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Research Article

Factors Affecting the Social Outreach of Microfinance Institutions: Evidence from Ethiopian Microfinance Institutions

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The main objective of the study was to assess the factors affecting the social outreach of microfinance institutions in Ethiopia. The outreach of microfinance was measured in terms of the number of clients served as the breadth of outreach and the socio-economic level of the clients as the depth of outreach. The study was conducted using secondary data collected from the Association of Ethiopian Microfinance Institutions for the period 2007-2020, which was published in its annual bulletin. A sample of 14 microfinance institutions was selected based on the consistency of their financial and performance reports to the association since 2007. The study was based on an explanatory research design. A balanced panel data set was analysed using the random effect panel data regression model. The study found that borrowers per loan officer, cost per borrower, deposit to loan ratio, gross loan to asset ratio, operating expense to loan portfolio, return on assets, age, size, and product of microfinance are variables significantly affecting the social outreach of microfinance in Ethiopia. The study found that microfinance institutions are serving a fraction of the poor in Ethiopia. Microfinance institutions in Ethiopia need to maintain the momentum and trends of depth and breadth. MFIs need to accelerate their progress in order to reach more of the poor.

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Introduction

The poverty problem is a pandemic for the developing economy that has attracted academicians and policymakers to postulate a strategy to alleviate poverty and improve societal living standards (Bent, 2019). Microfinance has emerged as a promising tool to address the poverty problem, as it requires less investment yet still serves a large percentage of poor clients whom traditional banking finds unprofitable (Robinson, 2001). The main objectives of MFIs are to provide credit and savings (financial services) to the poor in order to relieve financial constraints and help alleviate poverty. The microfinance industry is unique in different aspects such as its newness, its diverse organisational structure (with profits and non-profits), and its social mission whereby it largely focuses on women and the poor (Mori & Randoy, 2011).

All the MFIs operate their social mission function as one of their main goals. Earning profits while providing financial services to the poor is treated as secondary or incidental to the cause of the problem which they are trying to resolve (Sriram, 2011). Microfinance institutions (MFIs) generally aim at improving the access of the poor to financial services while at the same time being financially sustainable (Hermes & Hudon, 2019). MFIs operate their social mission function as one of their main goals (Mori & Randoy, 2011). The efforts to extend microfinance services to the people who are underserved by conventional banks are termed as outreach (Lafourcade et al., 2005). Outreach can be measured in terms of breadth, number of clients served, and volume of services, or depth, which represents the socioeconomic level of clients MFIs reach. The performance of MFIs in reaching out to the poor by providing services poor households need is also referred to as social performance (Hermes et al., 2019).

Since the late 1970s, the poor in emerging economies have increasingly gained access to financial services offered by so-called microfinance institutions (MFIs). Growth in the microfinance industry may be characterised by an increase in the breadth and depth of outreach of existing microfinance institutions, heightened competition among microfinance service providers, diversification of product and service offerings, and the presence of private and commercial funds for microfinance activities (Reed, 2015). However, Stephen, Shamiso, 2013; Hermes & Hudon (2019) argued that MFIs are supplying financial resources to the poor, but a large portion of people in developing countries lack access to financial resources.

In fact, outreach is a hot area in the MF industry among researchers to study whether MF reaches the poorest of the poor who are in need of financial services. Some studies criticise the microfinance institutions for only reaching the marginally poor. Besides, most MFIs have no clear rules and criteria to target the poorest of the poor. Wijesiri, Yaron, & Meoli, M. (2017) confirmed that most of the older MFIs are inefficient in achieving their outreach objectives. Hasan and Batra (2018) asserted that the MFI industry in Ethiopia suffered from a lack of a clear women-targeting policy and erratic profitability, and performance is poor

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in terms of depth outreach as they are not reaching many poor people living under the poverty line. According to Sintayehu's (2014) study, the Ethiopian microfinance industry faced challenges of low outreach, limited capital diversification, and other related problems.

Microfinance is expected to achieve social goals while simultaneously maintaining financial sustainability. One of the goals for Microfinance Institutions (MFIs) is to reach poor clients by achieving financial sustainability. According to Olasupo et al. (2014), MFI management should be efficient in promoting both social and financial performance objectives. The importance of MFIs in poverty alleviation and their contribution to the overall economy attracts researchers to study the sustainability of MFIs. For instance, financial sustainability has gained more attention from academia than social performance. Various studies have been conducted in the area of microfinance, focusing on financial performance (Yirsaw, A. 2008) and measuring how Ethiopian MFIs are performing. The study incorporated microfinance outreach as one performance measure in Ethiopia. Others have investigated the performance of microfinance in terms of sustainability and outreach (Pfister et al., 2008; Kidane, 2007; Amha, 2007; Ejigu, 2009). However, the performances identified by these factors were different, thus there is a lack of clear focus on determinants of outreach performance. This study fills this gap by identifying the factors affecting the social outreach of microfinance institutions in Ethiopia. Regarding the determinants of outreach performance of MFIs, there are a few studies that have also analysed the factors that influence microfinance outreach. Studies conducted by Ahlin, Lin & Maio (2011) and Hudak (2012) that examined this subject matter approached it from the macroeconomic perspective. Osotimehin, Jegede, and Akinlabi (2011) examined a limited number of determinants of MFIs in Nigeria using firm-level variables; however, this study includes more variables.

