

NEXUS BETWEEN OUTREACH AND PRODUCTIVITY OF MICROFINANCE IN LATIN AMERICA

¹Waqas Amin, ²Edwin Hernan Ramirez-Asis, ³Juan Emilio Vilchez-Carcamo, ⁴Miguel Angel Silva-Zapata,
⁵Rizwan Ali, ⁶Kiran Zahra Gillani

¹School of Finance, Zhejiang University of Finance and Economics China.
waqas.amin97@yahoo.com

²Phdof management, Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Perú.
ehramireza@unasam.edu.pe

³Phdof management, Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Perú.
jvilchezc@unasam.edu.pe

⁴Msc in science and engineering Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Perú.
msilvaz@unasam.edu.pe

⁵School of Economics and Management, Southwest jiaotang University, China.rizwan.sadiq6810@gmail.com

⁶Department of Management Sciences University of Okara, Pakistan.
kirangillani112@gmail.com

ABSTRACT

Our work aims to consider the effect of outreach on the productivity of staff working in microfinance institutions (MFIs). The study considers the panel data of Latin American countries for the period of 2006-2020. For this study, we use several techniques, including Ordinary least square (OLS), Random effect model (RE) and generalized method of momentum(GMM). Accessing poor customers is more dangerous to MFIs and harmful for staff efficiency and productivity. So, we disclosed that the influence of depth of outreach on staff productivity is negative. While the breadth of outreach is found to impact staff productivity, serving better off clients positively is not risky for MFIs and improves the institution's productivity. Better off clients provide a cushion against credit risk, so MFIs are more focused on extending the loan to these clients, increasing staff productivity. GMM also present the same results. MFIs prefer to provide loan facilities to all those customers who work for, extending the staff productivity, and this technique also reduces the credit risk. Our study on the impact of MFIs outreach on its productivity is comparatively new in the microfinance field instead of others studies like impact on efficiency, sustainability and profitability.

Keywords: Outreach; Productivity; Latin American Countries; GMM

JEL Classification: G21, G23

1. Introduction:

MFIs bring monetary function to reduce poverty and improve social & economic conditions (Morduch, 1999). Generally, the poor who don't have access to formal lending institutions, finished off at the threshold of informal lenders, and saved money under their pillows. MFIs discourage these unsecured and extortive borrowing measures of the poor, offering them tailor-made financial services for saving and borrowing as per their necessities.

Traditional banks and financial institutions discount these people because operating at a small scale increases transaction cost and monitoring cost, and they also lack collateral to place against borrowings (Morduch, 2000). Governments, NGOs, donors, and large financial institutions, noting the significant role of MFIs in rendering financial services to the informal sector, started new microfinance projects (Conning, 1999). These projects were encouraged when Muhammad Yunus was awarded noble prize for microfinance in 2005 and 2006 and the years were proclaimed as microfinance years (Hudon, 2009).

MFIs have been flourishing since then, attracting a more significant number of borrowers, offering new financial services, incorporating new ideas to move further. Donations and subsidies are part and parcel of the long term sustainability of MFIs; however, these sources of funds are shortened due to the recent global recession (Pollinger et al., 2007). MFIs have preferred internal sources of finance instead of donations to be supportable institutions that tend to be long term performance. This is an effective step of MFIs from being a financial institution to efficient, productive, and financial sustainable institutions, i.e. the institutions that place profit-making as their primary objective. This profit – orientation enables the institutions to cover lending costs from revenue earned from portfolio advances and shrink these costs to the possible extent.

This shift in the ideology of MFIs is followed by several fundamental changes such as augmented competition, commercialization of MFIs, technological revolution and change in regulations (Rhyne and Otero, 2006). On account of these developments, MFIs are attempting to change their behavior and increase their products range. However, finding the needy and then serving them with smaller loans is more challenging. The researchers generally believe that these sustainable MFIs provide customized products to the clients that provide sufficient return to the MFIs that enable them to satisfy the lending costs that ultimately make these MFIs more sustainable institutions (Rhyne, 1998). The sustainable MFIs can better eliminate poverty as these institutions charge a greater interest rate on well-off customers. They also visit clients' locations for the collection that simultaneously serves as a check on the progress of the projects. However, MFIs are exposed to distinct challenges for fascinating private investments, improving competence and achieving autonomy by serving the poor.

