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***Targeting the Poor versus Financial  
Sustainability and External Funding:  
Evidence of Microfinance Institutions in Ghana***

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## **Abstract**

The creeping effect of financial crisis and economic turmoil on African economies potentially questions the sustainability of microfinance institutions, in view of the heavy investment received both from development partners and government. This study tests the hypotheses that: (i) interacting own-mobilised funds with formal institutions, microfinance organisations reach less poor clients; and (ii) concentrating on the achievement of financial sustainability causes an institution to target non-poor clients. Using data from Ghana, we revisit the microfinance argument of serving poorer clients on a commercial basis, and control for the effect of source of funds and type of institution. Unlike financial self-sufficiency, operational self-sufficiency appeared to facilitate the reaching of poorer clients. The study upholds sceptics' view of a trade-off. Categorising institutions based on source of funds, this study adds to knowledge on the future of microfinance. Formal institutions dispensing their own funds appeared to target less poor clients. Using instrumental variable estimation, plausible problems of endogeneity emerging via measurement error were observed. We instrument financial and operational self-sufficiency with density of microfinance institutions in a given location and the group-lending mechanism to resolve attenuation bias. This finding alludes to complementary development strategies and a deliberate harmonisation of microfinance intervention, irrespective of the source of funds.

**Keywords:** Ghana, Microfinance, Financial sustainability, Depth of outreach, Source of funds

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## Introduction

At the turn of the 21st century, microfinance institutions reaped the goodwill of the industry's potential which had been built up over the last three decades of the 20th century. In view of the current global financial crisis and economic turmoil, it is imperative to examine the vulnerability of microfinance institutions' (MFIs') financial sustainability and their targeting of poor clients. MFIs received a substantial share of both government and development partners' planning and budgeting. Relying on data from 2005 to 2007 there was a potential annual increase of 55 percent<sup>1</sup> in outstanding portfolios of development finance institutions to microfinance institutions (Consultative Group to Assist the Poor, 2008). Subsequently, the number of borrowers across the globe increased on average by 23 percent (Microbanking Bulletin, 2008). In sub-Saharan Africa (SSA), as at 2007, Ghana was ranked the highest recipient (about US\$186m) of development partner's donor funding into microfinance (CGAP, 2008). We therefore provide an empirical investigation into the challenge posed to MFI institutional building by the reliance on external sources of funding. The specific objective is to estimate the effect of financial sustainability<sup>2</sup> and source of funds on client targeting.

Microfinance, indicative of reducing poverty from a wider scope of building financial, human, physical and social capital, has received mixed recognition, partially due to the lack of strong evidence on its impact. Architects of microfinance, mainly practitioners, development partners and government, assert its capability. However, some sceptics, mainly academics, contend the paradigm's resilience to the test of time. For instance, Navajas and Gonzalez-Vega (2000), Sautet and Daley (2005) and Ditcher and Malcolm (2007) argue, among other issues, that disbursement of meagre loan amounts and covariate risk characterising group methodology, as pioneered by the Grameen model,<sup>3</sup> threaten the success of microfinance. Barr (2005) further questions the ability of microfinance to achieve financial stability through sustained operations to stimulate the economy's broad financial sector operations and reduce national poverty. Imperative to these concerns is the association and/or causation between an MFI's financial sustainability and the targeting of poor clients. Current research on microfinance is skewed towards poverty-oriented impact studies, to the neglect of a potential trade-off between financial sustainability and the targeting of poor clients. This paper tests two principal hypotheses: (i) interacting own-mobilised funds with formal institutions, microfinance organisations reach less poor clients; and (ii) concentrating on the achievement of financial sustainability causes an institution to target non-poor clients.

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<sup>1</sup> The computation is based on Compound Annual Growth Rate.

<sup>2</sup> As the measure of financial sustainability is self-sufficiency, the terms are used interchangeably hereafter.

<sup>3</sup> Mohammed Yunus was awarded the Nobel Peace Prize partly for his contribution to the success of Grameen Bank (a microfinance institution in Bangladesh), the much touted microfinance model.

Research on the trade-off or mutuality between financial sustainability and outreach, and the overall impact of microfinance abounds in different forms but with mixed findings. Zeller and Meyer (2003) tagged the triple point relationship between financial sustainability, outreach and impact as ‘the critical triangle of microfinance’. The base of the triangle, impact, has attracted much interest, both among researchers and policy makers, as it is perceived as the ultimate target of microfinance. The process<sup>4</sup> of achieving impact, however, seems to have been ignored, despite early concerns about the potential divide between financially and socially oriented microfinance paradigms. Variation in institutions’ operational mission, vision, goals, objectives and targeting has been minimally researched, although these determine the outcome of any impact study. Investigations into the socio-economic characteristics of clients being reached (targeting/market niche) and the implications for financial performance have been swamped by impact studies that seek to investigate whether poverty levels have been reduced as a result of microfinance intervention.

The motivation for an institution’s existence crucially determines *who* and *how* to deal with a potential beneficiary. The Consultative Group to Assist the Poor (2001: 1), poses two questions: ‘Does the substantially larger average loan balance of regulated microfinance institutions represent a natural evolution towards a maturing target group or does it represent a mission drift?’ And ‘Are today’s unregulated NGOs aiming at a target group poorer than the target group of the pioneering institutions that have transformed themselves into regulated entities?’ These questions underlie the motivation to consistently revisit the nature of MFIs’ operations. The ‘institutionist–welfarist’ (commercialisation–targeting poor clients) debate sums up the different orientations of microfinance institutions (Woller et al., 1999; Morduch, 2000). The discourse in some arenas of the literature has been misconstrued as an issue of strict precedence in opting initially for either poorer clients or financial sustainability. However, Rhyne (1998) categorically states that the debate is not an ‘either-or’ argument, but an issue of the degree of emphasis and what happens when trade-offs appear. The lack of clarity of an institution’s initial mission on the degree of inclination has led to different impact outcomes and this has created a rift between the two schools. While the financial systems approach, at the outset of its operation, advances concerns for break-even,<sup>5</sup> the poverty approach charts a path of reaching poorer clients and therefore explores the demographic and socio-economic characteristics of potential clients.

Microfinance literature in the past decade has produced volumes of impact studies on the general assumption that all MFIs are strictly poverty-reduction-oriented (Hulme and

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<sup>4</sup> The Social Performance Management Tool has been introduced in recent years to track the gradual process from mission through to objectives and targeting and to desired outcomes.

<sup>5</sup> Cost of operations compared with profitability/revenue.

