

Social Performance Measurements of Microfinance Institutions: Theory and Empirical Measurement

Research Outline and Initial Results

Florence Marie P. Milan

Rural Development Theory and Policy

Institute for Agricultural Economics and Social Sciences in the Tropics and Subtropics

University of Hohenheim

Prof. Dr. Manfred Zeller

3rd University Meets Microfinance Workshop

Leibniz University Hannover, 18 June 2010

Overview

Part I - Research Outline

- Introduction
- Objectives
- Conceptual framework
- Methodology

Part II - Initial Results

- Social performance management of AMK
- Principal component analysis
- Poverty dynamics using panel data

Part III - Additional Analysis

Microfinance

- Important tool for poverty alleviation and rural development.
- Contribute to income generation and consumption stabilization (Heidhues 1995, Zeller et al 1997).
- Reduce risk and provide short-term relief among transient poor.



Conceptual Framework

Corporate Social Responsibility

- Deals with the role of business in society
- Management has an ethical obligation to consider and address the needs of society, not just to act solely in the interests of shareholders or their own interest (Wilson 2003)

Double Bottom Line

- Viable commercial organizations and catalyst of social development (Tulchin 2003)

... Corporate Social Performance, Stakeholder Theory and Accountability Theory

Main Objectives of the Research

- Examine the possibility of developing a new practical measurement system based on analysis of existing approaches of social performance assessment.
- Identify general indicators for measurement that apply to MFIs that will enable direct comparison across different organizations and context.
- Present empirical evidence with the case example of AMK (Angkor Mikroheranhvatho Kampuchea) Co. Ltd. in Cambodia

Methodology

Empirical Component

- Social performance accomplishments of AMK
 - concepts in business, ethics, and society
- Quantitative analysis

Data and sampling method

- Round 1
 - clients (group loans) and non-clients surveyed in 2006
 - clients (group loans) and non-clients surveyed in 2007
- Round 2
 - clients (group loans) and non-clients in the 2006 & 2007 survey were revisited in 2008

Methodology

Empirical Component (continued)

Outreach as an indicator of social performance

Model and Analysis

Principal component analysis (PCA) to measure relative poverty status
(Henry et al 1993)

$$P_{j_{t1}} = w_{1t1}X_{1t1} + w_{2t1}X_{2t1} + w_{3t1}X_{3t1} \dots\dots + w_{nt1}X_{nt1}$$

where the weight (w_n) are specified such that $P_{j_{t1}}$ accounts for the maximum variances in $X_{n..}$ $t1$ denotes for round 1 or the baseline surveys.

$$X_n = \frac{x - \mu}{s}$$

where x is the value of the indicator, and μ and s are the mean and standard deviation of the indicator over all the sample.

Methodology

Empirical Component (continued)

Poverty Dynamics of Microfinance Clients

Model and Analysis

PCA in Panel Data

$$P_{jt2} = w_{it1} X_{it2} + \dots + w_{nt1} X_{nt2} \quad \text{or} \quad P_{jt2} = w_{it2} X_{it2} + \dots + w_{nt2} X_{nt2}$$

Which weights to use?

Transition Matrix of Poverty Status

- Shows patterns of movement of households across poverty groupings.

Methodology

Empirical Component (continued)

Poverty Dynamics of Microfinance Clients

Temporal Change Analysis

Two-Wave Panel Analysis

- Paired t-test (e.g. Dunn & Arbucke, 2001)
- Wilcoxon signed rank sum test

Multinomial Logistic Regression Model

- Determinants of probability of persistence, in-out, or exit from poverty.

Methodology

Empirical Component (continued)

Poverty Dynamics of Microfinance Clients

Consumption Effect of Microfinance (hence on poverty)

Models and Analysis

Two-Wave Panel Analysis

- **Random or Fixed Effect Models** (e.g. Khandker 2005)
 - **Maximum Likelihood Estimation** (e.g. Pitt & Khandker 1998)
 - **Matching and Propensity Score Methods** (e.g. Coleman 1999)
 - **Repeated measures ANCOVA** (e.g. Dunn and Arbuckle Jr. 2001)
 - **Difference-in-Difference Model** (Copestake et al. 2005)
 - **Change Score/First Differences Models**
- } Before and after analysis

Methodology

Empirical Component (continued)

Poverty Dynamics of Microfinance Clients

Models and Analysis

Correcting for Selection Biases (Sample and Attrition)

- Bivariate comparison shows substantial attrition among non-clients but no systematic difference in poverty groups among attritors and non-attritors

- a. Heckman's two-step correction for selection bias (Heckman 1979)
- b. Non-response weights (McGuigan et al. 1997)

$$1 - \hat{p}_i = \frac{e^{(\alpha + \Sigma \beta_\ell X_{i\ell})}}{1 + e^{(\alpha + \Sigma \beta_\ell X_{i\ell})}}$$

Initial Results

Social Performance Tool of AMK

Table 1. AMK's Social Performance Measurement Tools

Tool	Nature of information	Main Objectives	AMK Department	Stakeholder	Users of Output
Annual staff satisfaction survey	Social performance in human resource	Establish & maintain satisfactory relationship with prime movers	Human Resource	Staff (employees)	Management
Staff feedback				Management	Board
Financial procedures and operations audit	Specific information considered important by the shareholders and management	Monitor institution's financial and social objectives	Internal Audit	Shareholder	Management
Client protection audit (security, transparency, pricing)	Assessment on whether operations are in line with policies			Management	Shareholders
				Client	

Initial Results

Social Performance Tool of AMK

Table 1. AMK's Social Performance Measurement Tools (continued)

