

# **Social Performance Measurements of Microfinance Institutions: Theory and Empirical Measurement**

## **Research Outline and Initial Results**

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# Overview

## **Part I - Research Outline**

- Introduction
- Objectives
- Conceptual framework
- Methodology

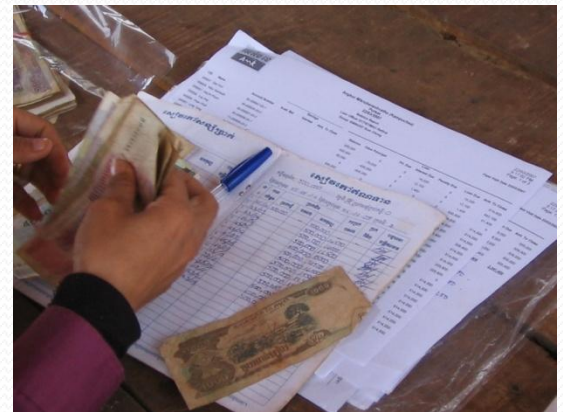
## **Part II - Initial Results**

- 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  $\mu$  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 & Arbuque, 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**

<b>Tool</b>	<b>Nature of information</b>	<b>Main Objectives</b>	<b>AMK Department</b>	<b>Stakeholder</b>	<b>Users of Output</b>
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)**

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

# Initial Results

## Principal Component Analysis

**Table 2. Poverty indicators used in principal component analysis**

Indicator	Correlation	Baseline 2006		Baseline 2007	
		Loadings <sub>t1</sub>	W <sub>t1</sub>	Loadings <sub>t1</sub>	W <sub>t1</sub>
<b>KMO Measure of Sampling Adequacy</b>	<b>.809</b>				
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
<b>Clients</b>	<b>105</b>	<b>92</b>	<b>384</b>
<b>Deserters</b>	<b>48</b>	<b>37</b>	<b>151</b>
<b>Non-clients</b>	<b>17</b>	<b>22</b>	<b>94</b>
<b>Now clients</b>	<b>3</b>	<b>3</b>	<b>12</b>
<b>Total</b>	<b>173</b>	<b>154</b>	<b>641</b>



# Initial Results

## Poverty Dynamics

**Table 5. Characteristics of the Chronically and Transiently Poor**

<b>Social indicators</b>	<b>Always Poor n=173</b>	<b>Transiently Poor n=154</b>
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

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# Danke schön! Thank you!



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