Mosley, 1996; Coleman, 1999, 2002; Khandker, 2005; Imai and Arun, 2008). The inherent assumption underpinning impact studies of microfinance intervention is the rhetoric of poverty reduction. Parallel orientation and practices other than poverty reduction suggest a tendency to provide mixed and misleading results in microfinance poverty impact studies (for instance, Pitt and Khandker, 1998, compared to Morduch, 1998). This may have contributed to the mixed pattern of impact study results, although it has mainly been attributed to limitations associated with methods of study (Mosley, 1997; Hulme, 2000; Karlan, 2001). The over-concentration on impact studies has led researchers to abandon rudimentary questions and interrelationships such as: (i) what are the implications of the varied sources of funds? (ii) who and what are the socio-economic characteristics of an institutional clientele base? (iii) does institutional financial sustainability matter in targeting poor clients? (iv) do household and external characteristics preclude certain categories of households from participating in microfinance? and (v) what is the accuracy level of indicators used in measuring socio-economic characteristics and financial performance?

We revisit the 1990s agenda of trade-off or mutuality between financial sustainability and targeting poor clients in microfinance, and extend the empirical investigation to capture potential problems of endogeneity and sample selection. The empirical evidence suggests a trade-off between the financial sustainability of microfinance institutions and the targeting of poorer clients. The use of Instrumental Variable (IV) estimation offers insights into the possibility of measurement error. The policy relevance points to streamlining microfinance activities to allow them to achieve the mutual goals of serving poorer clients on a commercial and sustainable basis. This generates the need for integrated poverty reduction strategies, as the beneficiaries of microfinance programmes tend to possess initial peculiar socio-economic and financial characteristics.

The remaining sections are organised as follows. The two succeeding sections review the literature, with an emphasis on sustainability and outreach and their connection, and present potential data and measurement problems characterising microfinance intervention. The methods of study are then described, with description and justification for the sampling approach, univariate estimation of both dependent and main independent variables and estimation models. The results and discussion section precedes the conclusion, highlighting points of departure from previous studies, the contribution of the current study, and making policy recommendations and suggestions for future research directions. The limitations of this paper are acknowledged in the course of the discussion.

## Related work

This section contextualises the need for an empirical paper that seeks to revisit the trade-off or mutuality between microfinance institutional sustainability and socio-economic characteristics of their clients. The need for this study is driven by the overt implications of the current financial and global economic turmoil for developing economies, especially African countries that are heavily dependent on donor funds. The theoretical debate revolves around the capability of institutions to concurrently operate in a competitive environment and target poorer clients. Proponents of New Institutional Economics (NIE), including Ronald Coase, Douglas North, Robert Bates, Oliver Williamson and John Toye, provide insightful literature on paths of development via institutions, in contrast to 'institution-free' neoclassical economics.

The literature on the realism of microfinance promises 'three plus one'<sup>6</sup> strands of possibilities. The first strand outlays mutuality between microfinance sustainability and serving the poorest clients (Christen et al., 1995; Simanowitz and Walter, 2002). This side of the 'three plus one' possibilities, though marginally supported, with less rigour on the methods of study justifying its realism, is, paradoxically, the pivot of the microfinance hype. The second possibility runs parallel to mutuality, and asserts a trade-off between achieving financial self-sufficiency and reaching the poorest clients (Rhyne and Otero, 1994; Morduch, 2000). Thirdly, a bunch of evidence (see Brau and Woller, 2004; Armendariz de Aghion and Morduch, 2005) reveals mixed findings on the achievability and posits of conditional mutuality<sup>7</sup> or trade-off. The mixed findings and conditional association between financial sustainability and serving poor clients is accounted for by (i) narrow definitions of both outreach and financial sustainability, as argued in the preceding section; (ii) influence of other institutional practices or delivery mechanisms, such as lending mechanism (group or individual), loan structure, repayment rates, corporate governance, type of institution (formal or informal), etc. (Park and Ren, 2001; Hartarska, 2005); and (iii) variations in the theoretical perspectives and methods of study applied to the empirical exposition (Conning, 1999; Navajas et al., 2000).

The fourth possibility or 'plus one' is from studies that sit on the fence. These studies approach the argument from a defensive angle, as they do not make any assertion, but rather claim the implausibility of enough evidence to make an assertion of either mutuality or trade-off (Balkenhol, 2007). Also close to this category is the study by Hulme and Mosley (1996) that proposes the need for institutions to make a choice of either striving to achieve financial sustainability or making a dent on poverty. Hulme and

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<sup>6</sup> Three main outcomes have emerged from studies on the association between financial sustainability and serving poorer clients, and a fourth outcome, inferred from an impact study which suggests targeting of MFIs.

<sup>7</sup> Conditional mutuality refers to the ability to achieve both objectives, subject to certain 'good practices' such as efficient management.

Mosley (1996) assert a transmission mechanism in explaining trade-off between serving poorer clients and financial sustainability. Their argument posits that higher interest rates and voluntary and/or compulsory savings crowd out poor clients. Known characteristics of the poor, including (i) living in remote rural areas; (ii) dispersed populations; (iii) lack of infrastructure and institutions; (iv) volatile economic activities predominantly dependent on the vagaries of the weather and other natural occurrences; and (v) weak and fragmented markets for goods and services, justify the need for higher interest rates and initial forced or voluntary savings. Von Pischke (1996) summarises these into three factors, namely increasing marginal costs of delivery, bad debt losses and a poor nose for risk. The last is associated with the monotonic nature of the economic activities of microfinance clients. Based on this, Hulme and Mosley (1996) argue that the poorest clients served by microfinance institutions face a host of constraints that impair their ability to translate financial services into household income. This assertion partially generated the widespread interest in impact studies, as their famous study inadvertently places a premium on the end of the microfinance paradigm.

The notion of jointly achieving financial sustainability and serving poorer clients depends on perceived microfinance attributes of excess demand culminating in potential economies of scale and a variety of cost-reducing delivery strategies, such as group lending. These variations partially explain the mixed results, leading to the sidelining of operational issues and paving the way for impact studies. Though impact study is the definitive target, other potential mission drift factors (endogenous and exogenous to the institution) of financial services remain important and determine the performance of MFI. For instance, as institutions determine their market niche by varying financial instruments and delivery strategies, such as interest rate and lending mechanism, client responsiveness based on their needs and characteristics determines outcome. Also, anecdotes are available of external influence on principal–beneficiary relationships emerging from government and donor sources of funding. Situations such as interest rate cap dispensation and predetermination of clients hamper screening and subsequent monitoring.

The reliance and implications of government and donor funding are currently mixed and geographically influenced. While Hulme and Arun (2008) suggest that most MFIs are adopting a financial systems approach, the Microbanking Bulletin (2008) shows an aggregate picture of African MFIs being financially unsustainable, which signals their reliance on other sources of funds. This parallel suggests a need for country-level assessment on the degree of reliance at the micro level and the extent of influence on institutional targeting and operation. In a recent finding, Zeller and Johannssen (2006) reveal that character type premised on legal status influences the targeting of different socio-economic clients in microfinance. Providing country-level evidence from Peru and Bangladesh, Zeller and Johannssen (2006) suggest that FNGOs or Microbanks with FNGO traits reach out to poor clients. Their finding suggests the potential of other

institutional characteristics influencing outreach. This wave of study provides another justification for revisiting the association between the sustainability and outreach of microfinance institutions, taking into consideration other factors, such as the source of funds, which varies across countries.

