between borrowers and non-borrowers.

Table 7: Standardised discriminant function coefficients

Household characteristics	Standardised discriminant coefficients	
	Urban	Rural
Household size	-0.038	0.280
Age	0.138	0.106
Education	0.224	-0.151
Illiteracy	-0.070	-0.841
Value of titled land	0.543	0.288
Financial assets	-0.045	-0.143
Farm production	--	0.384
Non-farm business revenue	0.683	0.386
Salary and wage income	0.644	-0.207
Government employee	0.221	0.433
Resident in Huai Sai	--	0.630
Resident in Kongsang	--	0.265

The standardised discriminant coefficients for the urban and rural regression are presented in Table 7. The sign of a function coefficient gives the direction of association. The coefficient signs are, to some extent, arbitrary in discriminant analysis; the group centroids in Table 5, however, show that large discriminant values are associated with borrowing households. Variables with small and negative coefficients demarcate characteristics distinctive of non-borrowing households. Interpretation of the individual coefficients has to be exercised with care, because the relative contribution of individual variables depends on the other variables included in the model. In the following, the individual variables and their role in separating borrowers from non-borrowers in urban and rural areas will be discussed.

3.2.2.2.1 Socio-economic characteristics

Although univariate statistics has shown that urban borrowing households are significantly larger than non-borrowing households, the corresponding discriminant coefficient has a negative - yet extremely small - value. In the rural regression as well, the coefficient belongs to the least important ones; it has a positive sign, however. The sample means (Table 3) show that the household size does not differ much across the samples; we should, therefore, not attach too much importance to this variable. The positive correlation of the household size in the rural area can be explained with the degree of income diversification, because large households are likely to be more diversified than small households. And households with diversified income sources are more likely to have access to formal finance (see below). In accordance with univariate statistics, age only moderately

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[5] Discriminant scores can only be calculated with unstandardised coefficients. In order to compare the coefficients in a discriminant regression, scale effects have to be neutralised. A mere change in the unit of measurement, for instance, affects the size of the unstandardised coefficient. Standardised coefficients are obtained by multiplying the unstandardised coefficient with the standard deviation of the variable.

accounts for group differences. The coefficient has a positive sign for both regressions. It can be supposed that age as well accounts for part of other variables included in the models: older households are likely to have a higher household income (due to the lower number of not directly productive children who attend school or university); they might have accumulated more wealth and, therefore, assets that could be used as collateral.

It is not surprising that urban borrowers are clearly better educated than non-borrowers: better educated people will more likely be able to comply with the paperwork of credit application at formal institutions. We can furthermore expect that the educational level is positively correlated with other variables in the models such as the household income and the value of household assets and therefore explains part of this relationship in the model. At first sight it might be surprising that rural borrowers are less educated than rural non-borrowers. Since the corresponding standardized coefficient has the second smallest absolute value, it must be concluded that education is not a relevant characteristic distinguishing rural borrowers from non-borrowers. This observation highlights that formal lenders in rural areas have overcome educational obstacles facing credit applicants and manage to reach out to poor – and therefore often less educated – households. The other variable representing the educational level – the number of illiterate household members 15 years and older - performs very differently in the urban and rural regression. Whereas univariate statistics did not show significant differences between borrowers and non-borrowers in neither region, illiteracy turned out to be the most powerful variable to explain non-borrowing in the rural area. Illiteracy is particularly widespread in the remote village Kongsang: non-borrowing households there have 2.5 illiterates on average as compared to 1.6 of borrowing households and 0.6 illiterates per household in the overall rural sample. Therefore, the variable will predominantly separate borrowers from non-borrowers in this village. In the urban area, illiteracy – due to its minor incidence - is not an important variable explaining group differences. The second most important variable in the rural regression is the dummy variable representing residence in the village Huai Sai.[6] This can be explained by the fact that many households - partly in addition to the BAAC credit program - participate in the in-kind credit scheme provided by the tambon farmer's group. Also households' residence in the remote village Kongsang partly explains access to formal finance: Although villagers in the remote village Kongsang come off worse with respect to "traditional" access variables, BAAC nevertheless started to lend considerable credit amounts to the village.[7] The relatively high discriminant coefficients of the variables representing households' location in certain villages clearly demonstrate that rural households' access to financial institutions to a large extent can be ascribed to the availability or non-availability of the government driven financial

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[6] Since the village Muang Chum is not represented in the regression, the village serves as the base category against which residence in Huai Sai and Kongsang are compared.

[7] BAAC gives out credit amounts that are standardised for certain areas rather than based on individual household characteristics. Due to restricted investment possibilities borrowers in Kongsang are often not able to repay BAAC credits from the return on investment. A symptom of inadequate credit amounts must be seen in the fact that several households repaid used part of the long-term credit received the year before to repay the first instalment of their long-term credit one year later; in many cases, the credit amounts given to Kongsang villagers obviously exceed households' repayment capacity.

institutions and that means to the (political) decision of setting up financial institutions in certain areas.

