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ABSTRACT

Economic Governance of MFIs: Inside the Black Box

This paper investigates a relationship between economic governance and the dual objectives of Microfinance Institutions (MFIs): poverty reduction and financial viability. Using an unbalanced panel of 531 MFIs the important role of other institutions such as country-level business registry departments in facilitating targeting of poor clients is illuminated. Comparing the estimates of Hausman-Taylor and Fixed Effects Vector Decomposition allows us to scrutinize and at least partially correct the effects of both time invariant and slow changing endogenous variables. We find that credit information availability and lesser time in securing property enhances the chances of MFIs in achieving their poverty reduction objective. Product diversification leading to economies of scope also enables MFIs to reach poor clients. On the basis of the above, it is imperative for government and development partners to channel their efforts towards provision of an enabling atmosphere that will enhance the achievement of microfinance social objectives.

JEL Classification: G21, G39, L20

Keywords: microfinance, dual objectives, economic governance, property rights, credit information

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1. Introduction

The discourse on poverty lending vis-à-vis financial system approaches to microfinance reached the consensus in the late 1990s that it is more than an either/or argument, rather the extent to which an institution pursues either of the goals and addresses the potential consequences (Rhyne, 1998). A little over a decade later, Cull et al. (2009) argued that the heterogeneity of MFIs indicates that the future of microfinance is unlikely to follow a single path. The need to identify the extent of trade-off and the multiplicity of pathways imperatively calls for systems of checks and balances for the operations of MFIs. Earlier studies (Labie, 2001; Hartaska, 2005; Coleman and Osei, 2007 and Mersland and Strøm 2009) have explored the hypothesis of a directional causation from governance to microfinance objectives of outreach and profitability. In these papers, emphasis was placed on internal (corporate) governance indicators such as institutional board and management characteristics, disclosure, ownership structure and transparency. Beyond investigating the corporate governance effect on the objectives of MFIs, a couple of studies have explored the impact of some external governance structures such as regulation, auditing and market competition (Hartaska 2005 and Mersland and Strøm 2009). This paper subscribes to the notion that the complexity of multiple objectives, the heterogeneity of varied operational strategies and regulatory and licensing variations (formal and informal), renders the governance system of MFIs itself as a 'black box'. This necessitates a detailed enquiry into the internal and external governance structures and their functional roles that provide required systems of checks and balances for MFIs. The central hypothesis of this paper asserts that functional governance systems cause MFIs to achieve their dual objectives of poverty reduction and financial viability.

We offer three reasons for the need for conceptualization and estimation of external governance in this debate. Firstly, from a conceptual perspective, we contextualize external governance based on the functioning of institutions. The role of institutions in setting legal rules, enforcing contracts and inciting collective action both within and outside markets underpins the concept of economic governance (Royal Swedish Academy of Sciences, 2009). Conceptualizing external governance from the perspective of economic governance shifts the focus from a structure of systems to processes and adaptation of rules, enforcement and monitoring. We argue that time invariant factors (structure of systems) fail to capture the effect of governance on the functioning of imperfect markets such as microfinance. For

instance, using traditional governance indicators, such as a dummy to capture a democratic state or the presence of press freedom, constrains the ability to investigate causality using short panels. Thirdly, restricting governance to rules within the market such as regulation and auditing relies entirely on the MFI. That is, the decision to become a formal institution, and therefore regulated, in retrospect, will be positively correlated with the performance and future direction of the MFI. This conjecture is likely to generate a bi-causal relationship between MFIs' performance and decisions for regulation and auditing. The foregoing tends towards both conceptualization and measurement of external governance literature in microfinance.

In this paper, we identify external governance indicators that are exogenous to the MFIs to assess causality between governance and microfinance multiple objectives. We assume that country-level variables such as contract enforcement procedures, time required to secure property, credit information and voice and accountability are expected to have varying impacts on the outreach and financial performance objectives of MFIs. We hypothesize that external governance causes MFIs to reach poorer clients while internal operation is sufficient for financial sustainability. Our hypothesis is underpinned by a strong intuition that MFIs will pursue the goal of profit maximization at least as an initial step when left alone.

The main finding of the study suggests that credit information availability and lesser time in securing property maximize the objective of poverty lending focus of MFIs. Product diversification leading to economies of scope also enables institutions to reach poorer clients. In the case of MFIs' financial performance, while external governance systems appear to be unnecessary, good internal operational systems are sufficient. In Section 2, we present a discussion and conceptual framework of governance and the dual objectives of MFIs. In Section 3, we describe the data and outline our data and estimation strategies, followed by discussion of the findings in Section 4. Section 5 offers conclusions.

2. Conceptual Framework

In this section, we use the theoretical argument as a cradle for an extension of the scope of the relationship between governance and the dual objectives of MFIs. The social goals of MFIs brings on board the behavioural theory of the firm. Simon (1959) argues that disparate

objectives between internal stakeholders (managers, owners and workers) and other stakeholders, such as the government, downplay the central goal of profit maximization. In the context of microfinance this implies that setting and evaluating minimum standards for reaching poor clients and being profitable will require at least two conditions: (1) reaching a consensus among microfinance stakeholders, and (2) instituting a well functioning structure of checks and balances within a country to facilitate equal opportunities for all parties. In this paper we focus on the latter.

