

Outreach and Efficiency of Microfinance Institutions: is there a trade-off?

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Abstract:

This paper uses stochastic frontier analysis to examine whether there is a trade-off between outreach to the poor and efficiency of microfinance institutions. Using a sample of more than 1300 observations, our study suggests that outreach and efficiency of MFIs are negatively correlated. Most importantly, the results indicate that efficiency of MFIs is higher if they focus less on the poor and/or reduce the percentage of female borrowers.

Preliminary. Please do not cite.

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1. Introduction

Microfinance institutions focus on providing credit to the poor who have no access to commercial banks. While microfinance institutions try to be financially sustainable, they appear to be often loss making. Nevertheless, they succeed in lending to domestic small companies and poor agents since Western donors and NGOs are still willing to provide financial support against below market interest rates. Recently, however, there seems to be a shift from microfinance institutions to a further focus on financial sustainability and efficiency. Financial sustainability and efficiency of microfinance institutions is obviously very important for a well-functioning financial system in developing countries. However, the more important question is, is what the shift to efficiency improvements implies for the traditional aim of microfinance institutions in terms of outreach to the poor.

The increased focus on financial sustainability and efficiency by microfinance institutions is due to several developments. Most importantly, a commercialization of microfinance takes place. This has induced microfinance institutions to provide a wider range of financial services, such as savings funds and insurance services. It has also induced a move from group lending to individual-based lending. Even the most well-known examples of group-based lending, the Grameen Bank of Bangladesh and BancoSol of Bolivia now use individual-based models. Moreover, the private sector is more and more involved in microfinance. The involvement of traditional commercial banks in microfinance is growing rapidly around the world. In several developing countries large state banks and private banks have started to provide microfinance services. In Pakistan, for instance, a number of private commercial banks have moved into microfinance. In Malaysia, Nepal, and Thailand there are programs stimulating commercial banks to become involved in microfinance. In India the National Bank of Agriculture and Rural Development (NABARD) recently initiated a program to

involve private banks in microfinance. Also international capital markets start to play a role in financing microfinance institutions. Starting in 2004 private sector institutional investors seeking full market returns started to invest in microfinance institutions. In the last 3 years, approximately \$500 million has been raised from international capital markets in the form of collateralized debt obligations, and direct securitizations of micro loans.

The commercialization of microfinance is challenging. Commercialization may have positive effects since it may lead to a strong increase in funds which is needed to guarantee a large-scale outreach to the poor on a long-term basis. The increase in funds implies an increase in the scale of operations, which may also increase the absolute number of poor people that are reached by microfinance institutions. If this would happen, outreach, commercialization and the implied focus on financial sustainability would be compatible objectives, as is argued by e.g. Christen et al. 1995 and Otero and Rhyne 1994. Commercialization may also result in an increase in efficiency of microfinance institutions due to the increased competition in the market for micro loans. However, at the same time the commercialization and the related need to increase efficiency involve many risks. Most importantly, there may exist a conflict between efficiency and outreach, implying that the strife to increase efficiency reduces the scope for lending to the poor. Some evidence for this negative side-effect of commercialization is given by McIntosh, De Janvry and Sadoulet (2005), who show that wealthier borrowers are likely to benefit from increasing competition among microfinance institutions, but that it leads to lower levels of welfare for the poorer borrowers. In addition, several authors argue that there is a trade-off between depth of outreach and achieving financial sustainability since unit transaction costs for smaller loans (loans for the poor) are high as compared to unit costs of larger loans (Hulme and Mosley, 1996; Conning, 1999; Paxton and Cuevas, 2002; Lapenu and Zeller, 2002). Therefore, the recent shift of

microfinance institutions to progress from small, money-losing operations to large providers of banking services on a more commercial basis may go against the traditional aim of microfinance institutions and that is to provide credit to the poor.

