The Impact of Social Outreach on the Financial Performance of Microfinance Providers in Pakistan

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Abstract
Microfinance, the tool for poverty alleviation had gone through a paradigm shift as a result of the wave of commercialization of microfinance providers. Increased focus to financial goals and the dreaded trade-off from the pursuance of social outreach goals could force microfinance service providers (MFPs) to the mission drift. To solve the entangled puzzle of mutuality between the social outreach and financial performance of MFPs in Pakistan, this study empirically analyses the impact of outreach on financial performance of MFPs in Pakistan by using a sample of 38 MFPs for the period of 1998-2014. Results suggest that there is significant and positive association between depth of outreach and financial performance. The empirical evidence signaled no trade-off between depth of outreach and financial performance. Results showed the achievement of dual mission for MFPs is possible, as the depth of outreach had a significant positive effect on the financial performance of MFPs in the context of Pakistan. Findings remain consistent by using alternative proxies of financial performance.
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1.Introduction

Microfinance (MF) is a financial system, initially designed to alleviate poverty, by providing loan facilities to the poorest strata of society, so that, they can get better options of earning by improving their businesses with the help of these MF loans (Hermes, Lensink, & Meesters, 2011; Mia & Chandran, 2016). United Nations and World Bank, along with other global organizations for the developmental mission of the world, have recognized microfinance as tool for reducing poverty due to which MF industry is growing and spreading, especially in developing nations (Mia & Chandran, 2016). Microfinance is the advanced form of initial microcredit services, with commercial incentives by its organizers (Khandakar & Danopoulos, 2004).

Pursuance of financial sustainability and accessing the poor for financial solutions by microfinance providers (MFPs) are the two focuses that have been termed as "the institutionalist approach" and "the welfarist approach", respectively (G. M. Woller, Dunford, & Woodworth, 1999). The advocates of institutionalist view stress upon the importance of financial performance as a mean to provide long term access of financial services to poor. Whereas, the welfarist believes the outreach to poor should be given preference and the financial sustainability and profitability should not come at the cost of less outreach to poor (Hermes & Lensink, 2007). According to Rhyne (1998), these two camps, which are considered opposite to each other, basically share the same basic purpose of providing microfinance services to the deprived poor. Furthermore, he added that focus on sustainability is necessary to keep this provision of services smoothly without having dependence on subsidies provided by different donors, agencies, and governments because the continuous supply of subsidies in the future is not sure.

MFPs' performance can be gauged through financial sustainability and social outreach (Yaron, 1994). Social outreach and financial performance, which can be referred as performing societal benevolence function through the delivery of financial services to deprived and sustainability function through creating enough revenues to meet their costs (Conning, 1999; Robert Cull & Morduch, 2007; Hermes et al., 2011; Mia & Chandran, 2016). Various costs augment as a result of microfinance activity, such as screening, monitoring, and disbursement of loans to poor and women. The fear of increase in these associated costs may cause a shift in the focus on social goals that may harm the sustainability and profitability of MFPs. This may ultimately harm the simultaneous achievement of "dual bottom line" of social outreach to poor and financial performance.

The 'schism' between the institutionalist approach and the welfarist approach necessitates further empirical investigations of the possibility of achievement of 'dual mission' (Morduch, 2000). Empirical studies on global level by Quayes (2015), Abdullah and Quayes (2016), have reported a positive effect of increase in social outreach on financial performance. Whereas, Robert Cull and Morduch (2007), Hermes et al. (2011) and Pedrini and Ferri (2016) noted evidence of a trade-off between social outreach and financial performances, Meyer (2019) found no significant effect of social outreach on financial performance of MFPs. Nasrin, Rasiah, Baskaran, and Masud (2018) in their country-level study also found synergetic effects of outreach measures and the financial performance of MFPs.

The presence of the mixed arguments necessitates further empirical investigations of the phenomenon how

the social outreach and financial performance interact with each other in the presence of varying macro and microeconomic settings on different regional levels. Therefore, the purpose of this study is to empirically examine the impact of increase in social outreach on financial performance of MFPs in Pakistan, considering the outreach level to poor as a policy matter by management and unaffected by financial performance. Pakistan is a lower-middle-income developing country with its own distinct macroeconomic environment, micro-economic conditions, clients' needs, and repayment behaviors. This study is based on supply side measures of social outreach financial performance and employs multivariate regression analyses using an unbalanced panel data of 38 microfinance providers from 1998-2014, to better understand phenomenon interaction between social outreach and financial performance, in the distinct environment of Pakistan.