Dixit's (2009) seminal paper identifies both top-down (securing property rights and contract enforcement) and bottom-up (collective action) drivers of governance that facilitate economic activity. According to Dixit, the economic agents should have confidence that the fruit of their efforts will remain secured to benefit their own condition. Without this assurance, people lose the incentive to save and invest. The twist in the case of microfinance is the direct protectionist role required from government and development partners to secure the savings and investment of MFIs, but more especially the poor. Instituting a system to promote security of property in the microfinance industry should have the dual objectives of ensuring that MFIs loans are protected and, at the same time, their intervention targets the poorer segment of the population.

In addition to the above, the availability and functioning of contract enforcing institutions complement the process of securing properties (Dixit, 2009). Thus the economic agent's knowledge of the presence of an external system that ensures participating parties' liability to a contract promotes trust and facilitates honest engagement. In the absence of trust and confidence in the other party, people remain stuck in a prisoner dilemma that freezes all transactions. In view of the several stakeholders in microfinance, in an event of mutual trust among any given set of economic agents (say MFI and client), their goal should complement other sets' (say development partner and MFI) contractual goals. The significant presence of multiple principal-agent relationships resulting from the existence of several stakeholders in microfinance convolutes contract enforcement in microfinance.

Thirdly, proper functioning of institutions in ensuring security of property and facilitating contract enforcement can only be accomplished with well structured avenues for addressing common goals among people. Dixit (2009) further argues that the outcome of most private

transactions depends on sufficient provision of public goods and the ability to minimize public "bads". The elements required for collective action are the functioning of groups and local information on alternatives. For instance, well-informed activities of unionized workers, associations and consumer groups act as catalysts for seeking respective interests. The microfinance group lending mechanism offers clients a springboard to galvanize action for sufficient provision of public goods and eliminate public "bads"; however, their impact has not been realized beyond the group's activities. In contrast, MFIs through their network associations have mobilized effort in most countries to address constraints facing the supply-side of the industry. Collective action manifested through active consumer (microfinance clients) groups and MFI networks is expected to ensure a mutual achievement of the poverty reduction and financial sustainability objectives.

The functioning of institutions securing property rights and enforcing contracts and avenues for collective action are expected to initially demystify unfounded stereotypes about financial service providers' rigidity, exclusivity, bureaucracy, high cost of service and barriers to entry. This will then open the frontiers of the primary stakeholders (MFIs) to both sides of the scale that is wholesale fund providers and clients. Subsequently, this will ensure that MFIs set minimum levels of objectives based on the consent of all stakeholders that will then lead to an all-inclusive platform for the evaluation of performance through time.

Empirically, anecdotal evidence of a breakdown of trust between owners[3] and managers because of the multiple goals of reaching poorer clients and being profitable/sustainable has led to studies on the effect of corporate governance on microfinance performance. The motivation for these studies is the theoretical rift between managers and owners respective objectives of growth and profitability. In the context of MFIs, this premise has reduced the scope of objectives to fund providers and managers. Subsequently, the current literature related to governance of micro-lending practices and MFIs highlights the effects of specific internal governance patterns on outreach and profitability. A large majority of the literature focuses on internal control systems and management frameworks which are likely to affect either social or financial performance of MFIs (Labie, 2001; Hartaska, 2005; Coleman and Osei, 2007 and Mersland and Strøm 2009). Organizational and structural patterns of

[3] This includes development partners and governments who provide wholesale funds for on-lending.

corporate governance such as size, composition, representativeness of the board and duality of the Chief Executive Officer have been investigated (Hartaska 2005 and Mersland and Strøm 2009). In view of the theoretical overview discussed above and the scope of empirical evidence, it is imperative to investigate the effect of external governance structure and functioning on the outreach and profitability of MFIs. Offering evidence on the effect of external governance on either or both of the objectives of MFIs will set the tone for defining the role of other stakeholders, in particular the government.

3. Data and Analysis

3.1 Data

We rely on three data sources for the empirical analysis. The main data source is the Microfinance Information Exchange (MIX) which reports operational indicators of MFIs on an annual basis. This report is based on self reporting by the institutions; however, verification and authentication mechanisms are built into the procedures to ensure consistency and reliability of data. The other two sources are the 'Doing Business' and 'Governance' surveys of the World Bank. Both datasets are generated annually and the latter captures proxy variables for the three economic governance indicators used in this study, namely; security of property rights, enforcement of contracts and collective action. We examined data for two hundred MFIs from 61 countries for the period 2004 to 2007; however, Because of missing data for some of the Doing Business indicators for 2004 and the seemingly slow rate of change over the year for most of the Governance indicators, we restrict the econometric analysis to 2005-2007.

In view of MFIs' double bottom-line objectives, we explore the effect of governance from the two perspectives of reaching poorer clients (depth of outreach) and achieving financial sustainability (return on assets). Both measures are standardized for comparing different institutions and countries. The three main explanatory variables in the study are: number of procedures required for contract enforcement, time required for property registration, voice, and accountability. Table 1 shows the measurement and interpretation of these variables. In

addition to these three external governance indicators, we control for the effect of the credit information index and regulation and other institutional characteristics.