As Lafourcade (2005) undertook a study on the outreach and financial performance of MFIs in Africa, it was found that African MFIs have a higher number of savers than other regions of the world. In contrast, the outreach breadth in terms of borrowers in Africa is far behind their counterparts in South Asia, East Asia, and the Pacific. **Ahmed, Bhuiyan, Said & Salleh (2014)** examined the breadth of outreach. They deployed a random effect model to analyse secondary data. The results showed that the gross loan portfolio (lnGLP) has a significant positive relation with the breadth of outreach. The yield on the gross loan portfolio (YIELD) and the size of MFI (lnSIZE) have been identified as having an insignificant positive effect on the number of active borrowers. **Adams Abdulai**, & Devi **D. Tewari**, (2017**)** analysed the determinants of microfinance outreach in Sub-Saharan Africa. The average loan size as a percentage of gross national income (GNI) per capita (ALS) has been used as a proxy for the depth of outreach, and NAB is a prominent measure of the breadth of outreach. Their findings indicate that a number of institutional-level factors strongly influence the outreach performance of institutions. The main drivers of MFIs' outreach are the GLP, the interest rate, OEA, ROA, and ROE. While the PAR only drives MFIs' depth of outreach, staff productivity impacts only the breadth dimension of outreach. **Saad, Taib, & Bhuiyan (2018)** analysed the factors that influence the outreach performance of MFIs in Pakistan. By using a random effect regression, factors that influence the depth and breadth of outreach were determined. Return on assets and firm size affect both the depth and breadth of outreach, whereas the portfolio at risk greater than 30 days impacts the breadth of outreach only. Additionally, the operating expense ratio does not influence the outreach performance of MFIs. **Ahmed & Batra (2018)** analysed the performance of microfinance institutions in Ethiopia using both primary and secondary data to analyse outreach, collection performance, financial sustainability, efficiency, and welfare impact indicators. The studies found that the performance of MFIs is poor in terms of depth of outreach as they are not reaching many poor people living under the poverty line. Their performance needs to be improved as they were not covering their financial breakeven, meaning that some of the MFIs in Ethiopia cannot cover their operating expenses, but they are good in terms of breadth of outreach. **Alemayehu & Fenet.B (2016)** reviewed the performance of MFIs in terms of outreach and financial sustainability. From the outreach angle, it was found that individual MFIs' outreach has shown an increment with different rates of growth, leading the industry's outreach to rise on average by 22.9 percent. It was also identified that while MFIs reach the very poor, their reach to the disadvantaged, particularly women, is limited to 38.4%. Even though numerous studies have been undertaken in the area of microfinance, less attention has been given to identifying the determinants of outreach of microfinance. The current research differs from the aforementioned researches by incorporating more additional variables. In addition to the aforementioned gaps, the above-mentioned studies in Ethiopia didn't show a clear attempt to identify the factors affecting the outreach of microfinance. The current study was carried out exclusively on firm-level determining factors, incorporating more variables of outreach performance of microfinance institutions in Ethiopia.

Literature Review

Microfinance

Microfinance is a development approach that provides both financial and social intermediation.

The financial intermediation includes the provision of savings, credit, and insurance services, while social intermediation involves organising citizens' groups to voice their aspirations and raise concerns for consideration by policymakers and to develop their self-confidence (Robinson, 2002). Microfinance institutions (MFIs) were established to fill the gap in the financial services sector by providing funds to the poor and lower-income groups, thus alleviating poverty and enhancing their business activities.

Performance Measurement of Microfinance Institutions

The performance of an institution or a company should be measured not only from the objectives of the organisation's angle but also from the industry average. As explained by Woldeyes (2012), the performance of the MFI was measured on how much the MFI reaches the poor (outreach) and impact (how far the lives of those who get financial services are changing as compared to those who don't get these services). Experience has shown that funding agencies' microfinance interventions produce better results when design, reporting, and monitoring focus explicitly on key measures of performance. Unfortunately, many projects fail to include such measurement. However, these five core indicators offer basic tools to measure the performance of MFIs (CGAP, 2009):

- Outreach (breadth of outreach) – how many clients are being served?

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- Client poverty level (depth of outreach) – how poor are the clients?
- Loan repayment/collection performance (portfolio quality) - how well is the lender collecting its loan?
- Efficiency – how well does the MFI control its operating costs?
- Financial sustainability (profitability) - is the MFI profitable enough to maintain and expand its services without continued injections of subsidised donor funds?

Outreach of Microfinance Institution

Outreach refers to the provision of financial services to a large portion of society, termed breadth of outreach, and to economically poor individuals, also called depth of outreach (Conning, 1999). It is a social benefit of microfinance aiming at improving the well-being of the poor. Outreach is often used to indicate something about an MFI's clients, for example, its clients' poverty level. According to R. M. Rao and Tamrat.l (2014), outreach is the depth and width of the major services of microfinance institutions such as credit provision, savings mobilisation, micro insurance, money transfer, and payment services.

Measures of Outreach Performance

Based on the complexity of the concept, the analysis of social performance should not be restricted to using a single dimension. Instead, social performance should be appraised by using a multidimensional perspective. Analysis of social performance should therefore include a variety of indicators or proxies related to the different groups of clientele of MFIs. Social outreach generally refers to either breadth of outreach or depth of outreach, while occasionally it may also include outreach to women borrowers.

Outreach is measured by the depth and breadth of essential services of microfinance institutions such as credit provision, savings mobilisation, micro insurance, money transfer, and payment services (Rao, 2014). It measures how well an MFI has reached its target clients and fulfils the financial services demand of the clients.

Depth of outreach

The depth of outreach represents the socioeconomic impact that MFI services have on the clients. Rao (2014) and Rauf & Mahmood (2009) defined depth of outreach as the "poverty level of clients served by MFI." The depth of outreach narrates the line of poverty, or the extent to which the poor do not have access to regulated financial institutions. The proxy for depth of outreach is the average size of the loan because other indicators of depth of outreach are usually expensive to collect. However, scholars such as M. Saad, H. Mohd T.Bhuiyan (2018), and Bhanot et al. (2015) measured the depth of outreach by average loan balance/size per borrower. A. Abdulai D. Tewari1 (2017) has used the average loan size as a percentage of gross national income (GNI) per capita (ALS) as a proxy for depth of outreach studies. A small-size loan reflects outreach to poorer clients by MFIs (greater depth).

Breadth of outreach

The breadth of outreach refers to "the scale of operations of an MFI" (Rao, 2014). The number of active borrowers indicates the level of the breadth of outreach; meaning the number of poor served by a microfinance institution (Woller, G, 2002). Several studies have used the number of active borrowers as a measure of the breadth of outreach (M. Saad, H. Mohd T.Bhuiyan 2018, Kinde, 2012; Rauf & Mahmood, 2009).

Determinants of outreach and hypothesis of the study

The following section will discuss the variables on the determinants of the outreach performance of MFIs. Different studies by different authors, specifically on the determinants of performance of MFIs, found different results on the determinants that affect the performance of MFIs. There have been several determinants of Microfinance Institutions Outreach. This literature is reviewed for the purpose of developing empirical evidence that the researcher thinks may affect the performance of MFIs in Ethiopia.