## **Methods of study**

Trade-off or mutuality between financial sustainability and outreach charts a different path from the routine impact studies that have characterised research in microfinance. Issues concerning unit of analysis and its characteristics, selection and estimation techniques vary with respect to the objectives underpinning the research. The orientation of institutions is best assessed from the perspective of targeting. Hence, the focus of selection is new or potential clients. This enables a response to the question: 'Given the financial resilience of the institution, which segment of the population is reached?'

### **Data sources**

Data for the study matched lender to borrower by randomly selecting households from institutions purposely identified. Non-client households are nationally representative and the random selection procedure was dependent on client location. The survey was conducted on behalf of the Rural Financial Services Project of the Bank of Ghana in 2004.<sup>8</sup>

### **Sampling**

#### *Selection of institutions*

The informal nature of microfinance as a development paradigm has allowed for a wide scope of institutional types. Most institutions aligned with microfinance evolved from a historical social mission to serve the needs of poor (religion inclined), government policy direction (rural and agricultural finance), donor motivation, and private sector profit maximisation. The microfinance landscape in Ghana is divided into seven broad categories, namely, Rural and Community Banks (RCBs), Savings and Loans Companies (S&Ls), Credit Unions (CUs), Financial Non-governmental Organisations (FNGOs), Susu Collectors and Associations (SCAs), other church-based organizations, and government microfinance institutions. The rationale underpinning the evolution of each category of institution underscores its allegiance to the notion of 'best practice'. Brau and Woller (2004) identify a number of management practices, including outreach,

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<sup>8</sup> The Consultancy Unit of the University of Cape Coast and Asamoah and Co. were the clients engaged by the Bank of Ghana to execute the household and institutional surveys, respectively. The author was a member of the core team for the household survey.



financial viability, type of lending mechanism, targeting and regulation, as the guidelines often used to characterise best practice in microfinance. For the study, institutional types that are not regulated in any form, do not keep records, and possess a high instinct for social mission, are excluded.

Restricting choice to allow for commonality among institutions implied the use of purposive sampling through a consultative approach. This aided the identification of institutions based on several factors, including location, reporting standards and operational focus. Though marked differences (ownership structure, market niches and strategies) exist among the broad microfinance formal categories, RCBs, CUs, FNGOs and S&L Companies, some balance was ensured to capture the diversities.

A total of 16 microfinance institutions were used for the study, with the following breakdown: nine rural banks, four credit unions, four financial non-governmental organisations and one savings and loan. The skewed distribution of institutional types was based on the multi-stage sampling, which considered first the geographical spread of institutions and secondly their inclination to financial self-sufficiency and social mission. All categories of institutions, with the exception of rural banks, are disproportionately spread in the regions of the country, due to their evolutionary orientation. Including these institutions in the study was imperative to enable at least some generalisation for the industry.

#### *Selection of clients*

Matching clients with institutions, random sampling was used to identify client household respondents. The sampling procedure considered some other issues, including financial product accessed by client, and affiliation to a particular source of funding. This was occasionally invoked, as institutions offered different products and administered a variety of programmes based on source of funding. The distinction of products is either informed by the type of financial service, such as credit, savings and transfer; or, given the same type of financial service, the delivery strategy such as group or individual lending mechanism; for instance, a savings product based on compulsion is different from voluntary saving. Institutions administered different programmes depending also on the source of funding, that is institutional own-mobilised deposits, government and donor funded programmes. Categorising programmes in the context of sources of funds for different clients within the same market niche is prudent, due to the varied conditions that accompanied each type of funding. For instance, interest rate varied among the three types of sources of funds.

This background information from the pilot survey guided the design of the sample frame. In spite of the diversity in product, credit and savings emerged predominantly in all the institutions, although some did not have the mandate to mobilise savings. Clients of the selected microfinance institutions were randomly selected and their households served as the unit of analysis for the study. A sample of 1,589 clients was interviewed.

### *Selection of non-clients*

The selection of this sample, like the client selection, was nationally represented. Across the three ecological zones of the country, 70 enumeration areas (EAs) were randomly selected using the frame from the 2000 Population and Housing Census. The distribution of EAs was proportional to the total number in each ecological zone and consistent with the selection of households for the Living Standard Survey. All households (17 or 18) within the selected EA were targeted for interview, depending on availability. This gave a potential sample size of between 1,190 and 1,260 households. Out of the target, 1,102 non-client households were successfully interviewed and available for data analysis.

## **Univariate estimation**

### *Poverty*

The theoretical underpinning of the Microfinance Poverty Assessment Tool (MPAT) as developed by the Henry et al. (2003) is multidimensional, in contrast to the unidimensional technique that has attracted widespread criticism because of its narrow perspective. In developing economies, unidimensional measures of poverty, especially those with income and money-metric characteristics, are problematic, as some forms of assets do not translate easily into the units of measurement. The multidimensional approach seems more convincing, as it pools a multiplicity of factors and attaches relative importance to a number of dimensions to estimate wellbeing. Compared to the Living Standard Measurement Survey (LSMS), which is credited for its detail, the MPAT approach is less expensive, is time-saving and, more importantly, uses both ordinal and cardinal variables in its approach to estimating a household index. The MPAT surmounts the LSMS strict adherence to a monetary and an absolute approach. It relaxes the rigid adherence to cardinality and caters for ranked variables, subjective perspectives, a relative approach and comprehensible scope of poverty.

The approach collects household-level data using a contextualised generic instrument which has six main subcomponents: demographic structure and economic activities; footwear and clothing expenditure; food security and vulnerability; housing indicators; land ownership; and ownership of assets. (See Table 1 for final variables used in computing the poverty score.)

The estimation procedure is built on two main descriptive statistical methods: first, Linear Correlation Coefficient (LCC); and second, the Principal Component Analysis (PCA). The MPAT approaches the computational measure with a bias for household per capita expenditure on footwear and clothing, as this is chosen as the benchmark variable. The LCC is the primary means of filtering poverty indicators to ascertain variables that best capture variations in relative household poverty (Henry et al., 2003). The initial step is

**Table 1: Variables used in constructing poverty index**

Components	Indicators.
Geographical location	Urban or rural location in rural savannah.
Food security and vulnerability	Coping strategy: frequency of reducing number of meals.
Quality of the house	Index for type of ownership, access to water, electricity, quality of roof, walls toilets, etc.
Assets of the household	Motorcycle, bicycle, TV, stereo, radio, fridge, stove, sewing machine, fan, iron, etc.
Access to basic needs	Time (in minutes) to the nearest secondary school and pharmacist.
Education	Literacy and level of schooling of HH head, percent of adults who have completed primary schooling, ratio of literate adults.
Occupation	Number of adults self-employed in food crop agriculture and distance to the nearest food market.
Expenditures	Clothing and footwear expenditures per person.