Table 1

Variables, Description and Hypotheses

Variables	Description	Hypothesis	
		Depth of Outreach	**Return on Assets**
Depth of Outreach [a]	Measures of outreach (extent of reaching poorer client): Average loan bal. per borrower / Gross National Income Per Capita.	*	-
Return on Assets [a]	Measure of Overall financial performance: (Net operating income, less Taxes) / Assets, average.	-	*
Portfolio at Risk (30days) [a]	Measure of risk: The value of all loans that have one or more instalments of principal past due in excess of 30days / loan portfolio, gross.	-	-
Gross Loan Portfolio (GLP) [a]	Measure of outreach: All outstanding principals for all client loans	+	+
Operating Expense/ GLP [a]	Measure of efficiency: Operating expense/loan portfolio, gross, average.		
Cost Per Borrower [a]	Measure of efficiency: Operating expense / number of active borrowers, average	-	-
Yield on GLP Nominal [a]	Measure of revenue: Interest and fees on Loan Portfolio / Loan Portfolio, gross, average.	-	+
Product [a]	Measure of diversity of products offered by institution; = 1 if only loans and 0 otherwise.	+	+
Regulated [a]	Measure of 'internal' governance: Institution is regulated either by the central bank, ministry or some apex body.	+/-	+/-
Age of Institution [a]	Number of years of operation	+	+
Voice and Accountability [b]	Measures political, civil and human rights. Scores range from -2.5 to 2.5 with a mean of zero and a standard deviation of 1. With higher values indicating respect for rights and opportunity to enhance denial and violation.	+	*
Time taken to Register a Property [c]	Measure of 'external' governance: Captures the median duration that property lawyers, notaries or registry officials indicate as necessary to complete a procedure of registering a property.	+/-	-
Procedures for Contract Enforcement [c]	Measure of 'external' governance: Number of procedural steps necessary to enforce commercial disputes in relevant courts.	+/-	-
Credit Information Index [c]	This measures rules affecting the scope, accessibility and quality of credit information available at public and private credit registries. The index ranges from 0 to 6 with higher values indicating availability of more credit information	+	+/-

that shapes lending decisions.

Sources: a – Mix Market; b – World Bank Governance Indicators and c – World Bank, Doing Business Indicators.

3.2 Econometric Analysis

We estimate a hypothesized functional relationship between MFI objectives (social and financial) and external governance using least squares. In view of the potential effect of lagged variables not observed, reverse causality and omitted unobservable regressors, we compare results of pooled, fixed and random effects, and static instrumental variable panel estimates. The latter is the main estimation technique used in the study as it allows for simultaneous investigation of both time invariant and endogenous regressors. First, the peculiarity of microfinance objectives that is influenced by the orientation of the institution justifies the use of an estimation technique that considers the effect of omitted unobservable regressors. Also, the potential of reverse causality is imperative in our hypothesized functional relationship, as some country-level experience demonstrates the joint dependence between better performing institutions and governance. Finally, characteristics of governance indicators which are fairly constant over time, leading to slow changing regressors, make it prudent to estimate coefficients using lags of exogenous variables in the panel setting.

We run two separate regressions for each of the objectives of MFIs for the analysis. The general model is specified in equation 1 below as;

$$DO_{ilt} = \alpha + \xi dT_t + \beta\lambda_{ilt} + \tau\gamma_{ilt} + \varepsilon_{ilt} \qquad 1$$

Where DO_{ilt} represents either of the double bottom-line objectives of the depth of outreach or return on assets for institution *i* in country *l* and time *t*. We include in the model, time dummy dT , vector of external governance indicators λ and vector of institutional internal characteristics and credit information index γ. ε_{ilt} is a vector of mean-zero random errors. In the general set-up, the error term is assumed to capture both idiosyncratic errors μ_{it} (time varying) and unobserved institution and country heterogeneity a_i. The latter error is of prime concern in view of the reasons enumerated earlier.

Although we estimate the general model for fixed and random effects, the econometric discussion is restricted to Hausman-Taylor (HT) and the Fixed Effect Vector Decomposition

(FEVD). While the Hausman test provides decision criteria for the choice of either fixed or random effects, we proceed further to explore some potential caveats in using these techniques. The first caveat relates to post-estimation examination of regression (panel) analysis including serial correlation and heteroskedasticity. Secondly, we examine the effect of time invariant and endogenous variables. In the case of the first caution, parametric bootstrap and the feasible generalized least squares (FGLS) are estimated to investigate the amount of bias in the estimated coefficients, its standard error, and other aspects of its distribution.

The second caveat of panel regression is of paramount interest due to the presence of time invariant explanatory variables that compound the debate between the assumed strict exogeneity characterizing random effects and endogeneity associated with fixed effects estimation. In the presence of time invariant endogenous variables, the Hausman fixed/random effect selection is rendered redundant as the assumptions underlying each of the techniques are violated. For example, the use of fixed effects is hampered in an event where either one or more of the main covariate(s) is/are time invariant and endogenous (Cameron and Trivedi, 2009).

In the context of a short panel (small T and large N) the likelihood of regulation and licensing indicators remaining constant over time is high. Similarly, some institutional characteristics such as number of products offered remain constant over time, that is attributed to the risk associated with product innovation. Heterogeneity of the poor's characteristics has expanded microfinance products beyond basic credit and savings. The need for product diversification can be endogenous to the performance of the MFI. Unlike other business enterprises, MFIs have yet to reach a competitive stage in most countries (Porteous, 2006).

Finally, endogeneity of external governance indicators is plausible due to: (i) measurement error (see Kaufmann and Kraay, 2008), and (ii) bi-causality between country-level governance indicators and microfinance performance.