Return on Asset (ROA)

Return on Asset indicates how profitable a company is relative to its total assets. It is calculated by dividing net income after taxes, excluding any grants and donations, by the period's average assets. This gives us an idea of how efficient management is in using its assets to generate earnings. According to Wolday (2014), return on asset is the most common measure of profitability in banks and other commercial institutions. According to the work of Abdulah and Tawar (2017), Return On Asset is significant and relates negatively to both depth and breadth of outreach as measured by the Percentage of Female Borrowers. They suggested that portfolio diversification, a situation where MFIs, instead of augmenting lending to the poor, invest in other assets perceived to yield higher returns. Kipesha and Zhang (2013), using the Welfarists approach, found that return on asset (ROA) and financial revenue ratio have negative coefficients with outreach measures. This implies that focusing on profitability results in declining outreach to the poor, hence the existence of trade-offs. Saad, Taib, and Bhuiyan (2018), in their study, found that ROA negatively influences the outreach of MFIs measured by ALPB. The result implies that an increase in the value of ROA results in a decrease in the average loan balance per borrower. 'The coefficient value of ROA is -1.598 and is significant at 1 percent. This implies that as MFIs tend to focus on increased profitability, this may be achieved when they decrease the average loan balance per borrower or increase their depth of outreach.' However, it states that ROA has a positive significant relationship with NAB. This implies that as MFIs become profitable, they tend to increase their client portfolio and target a large number of poor borrowers.

- H1: *Hence, the study hypothesised that ROA has a negative impact on outreach performance*.

Gross Loan to Asset ratio

The gross loan portfolio is the main source of income for MFIs and thus, other things being constant, the higher the loan, the higher the interest revenue and financial sustainability. According to Bourke, if the loan markets, especially credit to households and firms, are risky and have a greater expected return than other assets, there may be a positive relationship between loan intensity (gross loan/total asset) and sustainability (Bourke, 1989). Microfinance institutions that focus on outreach to the poor invest more of their funds into client loans, which increase the gross loan portfolio. The higher this ratio indicates that most of the institution's funds are invested in client loans, which increase outreach to the poor with declining financial sustainability (Kipsha and Zhang, 2013). Moreover, if an MFI's risk increases

when its loan to asset ratio increases, then financial sustainability may decrease (Tilahun, 2013). Furthermore, the loan portfolio of MFIs represents its biggest asset. A higher GLP reflects the size of the institution, which greatly determines its level of outreach. Adhikary and Papachristou (2014), in analysing the financial performance and outreach of 133 South Asian MFIs, found the depth of outreach to relate positively to financial performance, suggesting that MFIs on sustained financial expansion paths can reach their social goal at minimised risk.

- H2: *Hence, it is hypothesised that the gross loan to asset ratio has a positive relationship with the outreach performance of MFI.*

Debt to Equity ratio

The ratio of debt to equity indicates the extent to which Microfinance institutions use commercial funds as the source of capital. The use of debt expands the capital base and enables Microfinance institutions to serve more clients (Kipesha and Zhang 2013). The debt to equity ratio is calculated by dividing total liabilities by total equity. Total liabilities include all that the MFI owes to others, including deposits, borrowings, accounts payable, and other liabilities. Whereas total equity is the total asset less total liability. It is the simplest and best-known measure of capital adequacy because it measures the overall leverage of the institutions (AEMFI, 2014). Those MFIs scoring maximum DER should be vigilant because theories suggest that a higher DER is bound to exert pressure on profit margin (sustainability and efficiency). A higher level of equity results in better outreach, and this holds true for MFIs. The debt to equity ratio has a small but statistically significant effect on the outreach of an MFI (Quayes, 2012; Osotimehin *et al*. 2011).

- H3: *Hence, it is hypothesised that the debt to equity ratio has a positive relationship with the outreach performance of MFI.*

Operating Expense Ratio (OER)

The operating expense ratio is defined as the ratio of total operating cost to the outstanding loan portfolio and is thus calculated by dividing all expenses related to the operation of the MFIs (including all the administrative and salary expenses, depreciation, and board fees) by the period average gross portfolio, interest, and provision expenses (Wolday, 2013). According to (CGAP 2010) cited in A. Abdula and D. Tewari (2017), higher operating expenses have been found to plague the operations of MFIs in SSA. The operating expenses to assets ratio (OEA) is measured as the ratio of adjusted operating expenses to the adjusted average GLP. It is a cost-side variable and captures the cost implications associated with reaching out to the poor. Studies by (Oteng-Abayie, Amanor & Frimpong 2011; Rao 2002) cited in Abdula and D. Tewari (2017) have shown that MFIs' operating costs average between 50% and 60%, and this is likely to have an impact on outreach. Abdula and D. Tewari (2017) found the OEA ratio is negatively and significantly related to the depth of outreach. This shows that rising operating costs have negative consequences in extending financial services to core poor clients.

- H4: *This study hypothesises that the Operating Expense to Asset Ratio has a statistically significant and negative impact on the outreach performance of microfinance institutions.*

Portfolios at Risk (PAR)

The loan portfolio is an MFI's most important asset. Portfolio quality reflects the risk of loan delinquency and determines future revenues and an institution's ability to increase outreach and serve existing clients. *Portfolio quality* is measured as a portfolio at risk over 30 days (PAR >30 days) (Lafourcade, et al., 2005). The higher the PAR, the lower the repayment rates, indicating an inefficient microfinance institution. The higher the PAR, the more inefficient the microfinance will be and, therefore, the less financially sustainable. As per the econometric result by Nyamsogoro (2010), there is a negative relationship between PAR and the sustainability of microfinance institutions. This shows that the higher the PAR, the less efficient the microfinance institution is and the less likely it is to be sustainable. Quality of the portfolio as an indicator of credit risk measures how well the MFIs are collecting their loans. A loan is considered to be at risk if the payment on it is more than 30 days late and therefore has a risk of not being repaid. Further, Saad Taib and Bhyuin (2018) measured portfolio quality by PAR>30 and found it has a negative insignificant impact on ALPB. This implies that the portfolio at risk does not influence the outreach of MFIs. Furthermore, the relationship between PAR and NAB is statistically negatively significant. PAR has a coefficient value of -2.99 and is significant at 10 percent. The result suggests that loan portfolio quality is highly related to the outreach of MFI. MFIs should be prudent in increasing their customer portfolio as these portfolios are not backed by any security. Poor management of loans may be one of the reasons for the increase in bad loans.

- H5: *This study hypothesises* that PAR >30 days *has a statistically significant and negative impact on the outreach performance of microfinance institutions.*

Age

Age is the number of years of operation of an MFI. Moreover, Hermes et al. (2008) found out that older MFIs are less efficient, hence they might be less sustainable too. Nyamsogoro (2010) revealed that the age of rural MFIs in Tanzania positively influences financial sustainability. Similarly, Hartarska et al. (2011) found out that the age of an MFI positively influenced the financial sustainability of MFIs worldwide. Wijesri et al. (2015) found that age positively influences financial and social efficiency in Sri Lanka, while Wijesri and Meoli (2015) suggest a negative influence on productivity in Kenya. Older MFIs perform better both in terms of outreach and profitability. Vanroose (2009) added that the effect decreases with age and found a significant negative second-order effect. Larger MFIs also perform better both in terms of outreach and profitability, according to Ferdous (2013).