The possible trade-off between efficiency and outreach is one of the most important topics in recent discussions on microfinance. The short survey above indicates that there are still conflicting ideas about this topic. Moreover, most of the evidence on the outreach versus efficiency discussion suffers from being anecdotal and case study driven. There is almost no study available that tries to systematically explain whether there is a trade-off between the depth of outreach versus the strife for financial sustainability. An exception is the study by Cull et al. (2007). They examine financial performance and outreach in a large comparative study based on a new extensive data set of 124 microfinance institutions in 49 countries. The authors explicitly explore whether there is empirical evidence for a trade-off between the depth of outreach and profitability. They examine this issue by examining whether more profitability is associated with a lower depth of outreach to the poor, and whether there is a deliberate move away from serving poor clients to wealthier clients in order to achieve higher financial sustainability (mission drift). A special feature of the study by Cull et al. is that an explicit distinction has been made between three types of microfinance institutions, i.e. group lending systems, village banking, and individual-based lending. The study suggests that individual-based microfinance institutions seem to perform better in terms of profitability, but the fraction of poor borrowers and female borrowers in the loan portfolio is lower than for group-based institutions. The study also suggests that individual-based microfinance institutions, especially if they grow larger, focus increasingly on wealthier clients (mission drift), whereas this is less so for the group-based microfinance institutions.

Our study aims to add to the small amount of empirical evidence on the relationship between efficiency and outreach to the poor of microfinance institutions. We build on the study by Cull et al. However, there are several differences. First, our sample is much larger. Second, we consider more recent years into consideration. Most importantly, we take a completely different approach. Whereas Cull et al. focus on explaining financial sustainability by running some linear regressions with e.g. profitability as the dependent variable, we approach the matter by trying to determine which factors are important for the cost efficiency of microfinance institutions. In order to do this, we formulate a cost function, and apply stochastic frontier analysis to determine a cost frontier for a set of microfinance institution, and to determine which factors may explain the distance from the best practice cost function (i.e. cost inefficiency). Most importantly, we examine whether outreach indicators have a positive or negative relationship with cost efficiency of microfinance institutions.

The remainder of this paper is scheduled as follows. Section 2 explains the methodology, and presents the equations we estimate. Section 3 sets out the data we have used. Section 4 provides the estimation results. Finally, section 5 surveys the paper and gives some suggestions for further research.

2. Methodology

We measure cost efficiency as how close a micro finance institution (MFI)'s actual cost is to what a best-practice MFI's cost would be for producing identical output under the same conditions. Cost (in)efficiency measures the reduction in costs that could have been achieved if a MFI were both allocatively and technically efficient. As costs functions are not directly observable, inefficiencies are measured in comparison with an efficient cost frontier. Most studies on cost efficiency use data envelopment analysis (DEA) or stochastic frontier analysis

(SFA). We use stochastic frontier analysis as it controls for measurement error and other random effects¹. More specifically, we use the Battese and Coelli (1995) SFA model, henceforth the BC model. A first advantage of the BC model over the standard two-step SFA approach of Aigner, Lovell and Schmidt (1977), and Meeusen and van den Broeck (1977) is that the former estimates the cost-frontier and the coefficients of the efficiency variables simultaneously. Wang and Schmidt (2002) show that a two-step approach suffers from the assumption that the efficiency term is independent and identically truncated-normally distributed in the first step, while in the second step the efficiency terms are assumed to be normally distributed and dependent on the explanatory variables. This method inherently renders biased coefficients. A second advantage of the BC model is that it can be estimated for an unbalanced panel, which increases the amount of observations.

The general BC model specifies a stochastic cost frontier with the following properties:

$$(1) \quad \ln C_{i,t} = C(y_{i,t}, w_{i,t}, q_{i,t}; \beta) + u_{i,t} + v_{i,t}$$

where $C_{i,t}$ is the total cost MFI i faces at time t and $C(y_{i,t}, w_{i,t}; \beta)$ is the cost frontier.

Within the cost frontier, $y_{i,t}$ represents the logarithm of output of MFI i at time t , $w_{i,t}$ is a vector of the logarithm of input prices of MFI i at time t , q are MFI specific control variable variables and β is a vector of all parameters to be estimated. The term $u_{i,t}$ captures cost inefficiency and

¹ Non-parametric techniques do not allow for measurement error and luck factors. These techniques attribute any deviation from the best-practice MFI to technical inefficiency. For a more extensive review of the non-parametric and the parametric approach, see Matousek and Taci (2004).

is independent and identically distributed with a truncated normal distribution². $v_{i,t}$ captures measurement error and random effects, e.g. good and bad luck, and is distributed as a standard normal variable. Both $u_{i,t}$ and $v_{i,t}$ are time and MFI specific and represented as:

$$(2) \quad u_{i,t} \sim N^+(m_{i,t}, \sigma_u^2) \text{ and } v_{i,t} \sim iidN(0, \sigma_v^2)$$

$$(3) \quad m_{i,t} = \delta_0 + \sum_n \delta_{n,i,t} z_{n,i,t}$$

Equation (3) models inefficiency and its explanatory variables. The z in Equation (3) represents the vector of n variables that drive the inefficiency (m) of MFI i at time t . The deltas represent the coefficients. Equations (1) and (3) are solved in one step by using maximum likelihood.