The above present three types of problem (time invariant right-hand side variables, measurement error and/or endogeneity). Traditional panel instrumental variable estimation emerges as a preferred choice in correcting endogeneity associated with potential

measurement error of governance indicators. We explore either HT or the FEVD estimators depending on the correlation between time-variant/invariant variables and microfinance-specific effect. In addition to HT and FEVD, we explore the potential effect of the three-way error components model in view of the fact that the institutions are grouped into different countries.

Beginning with the HT estimator we can specify equation 2 below as;

$$DO_{ilt} = \xi_1 X_{1ilt} + \xi_2 X_{2ilt} + \beta_{1il}\lambda_1 + \beta_{2il}\lambda_2 + a_i + \mu_{it} \qquad 2$$

Where ξ represent vector of time varying regressors but distinguished by (subscripts 1 and 2) in terms of whether they are correlated with the unobservable (a_i). In our context, all the explanatory variables with the exception of product diversification and regulation are time-varying regressors. β denotes the two time-invariant regressors, product diversification and regulation, each measured by a dummy variable. The subscripts 1 and 2 distinguish the endogenous time invariant variable (number of products offered by the MFI) from the exogenous variable, regulation. As usual all the regressors are assumed to be uncorrelated with the idiosyncratic error term μ_{it} .

Theoretically, HT is preferred to random effects as it tends to be less restrictive because it allows for some of the time varying explanatory variables to be correlated with the unit-specific effects. While random effects estimation emerges as an obvious choice in the presence of time invariant explanatory variables, it is restrictive due to the strict exogeneity assumption. HT uses exogenous time-variant variables as instruments for endogenous time-variant variables and exogenous time-invariant variables (where available) and the unit means of the exogenous time-variant variables as instruments for the endogenous time-invariant regressors.

The estimation of HT follows the following procedure. In the first stage we estimate a standard fixed effects model. This sweeps away both λ_s and a_i in equation 2 above. We then generate the residual (includes both λ_s and a_i and μ_{it}) and take the average (over time, for each i) to minimize the effect of the term. Representing the estimated residuals from equation 2 with $\hat{\mu}_{it}$ we can specify equation 3 as:

$$\hat{\hat{\mu}}_{ilt} = \tilde{DO}_{ilt} - \tilde{\xi}_{FE} X_{1ilt} - \tilde{\xi}_{FE} X_{2ilt} \qquad 3$$

Where ξ_s have been generated from the first stage fixed effects model and $\tilde{DO}_{it}$ are the predicted values of the dependent variable. Technically, $\hat{\hat{\mu}}_{it}$ of equation 3 is made up the time invariant variables (λ_s) of equation 2. In effect the β_s in equation 2 are ascertained by running a regression of the averaged residual on λ_s using the fixed effects. The HT estimator is based on a transformation of the random effects (Cameron and Trivedi, 2009). In sum, HT uses lags to estimate and correct endogeneity problem on the assumption that some of the regressors are uncorrelated with the errors.

The transformed estimable form of equation 2 can be specified as:

$$DO_{ilt} - \theta_{il}\overline{DO}_{il} = \left(\xi_{1ilt} - \theta_{il}\bar{\xi}_{1il}\right)X_1 + \left(\xi_{2ilt} - \theta_{il}\bar{\xi}_{1il}\right)X_2 + (1-\theta_{il})\beta_{1il}\lambda_1 + (1-\theta_{il})\beta_{2il}\lambda_2 + [(1-\theta_{il})\mu_{il} + \left(\hat{\hat{\mu}}_{ilt} - \theta\_il\,\bar{\hat{\hat{\mu}}}_{il}\right)] \qquad 6$$

All other symbols are consistent with earlier definitions, and the additional symbol theta (θ) represents the adjusted covariance-variance ratio[4] of residuals of the structural form of equation 5.

The empirical use of HT always requires an *a priori* identification of potential endogenous variables as we attempted doing earlier in the paper. In this paper two reasons are identified for the choice of explanatory variables that are likely to be endogenous. First, in spite of the breakthrough made with regards to measurement of governance indicators, Kaufman and Kraay (2008) call for caution in its use due to measurement error. This potential error coupled with the slow changing characteristics of governance issues justifies the characterization of governance indicators as likely endogenous variables. Secondly, in view of the pervasive assumption of mutuality or trade-off between financial viability and outreach in the microfinance literature, we subscribe to a potential bi-causality. Based on the *a priori* identification of potential endogenous variables, the HT estimation technique allocates the other variables to different time varying/invariant and endogenous/exogenous groups. For

[4] $\theta_{il} = 1 - \sqrt{\frac{\sigma_u^2}{\sigma_\varepsilon^2 + T\sigma_u^2}}$

instance, with the depth of outreach equation, the explanatory variables are categorized into: Time varying exogenous [Portfolio at Risk, Gross Loan Portfolio, Operating Expense, Cost per Borrower, Yield on Gross Loan Portfolio (Nominal) and Age of Institution]; time-invariant exogenous variables – regulation and product diversity; and time-variant endogenous [Voice and accountability, Property rights, Enforcement of Contracts and Credit information index].