- H6: *This study hypothesises that the age of a microfinance institution has a statistically significant and positive effect on the outreach performance of MFIs in Ethiopia.*

Size of microfinance institution

The size of MFIs (measured in terms of their total assets or the value of their loan portfolios) may matter for performance, as larger MFIs benefit from economies of scale and scope in providing financial services. Scale and scope economies allow larger organisations to be more efficient, resulting in better financial performance. Larger MFIs may also reach out to poorer clients, thus increasing the depth of their outreach, once they decide to cross-subsidise such activities by using revenues

generated through economies of scale (Armendàriz and Szafarz, 2011). Evidence is more mixed with respect to the relationship between size and social performance. Rao and Reda (2015) find that larger MFIs have lower social performance. In India and Ethiopia, the results indicate that the size of a firm has a significantly negative relationship with outreach and a significant positive impact on profitability (K.Pal Narwal, M. Kumar Yadav, 2015).

- H7: *The size of a microfinance institution has a statistically significant and positive relation to outreach performance and a positive impact on the outreach performance of MFI.*

Deposits to Loan ratio

The deposit to loan ratio is an important performance indicator for MFIs that mobilise deposits. It measures the portion of a microfinance institution's loan portfolios funded by deposits. The higher the ratio, the greater is the microfinance institution's capability to fund its loan portfolio from deposits. The higher ratio brings down the costs of funds and increases the reliability of the microfinance institution on internal funding. To a large extent, the sustainability of microfinance depends on their saving mobilisation capabilities. Deposits should always be considered both as a source of funding for non-lending and as an important product for clients. Microfinance needs robust business plans and innovative products to bolster savings to meet the loan demands of the financially excluded population (AEMFI, 2015).

- H8: *Hence, it is hypothesised that the deposit to loan ratio has a positive relationship with the outreach performance of MFI.*

Loan officer productivity

The loan officers to borrowers ratio captures the productivity of a microfinance institution's loan officers. The higher the ratio, the more productive the microfinance institution. It is one of the most organised performance ratios used in the microfinance institution industry. The loan officer's ratio is calculated by dividing the number of active borrowers of microfinance institutions by the total number of loan officers. Loan officers are personnel of a microfinance institution whose main activity is the direct management of a portion of the loan portfolio. It includes field personnel or line officers who interact with clients but not administrative staff or analysts who process loans without direct client contact (Antene Kifle, 2015).

- H9: *Hence, it is hypothesised that the loan officers to borrowers ratio has a positive relationship with the outreach performance of MFI.*

Cost per borrower

Cost per borrower provides a meaningful measure of efficiency, showing the average cost of maintaining an active borrower of an MFI. As demonstrated so far, cost per borrower, the most popular measure of MFIs' efficiency, is calculated by dividing all expenses related to the operation of MFIs (including all administrative and salary expenses, depreciation, and board fees) by the average number of active borrowers.

- H10: *This study hypothesises that cost per borrower has a statistically significant and negative impact on the outreach performance of microfinance institutions.*

Methods and Materials

Research Design

As Creswell (2003) states, quantitative methods are a good fit for deductive approaches, in which a theory or hypothesis justifies the variables and the purpose statement. The hypothesis being tested and the phrasing of the research questions govern how data will be collected as well as the method of statistical analysis used to examine the data. The positivist philosophy was used in the study to examine the empirical relationship between factors affecting the social outreach and social outreach of microfinance institutions. An explanatory research design was used in this study. It is quantitative, and the hypothesis was tested to measure the relationship between variables while data is analysed using statistical techniques with EViews 10.

Data and Sampling Design

This study used secondary data. The data of 14 microfinance institutions were collected from the Association of Ethiopian Microfinance Institution's (AEMFI) annual bulletin from 2007-2020. The researcher used a purposive sampling technique. The sample size is judged based on the availability and quality of data and the resulting estimates. Until 2020, there were 35 MFIs registered and providing information to AEMFI. Most of the microfinance institutions established recently did not present the information during the period of review. Based on this fact, only 14 microfinance institutions that provide their audited annual financial and performance data regularly and consistently to AEMFI since 2007 were selected. Hair et al. (2006) state that although the minimum is 5:1, the desired level is between 15 to 20 observations for each independent variable to be representative. The balanced panel data sample of 14 MFIs operating in Ethiopia from the year 2007-2020, which consists of 196 observations, is required for this study.

Operational Definition of Variables

Dependent Variable

According to Rao (2014), outreach is measured by the depth and breadth of essential services of microfinance institutions such as credit provision, savings mobilisation, micro insurance, money transfer, and payment services.

Independent Variable

To measure the predictor variables of social outreach performance of MFIs in Ethiopia, the dependent variable incorporates the following explanatory variables based on theoretical reviews and empirical evidence from the above discussion. The explanatory variables and expected hypotheses are elaborated in the following summary table:

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No.	Name of Variable	Measurement of Variables	Name in Model	Expected Sign
1	**Dependent Variables**	**Depth of Outreach**		
		Gross loan portfolio / Number of active borrowers	ALPB (Average Loan per Borrower)	
		Breadth of Outreach		
		Total number of active borrowers	NAB	
2	**Independent Variables**	**Portfolio at Risk > 30 Days**		
		Unpaid balance of past due loans with overdue > 30 days / Gross outstanding loan portfolio	PAR	-
		Operating Expense Ratio		
		Total operating expense / Average outstanding portfolio	OER	-
		Size of MFI		
		Total asset of microfinance	SZ	+
		Return on Asset		
		Net operating income – tax / Average total assets	ROA	-
		Deposit to Loan Ratio		
		Voluntary saving / Gross loan portfolio	DLR	+
		Gross Loan Portfolio		
		Gross loan portfolio / Total asset	GLP	+
		Debt to Equity Ratio		
		Total debt / Total equity	DER	+
		Age of MFIs		
		Age of MFIs in years	AG	+
		Borrower per Loan Officer		
		Total number of borrowers / Total number of loan officers	BPLO	+
		Cost per Borrower		
		Operating expense / Number of active borrowers	CPB	-

Table 1. Summary of the variables used in the models

Model Specification: Identification of Dependent and Independent Variables

The objective of this study is to examine the factors influencing the social outreach of MFIs in Ethiopia. To carry out the analysis, the study employed the basic panel data regression equation:

$Yit = \alpha + \beta Xit + eit,\ i = 1...N;\ t = 1...T$

where i denotes the individual microfinance institutions and t denotes time. In this case, i represents the cross-section identifier and t the time identifier. α is a scalar, β is a K-dimensional vector, and Xit is the ith observation on the K explanatory variables. In estimating a panel data model, most applications make use of a one-way error component model for the disturbances, with $eit = \mu i + vit$ where μi denotes the unobservable individual-specific effect and vit denotes the remainder disturbance. μi is time-invariant and essentially accounts for any unobserved effect that is not captured in the specification. vit, on the other hand, varies with both the cross-sectional variables and time and could even be considered as the usual disturbance in the regression.