*Source:* Derived from field survey data, 2004.

to run a bivariate correlation test of all the other indicators against household per capita expenditure on footwear and clothing. The statistical criteria of  $P < 0.01$  and  $P < 0.05$  significance levels have been designated to identify variables that correlate very strongly and strongly, respectively.

The PCA allows for the computation of a linear combination of indicator variables. The 'component-loading', which represents the amount of correlation between the component variable and the indicator variable, is successively revised based on factor analysis, to arrive at a household relative poverty score. Due to its multidimensional nature, the approach is very sensitive in discriminating among different levels of poverty (Henry et al., 2003). Computed household poverty scores normally range between  $\pm 3$ . For both client and non-client households in this study, poverty scores ranged between -3.05 and +2.65. The use of MPAT attracts the defect of a relativist measure, and as such constrains comparability, especially across space; however, in the context of a country-specific study it is useful for a baseline assessment on future benchmarking.

#### *Financial self-sufficiency*

To arrive at a composite index for FSS, we apply the CGAP (Consultative Group to Assist the Poor, 2003) specification of the formula: Adjusted Financial Revenue/Adjusted (Financial Expense + Net Loan Loss Provision Expense + Operating Expense). The ratio adjusts for three main factors, namely: subsidised cost of funds; in-kind subsidy; and inflation.

## Model specification

### *Cross-section regression*

The hypothesis of a trade-off is estimated by modelling a cross-section regression equation, with poverty score of households on the left-hand side of the equation and a composite of institutional (endogenous to the institution) and household and external variables (exogenous to the institution) on the right-hand side. Alternative estimation techniques, such as treatment effect estimation and non-parametric estimation, were considered; however, the focus of identifying mutuality and potential measurement error allows for the use of comparing ordinary regression with instrumental variable estimation. Table 2 provides a summary of the variables, their measurement and *a priori* expectation.

The hypothesis of the study is tackled by regressing each vector of institutional and household factors on household poverty score (Equations 2a and 2b). Further to the main hypothesis we argue that institutional own-funding has potential in reaching less poor clients. This inclination is supported by some anecdotes that government and donor funding are eager to make a rapid dent on poverty and as such target very poor clients relative to financial resources mobilised by the institution. The model bundles government and donor funding, on the grounds of both being external to the institution relative to own-mobilised funding. This enables the generation of a dummy (own funds or otherwise) to estimate its effect on client targeting. This subsequently allows for building an interaction term (*own funds X Formal Ins.*) that extracts the effect of these variables on client targeting. The relevance of interacting dummies is to generate different slopes and intercept terms (Wooldridge, 2006). For instance, by interacting, we are able to estimate the joint effect of Rural Banks (representing formal institutions) dispensing programmes funded by their own-mobilised funds.

The respective true and estimated function and equation are specified in the form

$$Pov = f(\text{Access and use of Financial Services, Household Characteristics, ...}) \quad - 2a$$

$$Pov_i = \beta_0 + \beta_1 Ins'_{1i} + \beta_2 HH'_{2i} + \beta_3 (Own\ funds\ X\ Formal\ Ins)_{33} + U_i \quad - 2b$$

Where  $i$  denotes each observed household;  $Pov_i$  is the poverty index of the household;  $Ins$  and  $HH$  represent vector of institutional and household variables for each household, respectively; *Own funds X Formal Ins* is the interaction between institutional type and source of fund for each household observed and  $U$  is the disturbance term.

**Table 2: Description and *a priori* expectation of explanatory variables**

<b>Variable</b>	<b>Description</b>	<b>Measurement</b>	<b>Apriori expectation</b>
<b>Financial self-sufficiency</b>	Provides an MFIs non-distortionary financial viability in the context of zero subsidies and expansion only through the institutions commercial-cost liabilities.	Adjusted Financial Revenue/ Adjusted (Financial Expense + Net Loan Loss Provision Expense + Operating Expense).	+/-
<b>Operational self-sufficiency</b>	MFI's ability to cover its cost through operating revenues. Technically, it is the ratio of operating revenue over its expense. However, it is recommended that financial expense and loan loss provision expense be included in this calculation as they are a normal and significant cost of operating. (CGAP, 2003).	Financial Revenue/ (Financial Expense + Net Loan Loss Provision Expense + Operating Expense).	-
<b>Efficiency</b>	Reflects an MFI's efficient use of resource in the context of its assets.	Adjusted Operating Expense/ Adjusted Average Gross Loan Portfolio.	-
<b>Interest rate (nominal)</b>	Normalised (duration and rolling over method) rate of interest without adjusting for inflation, opportunity and transaction cost.	Institutional level rate of interest.	+
<b>Amount borrowed</b>	Amount of loan received from MFI.	Amount of loan received from MFI.	+
<b>Gross outstanding loan portfolio</b>	MFI's outstanding loans, including current, delinquent, and restructured loans, but not loans that have been written off. It does not include interest receivable. Regulated MFIs include the balance of interest accrued and receivable.	Gross Loan Portfolio, adjusted for standardised write-offs.	+/-
<b>Lending strategy</b>	Loan delivery strategy.	= 1 if client belongs to a group lending scheme.	-
<b>Age of programme</b>	Years of microfinance administering respondents programme.	Completed years of microfinance administering respondents programme.	-
<b>Number of savings account</b>	All types of institutional-based savings.	Number of functional savings account owned by respondent.	+
<b>Own programme</b>	Ownership structure (funder) of microfinance programme.	= 1 if client belongs to a programme solely financed by the MFI.	-
<b>Vulnerability</b>	Probability/risk of falling into poverty.	= 1 if respondent made a distress in the last 12 months.	-
<b>Age of household head</b>	Age of household head.	Age (completed years) of household head.	+/-
<b>Female-headed household</b>	Sex of household head.	= 1 if respondent household head is female.	-
<b>Repayment</b>	Provides an indication of MFI's portfolio quality.	Actual paid back loans within expected timeframe over amount outstanding yet to be paid.	-
<b>Rural bank client</b>	Legal and operational type of MFI.	= 1 if respondent is a client of a rural bank.	-

The true functional relationship specified in 2a, which is estimated by equation 2b, uses the vector of institutional factors (financial and operational self-sufficiency, repayment rate, efficiency and interest) to explain household access to and use of financial services. Using institutional self-sufficiency (operational and financial) as a demand-side measure of access to and use of financial services signals a potential measurement error capable of instituting endogeneity. This assertion is dependent on the broad limitations of using cost (supply side) and income (demand side) as a measure of access to and use of financial services. Stiglitz and Weiss (1981) argue that other factors peculiar to the financial sector, such as information asymmetry, obscure the use of cost and income to determine the relationship between access and use. Claessens (2006) further asserts that the potential disparity between access and use is dependent on the choice of financial indicator used. Depending on the type, range and quality of financial service, Claessens infers from Morduch (1999) four criteria (reliability, convenience, continuity and flexibility) for assessing household access to and use of financial services. Using the difference between operational and financial self-sufficiency at the outset fails to adequately measure access and use in Claessens' context. In spite of the definitions of reliability, convenience, continuity and flexibility<sup>9</sup> being utopian, quite vague and qualitatively inclined, the choice of FSS falls short of demand-side arguments.