The question crops up here are whether and to what extent outreach impacts the productivity of MFIs? The commercialization of MFIs may contribute to increasing the outreach of MFIs by extending a loan to the poor, providing them greater access to the MFIs. Additionally, augmented competition, technological improvements and governmental policies may improve the capacity and monetary sustainability of MFIs that may increase resources for helping the poor. Thus, it can be argued that outreach and productivity are compatible.

However, targeting financial sustainability may need sacrificing loans to the poor and needy. In some cases, giving the loan to the customer may be very expensive; therefore, outreach and productivity may be incompatible. In literature, mainly referring to policymaking, there is great debate on whether productivity, sustainability, and outreach are compatible or trade-offs (e.g. Kumar and Sensarma, 2015; Rehman and Mazlan, 2014; Kar, 2011; Hermes, 2007). The debate generated two schools of thought: the welfarist view prioritizing

outreach and the institutionalist view that emphasizes financial sustainability. However, it should be agreed on a particular subject matter that they attain financial maintenance without harmony outreach.

This study is based on previous practical analysis (e.g. Kumar and Sensarma, 2015; Kablan, 2012; Hermes, 2011; Hermes, 2007) by providing an intense study of the virtual harmony or settlement between the productivity of MFIs and their outreach with the help of many materials, including details for massive figures of MFIs throughout an extended period. For analysis, our dataset comprises 405 MFIs over Latin American states from 2006 to 2020 collected from the Mix Market database. The purpose of our research is to cover the difference in productivity – outreach composition indicating to MFIs. And the critical point is that how much MFIs can attain productivity when it provides its monetary or financial services to poor people, immediately. Outreach is calculated or considered in two directions: intensity(depth) and width(breadth).

This study is related to previous MFIs literature. Our descriptive study explores that MFIs attain productivity by the breadth of outreach; however, our existing evidence for this study explains that this work is infrequent. Our work aims to cover this difference by determining the consequences of width (breadth) of outreach on productivity. Moreover, our study is based on hypothetical or impractical; however, some study is derived from ordinary least square (OLS) practical.

However, OLS may create slant findings because these findings are based on different areas which have different social, economic and traditional attributes. Latin America has different rules and regulations moreover have different socioeconomic characteristics than the rest of the world. So, we collect the Latin American countries' results because they have the same socioeconomics and civilizing factors. This may help us by summing up into the previous working. In addition to the previous study, we use GMM (generalized method of momentum), which is the most advanced and complicated measure to handle the methodological matters in the existing study while using OLS.

2. Literature Review and Hypothesis Development:

MFIs study deals in two concepts that are (1) welfarist and (2) institutionalist approach. Both are controverting, and their concepts are opposite each other (Bhatt and Tang, 2001). The institutional approach explores that microfinance will be handled by private financiers or sponsors, while the welfarists approach demonstrates that MFIs will be governed by government and authority (Rhyne, 1998). These two approaches have no harmony (Morduch, 2000). Welfarist approach because its centre point is just involved the money of poor not to provide the financial services or advantage for an extended period.

On the other hand, the institutionalist approach is called a monetary or financial approach because it is based on sustainability and proved economic approach to the poor for an extended period (Robinson, 2001); (Morduch, 2000) and Bhatt and Tang (2001). Commonly, MFIs are based on charity and grants. Due to the current recession or downfall, grants and subsidies are reduced, pushing MFIs to be profit-oriented by attaining

sustainability and long-term funds. After that, NGOs and rules generators make serious and sustain controversial talks on this topic. One party of collaborators considered it as a confident action. At the same time, other stakeholders don't perceive it as a positive action because it does not support financial sustainability, which is beneficial for the poor to access financial services easily. Strategy makers and interested participants can play a vital role to build the main pillars of MFIs to fulfil their requirements. (Lubna et al. 2019).

The staff productivity is measured by borrowers per staff member (BPSM) as suggested by (Nyamsogoro 2010). Financial institutions attempt to obtain the highest level of productivity through various strategies such as ensuring the quality of employees and minimizing the number of employees while keeping production consistent. Ayayi et al. (2010) found a direct association between profitability and BPSM. Nyamsogoro (2010) also determined the impact of productivity on sustainability and found the relation positive. It suggests that the higher productivity of staff members, the higher will increase the profitability. Crombrugge et al. (2008) indicate that high levels of BPSM are significant for reducing cost and thus increasing profitability.