The study used two measures of outreach performance as dependent variables. The first measure is depth, measured by average loan balance per borrower (ALPB), and the second dependent variable is breadth of outreach, measured by the number of active borrowers (NAB). Hence, the following models are specified:

$$ALPB_{it} = \alpha + \beta 1 ROA1_{it} + \beta 2 DLR_{it} + \beta 3 GLAR_{it} + \beta 4 PAR_{it} + \beta 5 OER_{it} + \beta 6 DER_{it} + \beta 7 AG_{it} + \beta 8 SZ_{it} + \beta 9\ CPB_{it} + \beta 10\ BPLO_{it} + eit$$

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$ANB_{it} = \alpha + \beta 1ROA1_{it} + \beta 2DLR_{it} + \beta 3GLAR_{it} + \beta 4PAR_{it} + \beta 5 OER_{it} + \beta 6DER_{it} + \beta 7AG_{it} + \beta 8SZ_{it} + \beta 9 CPB_{it} + \beta 10 BPLO_{it} + e_{it}$

Where:

α: Intercept,

ALPB: Average loan per borrower,

ANB: Number of borrowers,

PAR: Portfolio at risk greater than 30 days,

OER: Operating Expense Ratio,

BPLO: Borrowers per loan officer,

GLAR: Gross loan to asset ratio,

ROA: Return on Asset,

SIZ: Size of microfinance institution,

AG: Age of microfinance institution,

DER: Debt equity ratio, and i is the i^{th} microfinance institution, t is the time period, $\beta 1$, $\beta 2$... $\beta 11$ are the coefficients for each independent variable in the model.

Empirical results

The research utilised balanced panel data from 14 years of data from 14 MFIs, as reported in the AEMFI annual report bulletin. The descriptive results of the variables were first analysed, followed by the empirical results. As shown in the descriptive results from **Table 2** below, Ethiopian MFIs, on average, have a loan balance of 3155.177 birr per borrower. This suggests that a microfinance institution in Ethiopia typically provides 3155.177 ETB for a single borrower. The maximum and minimum values of average loan balance per borrower are 13,806 ETB and 536 ETB, respectively, implying that the MFIs in the sample vary in average loan size and are representative of the population of the study to that extent. The breadth of outreach is measured by the number of borrowers. The descriptive statistics of NAB show a mean value of 194,277.1, indicating that on average, a microfinance institution in Ethiopia reaches 194,277.1 borrowers.

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Variable	Mean	Median	Maximum	Minimum	Standard Deviation	Number of Observations
ALPB	3,155.117	2,374.5	13,806.00	536.000	2,546.284	196
NAB	194,277.1	40,458.50	1,490,356	3,992.000	295,481.7	196

Table 2. Descriptive statistics of the dependent variables

Source: EViews 10 output (2023)

The following **Table 3** shows the descriptive statistics of the independent variables. BPLO measures the productivity of loan officers, who are personnel of the MFI whose main activity is the direct management of a portion of the loan portfolio. The descriptive statistics of borrowers per loan officer show a mean of 480.5408, indicating that an Ethiopian MFI, on average, serves 480.5408 borrowers per loan officer. The cost per borrower provides a meaningful measure of efficiency, showing the average cost of maintaining an active borrower of an MFI. The descriptive statistics of the cost per borrower show a mean value of 316.1974, a maximum of 2203.1, a minimum of 36, and a standard deviation of 336.1703. The results indicate that, on average, MFIs incur a cost of Birr 316.1974 to maintain a single borrower. The most efficient microfinance institution incurs 36 birr to maintain a single borrower, while the least efficient microfinance institution incurs birr 2203.1 to maintain a single borrower. The descriptive statistics of the debt to equity ratio under study show a mean of 2.348, a maximum of 11.8, a minimum of 0.2, and a standard deviation of 1.687622. The mean value of DER under study is 2.348. According to AEMFI (2014), the ability of microfinance institutions to borrow from commercial banks is somewhat limited. AEMFI also reported an average 2.4 DER for the year 2018.

Deposit mobilisation, represented by deposits as a percentage of loans, measures the portion of the MFI's portfolio funded by deposits. Descriptive statistics of DLR show a mean value of 0.354546, a maximum value of 1.3, a minimum value of 0.0, and a standard deviation of 0.231943. This indicates that Ethiopian MFIs finance every birr of their loan portfolio with 35 cents of deposits, while the rest of the loan portfolio is financed from other sources of funds. The minimum value shows there is a loan portfolio not financed by deposits; on the other hand, the maximum DLR value reveals that the loan portfolio is financed by deposits over the expected amount and mobilises higher commercial sources (savings) to finance their loan. The gross loan portfolio is the main source of income for MFIs. Microfinance institutions that focus on outreach to the poor invest more of their funds into client loans, which increases the gross loan portfolio. Descriptive statistics of the gross loan to asset ratio revealed in the table are a mean of 0.777204, a maximum of 0.980000, a minimum of 0.520000, and a standard deviation of 0.094762. This indicates that the sample MFIs under study invest, on average, 77% of their assets in loan portfolios, up to a maximum of 98%. The minimum investment of assets in loans is 52%.

Return on Asset indicates how profitable a company is relative to its total assets. Descriptive statistics of the return on assets of this study show a mean value of 0.0226, a maximum of 1.69, a minimum of -3.45, and a standard deviation of 0.383. This indicates that the Ethiopian MFIs, on average, earn 0.0226 birr on each birr they invest in assets, with maximum and minimum values indicating MFIs are either running at a loss or operating with idle capacity.