This study contributes to the existing microfinance research literature and to the debate of tradeoff and mission drift in several ways. The interaction between social outreach and financial performance will give further insights into whether the financial performance behaves the same or different from the global or other regions. The marginal contribution of the current study is to theoretically establish a causal connection and empirically analyze the impact of social outreach on the financial performance of microfinance providers in the context of Pakistan. It is empirically evident from the results that the pursuit of depth of social outreach by MFPs may not necessarily go against the financial performance goals and the dual mission is achievable if the MFPs remain cost efficient and vigilant regarding repayment risks. We found no signal of tradeoff between depth of outreach and financial performance.

The rest of this paper is structured as follows. Section 2 formulate
hypotheses on the basis literature review. Section 3 give the details of data, variable definitions and the methodology adopted. Sections 4 describe the empirical findings and discussion. Section 5 concludes the paper.

2. Literature Review

Microfinance was initially developed as a tool targeted to serve the poor, who had been denied access by commercial banks due to the absence of collateral, to help them raise their living standards by promoting access to better economic opportunities to earn their livelihoods (Christen, Lyman, & Rosenberg, 2003; Khandakar & Danopoulos, 2004; Schreiner, 1998). The set of microfinance services includes small loans, saving facility and insurance services. Microfinance providers include government and non-governmental organizations (NGOs), traditional banks, cooperative societies and organizations of other types for-profit and non-profit organizations (Brau & Woller, 2004; Christen et al., 2003). The costs associated with microfinance service provision to poor are high due to the fixed costs of disbursement to loan, higher exposure to risks associated with the small and micro businesses, monitoring and administrative costs (Battilana & Dorado, 2010; Serrano-Cinca & Gutiérrez-Nieto, 2014). subsidies help MFPs to overcome the costs related to microfinance provision that would be uncovered by their operating incomes (Rhyne, 1998; Serrano-Cinca & Gutiérrez-Nieto, 2014). With the purpose of saving the poorest from being leftover or unserved by MFPs, donors and governments should raise the level of subsidies provided (Kai, 2009).

According to Battilana and Dorado (2010) Microfinance (MF) has gone through a paradigm shift from a developmental initiative to a commercial drive, with increased focus toward financial goals than the social goal, and many of the providers of MF have been converted to banks from NGOs like Banco Sol and Los Andes. Furthermore, they added that the reason behind the shift was the need for additional capital requirements and to fulfill the goals of commercial investors and stakeholders. Under commercial logics, to cover the huge associated costs of provision of microfinance services, MFPs focus financial sustainability and charge higher rate of interest (Battilana & Dorado, 2010). To fulfill the social goal of microfinance these organizations have to focus on outreach as well. The simultaneous achievement of "double-bottom line" that is to increase social outreach and boost financial performance, inherits a risk of "mission drift" (Battilana & Dorado, 2010).

Social outreach refers to the content of MFPs to cater the need of more and more poor and the poorest of poor, termed as breadth of outreach and depth of outreach, respectively (Conning, 1999). Financial performance is the sustainability and profitability of MFPs that is attained by the ability to survive in the business and covering all of the associated costs on their own (Conning, 1999). The institutional logic drives the MFPs for wider breadth of outreach or more number of users with a possible larger loan size to attain the financial performance and sustainability, whereas, the developmental logic thrusts the MFPs to deepen their outreach by providing access to the poorer of poor, and women with a possible smaller loan size (Schreiner, 2002).

Among others two commonly used proxies of outreach are breadth of outreach, which is the number of users of microfinance, and the depth of outreach which is the percentage of women borrower or the average size of loan outstanding to the poor (Bibi, Balli, Matthews, & Tripe, 2018; Navajas, Schreiner, Meyer, Gonzalez-vega, & Rodriguez-meza, 2000). Because the commonly used proxies of breadth and depth have their own merits and demerits and the limitations of availability of data there has been the need to develop more efficient proxies (Bibi et al., 2018; Hermes & Hudon, 2018). Bibi et al. (2018) developed the two new efficient measures of outreach, "market share of borrowers (MSB)" for breadth of outreach and "Market share of borrowers adjusted by market

share of MP's assets (MSBA)" for depth of outreach

According to Daher and Le Saout (2015), financial performance is the process of gauging the outcomes of various activities performed and the policies and strategies undertaken by MFPs in terms of money through profitability and sustainability. Profitability refers to the ability to produce better monetary outputs using the employed assets whereas sustainability is the ability to be in the business in the long run (Daher & Le Saout, 2015).