Moreover, Gregoire et al. (2006) also indicate the positive relationship between productivity and performance. One of Athanasoglou et al. (2005) studies presents that the more the employee productivity, the more the profitability of MFIs. It suggests that high labour productivity increases the level of income that also causes high profitability.

Pakistani banks were suffering from deficit conditions when they compared with the MFIs of South Asia. Its basic reason is that Pakistani MFI banks are facing the situation of low productivity in the outreach. This study shows that if Pakistani MFIs want to eliminate this position, they should develop a perfect schedule and well-trained can control the crises position. (Syed Mohsin al, al.2018). The sector of MFIs in Bangladesh shows 4.3% of total productive growth. (Aslam&Chandran, 2015). The study investigates that top-level management of MFIs and strategies makers closely observe their variable cost and improvement in productivity by following Advance information technologies that upgrade outreach at low cost. (Adams &Devi, 2017).

Schreiner (2002) investigated the predictors of profitability and found productivity as a strong predictor. On the other side, Ganka (2010) found a negative impact of productivity on profitability, indicating that the staff of MFIs working in rural or backward areas is inefficient and fails to manage an increasing number of clients properly that cause un-productivity and thus un-profitability. Moreover, Christen et al. (1995) found no link between profitability and productivity. Many types of research and studies were made to examine the collaboration between productivity and microfinance institutions. The microfinance institutes' primary objective is to render services to the needy and with the financial services to help them start their income-related activities. The studies present a significant collaboration of outreach to the needy or poor customers and the microfinance institution's performance (Cull & Morduch, 2011).

Studies conducted to measure productivity show that solid financial microfinance institutions were better in productivity than those that did not show sustainability in finance (Lafourcade, 2005)The resources of research and

the study for productivity and outreach are much scarce. The available literature shows the mixed response in depicting the relationship of productivity and outreach to low-income customers. Commercialization, innovations, and technology in microfinance institutions created the urge to discuss these topics as microfinance institutions are becoming an essential and compulsory component in the finance industry. Many countries are showing improvement in the economies where microfinance institutions are working efficiently and giving better productivity. In this prospect, the capacity of microfinance institutions is becoming the primary topic of discussion. The better productivity of the microfinance institutions is essential to achieve the goals and the targeted results, which are among the basic motives and purposes of the microfinance institutions.

The productivity of the microfinance institutes demands a strong financial background to maintain monetary supportability or sustainability. The outreach to the poor and needy customers also depends on the productivity of the microfinance organizations. A research study shows that the unavailability of financial resources is the most significant barrier for microfinance institutions in the better outreach to the poor (Cull & Morduch, 2011). Unlike the commercial banks and the investors in the society who are searching for better investment opportunities with high rates of interest, the microfinance institutions in resemblance to the financial organizations, were showing less productivity as they are not able to give loans to more customers. The sole logic behind this aspect as shown in the study was the unavailability of the financial resources to the microfinance institutions.

One of the selected studies in this regard shows that those microfinance organizations showing better outreach to the poor are showing better productivity and efficiency to some extent. The provision of the loans to the right and deserving people fulfil the microfinance institutes' requirement in the outreach to the poor. The organization's productivity not only depends on the solid financial background but also on the outreach to the poor (Lafourcade, 2005). The productivity of the microfinance institutions showed a negative impact regarding outreach to the poor in some studies. As discussed earlier, the performance of microfinance institutions largely depends upon financial factors. Commercialization provides more benefits to the investors and the commercial banks as they can provide reasonable amounts of loans to their customers. In comparison, microfinance institutes cannot provide a huge amount of money to the poor in the shape of a loan. Less availability of data regarding productivity and outreach to the poor show the mixed impression of these concepts.

In the productivity and the outreach to the poor, the subsidies also play an important role. Some studies based on the impact of outreach on the productivity of microfinance institutions show that microfinance institutes with greater subsidies show better results in productivity. Better productivity of the institute results in better outreach to the poor (Lafourcade, 2005). The institutions which are provided with more significant subsidies have better productivity. In this manner, the outreach to the poor becomes better as the financial resources are enough to deal with the commercialization and the competition for the microfinance institutions in outreach to the poor. The research and studies show that the productivity of microfinance institutions is less for those institutions that are providing loans to women. Provision of the loans to the women requires more subsidies by the institutions, and those loans are provided at much fewer interest rates than the commercial organizations (Cull & Morduch, 2011).