The operating expense per loan portfolio measures how efficiently an MFI's management has reduced operating costs at a given level of operation. The descriptive statistics of the operating expense per loan portfolio in this study reveal a mean value of 0.112547, a maximum value of 0.330000, a minimum value of 0.010000, and a standard deviation of 0.069552. This indicates that, on average, Ethiopian MFIs incurred about 11 cents in operating expenses for each birr in the gross loan portfolio. The most efficient institutions under study incurred 1 cent in operating expenses for each birr in the gross loan portfolio, while the least efficient institution incurred 33 cents for each birr in the gross loan portfolio.

The portfolio at risk greater than 30 days measures the portfolio quality, which reflects the risk of loan delinquency, determines future revenues, and an institution's ability to increase outreach and serve existing clients. The descriptive statistics of PAR>30 in the study show a mean of 0.035991 or about 3.6%, with a maximum PAR>30 of over 19%. The best-performing institutions have a 0% portfolio at risk.

Age indicates the duration for which the microfinance institutions have been providing services. The mean value of experience of microfinance in Ethiopia during the study period is 13 years. AEMFI (2018) categorised MFIs as new MFIs for the age range 1-4 years, young for 4 to 8 years, and matured for greater than 8 years. Based on this measure, the average Ethiopian MFI is matured at 13 years.

The size of MFIs (measured in terms of their total assets or the value of their loan portfolios) may matter for performance, as larger MFIs benefit from economies of scale and scope in providing financial services. The table above shows results for size; mean birr 1,325,877,766, minimum birr 3,134,500, maximum birr 27,062,094,200, and standard deviation 3,261,526,296.

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Variable	Mean	Median	Maximum	Minimum	Standard Deviation	Observations
BPLO	480.5408	400.5	1712	126	275.1	196
CPB	316.1974	206	2203.1	36	336.1703	196
DER	2.348	2.030	11.800	0.200	1.687622	196
DLR	0.354546	0.3395	1.300	0.000	0.231943	196
GLPAR	0.777204	0.79	0.98	0.52	0.094762	196
OEPLP	0.112547	0.11	0.33	0.01	0.069552	196
PAR_30_DAYS	0.035991	0.0292	0.197	0.000	0.035312	196
AGE	13.0408	13.0000	21.0000	5.00000	4.23276	196
ROA	0.049067	0.0385	5.250	-3.450	0.535104	196
SIZE	1.33E+09	1.18E+08	2.71E+10	3,134,500	3.26E+09	196

Table 3. Descriptive statistics of the independent variables

Source: EViews 10 output (2023)

As noted in Brooks (2008), there are basic assumptions required to show that the estimation technique; these Classical Linear Regression Model (CLRM) assumptions hold the Best Linear Unbiased Estimators. Therefore, diagnostic tests were performed to ensure whether the assumptions of the CLRM are violated or not in the models. Before using regression analysis, several diagnostics including multicollinearity, homoskedasticity, and autocorrelation are performed to check for the best linear unbiased estimator assumptions. Results do not find any evidence of correlation among the dependent and explanatory variables. Additionally, the problems of heteroskedasticity and autocorrelation found in the data are removed using a white cross-section in regression analysis.

To decide on the panel regression models whether the random or fixed effects fit the data, the Hausman specification test was run. The results of the Hausman tests for both models are shown in the following table. Hausman tests were conducted to identify which estimation model is appropriate for this particular study based on the statistical p-value. If the Hausman test result is insignificant at 1%, a random effect is appropriate, and a fixed effect otherwise (Brooks, 2008). The above results of the test for both models revealed that it is above the 1% significance level for not rejecting the null hypothesis that a random effect is appropriate. Therefore, for this study, the random effect model is appropriate.

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Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.680466	12	0.5565

Table 4. Hausman test
Correlated Random Effects - Hausman Test
Equation: Untitled
Test: Cross-section random effects

Source: EViews 10 output (2023)

The goodness of fit of models I and II, represented as LOGALPB and LOGNAB respectively, and their regression results are indicated in the following tables. Table 1.5 shows the result of model I, and Table 1.6 shows the result for model II, including the coefficients of determination, R2, adjusted R2, and F-statistics. The result for model I shows an R-square of 0.79 and an adjusted R-square of 0.78; the result for model II shows an R-square of 0.76 and an adjusted R-square of 0.74. The values of the adjusted R-squared for both models I and II reveal good relationships between dependent and independent variables, where all independent variables can explain about 78% and 74%, respectively. The overall performance of both models is good, with an F-statistics p-value of 0.0000, which is significant at the 1% level, indicating that the model fits the data. Therefore, the null hypotheses, which were articulated as the predictor variables' coefficients being simultaneously equal to zero, are rejected. Thus, the concluding remark here is that the predictor variables significantly influence the changes in the explained variables.

The following section demonstrates the impact of each explanatory variable on the dependent variables

A. Borrowers per loan officer

From Table 1.5 below, the coefficient of determination for the borrowers per loan officer of LOGALPB, which is a measure for depth of outreach, is negative (-0.000235), and it is statistically highly significant at a 1% level of significance. This implies that a one-unit increase in the borrowers per loan officer ratio results in a decrease in the depth of outreach by 0.000235. This may result from an increased number of loan officers or over-serving a larger number, which may decrease the effectiveness of the officers. However, this study is contrary to the study by Solomon et al. (2018), whose study shows that the number of loan officers, loan officer productivity, and personnel productivity portfolio have a significant effect on the social performance of MFIs in Ethiopia. Table 1.6 reveals the coefficient of BPLO of LOGNAB, which is a measure for breadth of outreach, is positive (6.85) and insignificant. Borrowers per loan measure how well the microfinance has adapted its business process and procedures to its business purpose of lending money (AEMFI, 2014).

B. Cost per Borrower

From Tables 1.5 and 1.6, CPB has a positive coefficient of determination (0.000583) and is statistically highly significant at a 1% level of significance for LOGALPB (depth of outreach). The coefficient of determination of cost per borrower is positive (0.000229) but statistically insignificant for LOGNAB (breadth of outreach), indicating that an increase in cost per borrower results in an increased level of depth of outreach. The result is consistent with S. Ques (2012), Kipesha and Zhang (2013), who found that the cost per borrower is positive and statistically significant, indicating that lower costs are associated with smaller-sized loans. It also confirms the evidence of findings in the study by C.J. Mbogo et al. (2018), who noted that the cost per borrower significantly affects the average loan balance per borrower. However, the result also contradicts Okumu (2007), who states that the unit cost per loan disbursed negatively and significantly affects the outreach of MFIs. It may be that a low cost per borrower is associated with a lower average per borrower.