A schism creates from the dreaded trade-off between the MFPs' contend to focus on social outreach and to strive for financial performance (Morduch, 2000). The conflicting approaches, sometimes, have been referred as of institutionalist approach and welfarists approach (G. Woller, 2002). Financial performance is the primary objective of this institutionalist or financial system approach and it is also supported by international organizations of the World Bank and Consultative Group to Assist Poor (Bassem, 2012). Proponents of this view mainly stress upon the coverage of costs related to the provision of access to MF services to poor by the MFPs because the subsidies given by donors are limited and are uncertain in continuity for long run, hence, the MFPs must target sustainability and profitability as a tool to let them available a provider of MF services to poor over the long haul (Rhyne, 1998). From the study of literature, it seems that the "mission drift" from the societal development objectives to self- sustainability of MFPs may become unavoidable (Hermes et al., 2011), although, this trade-off can be minimized if MFPs become cost-efficient, as identified by Lopatta, Tchikov, Jaeschke, and Lodhia (2017), Mersland and Strøm (2010).

The welfarist or the developmental approach stresses the importance of sticking with the original mission to provide financial access to poorest of the poor (Woller, 2002). The protagonists of welfarists approach have concerns with the sustainability focus and fear that it might lead to a mission drift (Hermes & Lensink, 2011; Kar, 2013). Most of the MFPs are not sustainable and the uncertainty about the supply of subsidies and the lack of subsidies can lead MFPs to the "mission drift" and less social outreach by charging higher interest rates and targeting less depth of outreach by giving larger average loan size per borrower, targeting fewer female borrowers and less poor (D'Espallier, Hudon, & Szafarz, 2013, 2017). Financial performance of MFPs can be assessed through sustainability which is state of having uninterrupted stream of reasonable profits cash-inflows to mitigate the risks of being bankrupt (Semaw Henock, 2019).

Armendáriz and Szafarz (2009) argued that mission drift results from the interaction of MFPs' goals, variance of the costs among poverty-stricken and affluent customers and the local features of customers, rather than "progressive lending" or "cross-subsidization". Financial performance of MFPs can be assessed through sustainability which is state of having uninterrupted stream of reasonable profits cash-inflows to mitigate the risks of being bankrupt (Semaw Henock, 2019). Focusing the balance between self-sustainability and societal development that has been recognized as "dual mission" or "double-bottom line" in literature, and it is yet unresolved whether this balance is achievable for MFPs or not (Begoña Gutiérrez-Nieto, Serrano-Cinca, & Molinero, 2007; Mia & Chandran, 2016; Nasrin et al., 2018).

Contexts and fixed characteristics of MFPs may affect the vulnerability of a probable trade-off from the concurrent pursuance of social outreach and financial performance objectives (Wry & Zhao, 2018). Some MFPs can cope with the "dual mission" efficiently and effectively than the other, with the help of sound skilled management and practices, combined with lower cultural hindrances to outreach like lower discrimination to poor and women clients and solid market-supporting institutions like property rights, the rule of law, and regulatory regimes as Wry and Zhao (2018) found a negative relationship between social outreach pursuance and financial performance and varying contexts can magnify, extenuate or countermand this relationship.

Hashemi and Rosenberg (2006) insisted upon the preference of social outreach as a primary objective of MFPs despite the existence of a mixed opinion upon social outreach aspirations of MFPs and their efficiency. According to Robert Cull and Morduch (2007), MFPs can uphold an equilibrium between social outreach and financial performance, concurrently, by remaining cautious about absolute poor. Quayes (2012) found a statistically significant, positive association amid depth of outreach and financial performance. Paxton (2003) found no substitution between the aspiration of outreach and financial performance. Whereas, the trade-off of outreach and FP, had also been found empirically evident by Makame and Murinde (2006).

Considering the mixed arguments and evidence mentioned above, this study aims is to investigate the relationship between increase in social outreach and financial performance of MFPs in the context of Pakistan. Pakistan has distinct macroeconomy and microeconomic environment from the rest of the developing world. The continuous political instability, poor governance, terrorism, and energy crisis affected the whole economy negatively that in turn inflicted the rise poverty level and unemployment for poor and women in country. Therefore, Pakistan is the most suitable and deserving geographic location to apply the poverty alleviation tools of Microfinance resultantly increase the income-generating opportunities for poor and women. Microfinance institutions (MFPs) established in Pakistan with commercial logics or institutional approaches are considered to be inclined toward mission drift due the feared tradeoff between the presence of social outreach and financial performance of MFPs. Therefore, this study is a little effort to help bridge the gap between the commonly considered conflicted approaches testing the impact of social outreach with traditional and newly developed

indicators of outreach on the financial performance of MFPs.