Women put a vital role in the economies of the states. Thus the more subsidies should be provided to women. Accordingly, the productivity of microfinance institutions tends to fall. Most of the studies suggest that the outreach to the poor and productivity have negative impacts, but it shows a positive impact in some cases. If productivity is discussed, the institutions with better productivity will show better outreach to the poor. The microfinance institutions are targeting the customers who are providing more benefits to the microfinance institutions. In this regard, the productivity of these institutions increases but on the other side, rendering monetary services to those customers who are already doing well in generating income shows a fall in the outreach to the poor. In this scenario, the poor are not getting enough financial support from microfinance organizations. These studies suggest that proper structural planning and strategy making should help both aspects to walk by each other (Lafourcade, 2005). Balancing the productivity and outreach to the poor may help microfinance institutions achieve the desired findings and goals. The primary motive of microfinance institutions is to provide loans and financial services to the poor. For this purpose, professional managers may play their roles to increase the productivity of the institutes, and accordingly, the outreach to the poor should also be increased.

Given the above discussion, we may conclude that relation between outreach and productivity has mixed empirical and theoretical literature. One group found outreach to have a negative link with productivity as found by Navajas et al. 2000, Cull et al. (2007), Hermes et al. (2011) and Kar (2012) and another group found outreach to have a positive relationship with productivity as evidenced by Robinson (2001), Zeller and Meyer (2002), Quayes (2012) and Montgomery and Weiss (2011). Therefore, the following hypotheses are proposed:

Hypothesis 1: There is a positive relationship between the breadth of outreach and productivity.

Hypothesis 2: There is a negative relationship between depth of outreach and productivity.

Most of the studies suggest that the outreach to the poor and productivity have negative impacts, but it shows a positive impact in some cases. If the productivity factor is discussed, better productivity will show better outreach to the poor. The microfinance institutions are targeting the customers who are providing more benefits to the microfinance institutions. In this regard, the productivity of these institutions increases but on the other side by rendering monetary services to those customers who are already doing well in generating income shows a fall in the outreach to the poor. So, we propose a positive relation between breadth of outreach and productivity while negative relation between depth of outreach and productivity.

3. Research Methodology:

3.1 Data Collection and Measurement of Variables:

Data was gathered from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America, consisting of 405 MFIs for 2006 to 2020. Variables may have missing values due to the entry or exit of MFIs from the industry. We present the following explanation and measurement of selected variables:

Operational efficiency denotes the extent to which MFIs have the credibility to render services to poor and needy customers at minimum cost (Bhatt and Tang, 2001). The foremost purpose of MFIs rendered services to the below income class who do not have any approach to banking credit with small-sized loans without any collateral. Provision of such small-sized credits is always costly and inefficient to MFIs. The extending of fewer big loans is relatively less expensive than several small-sized loans due to several fixed costs associated with advancing activities such as monitoring and transaction costs (Meyer, 2002). Therefore, one of the most significant trials for microfinance is to operate at minimum cost to diminish the charges stood by borrowers (Gonzalez, 2007). Incapability is the most important aspect restricting MFIs to be sustainable. Many institutions are far-flung from obtaining economies of scale for disbursement of these costs (Ledgerwood, 1999). Measurement of efficiency is generally performed using accounting ratios such as operating ratio and cost per borrower (Quayes, 2012; Cull et al., 2007). Some recent studies used the latest economic techniques such as stochastic frontier analysis and data envelopment analysis (Servin et al., 2012; Hermes et al., 2011; Hasan and Tufte, 2001; Haq et al., 2010; Gutierrez-Nieto et al., 2007). In this study, efficiency is measured with cost per borrower (CPB) (Quayes, 2012; Hudan and Traca, 2011).

Outreach is defined as the degree to which financial services are provided to the bottom line poorly. It is multi-dimensional, including depth and breadth of outreach. Depth of outreach is measured using average loan balance (ALB) as a proxy, and breadth of outreach is measured using the number of active borrowers (NOAB) as previously measured by Ashraf et al. (2014). Additionally, several controlling variables are included in the study are divided into two classes: institutional variables and macroeconomic variables. Institutional variables include regulation status, type of ownership, number of offices, capital ratio, diamonds, size and age of MFIs. Macroeconomic variables include real GDP and the number of total MFIs in Latin American countries. Variables are explained in the Table 1 below:

Table 1:	Measurement of variables	
Variables	Proxy	Measurement
Outreach Depth	ALB	Average loan balance per borrower
Outreach Breadth	NOAB	Number of active borrowers
Productivity	BPSM	Borrowers Per Staff Member
Control Variables		
Regulation status	RG	1 if Regulated & 0 if not regulated
Type of ownership	Bank, NGO, CO, NBF	1 if concerned ownership, otherwise 0
Number of Offices	OFF	Number of offices in a country
Capital Ratio	ETA	Equity to total assets
Number of diamonds	DM	Number of diamonds earned
Size	SIZE	Total assets
Age	AGE	1 if new, 2 if young and 3 if mature
GDP	GDP	Real GDP
Number of MFIs	COUNT	Number of MFIs in a country

3.1 Econometric Analysis:

We are capable of making the following equation on the base of our above discussion is estimated as:

$$P = \beta_1 + \beta_2 OR_{it} + \beta_3 control_{it} + \epsilon_{it}$$

Where P denotes productivity, OR_{it} reflects vector of outreach and $control_{it}$ Refers to the vector of other controlling variables included in the study. Moreover, ϵ_{it} is an idiosyncratic term. Econometric analysis is conducted using a panel data approach that is effective against multicollinearity and improves the degree of freedom (Hsaio, 2014). Generally, panel data analysis includes a fixed effect model (FE) and random effect model (RE). The study model includes time invariant variables such as ownership status; therefore, we used the RE model where the FE model is not efficient. RE is run with robust standard error clustered at the institution level to control heteroscedasticity and autocorrelation (Wooldridge, 2002).

We run OLS with robust standard error (SE) as a base model, which is quite against heteroscedasticity and autocorrelation. To identify the appropriate model between OLS and RE, we found the Breusch-Pagan Lagrange multiplier (LM) that shows RE is suitable for the study model. Quayas (2012) states that the model with outreach and efficiency may have endogeneity as the study claims that outreach is determined by profitability, and profitability is determined by outreach. Therefore, we enlarged our estimation to Two-step generalized methods of the momentum (GMM) of Arellano et al. (1995) together with the Roodman (2006) procedure combined with finite-sample corrected SE suggested by Windmeijer (2005).

4 Results:

While regulating other variables, we show the findings of our working, the impact of outreach on productivity. The LM test shows that the results of RE are more reliable than OLS. Nevertheless, OLS is presented as a threshold model. Finally, we estimated the dynamic panel data technique that is recognized as the most potent approach in panel data. Table 2 shows the result of the relation between outreach and productivity. ALB is found to have a positive impact on productivity. It indicates that providing a larger loan is associated with a higher number of borrowers per staff member, increasing productivity. However, the coefficient is significant only in the case of the OLS model.

Similarly, NOAB has a significantly positive impact on BPSM in all models, suggesting that if the total number of active borrowers increases, obvious to increase borrowers per staff member, increasing productivity. These results indicate the presence of mission drift as also found in models 1 and 2. Looking into other controlling variables, the type of ownership is insignificant in all models except Co that is significantly positive in the OLS model only. OFF is found to negatively impact productivity in all three models (OLS, RE, GMM) as seen in models 1 and 2. A reasonable justification for this is that when MFIs increase their number of offices, they recruit more staff; hence, BPSM decreases. It indicates that with the increase in OFF, efficiency, productivity and profitability

have deteriorated. SIZE is also found to harm productivity in all models. It also confirms our findings in models 1 and 2. It implies that with increased SIZE, efficiency and productivity decrease and thus profitability due to agency issues. AGE is insignificant in all three models.

RG negatively influence productivity in OLS, as is the case of profitability and efficiency. However, insignificant in the RE model and GMM model. DM has a significant and positive impact on productivity in all models shows that more disclosure more the productivity will be. It may be due to trust issues, and more diamonds means more disclosure, leading to more borrowers, hence more BPSM. ETA is found to be inconsistent in the OLS and RE model while significant only in the GMM model, indicating a negative coefficient. GDP is found to be significantly and negatively related to productivity. Our finding is consistent with previous models. With the increase of GDP country move towards social benefits rather than their own. Finally, COUNT has a significant and positive impact on productivity using OLS, RE model and GMM. It also shows confirmation to the previous models suggesting that with increased MFIs, efficiency and productivity increase, ultimately increasing profitability. The empirical results of this study are presented in table 2 below.