C. Debt to Equity Ratio

From Table 1.5, the regression result of the Debt to Equity ratio of LOGALPB (depth of outreach) reveals that the coefficient of determination is negative (-0.033824), which is statistically not significant. Thus, the debt to equity ratio affects the average loan per borrower, i.e., the depth of outreach, negatively, but it is not significant. It is consistent with Wejisera, Yaron, and Meoli's (2015) findings that the DER has a negative and statistically significant relationship with outreach, suggesting that MFIs with higher outreach, ceteris paribus, use less debt financing. One possible reason for this negative relationship is that debt financing is not common in MFIs that focus more on mitigating poverty, as some commercial lenders are reluctant to lend to such highly risky businesses. From Table 1.6, the coefficient of determination of the debt to equity ratio LOGNAB (breadth of outreach) is positive (0.0057) and statistically insignificant. The debt to equity ratio is affecting the breadth of outreach positively but not significantly. Other works, for example, S. Quayes (2012), however, found that the Debt to Equity ratio has a small but statistically significant effect on the outreach of an MFI.

D. Deposit to Loan Ratio

The regression result of the Deposit to Loan ratio of LOGALPB (depth of outreach) in Table 1.5 reveals that the coefficient of determination is positive (0.462344), which is statistically significant at a 5% level of confidence. It signifies that a one-unit increase in the deposit to loan ratio results in an increase in the depth of microfinance outreach by 0.462344. Thus, the deposit to loan ratio affects the average loan per borrower, i.e., the depth of

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outreach, positively and significantly. This study confirms the findings of Bekel G. (2013) that the deposit to loan ratio has a statistically significant and positive impact. The Deposit to Loan ratio has a positive coefficient of determination (0.0201), which is statistically significant at a 5% level of significance for LOGNAB (breadth of outreach) in Table 1.6. This study confirms the findings of Bekel G. (2013) that the deposit to loan ratio has a statistically significant and positive impact.

E. Age

The coefficient of determination of age is positive (0.061442) and statistically significant at 1% for LOGALPB (depth of outreach). The coefficient of determination of age is positive (0.1004) and statistically significant at 1% for LOGNAB (breadth of outreach). This result reveals that when a microfinance institution matures, it serves more vulnerable people and targets the poor. Thus, it is believed that microfinance institutions with longer years of experience are expected to have perfected their outreach strategy and have a well-structured growth pattern compared to their counterparts who are new in the system. The result is consistent with Okumu (2007), Musa A. Olasupo (2014), and Wejisera, Yaron, and Meoli (2015), who found that although older MFIs perform better.

F. Gross Loan Portfolio to Asset Ratio

The regression result of the Gross loan portfolio to asset ratio of LOGALPB (depth of outreach) reveals that the coefficient of determination is positive (1.722), which is statistically highly significant at 1%. The Gross loan portfolio to asset ratio affects the average loan per borrower (depth of outreach) positively and significantly. This study reveals that a one-unit increase in the gross loan to asset ratio increases the average loan per borrower by 1.722. The coefficient of determination of this variable is positive (1.6793); however, it is highly statistically significant at a 1% level of significance for LOGNAB (breadth of outreach). This study confirms the findings of Okumo (2007), Solomon et al. (2018), and Kipesha and Zhang (2013). Their findings show the positive and significant effect of the gross portfolio to asset ratio on the social performance of MFIs.

G. Operating expense to loan portfolio

From Table 1.5, the operating expense to loan portfolio has a negative coefficient of determination (-3.534) and is statistically significant at 1%. This variable is highly significant, indicating that increased operating expenses affect the depth of outreach negatively, i.e., a one-unit increase in operating expense decreases the depth of outreach performance. For LOGNAB (breadth of outreach) in Table 1.6, the Operating expense to loan portfolio has a negative coefficient of determination (-3.647) and is statistically significant at 1%. This variable is highly significant, indicating that increased operating expenses affect the breadth of outreach negatively. The result confirms the study of Abdula and D. Tewari (2017), who found the OEA ratio is negative and significantly related to the depth of outreach. However, it opposes the finding of S. Quayes (2012) and Kipesha and Zhang (2013), who stated a positive impact on the outreach efforts of an MFI. On the other hand, Saad, Taib, and Bhuiyan (2018) found that the Operating expense Ratio does not influence the outreach performance when measured by the average loan per borrower.

H. Portfolio at risk >30 days

The coefficient of determination of this variable is positive (0.0975), but it is statistically insignificant. Portfolio quality, measured by PAR, has a negative insignificant impact on LOGALPB in Table 1.5. This implies that the portfolio at risk does not influence the outreach of MFIs. The result confirms the study of Saad, Taib, and Bhuiyan (2018). Similarly, the coefficient of determination of this variable is positive (0.775), but it is statistically insignificant.

I. Return on asset

Table 1.5 indicates that Return on Asset has a positive coefficient of determination (-0.0874), which is statistically significant at a 5% level of significance for LOGALPB. A one-unit increase in return on asset decreases the depth of outreach of the microfinance institution by 0.0874. The more the focus on the profitability of the microfinance institution in terms of investment of assets, the more it may decrease the institution's reach to the poor. From Table 1.6, the Return on Asset has a negative coefficient of determination (-0.1010), statistically significant at a 10% level for LOGNAB. It indicates that a one-unit increase in return on asset decreases the number of active borrowers by 0.1010. This study's result is consistent with the study of Kipesha and Zhang (2013), Saad, Taib, and Bhuiyan (2018), who found that ROA negatively influences the outreach of MFIs approximated by the average loan per borrower. Wejisera, Yaron, and Meoli (2015) found the coefficient concerning the relationship between ROA and outreach is not significant, suggesting that financial performance measured by ROA has no effect on outreach.

J. Size

Table 1.5 reveals that the coefficient of the size of the asset is positive (0.0874) and significant at a 5% level of significance for LOGALPB. It is highly significant, indicating that microfinance institutions with larger assets can reach more people. This study aligns with the findings of Solomon et al. (2018) that assets significantly affect the social performance of MFIs in Ethiopia. Thus, as the microfinance institution grows in terms of asset size, it reaches more poor people. Morduch et al. (2015) also confirm that size is one of the most important determinants addressed in the literature about MFI organisation. It is also consistent with Wejisera, Yaron, and Meoli (2015).

Conclusion and Recommendation

This study was carried out to assess the determinants of the outreach performance of Ethiopian microfinance institutions. To measure outreach performance, two dependent variables, depth of outreach and number of active borrowers, were examined.