These reasons and a plausible bi-causal relationship make operational and financial self-sufficiency susceptible to measurement error as one of the routes for endogeneity. Morduch (1999) and Honohan (2005) both allude to such threats and advocate a comprehensive assessment of measurement error leading to endogeneity and displacement effects. Displacement effects in quite recent studies (Khandker 2005; Imai and Arun, 2008) have witnessed the use of propensity score matching, treatment effects, randomised studies and Heckman-two-stage estimation to assess selection problems in microfinance impact studies. Although cognizant of this, germane to this study is endogeneity arising from measurement error.

Endogeneity emerging from measurement error in the case of the CEV is premised on the assumption of independence between the unobserved variable and error-in-variable. This accordingly engenders a correlation between the error term and observed variable. The direction and amount of inconsistency in OLS is a result of the covariance between the observed variable and measurement error (Hausman, 2001). The effect of the inconsistency is proven to drift close to zero, based on the asymptotic properties of probability limits (Wooldridge, 2006). Wooldridge (2006) suggests that one possibility of obtaining an IV is to identify another measure of the unobserved term, but on condition that the measurement error in the new term and that of the observed term are uncorrelated. The selection of an instrument is not limited to economic theory, but considers practical issues, information from other sources (broader unit of analysis),

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<sup>9</sup> Flexibility means tailoring products to consumer needs, convenience refers to ease of access, and reliability denotes availability at the time of need.

adaptation from other empirical work and intuition (Angrist and Krueger, 2001; Larcker and Rusticus, 2008). Though the use of IV is quite nebulous, its use apparently is the most common way to overcome measurement error problems for linear models (Bascle, 2008). Bound et al. (2001) suggest that violating the independence between the unobserved variable and the measurement error which is the thrust of the CEV could be more damaging than OLS ignoring measurement error. However, in recent literature some tests, including Sarjan, Hansen and Hausman post-estimation techniques, have evolved to measure reliability or susceptibility to potential problems (Kennedy, 2008). In view of this, and the background knowledge of the possibility of measurement error in both financial and operational self-sufficiency, this research corrects for measurement error using number of microfinance institutions in a region and lending mechanism (group/individual) as instrumental variables.

The equations below set out the specification of the instrumental variable equations;

$$Pov_i = \beta_0 + \beta_1 FSS_i + \beta_2 OSS_i + \beta_3 X_{1i} + \dots + \beta_{2+n} X_{ni} + u_i \quad - \quad 3a$$

$$FSS_i = \pi_0 + \pi_1 Group_i + \pi_2 NO.MFI_i + \pi_3 X_{1i} + \dots + \pi_{2+n} X_{ni} + v_i \quad - \quad 3b$$

$$OSS_i = \gamma_0 + \gamma_1 Group_i + \gamma_2 NO.MFI_i + \gamma_3 X_{1i} + \dots + \gamma_{2+n} X_{ni} + \eta_i \quad - \quad 3c$$

$$Pov_i = \beta_0 + \beta_1 \hat{FSS}_i + \beta_2 \hat{OSS}_i + \beta_3 X_{1i} + \dots + \beta_{2+n} X_{ni} + u_i \quad - \quad 3d$$

Where equations 3b and 3c are the first stage (reduced form equations), 3a is the structural equation and 3d is the second stage. The instruments in each of the reduced form equations are represented by the coefficients  $\gamma$  and  $\pi$ . The set of other covariates in the model as per the original equation in 2b are represented by  $X$ . The empirical estimation uses a joint F-statistic test of the residuals on an OLS of the structural model to test for endogeneity.

The choice of the instrument is informed by both theory and practice. As explained earlier, access to and use of financial services is uncorrelated with the measurement error in financial and operational self-sufficiency. Also, from a practical perspective, measurement error in either lending mechanism or number of microfinance institutions in a region is uncorrelated with the error in measuring financial and operational self-sufficiency. The theoretical underpinning of the choice of these instruments stems from the correlation between the observed variable and the identified instruments. For instance, the theoretical relationship between operational self-sufficiency and number of microfinance institutions transmits through a fundamental demand and supply argument. Thus, as the number of microfinance institutions increases, operational revenue tends to trickle downwards and expenses initiate an upward trend as profits are competed away. Also, financial self-sufficiency tends to correlate with lending mechanisms through the

benefits generated from economies of scale and institutional variation of interest rate based on collateral-based (individual) and non-collateral (group) lending. In spite of this theoretical undertone on the choice of instruments, an *a priori* correlation matrix is generated to augment the argument. We apply the Hausman and Hahn (2002) test to validate the choice of IV in addition to the intuitive argument alluded.

## **Results and discussion**

### **Descriptive statistics**

The socio-demographic data (Table 3) of clients and non-clients describes both general trends of household heads and, more importantly, the poverty description of client and non-client samples and key household features based on their discriminatory power. The pattern of the non-client sample for gender of household head, settlement, marital status and highest education of household heads was consistent with country-level demographics from other sources, such as the Living Standard Measurement Survey (LSMS). For instance, consistent with the findings of Ghana Statistical Service (2007), female-headed household and rural settlement accounted for 23 percent and 62 percent, respectively, compared to 24 percent and 63 percent in this study. Also consistent with the Ghana Statistical Service's findings (GSS) (2007) is the proportion of household heads engaged in the informal sector. Comparable figures of about 74 percent (current study) and 76 percent (GSS) represent the heads of household in the informal sector. Although, in some cases, heads of household of the client sample followed the same pattern, this was not expected, as the client sample was purposive to the focus of the research. However, settlement and occupation seemed to follow similar patterns of informal sector and male-headed household dominance. Settlement, on the contrary, showed a reversed pattern, as clients of microfinance institutions were mainly peri-urban and urban, accounting for 54 percent of the sample. Comparing the current client and non-client datasets, it emerges that the heads of household of the client sample seem to have relatively higher levels of education and employment. For instance, there is a 5 percent difference in the unemployment rate in favour of the client sample. This finding provides an initial signal of the capability of household variables to influence the decision to participate in microfinance programmes.