While there are arguments that women borrowers show better repayment behavior than men borrower which is considered and boosts MFPs performance, there are some researchers who do not have the same propositions (Morduch & Armendariz, 2005). Boehe and Barin Cruz (2013) analyzed the data from 22 countries from Africa, Eastern Europe, Latin America, and Asia and found evidence against the common prediction of outreach to women enhances the MFPs performance. D'Espallier, Guerin, and Mersland (2013) found the emphasis on female borrowers have significant positive effect on the repayments but the financial performance is not improved. These female borrowers are usually offered relatively microloans which could be the reason for higher costs incurred by MFPs and the improved repayments are not translated into better financial performance.

Based on the above discussion, there is evidence of positive, negative and no effect of percentage of women borrowers on financial performance. The purpose of this study is to find out the effect of percentage of women borrowers on financial performance of MFPs in Pakistan. The research question in the study is whether there is a significant relationship between percentage of women borrower and the financial performance of MFPs in Pakistan. This study proposes the following hypothesis:

Hypothesis 1: There is a significant association of the percentage of women borrowers on the financial performance of MFPs in the context of Pakistan.

Researchers have found a mixed relationship of average loan size with financial performance (Hulme & Mosley, 1996; Paxton & Cuevas, 2002; Quayes, 2015; Schreiner, 2002; G. Woller, 2002). The smaller average loan size will be expected to have negative impact on financial indicators because deepening the outreach with the smaller loan size is complemented with increased costs, and ultimately negative effect on profit margins and a trade-off may result as a consequence of deeper outreach through smaller loans. On the contrary, Quayes (2015), argued that the smaller loan size can enhance the repayment rate. If this increased repayment rate outweighs the increased costs associated with smaller loans then it can be ultimately translated into better financial performance. Quayes (2012) found a significantly positive association between increased depth of outreach and financial performance. Quayes (2015) found the financial performance got better with the decrease in average loan size. Armendáriz and Morduch (2010) argues that the average loan size may tend to increase as the MFPs age matures, it may not be, necessarily, a sign of "mission drift". Meyer (2019), in a global level study, found that smaller average loan size/GNI have significant association with higher yield and profit margin, but, no association with ROA, ROE, and OSS because of an approximately equal off-setting effect of increased costs. On the contrary, Nasrin et al. (2018) found a significant positive impact of loan size on yield and profit margin.

Considering the mixed arguments above, present study aspires to find the answer to the question, how the average outstanding loan size per borrower affects the financial performance of MFPs in Pakistan and proposes the following hypothesis:

Hypothesis 2: Average outstanding loan size per borrower has a significant relationship with the financial performance of MFPs in the context of Pakistan.

There are mixed arguments on the relationship between outreach and financial performance. Studies by Bassem (2012), R. Cull, Demirguc-Kunt, and Morduch (2007), Pedrini and Ferri (2016) and Hermes et al. (2011) have confirmed the negative association between large outreach and financial performance. Whereas, Adhikary and Papachristou (2014), B. Gutiérrez-Nieto, Serrano-Cinca, and Molinero (2009), (Louis, Seret, & Baesens, 2013), and Quayes (2012, 2015) have reported positive effect of an increase in outreach on financial performance. There is also some evidence of insignificant effect of outreach on financial performance conveyed by Lebovics, Hermes, and Hudon (2016) and Meyer (2019).

Hermes and Hudon (2018) conducted a systematic review of 169 high-quality studies to examine the factors which affect the social performance and financial performance of MFPs and to explore the association between the two. Their study revealed that it is still a debatable issue that which measures can best represent social performance of MFPs. They suggested that the dense phenomena of social performance should be proxied by an amalgamation of indicators of breadth of outreach, depth of outreach and outreach to women and poor. According to them the diverse techniques and measures used to evaluate the performance in the microfinance field are derived from the parent areas of banking and finance research. Furthermore, their study identified the traditional measures used in literature do not fully represent performance and are only indirect proxies. The divergence and the disagreement on the best measure(s) to use for the evaluation of microfinance performance, stems the need to cultivate and foster new indicators and to improve old proxies. To overcome the issues and drawbacks in the traditional proxies of breadth and depth of social performance, identified by previous studies, Bibi et al. (2018) developed new measures, "market share of microfinance borrowers" (MSB) and "market share of the number of borrowers adjusted for market share of assets" (MSBA) representing breadth of outreach and depth of outreach, respectively.