The depth of outreach of MFIs is measured by the average loan per borrower. Independent variables such as borrowers per loan officer, cost per borrower, deposit to loan ratio, gross loan to asset ratio, operating expense to loan portfolio, return on asset, age, size, and product are variables significantly affecting the depth. On the other hand, variables such as debt to equity ratio, portfolio at risk overdue 30 days, and return on asset affect the breadth of outreach but not significantly. Variables such as cost per borrower, gross portfolio to asset ratio, and age are highly significant (1%); deposit to loan ratio and size are significant (at 5%) affecting the outreach performance of the microfinance institution measured

by average loan per borrower positively. On the other hand, variables such as borrowers per loan officer and operating expense to loan portfolio are highly significant (at 1%); return on asset is significant (5%) determinants that affect outreach performance of the microfinance institution measured by average loan per borrower negatively. However, the debt to equity ratio, portfolio at risk greater than 30 days, and return on asset have no significant effect on microfinance outreach performance. The breadth of outreach is measured by the number of active borrowers. Independent variables such as deposit to loan ratio, gross loan portfolio to asset ratio, operating expense to loan portfolio, return on asset, and age are variables affecting the breadth of outreach significantly. Gross loan portfolio to asset ratio and age of microfinance are highly determining variables affecting the breadth of microfinance institutions significantly (1%), and deposit to loan ratio is a significant determining variable at 5% that influences positively. On the other hand, operating expense to loan portfolio, significant at 5%, and return on asset, significant at 10%, are significant variables affecting the breadth of outreach of microfinance institutions negatively. Cost per borrower, borrowers per loan officer, debt to equity ratio, portfolio at risk greater than 30 days, and size of microfinance have a significant impact on the breadth of microfinance institutions in Ethiopia.

Recommendations

This study found that the outreach performance of Ethiopian microfinance institutions is better than the global benchmark in terms of serving the poor and vulnerable society. This indicates that Ethiopian MFIs continue to reach active poor clients. However, the study found that microfinance institutions serve only a fraction of the poor in Ethiopia. Microfinance institutions in Ethiopia need to maintain the momentum and trends of depth and breadth. Ethiopian microfinance institutions have shown progress in terms of outreach. Despite the remarkable achievements so far, the MFIs have reached only a fraction of the country's poor. Therefore, MFIs need to accelerate their progress in order to reach more of the poor. In addition, policymakers should consider the fraction of the poor served by the microfinance institutions. Generally, the author recommends that the management of the microfinance institutions should pay attention specifically to those variables significantly affecting the outreach performance of the microfinance institutions. The variables: borrowers per loan officer, cost per borrower, deposit to loan ratio, gross loan portfolio to asset ratio, return on asset, size of microfinance, and age of microfinance are found to be determining factors of outreach performance of microfinance institutions in Ethiopia.

Appendices

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
BPLO	-0.000235	7.79E-05	-3.012644	0.0030
CBP	0.000583	0.000189	3.089019	0.0023
DER	-0.033824	0.023911	-1.414556	0.1589
DLR	0.462344	0.196942	2.347622	0.0200
GLPAR	1.722206	0.333580	5.162796	0.0000
OEPLP	-3.534772	0.883738	-3.999794	0.0001
PAR_30_DAYS	0.097583	0.823969	0.118430	0.9059
ROA	-0.087460	0.036210	-2.415350	0.0167
SIZE	0.083909	0.038668	2.170020	0.0313
AGE	0.053801	0.013323	4.038360	0.0001
GDP_RATE	-0.078489	0.094974	-0.826423	0.4096
INFLATION_RATE	-0.000249	0.001587	-0.157127	0.8753
C	4.401446	0.668578	6.583296	0.0000

Table 5. Regression results of depth of outreach, measured by log of average loan per borrower
Dependent Variable: LOGALPB
Method: Panel EGLS (Cross-section random effects)
Total panel (balanced) observations: 196
Swamy and Arora estimator of component variances
Cross-section SUR (PCSE) standard errors & covariance (no d.f. correction)

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	S.D.	Rho
Cross-section random	0.285376	0.5108
Idiosyncratic random	0.279304	0.4892

Effects Specification

Metric	Value
R-squared	0.800486
Adjusted R-squared	0.787403
S.E. of regression	0.278295
F-statistic	61.18573
Prob(F-statistic)	0.000000
Mean dependent var	1.979626
S.D. dependent var	0.603569
Sum squared resid	14.17302
Durbin-Watson stat	0.825042

Model Fit Metrics

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Metric	Value
R-squared	0.717169
Mean dependent var	7.822742
Sum squared resid	25.29585
Durbin-Watson stat	0.462263

Unweighted Statistics

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
BPLO	6.62E-05	0.000121	0.547837	0.5845
CBP	0.000299	0.000226	1.323536	0.1873
DER	0.005771	0.034542	0.167069	0.8675
DLR	0.475599	0.202844	2.344649	0.0201
GLPAR	1.679397	0.561300	2.991976	0.0032
OEPLP	-3.647584	1.137774	-3.205896	0.0016
PAR_30_DAYS	0.774997	1.103974	0.702006	0.4836
ROA	-0.101005	0.055657	-1.814779	0.0712
SIZE	0.035418	0.048627	0.728370	0.4673
AGE	0.067701	0.017988	3.763606	0.0002
GDP_RATE	0.035681	0.096808	0.368569	0.7129
INFLATION	0.001105	0.001313	0.841652	0.4011
C	9.083092	0.937372	9.689956	0.0000

Table 6. Regression results of breadth of outreach, measured as log of number of active borrowers
Dependent Variable: LOGNAB
Method: Panel EGLS (Cross-section random effects)
Total panel (balanced) observations: 196
Swamy and Arora estimator of component variances
Cross-section SUR (PCSE) standard errors & covariance (no d.f. correction)

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	S.D.	Rho
Cross-section random	0.805544	0.8091
Idiosyncratic random	0.391283	0.1909

Effects Specification

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Metric	Value
R-squared	0.628253
Adjusted R-squared	0.603876
S.E. of regression	0.388813
F-statistic	25.77249
Prob(F-statistic)	0.000000
Mean dependent var	1.535264
S.D. dependent var	0.617768
Sum squared resid	27.66514
Durbin-Watson stat	0.933832

Weighted Statistics

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Metric	Value
R-squared	0.452925
Mean dependent var	11.92546
Sum squared resid	123.2113
Durbin-Watson stat	0.209677

Unweighted Statistics

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