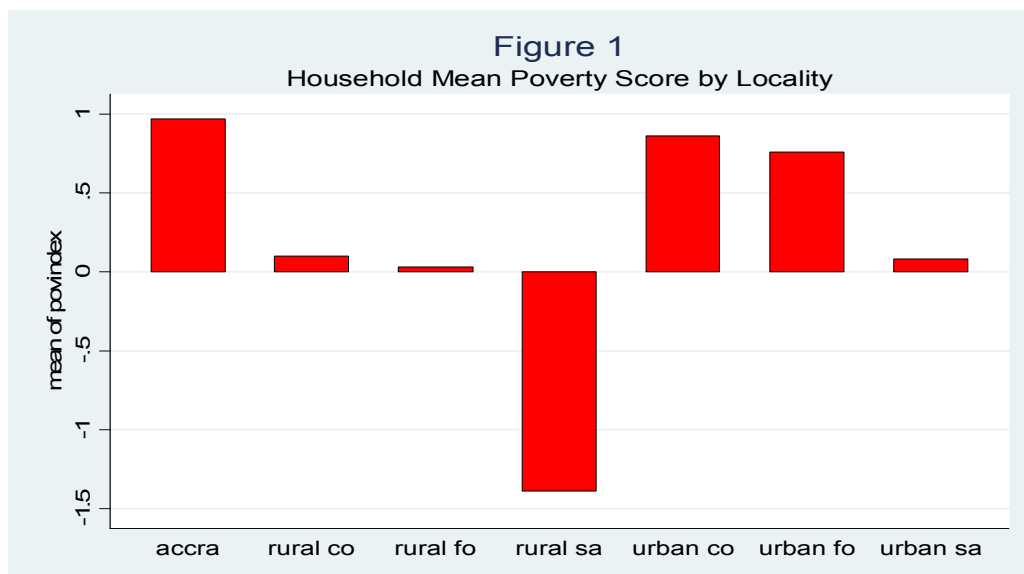
The mean poverty score of (-0.001) for non-client households, compared to 0.217 for clients (Table 3), evidenced higher poverty levels among non-clients than clients. The test of significance of the difference in the mean values was significant at 1 percent, signalling the relevance of the variation. As expected, the proportion of non-client households not having a savings account was almost twice that of the client sample. This can be related to the impetus placed on savings (normally forced) and other financial demands required prior to joining a microfinance scheme. Although the difference between proportions of households that owned land in each of the two samples was small, it is worth mentioning that the client sample evidenced a greater margin of 8 percent in favour of land ownership.



**Table 3: Demographic and poverty characteristics of households**

Demographic/poverty issues	Households – (N=2691)	
	Client	Non-client
Gender of household head		
Female	25% - (N=391)	24% - (N=269)
Male	75% - (N=1198)	76% - (N=833)
Settlement		
Rural	46% - (N=734)	62% - (N=679)
Urban	54% - (N=852)	38% - (N=423)
Marital status of household head		
Married	80% - (N=1274)	71% - (N=783)
Single	5% - (N=80)	8% - (N=86)
Divorced	8% - (N=123)	10% - (N=107)
Widowed	7% - (N=112)	11% - (N=126)
Highest education of household head		
None	32% - (N=503)	34% - (N=375)
Primary	8% - (N=134)	10% - (N=112)
Junior secondary school	37% - (N=580)	38% - (N=415)
Senior secondary school	9% - (N=140)	8% - (N=87)
Vocational	5% - (N=79)	3% - (N=37)
Post secondary/vocational	10% - (N=153)	7% - (N=76)
Occupation of household head		
Unemployed	6% - (N=89)	11% - (N=123)
Informal	79% - (N=1258)	76% - (N=836)
Formal	15% - (N=242)	13% - (N=143)
Poverty description		
Mean (SD)	0.217(0.025)	-0.001(0.030)
T-Test	-5.5437	
Highest	2.40	2.65
Lowest	-2.49	-3.05
Discriminatory household variables		
<i>Number of savings account</i>		
None	34% (N=538)	67% (N=746)
One	53% (N=845)	27% (N=303)
Two	10% (N=165)	4% (N=42)
Three	2% (N=30)	1% (N=8)
≥ Four	1% (N=11)	1% (N=3)
<i>Land ownership</i>		
Yes	58% - (N=926)	51% - (N=563)
No	42% - (N=663)	49% - (N=569)
<i>Ratio of children attending school</i>		
Mean (SD)	0.681(0.011)	0.572(0.015)
T-Test	5.948	
<i>Ratio of sick children</i>		
Mean (SD)	0.122(0.006)	0.156(0.009)
T-Test	-2.958	

Benchmarking the distributional features of the dependent variable, poverty, with the country's LSMS is imperative for later inferential derivations and reliability of policy recommendations. For this reason, locational and household socio-demographic characteristics were compared and regressed on poverty scores to establish degree of comparability and consistency in patterns and magnitude of effects. This validation at the outset of the estimation reposes initial confidence in the use of the dataset. Figure 1, below, shows household mean poverty score over geographical location and compares the findings with the 2005 LSMS. Household mean poverty for Accra (National Capital) and Rural Savannah are at the polar opposites, with the former depicting less poor households. Broadly comparing the rural and urban patterns, it emerges that poverty in Ghana remains a rural phenomenon, as all the urban areas from the study show higher mean scores depicting less poverty relative to their rural counterparts. The GSS summary report of the 2005 LSMS reveals similar patterns, as it shows that the incidence of poverty in Rural Savannah is 45 percent, compared to 2.0 and 2.9 in the Urban Coastal and Urban Forest regions, respectively. Another striking feature justifying consistency of the current dataset with LSMS is the higher incidence of poverty in the Urban Savannah than the Rural Coastal region.



The bivariate validation of the reliability of the current data was augmented with a multivariate analysis that estimated partial association between location and other household variables, such as literacy and gender of household heads on poverty. Table 4 below further supports the bivariate locational patterns of poverty, as all the three northern regions evidence an inverse relationship, significant at 1 percent. This, literally, is interpreted as being poor as a result of residing in any of the regions in the North. In a

**Table 4: Cross-section regression validating household poverty scores**

Dependent variable – Household poverty score

<b>Covariates</b>	<b>Robust coefficients</b>	<b>t-Value</b>
Upper West Region	-1.006*	-5.83
Upper East Region	-1.212*	-7.01
Northern Region	-0.913*	-5.27
Brong Ahafo Region	0.058	0.34
Ashanti Region	0.009	0.05
Eastern Region	-0.086	-0.51
Volta Region	-0.041	-0.24
Greater Accra Region	0.285**	1.67
Central Region	0.150	0.89
Western Region	0.023	0.13
Female-headed household	0.135*	6.18
Literate-headed household	1.120*	44.64

*Number of observations* = 2691

*R-squared* = 0.7515

\* Significant at 1 per cent

similar interpretation, residing in Accra indicated a lower likelihood of being poor. The two other household characteristics revealed the expected results, as literate and female heads of household tend to be less poor compared to their respective counterparts. The latter has been a consistent finding in Ghana over the last three LSMS (GSS, 2007).