While HT appears less restrictive relative to random effects estimations, the above suggests some discretionary and intuitive difficulty in the empirical world due to identification of exogenous explanatory variables that simultaneously correlate with the endogenous variables. Plümper and Troeger (2004) assert that the researcher's discretionary role in choosing variables that are either exogenous or endogenous largely influences the results. Again, Plümper and Troeger (2007) show that HT works well only when the instruments are uncorrelated with the errors and the unit effects are highly correlated with the endogenous regressors. In addition to these limitations, the other pre-requisite of a valid instrument which suggests correlation between the instrument and the endogenous variable is practically shelved. While this pre-requisite provides an intuitive underpinning for employing instrumental variable estimation, HT solves endogeneity strictly of the functional form. In lieu of the foregoing, econometrically, the Hausman null hypothesis test of significant difference between coefficients (based on the strict exogeneity assumption) can be employed to determine whether estimates emerging from HT are significantly different from the fixed effects estimations (Baltagi, 2005).

Plümper and Troeger (2004) suggest an alternative procedure to HT in view of its limitations. The FEVD estimation is being popularized in the comparative politics literature and since this paper leans towards governance issues it is imperative to align it with the current state of the art. In contrast to estimating a fixed effects model including time varying and time invariant explanatory variables in HT, the first stage estimation in FEVD runs fixed effects estimation on only the time varying regressors. In the second stage, we generate residuals from the fixed effects estimation and regress it on the time invariant variables. The rationale for the second stage estimation is to decompose the vector of residuals from the fixed effect into a part explained by the time invariant variables and an error component. Finally, to control for multicollinearity and degrees of freedom a third stage, pooled least squares

regression including all explanatory time variant variables, time invariant variables and the unexplained part of the fixed effects residual vector, is estimated. Theoretically, the overarching advantage of FEVD over HT is the non-requirement for *a priori* knowledge of correlation between the explanatory variables and the unit-specific effects.

We modify equation 2, our initial fixed effects estimation, and specify the first stage of FEVD in the context of this paper as:

$$DO_{ilt} = \zeta + \xi X_{ilt} + a_{il} + \mu_{ilt} \qquad 7$$

Equation 7 drops the time invariant component. It is prudent to note that unlike equation 5 of HT the generated residuals from equation 7 do not include the time invariant explanatory variables. Equation 8 specifies the second stage that decomposes the residuals into observed time invariant factors and error component.

$$\hat{\mu}_{il} = \gamma + \beta\lambda_{il} + \eta_{il} \qquad 8$$

Where gamma (γ) is the intercept and eta (η) is the unexplained part.

With the same symbols as in the earlier equations, the third stage pooled least squares regression takes the form:

$$DO_{ilt} = \alpha + \xi X_{ilt} + \beta\lambda_{il} + \eta_{il} + \varepsilon_{ilt} \qquad 9$$

Finally, we compare our estimates from the above estimation with the nested error components models due to the multi-level characterization of our dataset. From an error component perspective we can decompose the multi-category potential effect as:

$$DO_{it} = \alpha + \xi X_{it} + \beta\lambda_{lt} + \eta_i + \psi_j + \mu_t + \varepsilon_{it} \qquad 10$$

Specification of equation 10 above suggests that estimating the functional relationship between governance indicators and microfinance objectives could potentially be affected by institutional (η), country (ψ) and time (μ) effects. Correlation between any of these errors and the vector of governance indicators (λ) will lead to endogeneity. In the previous estimation we concentrated on the institution effect,hence we need to test the robustness of our estimates in the context of time and country level. The presence of ‘age of microfinance institution’ on

the right-hand side of the equation (estimable) subsumes the effect of time and this leads to consistent coefficients whether or not time dummies are included in the model. Since we are only controlling for the effect of the error and not trying to estimate ψ_j, taking the time-demeaning within each unique MFI-country (spell) generates consistent estimators of the time varying coefficients (ξ and β) (Andrews, Schank and Upward, 2006).

4. Results and Discussion

We posit two specific hypotheses on the relationship between governance and the dual objectives of MFIs: (1) external governance is better placed to enable MFIs to achieve their poverty lending objective than are internal governance systems; and (2) internal governance systems coupled with better operational performance are sufficient for the financial sustainability objective of MFIs.

The primary governance variables used in this paper are regulation (internal) and property rights, enforcement of contract, and voice and accountability (external). We also control for the effect of credit information and operations.

Tables 2a and 2b provide a descriptive statistics of the variables used in this study.

Table 2a

Descriptive Statistics – Yearly Data

	2004			2005			2006			2007		
Variables	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
Depth of Out.	213	69.82	83.08	221	63.20	71.28	218	72.63	124.67	205	79.29	157.20
Return on Assets	214	1.31	15.77	211	2.51	10.30	220	2.58	8.22	206	2.96	7.34
Portfolio at Risk	194	5.69	9.50	202	6.01	9.14	204	5.96	11.18	196	5.37	10.09
Log of gross loan portfolio	217	15.05	1.88	220	15.34	1.69	221	15.69	1.70	208	16.14	1.89
Operating Expense/GLP	214	31.38	31.93	213	28.79	25.11	221	26.74	21.07	206	23.15	17.88
Cost Per Borrower	214	127.53	124.24	214	127.41	119.68	220	141.58	168.77	204	153.34	172.26
Yield on GLP Nominal	152	38.22	17.03	172	36.31	16.51	201	34.61	17.20	199	32.48	15.84
Products	221	0.64	0.47	221	0.64	0.47	221	0.64	0.47	221	0.64	0.47
Age of Institution	221	9.70	6.51	221	10.70	6.51	221	11.70	6.51	221	12.70	6.51
Regulated	221	0.62	0.49	221	0.62	0.49	221	0.62	0.49	221	0.62	0.49
Voice and Accountability	221	- 0.35	0.51	221	- 0.37	0.52	221	- 0.33	0.54	221	- 0.36	0.57
Time for Property Registration	-	-	-	219	104.82	136.35	219	105.01	136.45	221	95.97	111.02
Procedures for Contract Enforcement	208	39.22	3.65	219	39.01	3.62	219	39.00	3.62	221	38.88	3.68
Credit Info. Index	-	-	-	216	2.12	2.04	219	2.37	2.03	221	2.75	2.09
No. of Active Borrowers	218	44613	254303	221	59102	348806	220	71019	428337	205	87714	475643
Yield on GLP Real	152	31.023	14.601	172	27.772	15.028	201	26.495	15.890	199	34.477	145.56