Given the diverse arguments, present study also intends to answer the question of how the new measures of outreach, MSB and MSBA, affect the financial performance of MFPs in the context of Pakistan. The study hypothesizes the followings:

Hypothesis 3: MSB has a significant relationship with the financial performance of MFPs in Pakistan.
Hypothesis 4: MSBA has a significant relationship with the financial performance of MFPs in Pakistan.

3. Methodology

3.1 Data

Microfinance Information Exchange (MIX) database is the source of the current study's data related to microfinance variables. The MIX is an international non-profit data platform for microfinance industry. It hosts data shared voluntarily by its member MFPs around the world. Data from MIX are extensively used in literature of microfinance (Bassem, 2009; Kulkarni, 2017; Meyer, 2019). Macroeconomic data related to Pakistan were taken from the World Bank Development Indicators. Datafile for current study used for regression analysis contained observations from the year 1998 to 2014 of 38 MFPs in Pakistan.

3.2 Variables

3.2.1 Dependent Variables

To measure the effect of social outreach on the FP of MFPs in Pakistan, among the dependent variables, current study deployed rate of return on assets (ROA), Profit margin ratio (PM), Yield on gross portfolio nominal (YLD) and Yield on gross portfolio real (YLDR).

ROA as a proxy of FP to gauge profitability calculated as the ratio of net operating income and total assets (Abdullah & Quayes, 2016; Arrassen, 2017; Assefa, Hermes, & Meesters, 2013; Mersland & Strøm, 2009; Meyer, 2019; Rosenberg, 2009) ROA signals MFPs' capabilities of producing sound rate of returns that can keep the investors satisfied and of survival as to be in the business of microfinance (Adhikary & Papachristou, 2014). Profitability can be translated as a gesture of institutional logic dominance whereas the lower levels can be a sign of welfarist approach followed by MFPs (Im & Sun, 2015).

PMR is the ratio of net operating income by operating revenue, used as another proxy of FP of MFPs, that shows the percentage of income is from every unit of revenue earned (Abdullah & Quayes, 2016; Meyer, 2019; Nasrin et al., 2018).

YLD can serve the function of proxy of FP of MFPs representing the nominal income earned from interest rates and fees charged by the MFPs on the loan portfolio outstanding (Abdullah & Quayes, 2016; Arrassen, 2017; Kulkarni, 2017; Meyer, 2019). YLDR is an the ex-ante proxy of interest rates that shows the total income from real interest rates and fees charged by the MFPs on the loan portfolio outstanding, used as measure of FP of MFPs (Abdullah & Quayes, 2016; Arrassen, 2017; Assefa et al., 2013; Robert Cull & Morduch, 2007; Kulkarni, 2017; Meyer, 2019)

3.2.2 Explanatory variables

Outreach tells how well the social performance of MFPs is in the provision of its services to the poor and it can be proxied through the quantity and kinds of users of MFPs' services (Meyer, 2019). It is the scale and level of poverty being accessed for the provision of financial services (Reichert, 2018). The "poverty approach" lays stress on deepening the outreach, whereas, widening the breadth of outreach is the target for MFPs under the "sustainability approach" Schreiner (2002). Depth of social outreach and breadth of social outreach, are the key focus variables in present study, jointly compose social performance (Conning, 1999).

Depth of outreach shows the socioeconomic level of the clients served and the breadth of outreach represents the number of poor served (Hermes & Lensink, 2007). The majority of previous studies had focused depth of outreach for the measurement of social performance while analyzing its effect on the financial performance of MFPs, like Meyer (2019), Abdullah and Quayes (2016), and Quayes (2012, 2015). According to Mia and Chandran (2016), it is the subjective choice of researcher to decide upon which proxies to for social outreach. Percentage of female borrowers and average loan outstanding per borrower are the most commonly used proxies of depth of outreach (Robert Cull & Morduch, 2007; Hermes et al., 2011; Meyer, 2019; Quayes, 2012, 2015). Thus, current study also used depth of outreach and represented it through the proxies of percentage of women borrowers and the average outstanding loan balance per borrower of MFPs in Pakistan for current study.