### Multivariate analysis

The estimation of a plausible mutuality between institutional sustainability and reaching the poorest, as specified in equation 2b and informed by the true functional relationship of 2a, is preceded by a correlation matrix of the variables, with the aim of minimising some potential rudimentary problems. The estimations also corrected for possible heteroskedasticity by applying robust standard errors. The initial estimation of poverty determinants, as reported in the second column of Table 5, reveals contrasting results to institutional ability of simultaneously reaching poorer clients and being financially independent. Comparing the signs of the two main variables describing financial dependence (OSS and FSS) of a microfinance institution and its effect on targeting, the regression output shows that by ignoring the effect of subsidies (operational self-sufficiency), poorer clients are reached. However, assuming that all funds available to MFIs are sourced at commercial and competitive interest rates, thereby discounting subsidies (financial self-sufficiency), institutions fail to reach poorer clients. The initial glimpse of the result's reliability of 'fit' and directional effect of these variables is strongly supported, with an *R-squared* of 62 percent and a p-value of one percent for both OSS and FSS. Although the study reports robust standard error, and precedes the regression with a correlation matrix, post-estimation tests using STATA commands 'hettest and VIF' were explored to test potential violation of these OLS assumptions. However, the

coefficients associated with the explanatory variables are interpreted with much caution, due to the concentration and characteristics of the poverty index.

The findings at the outset are consistent with Morduch's (2000) and Cull et al.'s (2006) scepticism of mutuality. The signs of the coefficients of FSS<sup>10</sup> and OSS indicate that the former constrains the targeting of poor clients, while with the aid of external funds institutions are capable of targeting poor clients. The magnitudes of the coefficients are, however, incredibly small. In the case of OSS, a 10 percent increase causes a change in reaching poorer clients' households by a marginal difference of 0.08 poverty score. Given that poverty scores of client households range between -2.49 and 2.40, a drift from one poverty band to another on a quartile threshold will require at least a change in poverty by 1.0. Compared to a change in poverty score of 0.08 for a 10 percent increase in OSS post-estimation concerns and theoretical concerns are imperative. Compared to the 'three plus one' possible outcomes of the theoretical and empirical relationship between sustainability and outreach, the current study concurs with the second and part of the third possible outcomes alluding to a trade-off. However, three differences with the current study can be identified, with both the second and third clusters of outcomes suggesting a trade-off.

Firstly, evidence on reaching poorer clients and operating profitably in a commercial and competitive environment (discounting the effects of subsidy) are mostly verified by the individual client and/or single institutional performance scenario (Armendariz de Aghion and Morduch, 2005). Secondly, sample-based studies (Cull et al., 2006) have been masked with the use of financial practices (lending mechanism) and proxies in measuring sustainability and socio-economic characteristics of clients. Brau and Woller (2004), report the use of loan size/structure, repayment rate and efficiency as proxies for measuring profitability. Thirdly, studies such as Christen et al. (1995) and Park and Ren (2001) have demonstrated some results of mutuality, based on merely univariate and bivariate analysis. The current study overcomes these criticisms through the application of: (i) broader as well as phenomenon-specific indices, that is financial and operational self-sufficiency, in measuring institutional sustainability and a multidimensional poverty index in assessing the socio-economic characteristics of clients; (ii) encompassing financial indicators (interest rates, gross outstanding loan portfolio, repayment rate, efficiency, FSS and OSS) to investigate their concurrent partial effect in targeting clients; and (iii) post-estimation techniques to explore potential data and measurement problems from (i) and (ii). Specifically, measurement errors and sample selection bias that might lead to a misjudgement of actual directional and magnitude of interrelationships and causation between microfinance variables are explored.

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<sup>10</sup> The degree of association between FSS and OSS is 0.18.

**Table 5: Ordinary least squares and instrumental variable regression results**

Dependent variable – household poverty score

Covariates	Coefficients and robust standard errors				
	(1) OLS	(2) Test for endogeneity OSS	(3) Test for endogeneity FSS	(4) IV 2SLS	(5) Hausman IV-OLS
Financial self- sufficiency	0.021 (0.002) ***	0.013 (0.002) ***	0.012 (0.002) ***	0.111 (0.001) ***	0.090
<b>Predicted financial self- sufficiency</b>	-	-	-0.030 (0.003)***	-	-
Operational self- sufficiency	-0.008 (0.000) ***	-0.013 (0.001)***	-0.012 (0.001)***	-0.011 (0.001) ***	-0.003
<b>Predicted operational self-sufficiency</b>	-	0.012 (0.001)***	-	-	-
Gross outstanding loan portfolio (log)	- 0.079 (0.019) ***	0.025 (0.019) ***	0.233 (0.023) ***	-0.607 (0.078) ***	-0.528
Interest rate	0.028 (0.002)***	0.018 (0.002)***	-0.004 (0.003)	0.060 (0.006) ***	0.033
Repayment rate	-0.006 (0.001) ***	-0.006 (0.001)***	0.009 (0.001) ***	-0.005 (0.002)**	0.011
Efficiency	-0.007 (0.001)***	-0.005 (0.001)***	-0.004 (0.002)**	-0.060 (0.006)***	-0.052
Age of programme	-0.068 (0.004) ***	-0.026 (0.004)***	-0.039 (0.006)***	-0.196 (0.015)***	-0.128
Source of funds (own or otherwise)	0.445 (0.066)	-0.815 (0.098)***	0.400 (0.100***)	0.082 (0.088)	0.136
Number of savings account	0.370 (0.025) ***	0.361 (0.021) ***	0.340 (0.022)***	0.129 (0.049)***	-0.241
Female-headed household	-0.135 (0.036) ***	-0.164 (0.034) ***	-0.159 (0.033)	-0.318* (0.070)	-0.183
Age of household head	-0.010 (0.001) ***	-0.010 (0.001) ***	-0.009 (0.001)	-0.012 (0.002) ***	-0.002
Type of institution (formal)	-1.765 (0.119)***	-2.084 (0.120) ***	Dropped	-5.519 (0.421) ***	-3.753
Vulnerability	-0.144 (0.038) ***	-0.159 (0.035) ***	-0.082 (0.035)**	-0.201 (0.059) ***	-0.057
Family size	-0.013 (0.008)**	-0.019 (0.007) ***	-0.014 (0.007)**	-0.012 (0.007)**	0.002
Interaction (own funds * formal)	0.612 (0.105) ***	1.412 (0.108) ***	0.043 (0.062)	2.274 (0.101***)	1.660
Group lending mechanism	-	Dropped	-1.109 (0.084) ***	-	-
<b>Number of MFIs in a region</b>	-	0.010 (0.001) ***	0.002 (0.001) ***	-	-
Constant	2.073 (0.355) ***	-0.329 (0.358)	0.089 (0.388) ***	8.264 (1.291) ***	-
<i>R-squared</i>	<b>0.66</b>	<b>0.72</b>	<b>0.72</b>	<b>0.12</b>	-
<i>Number of Obs.</i>	<b>1589</b>				
<i>Joint F-test of residuals</i>	<b>F(2, 1571) = 163.74 &amp; Prob. &gt; F = 0.000</b>				
<i>Hausman Chi-Square</i>	<b>Chi 2 (15) = 238.71 &amp; Prob. = 0.000</b>				
<i>Hansen's J Over identification Test</i>	<b>0.000</b>				