Tool	Nature of information	Main Objectives	AMK Department	Stakeholder	Users of Output
Client Profile and Wellbeing	Overall profile of social performance to clients	Linkage between communication & information as part of training, operations, marketing, product development and external reporting	Social and Market Research	Client	Client
Client satisfaction				Shareholders	Shareholders
Exit survey	Management			Management	
Competition analysis	External agents				
	Strategic market information				

Initial Results

Principal Component Analysis

Table 2. Poverty indicators used in principal component analysis

Indicator	Correlation	Baseline 2006		Baseline 2007	
		Loadings _{t1}	W _{t1}	Loadings _{t1}	W _{t1}
KMO Measure of Sampling Adequacy	.809				
Clothing and footwear expense pc	1	.571	.121	.554	.145
# of adults in the household	.322**	.550	.094	.352	.092
Aggregated valued assets	.355**	.752	.170	.720	.189
Yearly food expense pc	.344**	.674	.098	.484	.127
Area of land owned (ha)	.205**	.518	.097	.385	.101
Leftover to save	.212**	.583	.099	.448	.118
Type of roof material	.222**	.648	.134	.568	.149
Type of wall material	.283**	.694	.150	.577	.151
Television owned	.270**	.679	.138	.521	.137
Motorcycle owned	.249**	.631	.150	.600	.157
Improvement in food sufficiency	.297**	.805	.153	.611	.160
Improvement in quality of diet	.244**	.666	.141	.500	.131
Ability to cope with large expense	.163**	.716	.137	.607	.159

** Significant correlation at the .05 level (2-tailed)

Initial Results

Poverty Dynamics

Table 3. Tercile Poverty Transition Matrix using the same component score coefficient in round 1

	Round 2 (2008)			Total
	Poor	Less poor	Better off	
Round 1 (2006, 2007)				
Poor	173	71	19	263
Less Poor	58	103	47	208
Better off	6	38	126	170
Total	237	212	192	641

Initial Results

Poverty Dynamics

Table 4. Relative Poverty Status by Respondent Classification

	Always Poor	Transiently Poor	Total Sample
Clients	105	92	384
Deserters	48	37	151
Non-clients	17	22	94
Now clients	3	3	12
Total	173	154	641

Initial Results

Poverty Dynamics

Table 5. Characteristics of the Chronically and Transiently Poor

Social indicators	Always Poor n=173	Transiently Poor n=154
Household headed by women (%)	35	28
Women as primary income earner (%)	30	23
Household head can read and write (%)**	55	67
Highest education attained of household head (mean) **	2.38	3.42
Household engaged in farming for cash (%)	71	78
Household engaged in additional off-farm casual labour (%)	67	83
Owns high-valued assets (%)**	5	32
Households able to save (%)**	67	88
Clothing and footwear expense pc, in Riels (mean)**	52,155	84,361
Yearly food consumption pc, in Riels (mean)**	558,246	698,090
Household with temporary roof construction (%)**	58	22

** T-test and Chi square test are highly significant at the .05 level (2-tailed)

Initial Results

Poverty Dynamics

Table 6. Mean change of some poverty indicators (adjusted for inflation)

Poverty indicators	Clients	Non-clients
<u>ALWAYS POOR</u>		
Yearly clothing and footwear expense pc (in Riels)	18,819**	170
Has Leftover to save	0.095	0.235
Asset Accumulation	0.181**	-0.059
<u>TRANSIENTLY POOR</u>		
Yearly clothing and footwear expense pc (in Riels)	41,289**	30,964**
Has Leftover to save	0.163**	0.136
Asset Accumulation	0.337**	0.455**

** Significant at the .05 level (2-tailed)

Additional Analysis

Poverty Dynamics

PCA in panel data

- Pool 2006 and 2007 datasets into round 1?
- Use the same weights in round 2?
- Use absolute measurement using food consumption to identify poverty status and test for accuracy

Factors influencing dynamics of poverty

- Multinomial logit analysis (never poor=0; poor in one of the periods=1; poor in both periods=2)
- Variables to be considered: microfinance client, education, family composition, assets, land, household head characteristics, etc

Panel data model on effects of microfinance on poverty reduction

- Identify appropriate model for the data (FE or RE, DD or DDD)

References

- Coleman, Brett E. 1999. The impact of group lending in Northern Thailand. *Journal of Development Studies* 60:105-141.
- Heidhues, Franz. 1995. Rural Financial Markets-An Important Tool to fight poverty. *Quarterly Journal of International Agriculture* 34 (2): 105-108.
- Henry, Carla, Manohar Sharma, Cecile Lapenu and Manfred Zeller. 2003. *Microfinance Poverty Assessment Tool*. Washington, DC: CGAP/The International Bank of Reconstruction and Development (The World Bank)
- Khandker, Shahidur R. 2005. Microfinance and Poverty: Evidence Using Panel Data from Bangladesh. *The World Bank Economic Review* 19 (2):263-286.
- McGuigan, K.A., P.L. Ellickson, R.D. Hays, and R.M. Bell. 1997. Adjusting for Attrition in School-Based Samples: Bias, Precision, and Cost Trade-Offs of Three Methods. *Evaluation Review* 21(5):554-567.
- Pitt, M.M. and S.R. Khandker. 1998. The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy* 106:958-996.
- Tulchin, Drew. 2003. *Microfinance and the Double Bottom Line*. Social Enterprise Associates for the MicroCapital Institute, Seattle, Washington.
- Zeller, Manfred, Gertrud Schrieder, Joachim von Braun and Franz Heidhues. 1997. *Rural Finance for Food Security for the Poor: Implications for Research and Policy*. Food Policy Review 4. International Food Policy Research Institute, Washington D.C.

Danke schön! Thank you!



Clients of AMK in rural Cambodia (Photo Source: AMK)