For the specification of the cost function we used the model developed by Sealey and Lindley (1977) who state that a bank and thus an MFI acts as an intermediate between funders and borrowers. The cost function has the specification given in Equation (4).

$$(4) \quad \ln(TC_{i,t}) = \beta_0 + \beta_1 \ln(SALARY_{i,t}) + \beta_2 \ln(R_{i,t}) + \beta_3 \ln(GLP_{i,t}) \\ + \beta_{j=4..8} MFITYPE_{i,j} + u_{i,t} + v_{i,t}$$

In this equation TC stands for the total costs a MFI faces, $SALARY$ stands for the price of one factor of labor for one year, R is the interest expense holding money, and GLP is the gross loan portfolio. These variables are measured as follows:

² Thus, the total costs a MFI faces are never lower than the costs of the frontier. For a graphical representation of the frontier and its dynamics see Berger *et al.* (1993). The authors show how inefficiency is determined by both technical and allocative inefficiency.

TC=Total Expense Ratio*Total Assets in USD

SALARY= (Operating Expense Ratio*Total Assets in USD)/Number of Personnel

R = Financial Expense Ratio/Deposits to Total Assets

GLP= Gross Loan Portfolio to Total Assets*Total Assets in USD

From this cost function *SALARY* and *R* can be seen as input prices while *GLP* is the factor of total output. In order to control for the fact that different types of MFIs have different cost functions, we add dummies for type of MFI (*MFITYPE*). More specifically, we add a dummy for banks (bank), cooperatives, non-bank financial institutions, non-governmental organizations (NGOs), and rural banks. There is also a rest group, which we leave out for reasons of singularity.

The specifications of the (in)efficiency equations read as follows:

$$(5a) \quad m_{i,t} = \delta_0 + \delta_1 ALB$$

$$(5b) \quad m_{i,t} = \delta_0 + \delta_1 ALB + \delta_2 YEAR$$

$$(5c) \quad m_{i,t} = \delta_0 + \delta_1 ALB + \delta_2 YEAR + \delta_3 WOMAN$$

$$(5d) \quad m_{i,t} = \delta_0 + \delta_1 YEAR + \delta_2 WOMAN + \delta_3 AGE + \delta_4 \ln(ALB) + \delta_5 \ln(ASB) \\ + \delta_6 \ln(BORROWERS) + \gamma REGION + \lambda LOANTYPE$$

In this equation *m* stands for the first moment of the inefficiency distribution for MFI *i* on time *t*. The higher this moment, the more likely it is that the MFI is inefficient. *ALB* is the Average Loan Balance per Borrower (in US dollar), *YEAR* runs from 1 to 11 to see whether efficiency effects change over time, *WOMAN* denotes the percentage of female borrowers, *ASB* gives the Average Savings balance per Saver (in US dollar), and *AGE* measures the age

of the MFI. *BORROWERS* refers to the Number of Active Borrowers. Finally *REGION* is a vector of region dummies, and *LOANTYPE* is a vector of dummy variables that measure whether the MFI provides only individual loans (*INDIVIDUAL*), only solidarity loans (*SOLIDARITY*), village loans (*VILLAGE*), or a combination of the above (*INDIVIDUAL/SOLIDARITY*). It should be noted that for a considerable part of the sample the loan type was not given. In order to have a reasonable sample size, we have included these data and treat them as a rest group.

The main purpose of this paper is to test whether there is a trade-off between outreach to the poor and efficiency of an MFI. We use two standard outreach variables: *WOMAN* and *ALB*. Both indicators are seen as proxies for outreach. *ALB* is seen as an indicator for lending to the poor. The higher *ALB*, the less focused the MFI on the poor. So evidence for a trade-off implies a positive significant coefficient on *WOMAN* and a negative significant coefficient on *ALB*. In addition to the two typical outreach indicators, we have added some control variables. These variables e.g. test to what extent there is a difference in efficiency in MFIs per region, and whether efficiency depends on the loan type.