\*\*\* Significant at 1 percent; \*\* Significant at 5 percent

The second column of Table 5 shows evidence of all exogenous variables being significant at 1 percent, but family size, which is significant at 5 percent. Clients receiving financial services from institutions that are efficient, with a high repayment rate and possessing a huge gross outstanding loan portfolio, fall within lower socio-economic categories. Like OSS and FSS, the coefficients associated with these indicators are quite negligible, given the poverty score of households. For instance, a 10 percent increase in gross outstanding loan portfolio impacts on reaching a household with a lower poverty score by 0.0079. Worth recognising, however, is the effect of interest rate in reaching clients. Unlike other financial indicators, interest rate, like FSS, posits a positive causation with household poverty. The estimated coefficient indicates that a 1 percent increase in interest rate causes institutions to reach less poor households by 0.028 poverty score. Although also marginal comparing its magnitude, moving a household from one poverty quartile to another seems to have a relatively higher effect than other financial performance indicators.

Institutional character based on regulation and source of funds both had a significant and hefty impact on household poverty scores. Characterisation based on regulation and licensing (formal) showed an effect of reaching extremely poor clients by 1.765 in the case of a formal MFI. On the other hand, categorising institutions based on source of funds showed that institutional funding reached less poor clients. Both observations were consistent with *a priori* expectations; as in the case of the latter, the general expectation is that institutions tend to be much more circumspect in dispensing their own mobilised funds relative to government and donor funding. Comparing this finding to the argument underpinning the two main variables of interest (OSS and FSS), some common ground can be identified. Comparing own funds with formal institutions, it is observed that clients fall into the relatively non-poor category. The coefficient for the interaction term posits that formal institutions dispensing their own funds target less poor clients by 0.612, relative to other combinations between categorisation of institutions based on regulation and source of funds. It is, however, not surprising to see huge effects associated with the characteristics (type) of institutions, as the sample is constrained to microfinance institutions. This raises the possibility of sample selection endemic in the estimation. Comparatively, direct household variables showed less impact (magnitude) on household poverty scores. The number of savings accounts held by a household appeared to have a 0.37 increase in household poverty level.

The potential problems of measurement error and sample selection bias and slight empirical indication of a violation of the normality assumption suggest the test for endogeneity and sample selection bias. The third and fourth columns of Table 5 identify lending mechanism and number of MFIs in a region as an instrument to test for endogeneity. As alluded to earlier, both variables are theoretically expected to deepen competition, which is argued not to be directly related to access and use of financial services (unobserved variable), but is related to institutional sufficiency, as measured by

OSS and FSS. Both regressions in columns 3 and 4 are preceded by first stage regressions (reduced form) that regress two separate models using OSS and FSS. In each of these, the predicted values are estimated and plugged back into the structural equation, together with the identified instruments. In both instances, predicted financial self-sufficiency and operational self-sufficiency exhibit significant values of 1 percent, which rejects the null hypothesis of exogeneity. These results make it imperative to run an instrumental variable equation in the fourth column to identify the two main variables of interest with lending mechanism and number of MFIs in a region. Although in the case of multiple covariates attenuation bias is quite complicated and, more importantly, cannot be the only attribute for smaller/bias coefficients in OLS, measurement error remains a possibility. A comparison of columns 1 and 4 shows consistent directional effect for all the covariates but notable increases in the coefficients of the IV, as evidenced in column 5 of the Hausman Test. The Hausman chi-square test, as reported in the last but one row, shows significant differences between the OLS and IV estimates.

## **Conclusion**

In this paper, the research revisits the traditional argument of mutuality or trade-off between microfinance institutional self-sufficiency and reaching poorer clients. Its contribution to the discourse is mainly empirical, emerging from sampling, indicator measurement and estimation procedures. The main finding of the study upholds the sceptic's view of a trade-off and reveals the effect of source of funds and other institutional characteristics in targeting poor clients. The quantitative exposition clearly shows institutional inability to mutually operate competitively and reach poorer clients. It offers insights into the variation between the effect of formal microfinance institution and source of funds in targeting poorer clients. The interaction between own funds mobilised and formal institutions emerged as significant in reaching less poor clients. This research contributes to the microfinance literature in this area by categorising institutional type from the perspective of sources of funds, that is (i) institutional own-mobilised funds through owners' equity, commercial lending or deposits; (ii) government-subsidised credit; and (iii) donor grant or subsidised credit. Also striking is the relative significance of all institutional factors, including performance, delivery strategies and characteristics. This suggests the relative/unmatched influence of supply-side factors in client targeting.

The research also posits plausible data problems leading to endogeneity and sample selection bias. Similar to existing methodological literature on impact studies that extend the analysis to investigate data and estimation constraints, this paper offers revealing potential problems likely to characterise the measurement of financial indicators. The likelihood of attenuation bias emerging from measurement error of FSS and OSS and plausible sample selection bias is evidenced in this study. The use of lending mechanism (group or individual) and number of microfinance institutions as instruments

reveals the implicit endogeneity characterising the use of FSS and OSS. Also, the use of a detailed poverty measure (multiple indicator approach) offers a more accurate perspective of wellbeing in contrast to income and average loan size as a proportion of GNP.

The theoretical relevance is consistent with current thinking on the linkages between institutions, growth and poverty. Departing from state and/or market-oriented development paradigms to a hybrid between these has imperatively raised a number of questions on the capability, economic efficiency and sustainability of institutions. Among the main criticisms is the lack of a clear path of transmission mechanism between institutions and development, due to the varied modes of evolution and operation. Heterogeneity of microfinance institutions, due to varied prompts of evolution and existence, confirms the major theoretical criticism of Institutional Economics. The connection between institutions, growth and poverty models remains vague, due to the inability of institutions to clearly specify guidelines for achieving desired objectives. Among the numerous factors that prompt the evolution of microfinance institutions are source of funds, government policy and individual, community and development partner initiative. Characterising the type of microfinance based on any of the possible institutional evolution prompters culminates in varied levels of the relative importance attached to the dual objective. Unlike other traditional institutions that are predominantly profit-oriented, the dual objective of microfinance provides a fertile ground for the 'Jack-of-all-trades, master-of-none' syndrome. It appears that, with the qualitative information of the mission, and attaching scores to the relative importance for each of the two objectives, institutions seemed fairly unsure of their inclination.

Although the intuition underpinning impact studies is upheld, other equally important primary and intermediate goals, such as targeting, source of funding and financial self-sufficiency might be compromised under the assumption that all institutions are geared towards poverty reduction. Research into the process for achieving poverty impact has the potential for unravelling institutional orientation and differences to inform policy on relative market niches. This research shares the philosophy of deepening the search for local sources of funds exclusive of government direct sourcing, such as linking capable deposit-taking institutions with informal microfinance institutions.



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