Previous studies have not agreed on the issue of how outreach affects the financial performance and it is yet, unclear which are the best proxies of social outreach of MFPs (Hermes & Hudon, 2018). Therefore, the current study also uses two new measures of social outreach developed by Bibi et al. (2018). According to Bibi et al. (2018) their newly developed measures of social performance represent the breadth and depth of social outreach better than the traditional measures. Their first newly developed measure is a proxy of breadth of social outreach, named "market share of microfinance borrowers" (MSB) that is calculated as a ratio of total active borrowers of an MFPs to the total number of active borrowers of all MFPs in a Pakistan. Their second new measure is a proxy of depth of outreach, named as "Market share of the number of borrowers adjusted for market share of assets" (MSBA), calculated as the ratio of an MFP's MSB to the proportion of an MFP's assets to the total assets of all MFPs in Pakistan. This is a measure of depth of outreach. MSB and MSBA are negatively associated with each other Bibi et al. (2018). According to Bibi et al. (2018) value for MSB will be less than one and greater than zero; the value

approaching one shows the wider breadth of outreach. Value of MSBA smaller than one shows less outreach with higher loan size whereas, the figure of larger than one represents smaller loans and more outreach.

3.2.3 Control variables

The current study uses multiple MFPs specific and country-specific macroeconomic control variables that could also affect the association between social outreach and FP of MFPs. The SIZE of MFPs is used as control variable, it affects the performance of MFPs (Robert Cull, Demirgüç-Kunt, & Morduch, 2009; Meyer, 2019). PAR30 shows the quality of loan portfolio, and it is used as control variable because the payment overdue risk of portfolio for more than 30 days affects the FP of MFPs (Bassem, 2012). operating expenses to average gross loan portfolio ratio measures the efficiency of MFPs and also affects its FP, which means how much has been spent for lending one unit of loan (Arrassen, 2017; Assefa et al., 2013; Bibi et al., 2018; Gutierrez-Nieto, Serrano-Cinca, & Molinero, 2007; Kulkarni, 2017; Tchakoute-Tchuigoua, 2010). Debt equity ratio is used to control the effect of leverage of MFPs because the financial structures of an MFPs influence its financial performance (Agarwal & Sinha, 2010; Conning, 1999; Gutierrez-Nieto et al., 2007; Meyer, 2019; Quayes, 2012).

Macroeconomic variables affect the overall economy and also affect the Financial Performance of MFPs (Lopatta et al., 2017; Nasrin et al., 2018). The current study used inflation (INF) and gross domestic product per capita as the macroeconomic control variable. Inflation affects the cost of loans and the repayment rates; thus, it can affect the financial performance of MFPs (Assefa et al., 2013). As a result of increase in inflation in the country the customer base of MFPs may also increase (Bassem, 2009; Hartarska, 2005) and the FP can improve (Nasrin et al., 2018). FP is also affected by the change in gross domestic product of country (GDP) as it affects the repayment rate of MFPs (Imai, Gaiha, Thapa, Annim, & Gupta, 2011). The current study used the logarithm of GDP per capita (LNGDPC) in Pakistan as control (Adhikary & Papachristou, 2014).

3.3 Empirical Model

The current study intends to analyze the impact of outreach on the financial performance (FP) of MFPs in Pakistan, thorough ordinary least square (OLS) regression. Moreover, fixed effects and random effects are used for robustness. OLS multiple regression is useful to estimate the unknown parameters but it may suffer endogeneity issues due to simultaneous causation and unobserved heterogeneity (De-Min, 1973). FE is more useful to determine the causation among variables, while employing panel data even with feeble assumption and RE are more useful when causation is obvious (Cameron & Trivedi, 2010). To establish causation, this study examines the relationship between social outreach indicators and financial performance of MFPs in Pakistan, using following regression equation:

$$FP_{it} = \alpha + \beta_1 PWB_{it} + \beta_2 LNALB_{it} + \beta_3 MSB_{it} + \beta_4 MSBA_{it} + \beta_5 OER_{it} + \beta_6 DER_{it}$$
$$+ \beta_7 PAR30_{it} + \beta_8 SIZE_{it} + \beta_9 INF_{it} + \beta_{10} lnGDP_{it} + \varepsilon_{it} \tag{1}$$