3.2.2.2.2 Household assets

The variable capturing the value of titled land assets – the most important form of physical collateral[8] - embodies another major difference between the urban and rural regressions. Whereas this variable clearly discriminates borrowers from non-borrowers in the urban area – the variable is, in fact, the third most important – it explains a far lower share of group differences in the rural area.

Although the value of financial assets varies considerably across the samples (see Table 3) both univariate statistics and discriminant analysis could not explain group differences by this variable.

3.2.2.2.3 Level and sources of household income

The extent of entrepreneurial activities, measured by the annual gross revenues from business activities, is the most powerful variable in explaining group differences between *urban* borrowers and non-borrowers and reflects that it is the better-off households that have access to formal finance. After the considerations above, it does not surprise, that the value of farm production, on the other, far less contributes to explain group differences in the *rural* area.[9] The substitution of physical collateral by group guarantees enables also smaller scale activities to be refinanced with formal credits. Besides physical collateral, commercial banks often require loans to be guaranteed by persons employed by government agencies. Therefore, the corresponding variable government employee has a relatively large sign in the rural regression. The variables government employee and non-farm business revenue in the rural regression can furthermore be interpreted in such a way to capture the degree of income diversification. The corresponding coefficients are relatively large and emphasise that non-farm activities play a key role in separating rural borrowers from non-borrowers. It must not necessarily be a contradiction that the salary and wage income is negatively related to the rural discriminant variable, although it also reflects income diversification. Firstly, as compared to entrepreneurs, employees might have fewer investment possibilities and therefore lower demand for credit. When, secondly, some household members receive a relatively stable salary income, i.e. without the seasonal fluctuations associated with farming, this liquidity can also be used to finance (part of) the farming inputs during the agricultural peak season, thus again limiting the demand for credit. The relatively high coefficient for salary income in the urban regression can be explained with the fact that high salary and wage incomes are associated with a higher degree of creditworthiness in the sense of commercial banks' evaluation of creditworthiness.

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[8] Commercial bank and cooperative credits as well as BAAC credits exceeding 60,000 Baht have to be guaranteed by the mortgage of titled land.

4 Summary and Conclusions

The urban discriminant function performs relatively well as shown by the high significance level and the share of correctly classified cases. Differences between *urban* borrowers and non-borrowers to a large extent can be explained by "traditional" credit access variables, namely socio-economic, wealth and income variables of small enterprise households. Borrowing households can primarily be distinguished from non-borrowing households by the size of entrepreneurial activities - measured by the annual business revenues in the one-year reference period -, the level of salary and wage income as well as the value of titled land.

These results are not so much surprising, of course. It is well known that the situation described above is not unusual also for many other developing and developed countries. What is much more remarkable here is that we found a situation of "urban bias in reverse": financial market access in rural areas is better than in urban centres, contrary to the general perception that it is the rural area, where access barriers to formal finance are higher. The rural regression also turned out to be significant, yet at a much lower significance level. This calls for some caution when interpreting regression results. It shows, however, that in the rural area the variables mentioned above are not as decisive in discriminating borrowers from non-borrowers. Individual regression coefficients suggest that access to formal finance largely depends on households' location in those regions, where (arbitrarily or due to politically motivated decision) formal finance institutions where set up. The results underline the success of the efforts by the Thai government to substitute physical collateral with group guarantees – an approach pursued particularly by BAAC and the farmers' groups.

Above analysis seems to support the hypothesis that small enterprise assistance in the past has indeed benefited rural entrepreneurs, particularly farmers, more than urban ones. Many urban small enterprises, – i.e. the ones which often have much better business prospects than, say, pure farmers – have been neglected by commercial bankers and policy makers. Urban small enterprises can roughly be split into two groups. The first group - due to its ability to comply with requirements imposed by commercial banks - has access to formal credit. A large share of less fortunate small entrepreneurs has to rely on self-financing and the informal financial market (which undoubtedly supplies useful services, yet often at high cost).

The most important policy recommendation is that there is a case for removing the "rural bias" and putting more emphasis on the promotion of urban small enterprises, especially by facilitating access to formal financial services. Providing the financial infrastructure (i.e. financial institutions, financial services and financial sector regulations) that is in line with the specific demand of urban *and* rural entrepreneurs will tackle one of the most important bottlenecks of small enterprise development: the availability and affordability of funds for investment, operating expenses and consumption. The experiences made in rural

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[9] It has to be kept in mind, however, that the household income of longan farmers in Huai Sai was adversely affected by bad weather in the reference period. In "normal" years the income variable, therefore, could contribute more to explain group differences between rural borrowers and non-borrowers.

lending, particularly with the collateral substitution schemes, have taught important lessons which can be drawn on when urban credit schemes are to be designed.

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