Table 2b
Descriptive Statistics – Panel Data

Variables		Mean	Standard Deviation	Observations
Depth of Out.	Overall	71.094	113.480	N = 857
	Between		82.430	n = 221
	Within		77.766	T-bar = 3.877
Return on Assets	Overall	2.337	10.923	N = 851
	Between		9.350	n = 221
	Within		5.689	T-bar = 3.851
Portfolio at Risk	Overall	5.763	9.998	N = 796
	Between		8.554	n = 217
	Within		6.117	T-bar = 3.668
Log of gross loan portfolio	Overall	15.547	1.833	N = 866
	Between		1.734	n = 221
	Within		0.626	T-bar = 3.919
Operating Expense/GLP	Overall	27.548	24.730	N = 854
	Between		23.474	n = 221
	Within		9.435	T-bar = 3.864
Cost Per Borrower	Overall	137.305	148.230	N = 852
	Between		132.382	n = 221
	Within		65.567	T-bar = 3.855
Yield on GLP Nominal	Overall	35.189	16.729	N = 724
	Between		16.421	n = 208
	Within		5.807	T-bar = 3.877
Products	Between	0.674	0.469	N = 884
	Overall		0.470	n = 221
	Within		0	T-bar = 4
Age of Institution	Overall	11.201	6.598	N = 884
	Between		6.514	n = 221
	Within		1.119	T-bar = 4
Regulated	Overall	0.620	0.486	N = 884
	Between		0.487	n = 221
	Within		0	T-bar = 4
Voice and Accountability	Overall	- 0.354	0.536	N = 884
	Between		0.528	n = 221
	Within		0.981	T-bar = 4
Time – Property Registration	Overall	101.914	128.324	N = 659
	Between		125.255	n = 221
	Within		27.497	T-bar = 2.982
Procedures for Contract Enforcement	Overall	39.025	3.638	N = 867
	Between		3.614	n = 221
	Within		0.408	T-bar = 3.923
Credit Info. Index	Overall	2.415	2.069	N = 656
	Between		1.991	n = 221
	Within		0.569	T-bar = 2.968
Number of Active Borrowers	Overall	65269.25	384135.80	N = 864
	Between		370526.40	n = 221
	Within		87395.42	T-bar = 3.910
Yield on Gross Loan Portfolio Real	Overall	29.945	77.335	N = 724
	Between		48.981	n = 208

Within	62.478	T-bar = 3.481	

The analytical discussion compares coefficients emerging from estimating five different econometric techniques, namely: pooled; fixed; random; HT and FEVD. The estimations are done for both the financial and social objectives of MFIs.

We observe two broad patterns consistent with the hypothesis of the paper. Firstly, external governance indicators significantly affect the proxy for depth of poverty in all five estimations. Secondly, with the exception of FEVD, most of the institution operational variables fail to explain MFIs' reach of poorer clients. These two observations provide the initial basis from which to argue that MFIs' willingness to achieve the social mission of reaching poorer clients necessarily requires the role of an external institution.

The pooled estimates represented in Column 2 of Table 3 shows consistent results with the random effects estimation. However, the underlying assumption of homogenous MFI and country-level effects might lead to bias estimates. This is likely to generate omitted variable bias leading to endogeneity. In the post-estimation tests of Table 5, we observe that the test of poolability fails using both F-test of fixed effects and Lagrange multiplier for random effects.