BPSM	OLS	RE	GMM
ALB	0.231*** (4.12)	0.006 (0.11)	0.062 (0.74)
NOAB	0.605*** (89.22)	0.556*** (15.08)	0.527*** (6.26)
Co	0.290** (2.80)	0.027 (0.25)	0.625 (0.50)
Bank	-0.067 (-0.66)	-0.438 (-3.74)	-0.080 (-0.07)
NBFI	-0.092 (-0.91)	-0.482 (-4.40)	0.079 (0.07)
NGO	0.101 (1.03)	-0.243 (-2.04)	0.549 (0.44)
OFF	-0.332*** (-16.48)	-0.002*** (-4.07)	-0.287*** (-3.09)
SIZE	-0.455*** (-6.44)	-0.326*** (-6.35)	-0.272*** (-3.42)
AGE	0.027 (1.44)	-0.045 (-1.89)	-0.049 (-1.44)
RG	-0.070** (-2.80)	-0.106 (-1.59)	0.037 (0.37)
DM	0.037** (2.30)	0.023** (2.34)	0.027** (2.10)
ETA	-0.023 (-0.94)	-0.062 (-0.87)	-0.337*** (-2.66)
GDP	0.006 (1.18)	-0.030* (-1.77)	-0.003 (-0.08)
COUNT	0.056*** (5.55)	0.083*** (3.18)	0.030* (1.86)
c	2.925*** (8.14)	5.631*** (13.99)	2.091*** (1.66)
Observations	2774		
F stat	21362.87***		19.59*
Wald chi ²			AR(1) -4.12 (0.000)
Adj. R ²	0.604	0.472	AR(2) -1.00

			(0.318)
LM test – χ^2	4875.37***	Hansen J-stat	361.16 (0.252)

Note: *, **, and *** indicate significance at 1%, 5%, and 10% level respectively. Values in parentheses are the t-statistics. Two step systems GMM combined with process of finite sample corrected standard error is estimated. RE refers random-effects model with robust slandered error clustered. OLS means pooled OLS model. Chi squared-test is the joint test for the significance of all independent variables for RE model. C is the constant term.

The on-hand study is following the outcomes of Dissanayake (2012), Yazdanfar (2013) and Bhanot and Bapat (2015) in their results. The study shows a positive and significant association between outreach and productivity. To conclude our results, we can say that Our results are consistent with the previous literature available on the productivity-outreach relationship, which tells that Breath of outreach improves the productivity of MFIs. In contrast, the depth of outreach reduces its productivity.

5. Conclusion:

The main objective of MFIs is to provide inexpensive credit to the poor who are not included in target customers of banks due to a shortage of collateral (Kent and Dacin, 2013). Most MFIs report their mission to lend to the poorest and rural areas or empower women (Serrano-Cinca and Gutierrez-Nieto, 2014). However, recent financial performance is deemed a necessary condition for achieving success. Some researchers and practitioners argue that providing financial services to the poor for the long term cannot be provided unless MFIs are financially sustainable (Christen, 2001). Therefore, Kent and Dacin (2013) notice that performance and outreach are complementary to each other as accomplishing one reinforces the achievement of the other. Nevertheless, in an economic condition with inelastic demand for a loan, charging high interest to strengthen financial performance merely reduces outreach in-depth and breadth for the short term.

On the other hand, other groups suggest that the main purpose MFIs of reaching the poorest, known as outreach, may be halted by focusing on financial sustainability. They indicate a trade-off between productivity and outreach. However, it should be agreed on a particular subject matter that they attain financial maintenance without harming outreach. Our working explores the relationship between outreach and sustainability and the tendency of our study chase profitability, as microfinance industry give a considerable amount of loan to customers for their betterment. On the other hand, some studies demonstrate that there is no relation between outreach and profitability.

The study is an attempt to address the ongoing issue in the relation between productivity and outreach. The study's findings will be helpful for policy formulation that may provide important insights for the revolutionary development of MFIs. Data was collected from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America, consisting of 405 MFIs for 2006 to 2020. There are five types of MFIs; Banks, Credit unions, NBFIs, NGOs, others. From the derived sample, 10% banks, 15% credit unions, 31.8% NBFIs, 42% NGOs and 0.49% are others. Variables may have missing values due to the entry or exit of MFIs in/from the industry. Productivity (BPSM) is found to be significantly positively related to ALB and NOAB. More specifically,

productivity increases while increasing the average loan balance per customer and increasing the number of active borrowers.

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