3. Data

The data we use come from MIX MARKET (2007), a global, web-based, microfinance information platform. After adjustments for missing data we have data for 435 MFIs over a 10 year period. In total we have 1318 observations. Appendix 1 gives a correlation matrix of the main variables. Table 1 provides a detailed description of the distribution of MFIs over the years. As can be seen from the table, there are only 6 observations for 1997 in our dataset. Thereafter, the amount of observations increases rapidly. For 2007 the amount of observations is again small since most MFIs have not yet completed their financial statements. The last two

columns of Table 1 show that for most MFIs we only have observations for 1 or 2 years. There is no MFI for which we have observations over the entire period of 11 years.

Table 1: Description of the panel

year	Observations		Nr of Years Available	Nr of MFIs
1997	6			
1998	19		1	104
1999	30		2	106
2000	42		3	85
2001	60		4	49
2002	123		5	48
2003	190		6	19
2004	243		7	8
2005	294		8	7
2006	298		9	5
2007	13		10	4
Total	1318		Total	435

The dataset allows to distinguish between different loan systems that are used by MFIs. The following classification is used: (1) individual (individual lending); (2) mixed (the MFI uses individual lending and solidarity group lending or individual lending and village bank lending); (3) group (the MFI uses solidarity group lending) and (4) village (the MFI uses village banking). Information on loan type is obtained from MIX Microbanking Bulletin. Table 2 provides information on the relative importance of the different loan systems used by MFIs in our data set, per region. Note that for several MFIs it is not specified which system they use. This explains why the sum of the rows do not add up to Total.

Table 2: Lending Type and Region.

region	Loan Type				Total
	Individual	Mixed	Solidarity	Village	
Africa	29	87	51	3	170
East Asia and the Pacific	49	40	3	1	93

Eastern Europe and Central Asia	7	13	3	0	23
Latin America and the Caribbean	99	22	0	0	121
South Asia	0	40	7	10	57
Total	184	202	64	14	464

Table 2 shows that especially in the Latin American MFIs in our sample, the individual loan system is used. In Africa Group lending is relatively more important.

Table 3 provides information on the loan type and different outreach variables. This table suggests that group lending and village banking is more associated with outreach to the poor than individual lending. For instance, the average loan balance per borrower (a standard outreach variable. Lower loan balances are associated with loans to the poor) is much lower for group lending and village banking than for individual lending. In addition, the percentage of female borrowers is higher for *group* and *village* than for individual. Also the percentage of clients below the poverty line is higher for group and village than for individual.

Table 3: Descriptive statistics per loan type

Loan Type		Individual	Mixed	Group	Village	Total
Active borrowers	Mean	169727.3	228809.9	38271.66	31601.93	173149.2
	Var	3.80E+11	6.06E+11	7.23E+09	9.36E+08	4.19E+11
	Obs.	184	202	64	14	464
Average loan balance per borrower	Mean	1132.951	566.9307	115.375	84.85714	714.5582
	Var	817995.9	625591.8	2076.27	1414.901	735911.6
	Obs.	184	202	64	14	464
Loans below us 300	Mean	0.544287	0.674055	0.938555	0.9541	0.705744
	Var	0.044976	0.094937	0.014767	0.004562	0.081475
	Obs.	23	42	11	10	86
Woman borrowers	Mean	0.433928	0.639958	0.646067	0.9735	0.57839
	Var	0.058192	0.065482	0.056802	0.003002	0.074605
	Obs.	138	168	60	14	380

Average savings balance per saver us	Mean	1892.337	2331.65	37.09677	22.42857	1751.248
	Var	1.08E+08	6.97E+08	3646.646	1033.648	3.39E+08
	Obs.	172	183	62	14	431
Clients below poverty line	Mean	0.288	0.548636	0.75	0.682222	0.56625
	Var	0.10927	0.05845	0.25	0.193344	0.118239
	Obs.	5	22	4	9	40
Clients in bottom half of the population	Mean	0.12	0.128571	0	0.4975	0.170645
	Var	0.02455	0.004163	.	0.000025	0.022933
	Obs.	5	21	1	4	31

4. Estimation results

Table 4 gives the estimation results. The upper part (above efficiency) of the table refers to the estimate of the cost frontier. Here a positive coefficient implies an outward shift of the cost function, and hence, ceteris-paribus higher costs. The estimates for the cost function appear to be reasonable. The coefficients for $\text{Ln}(\text{SALARY})$, $\text{Ln}(\text{R})$, and $\text{Ln}(\text{GLP})$ are as expected.