In equation (1) FP stands for financial performance that is proxied through return on assets (ROA) and other alternative measures of PMR, YLD, and YLDR. MSB shows the Market share of borrowers. MSBA denotes the Market share of borrowers adjusted by market share of assets. PWB denotes the percentage of active number of women borrowers. LNALB is the natural logarithm of average loan size per borrower. OER indicates the ratio of operating expense to average gross loan portfolio. DER denotes Debt to equity ratio. PAR30 shows the Portfolio at risk 30 days. SIZE measures the natural log of total assets. LNGDPCt stands for natural logarithm of per capita GDP. INF represents the rate of inflation in the country. Ɛ represents the error term. It had been assumed that the term Ɛ is not correlated with any of the estimators (Fabra & Schmidheiny). MFPs are represented by the subscript i individually and it ranges from 1 to N. Time period is represented by the subscript t which ranges from 1 to T.

Table 1. Description of variables

Variables	Description
Dependent variable	
ROA	Net operating income / total assets
PMR	Ratio of net operating income by operating revenue
YLD	The total income from interest and fees on the outstanding loan portfolio (nominal).
YLDR	The total income from interest and fees on the outstanding loan portfolio (real)
Explanatory variables	
PWB	Fraction of active women borrowers in total active borrowers of MFPs
LNALB	Natural log of average loan outstanding per borrowers
MSB	Number of active borrowers divided by total borrowers of all MFPs in the country
MSBA	Market share of borrowers divided by market share of assets of all MFPs in the country
Institutional control variables	
DER	Debt to equity ratio
OER	Operating expense divided by average gross loan portfolio
PAR30	Portfolio at risk 30 days
SIZE	Natural log of total assets
Macroeconomic control variables	
INF	Rate of inflation
LNGDPC	Natural log of GDP per capita

4. Empirical results

4.1 Descriptive statistics

Table 2 shows the descriptive statistics described as number (N), MEAN, standard deviation (SD), minimum (MIN) and maximum (MAX) of observations, respectively, for the variables of current study. To reduce the effect of outliers, data is Winsorized at 1% level on both tails. The sample frame includes 38 MFPs of various types, which are located in different cities in Pakistan. The unbalanced panel dataset of current study includes the observations of 17 years from1998-2014.

The minimum and maximum values of most variables vary enormously, from negative to positive. It shows that different MFPs have performed differently from one another. Some are good at FP and outreach the others are not. Negative values of the mean of ROA and PMR are -0.0541 and -0.855 showing that the MFPs, on average, are performing poorly on the profitability side. The average yield on gross portfolio nominal and real are more than 33 percent and 19 percent that shows that MFPs are charging their borrowers with a high-interest rate. Variation with respect to breadth and depth of outreach of MFPs, respectively is depicted from the minimum and maximum values of MSB and MSBA. Fraction of women borrower on average is 55.6 percent with huge variation among MFPs. It is far less than the average fraction of women borrowers around the world highlighted by Abdullah and Quayes (2016). Natural logarithm of average loan per borrower helps lower the variation problem.

Mean of LNALB is 5.037 with a wide dispersion among MFPs shown by its SD of .866 points. It reflects the different preferences of outreach among different MFPs. Smaller loan size can increase the associated operating costs of MFPs thus leading to a higher OER (Rosenberg, 2009). Mean value for OER is 38.1% in Pakistan that is much higher than mean OER of the world MFPs reported as 29% by Imai et al. (2011). This is because the associated costs of providing MF services to poor of Pakistan are much higher than their earnings and depicted the lower efficiency of MFPs's as compared to the rest of the world. PAR30 on average for MFPs in Pakistan 8.06 percent which is higher than the PAR30 of 6.2% across the globe among 947 MFPs (Chakravarty & Pylypiv, 2015). It signals the portfolio quality is lower than that of the MFPs around the world on average. Mean value of SIZE is 15.33 which is lesser than the reported value of 16.53 for world MFPs as reported by Tchuigoua (2014). It shows the smaller asset base of MFPs in Pakistan than their global counterparts. DER mean is 2.02 that is more than double of standard of 1, shows that the MFPs in Pakistan are having high leverage that could have a magnified effect on their returns and they must be careful in the time of declining revenues. Average inflation during the study period was 10.1% and LNGDPC was 6.86.

4.2 Pairwise correlation

To deal with the issue of multicollinearity among the explanatory variables before running multiple regression analyses, the current study constructed a pairwise correlation matrix as shown in Table 3. No issue of multicollinearity among the regressors, the values of pairwise correlation among the regressors in Table 3 are less than 0.8 threshold (Kennedy, 2008).