Table 3

Regression Analysis – Dependent Variable: Average Loan Size/GNIpc

Explanatory Variables	Pool	Fixed Effects	Random Effects	Hausman-Taylor	Fixed Effects Vector Decomposition
Return on	- 0.37	- 5.88**	- 1.60	- 5.85**	- 5.88***
Assets	(1.54)	(2.32)	(1.57)	(2.30)	(1.18)
Portfolio at	1.01	0.59	0.85	0.13	0.59
Risk	(0.78)	(1.21)	(0.86)	(1.06)	(0.66)
Gross Loan	10.59*	10.56	10.72**	- 0.45	10.56***
Portfolio	(5.67)	(21.67)	(5.38)	(10.67)	(3.66)
Operating	- 0.12	- 3.89***	- 0.66	- 3.01**	- 3.89***
Expense	(0.66)	(1.36)	(0.94)	(1.32)	(0.73)
Cost per	0.10**	0.17	0.07*	0.02	0.17***
Borrower	(0.04)	(0.10)	(0.04)	(0.07)	(0.03)
Yield on Gross	0.67	-1.11	0.95	1.04	- 1.11
Loan Portfolio	(1.48)	(1.37)	(0.91)	(1.26)	(0.70)
Age of	0.01	7.17	0.14	2.48	7.17***
Institution	(0.80)	(10.63)	(1.20)	(2.20)	(0.83)
Product	6.64	-	4.28	12.61	- 30.55***
Diversification	(12.65)		(15.30)	(26.48)	(9.76)
Regulated	36.27***	-	36.68**	74.02**	17.34*
	(7.96)		(16.10)	(33.69)	(10.13)
Voice and	15.20	- 13.47	15.26	- 38.19	15.62
Accountability	(11.50)	(52.95)	(14.60)	(43.62)	(9.68)
Property	0.12	0.76***	0.15***	0.66***	0.09***
Rights	(0.13)	(0.16)	(0.05)	(0.15)	(0.03)
Enforcement of	- 3.69***	- 1.21	- 3.96*	- 34.58**	- 7.24***
Contract	(0.89)	(26.25)	(2.13)	(14.76)	(1.38)
Credit	- 13.14***	- 7.37	- 12.77***	- 14.84**	- 20.63***
Information	(3.33)	(8.75)	(3.71)	(6.50)	(2.53)
Eta	-	-	-	-	1.00***
					(0.05)
Constant	8.18	268.260	24.91	1354.35	621.49***
	(85.15)	(1065.99)	(114.30)	(574.35)	(79.82)

Robust Standards Errors (in parenthesis) **** One percent ** five percent & * ten percent*

In estimating both fixed and random effects we initially consider one error correction model in spite of the potential effect of time and country level. We justify the restriction of the estimation to only microfinance-specific effect errors, based on the following: firstly, the inclusion of age of institution appeared to be correlated with time effect. Secondly, we explore the country-level effect only as a post-estimation analysis because estimating the

extent of effect is not central to the focus of the current paper. The defining variation of exogeneity for random effects and some amount of correlation between unit-specific effects and the explanatory variables of fixed effects led to the observation of marked difference in the coefficients between the estimations. Worth mentioning initially was the expected inability of fixed effects to estimate the time invariant variables, that is regulation and product diversification. While the random effect offered results for all the governance indicators, the Hausman test of Table 5, showed that random effects coefficients were not consistent and had biases which can be attributed to endogeneity.

This finding justifies the choice of a fixed effect related estimation technique such as HT or FEVD. Column 4 of Table 3 shows the ability of HT in estimating time invariant variables. This however is not without a cost on the efficiency of the coefficients. Inspecting all the estimations it is clearly evident that HT had the largest standard errors implying a compromise on the efficiency of our coefficients. Up to this point, however, it is the HT model that offers preferred results that are consistent with the hypothesis and findings from previous literature. For instance, regulation shows a positive association with average loan size and has been justified by the argument that prudential regulation leads to higher loan sizes. This finding is consistent with recent empirical studies on this issue (Hartaska and Nadolnyak (2007), Mersland and Strøm (2009) and Cull et al. (2009)). However, FEVD hints at a possible reversal of this wave of emerging evidence as it shows that the positive association is significant only at 10 per cent alpha level. The outcome can be associated with the capability of FEVD in capturing the time invariant specific effects at the second stage, as shown in equation 8.

Despite variations in GNIpc, the coefficient of property rights in Table 3 points to a positive association between duration for property registration and larger loan amounts. In this context MFIs will argue that greater duration increases their operational cost, making lending in smaller amounts more expensive for clients and as such unprofitable. Barring all the ifs associated with this potential transmission mechanism between property rights and reaching poorer clients, this finding suggests a need to reduce duration for registering a property to enable MFIs to achieve the poverty reduction objective. In a reverse fashion the coefficient of contract enforcement depicts a negative association between the number of procedures in enforcing a contract and average loan size. Based on Williamson's (2000) arguments,

although hierarchy of institutions makes the contract enforcement cumbersome it does facilitate targeting poorer clients. While we acknowledge the multiplicity of reasons that can be offered for the respective signs associated with the effect of property rights and enforcement of contracts on reaching poorer clients, the significant coefficients provide enough justification for country-specific studies. Against Williamson's assertion that "different kinds of transactions call for different governance structures" (cited on p.7, The Royal Swedish Academy of Sciences 2009) the country-specific studies will explore the exact transmission mechanisms between these governance indicators and the microfinance objective of reaching poorer clients.

Since poorer clients are better reached in an environment with less information asymmetry between borrowers and MFIs, the negative sign associated with credit information is consistent with our *a priori* expectations. Cull et al. (2009), basing their argument on economic theory, suggest that asymmetry information related problems hinder MFIs' quest for serving the under-served.

The variable 'Eta' of Table 3 captures the unexplained term of equation 8, and its significance suggests that errors associated with the time invariant and slow changing governance indicators are significant. This partially explains the relatively larger standard errors of the other estimations especially the HT estimation. In this regard, the FEVD estimate offers much more efficient results compared with all other estimations as it tends to offer smaller standard errors.

Table 4 examines the effect of the same set of explanatory variables as in Table 3 on MFIs' return on assets. In contrast to reaching poorer clients, we observe that most of the governance indicators are not significant for all the estimations. However, all the operational variables are significant in explaining return on assets of MFIs. From the coefficient for the FEVD estimation in Table 4, it is observed that regulation significantly affects MFIs' performance. Again this finding with the FEVD is in contrast to earlier microfinance-governance empirical research (Hartaska and Nadolnyak (2007); Mersland and Strøm (2009) and Cull et al. (2009)). The respective observations of significant relationships between operational issues and regulation on MFIs' performance uphold the second hypothesis. While voice and accountability and contract enforcement appear significant in the FEVD estimation

we hesitate in attributing a justification for the observation as it does not emerge consistently with other earlier estimations.