The lower part, below *efficiency* refers to the estimation of the efficiency equation. The table clearly suggests that there is a trade-off between outreach to the poor and efficiency. The percentage of female borrowers in the loan portfolio (*woman*) has a positive and significant coefficient, implying that MFIs who focus more on lending to women are financially less efficient. In addition, the average loan balance per borrower (in logs and in normal values) is negatively significant, suggesting that MFIs that focus more on lending to the poor are less efficient.

As for the control variables, the table shows that MFIs in Africa and Asia (as compared to MFIs in Latin America) are less efficient. In addition, older MFIs seem to be more efficient (positive coefficient on *AGE*), whereas on average MFIs became more efficient recently (negative coefficient on *YEAR*). Finally, if controlled for outreach, efficiency seem to be higher for MFIs that focus on group lending (*SOLIDARITY*) as compared to MFIs that focus on individual lending.

Table 4: Estimation results

	1	2	3	4
Ln(SALARY)	0.356*** [0.019]	0.353*** [0.019]	0.373*** [0.023]	0.371*** [0.021]
Ln(R)	0.005 [0.008]	0.006 [0.008]	0.009 [0.008]	0.026*** [0.010]
Ln(GLP)	0.850*** [0.008]	0.852*** [0.008]	0.858*** [0.009]	0.931*** [0.037]
Bank	-0.690*** [0.147]	-0.670*** [0.150]	-0.680*** [0.160]	-0.274 [0.181]
Cooperative/Credit Union	-1.226*** [0.147]	-1.190*** [0.150]	-1.185*** [0.159]	-0.801*** [0.181]
Non-Bank Financial Institution	-0.938*** [0.150]	-0.910*** [0.152]	-0.943*** [0.160]	-0.503*** [0.185]
Non-Profit (NGO)	-0.885*** [0.152]	-0.844*** [0.156]	-0.884*** [0.166]	-0.578*** [0.189]
Rural Bank	-1.169*** [0.151]	-1.120*** [0.154]	-1.173*** [0.166]	-0.879*** [0.189]
Constant	-1.641*** [0.221]	-1.663*** [0.221]	-1.896*** [0.268]	-3.997*** [0.630]
Efficiency ALB	-0.001*** [0.000]	-0.001*** [0.000]	-0.001*** [0.000]	
YEAR		-0.031** [0.013]	-0.028** [0.013]	-0.020** [0.009]
WOMAN			0.091 [0.087]	0.169** [0.071]
Africa				0.169*** [0.045]
East Asia nd the Pacific				0.145** [0.057]
Individual				-0.031 [0.055]
Individual/Solidarity				-0.184*** [0.052]
Solidarity				-0.344*** [0.078]
Village				-0.001 [0.137]
Age				0.007*** [0.002]
Ln(ALB)				-0.263*** [0.042]
Ln(ASB)				0.012 [0.013]
Ln(BORROWERS)				-0.085** [0.039]
Constant	0.730*** [0.078]	62.303** [25.576]	56.599** [26.257]	44.047** [18.073]
ilgtGamma	0.444 [0.309]	0.524* [0.299]	-0.232 [0.565]	1.575*** [0.511]
Insigma2	-1.269*** [0.130]	-1.235*** [0.136]	-1.390*** [0.134]	-1.521*** [0.056]

Observations	1306	1306	1063	1006
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Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

5. Conclusions

This paper uses stochastic frontier analysis to examine whether there is a trade-off between outreach to the poor and efficiency of microfinance institutions. Using a sample of more than 1300 observations, we find strong evidence that outreach is negatively related to efficiency of MFIs. More specifically, we find that a higher percentage of female borrowers is associated with a lower financial efficiency of MFIs and that lower average loan balances have a negative effect on efficiency. In view of the current move to commercialization of the microfinance industry this seems to be bad news. Commercialisation induces a stronger focus on efficiency. Our study suggests that an improvement of efficiency can only be reached if MFIs focus less on the poor, and reduce the percentage of female borrowers.

It should be noted, however, that our results do not necessarily imply that a stronger focus on efficiency is bad for poverty reduction. Due to spill-over effects, MFIs that strive for efficiency, and score low on outreach to the poor, may ultimately cause a higher poverty reduction at the macro level than MFIs that score high on outreach indicators (see Zeller and Johannsen, 2006). Further research needs to indicate to what extent this holds.

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APPENDIX 1: Correlation table

	ln(TC)	ln(R)	ln(SALARY)	ln(GLP)	BANK	Coop	Non-Bank	Non-Profit	Rural Bank	Other	ALB	YEAR	WOMAN
ln(TC)	1.000												
ln(R)	0.120	1.000											
ln(SALARY)	0.593	-0.112	1.000										
ln(GLP)	0.962	0.121	0.527	1.000									
BANK	0.473	0.058	0.305	0.436	1.000								
Cooperative	-0.329	-0.334	0.019	-0.285	-0.291	1.000							
Non-Bank	0.131	0.124	0.012	0.119	-0.255	-0.440	1.000						
Non-Profit	-0.118	0.211	-0.252	-0.146	-0.177	-0.305	-0.267	1.000					
Rural Bank	0.038	-0.002	-0.036	0.024	-0.029	-0.050	-0.044	-0.030	1.000				
Other	-0.108	0.020	-0.100	-0.077	-0.123	-0.212	-0.186	-0.129	-0.021	1.000			
ALB	0.198	-0.029	0.313	0.243	0.203	0.114	-0.112	-0.180	0.078	-0.054	1.000		
YEAR	0.107	0.084	0.124	0.142	-0.065	0.039	-0.064	0.066	-0.108	0.060	0.131	1.000	
WOMAN	-0.144	0.225	-0.260	-0.181	-0.121	-0.195	-0.043	0.460	-0.088	-0.024	-0.232	0.001	1.000
Africa	-0.308	-0.389	-0.157	-0.340	-0.158	0.220	0.051	-0.041	-0.030	-0.198	-0.190	-0.139	-0.116
East Asia	-0.037	0.093	-0.130	-0.045	-0.027	-0.237	-0.078	0.047	0.094	0.483	-0.091	0.011	0.098
Individual	0.245	-0.038	0.205	0.242	0.161	-0.102	0.006	-0.130	-0.027	0.138	0.058	-0.094	-0.212
Indi/Sol	0.222	0.154	-0.038	0.240	0.202	-0.191	0.078	0.054	-0.031	-0.120	-0.086	-0.114	0.101
Solidarity	-0.120	0.105	-0.226	-0.098	-0.102	-0.175	0.341	-0.036	-0.018	-0.074	-0.122	-0.013	0.056
Village	-0.039	0.129	-0.085	-0.054	-0.047	-0.081	0.106	0.048	-0.008	-0.034	-0.058	-0.049	0.167
ln(ALB)	0.800	0.212	0.162	0.816	0.297	-0.447	0.217	0.091	-0.018	-0.081	-0.183	0.056	0.089
ln(ASB)	0.383	-0.224	0.590	0.391	0.291	0.107	-0.009	-0.366	-0.010	-0.055	0.456	0.080	-0.395
ln(BORROWERS)	0.387	-0.126	0.644	0.425	0.278	0.216	-0.137	-0.392	0.068	-0.004	0.701	0.154	-0.447

	Africa	East Asia	Individual	Indi/Sol	Solidarity	Village	ln(ALB)	ln(ASB)	ln(BORROWERS)
Africa	1.000								
East Asia	-0.336	1.000							
Individual	-0.187	0.141	1.000						
Indi/Sol	0.022	0.076	-0.164	1.000					
Solidarity	0.202	-0.063	-0.094	-0.107	1.000				
Village	-0.042	-0.021	-0.043	-0.050	-0.028	1.000			
ln(ALB)	-0.197	0.006	0.123	0.338	0.057	0.031	1.000		
ln(ASB)	-0.262	-0.071	0.211	-0.056	-0.275	-0.143	-0.039	1.000	
ln(BORROWERS)	-0.270	-0.087	0.220	-0.121	-0.257	-0.141	-0.176	0.728	1.000