Table 4

Regression Analysis – Dependent Variable: Return on Assets

Explanatory Variables	Pool	Fixed Effects	Random Effects	Hausman-Taylor	Fixed Effects Vector Decomposition
Average Loan	- 0.00	- 0.00**	- 0.00*	- 0.00***	- 0.00***
Size/GNIpc	(0.00)	(0.00)	(0.00)	0.00	(0.00)
Portfolio at Risk	- 0.14***	- 0.16***	- 0.15***	- 0.16***	- 0.16***
	(0.05)	(0.03)	(0.02)	(0.02)	(0.02)
Gross Loan	- 0.50***	- 1.16**	- 0.55***	- 0.71***	- 1.16***
Portfolio	(0.13)	(0.52)	(0.17)	(0.26)	(0.09)
Operating Expense	- 0.54***	- 0.48***	- 0.51***	- 0.51***	- 0.48***
	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)
Cost per Borrower	- 0.00***	- 0.00	- 0.00**	- 0.00	- 0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Yield on Gross	0.48***	0.39***	0.44***	0.41***	0.39***
Loan Portfolio	(0.03)	(0.02)	(0.12)	(0.02)	(0.01)
Age of Institution	0.07**	0.18	0.07*	0.11*	0.18***
	(0.03)	(0.26)	(0.04)	(0.06)	(0.02)
Product	- 0.26	-	- 0.14	0.43	- 0.20
Diversification	(0.37)		(0.51)	(0.96)	(0.23)
Regulated	0.56	-	0.51	- 0.40	1.14***
	(0.38)		(0.54)	(4.74)	(0.24)
Voice and	- 0.10	- 0.88	- 0.07	- 1.17	- 0.53**
Accountability	(0.39)	(1.27)	(0.46)	(1.05)	(0.23)
Property Rights	0.00	0.01	0.01	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Enforcement of	0.10*	0.45	0.11	- 0.02	0.10**
Contract	(0.05)	(0.63)	(0.07)	(0.47)	(0.03)
Credit Information	- 0.02	-0.23	- 0.11	- 0.33*	0.04
	(0.10)	(0.21)	(0.11)	(0.18)	(0.61)
Eta	-	-	-	-	1.00***
					(0.03)
Constant	4.92	1.62	5.74	13.58	14.35***
	(3.00)	(25.60)	(3.68)	(16.98)	(1.81)

Robust Standards Errors (in parenthesis) *** One percent ** five percent & * ten percent*

Table 5

Post Estimation Results

Test	Pool	Fixed Effects	Random Effects	Hausman-Taylor	Fixed Effects Vector Decomposition
Poolability	**X**	√	√	-	-
Hausman (FE and RE)	-	√	**X**	-	-
Hausman (FE and XTHT)	-	**X**	-	√	-
Serial Correlation	-	**X**	-	-	-
Joint Significance of Gov. Ind.	-	√	-	-	-
Country Level Effect	-	√	-	-	-
Over Identification of Ins.	-	-	-	√	-

The robustness of our estimates is summarized in Table 5. The joint significance of the governance indicators is empirically verified and they emerge significant at five percent. Although serial correlation is observed, we quietly estimate the differenced data and signs and significant coefficients remain unchanged. Column three of Table 5 shows that after controlling for institution-country effect using spell fixed estimation our main covariates remain resolute in terms of both significance and direction. However, we have not narrowed down specific associations that will help identify possible transmission mechanisms between each of the different types of governance process and multiple objectives of MFIs. This, from our perspective, requires country-specific analysis due to heterogeneity of country-level governance structures.

5. Conclusion

In lieu of the inconclusive empirical evidence in support of MFIs' ability to achieve the win-win objective of poverty reduction and financial sustainability, the wider positive effect of the microfinance paradigm is revealing and diverse. Hence it is important to identify both internal and external factors that will further contribute to the success of MFIs. In this paper, we investigate the effect of external governance on the poverty and financial objectives of MFIs. The study rationalizes a case for external governance in achieving poverty reduction and other social objectives of microfinance.

Two broad conclusions emerge from the study. First, unlike operational outcomes such as interest rate and operating expenses, external governance indicators fail to cause changes in the profitability of MFIs. Secondly, and in an opposite fashion, external governance indicators emerge as significant variables for the poverty reduction objective of MFIs. Specifically, shorter duration in registering a property has the potential to reduce transactional costs, which in turn is expected to enable institutions to target poorer clients. Availability of credit information also leads to reaching poorer clients.

The study offers useful policy recommendations specifically for the microfinance objective of reaching poorer clients. Both empirical and anecdotal evidence suggests that existing involvement in microfinance operational issues by the government and other agencies, including retail financial and interest rate capping, have failed. We prescribe a faster procedure to expedite the process of securing property; conducting institutional ratings and expanding credit information bureaus, and lastly establishing the confidence of the poor in institutions. While the latter is not a direct outcome of the current study, we deem it a necessary condition for tapping the benefits likely to be generated from a well-structured set of institutions in any economy.

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