Fixed effects model and random-effects model were used following Hoechle (2007), along with the OLS in this study. Results are shown in Tables 4. All models were found good fit, according to the F-statistics, Wald chi2, and R2. Table 4 contains the proxy measures of depth of outreach and breadth of outreach. Percentage of active women borrowers, average loan per borrower and market share of borrower adjusted by market share of assets for depth of outreach and for breadth of outreach market share of borrower, as explanatory variables along with the MFPs' specific and macroeconomic control variables.

Table 2: Summary statistics

VARIABLES	(1) N	(2) MEAN	(3) SD	(4) MIN	(5) MAX
Dependent Variables					
ROA	244	-0.054	0.174	-1.113	0.194
PMR	284	-0.855	3.556	-30.94	0.641
YLD	242	0.332	0.742	-1.333	11.48
YLDR	242	0.198	0.693	-1.305	10.62
Explanatory Variables					
MSB	283	0.063	0.092	0.015	1.000
MSBA	283	1.056	0.148	0.477	1.699
PWB	259	0.556	0.340	0.000	1.000
LNALB	279	5.037	0.866	0.000	9.078
Control Variables					
OER	254	0.381	0.662	-1.333	7.894
DER	298	2.020	11.08	-52.20	44.35
PAR30	255	0.080	0.158	0.000	0.940
SIZE	300	15.33	2.132	6.832	19.30
INF	301	0.101	0.045	0.0291	0.203
LNGDPC	301	6.806	0.294	6.119	7.132
Number of MFPs	38	38	38	38	38

4.3 Regression Results and Discussion

Tale 4 illustrates the results of OLS, fixed effects and random effect models respectively for the response variable of FP proxied by ROA, PMR, YLD and YLDR for the microfinance industry in Pakistan. The percentage of women borrower (PWB) has significant positive relationship with ROA of MFPs in Pakistan, as depicted by the value and sign of estimated coefficient of PWB across OLS and random effect models. PWB and ROA relationship is significant at 5% in OLS model and at 10% in RE model as indicated by the p-values which is $p<0.05$ and $p<0.1$, respectively and it is insignificant in FE model. PWB has a positive effect on PMR in FE model, significant at a level of 5% but insignificant in OLS and RE. PWB showed a positive effect with both, YLD and YLDR at significance level of 1% in OLS model and remained insignificant in FE and RE models. The findings are consistent with some previous studies (Abdullah & Quayes, 2016; Hulme & Mosley, 1996).

Alternative proxies have been used for firm performance to validate our results. Alternative proxies include PMR (profit Margin), YLD (Nominal Yield) and YLDR (Real yield). Results remain unchanged over all the proxies of financial performance in this study. An explanation for the better FP due to PWB could be that the women borrower had fewer opportunities to borrow than men so they maintain a better repayment rate while being more reliable than their male counterparts (Armendáriz & Morduch, 2010). Women borrowers use loan efficiently in a riskier opportunity used to be less mobile, and mostly the first-time borrowers, thus maintain better repayment rate, lower defaults and a better FP (Abdullah & Quayes, 2016). Hence, hypothesis 1 is confirmed by the findings of the current study.

Table 3 Pairwise Correlation

Variables	PWB	LNALB	MSB	MSBA	OER	SIZE	PAR30	DER	INF	LNGDPC
LNALB	-0.425***	1								
MSB	-0.153**	0.386***	1							
MSBA	0.253***	-0.528***	0.268***	1						
OER	-0.163**	0.069	-0.129**	-0.386***	1					
SIZE	-0.200***	0.522***	-0.162***	-0.083	-0.153**	1				
PAR30	-0.247***	0.017	-0.049	-0.240***	0.052	-0.203***	1			
DER	-0.019	0.042	-0.018	-0.028	-0.04	0.052	-0.116*	1		
INF	0.124**	-0.038	-0.236***	0.154***	0.029	0.081	-0.088	-0.059	1	
LNGDPC	0.190***	0.012	-0.469***	-0.078	0.120*	0.325***	-0.195***	0.032	0.446***	1

Table 4. Summary of regression results by OLS, FE and RE for ROA, PMR and YLD

	(OLS)	(FE)	(RE)	(OLS)	(FE)	(RE)	(OLS)	(FE)	(RE)	(OLS)	(FE)	(RE)
VARIABLES	ROA	ROA	ROA	PMR	PMR	PMR	YLD	YLD	YLD	YLDR	YLDR	YLDR
PWB	0.0689**	0.0963	0.0646*	0.374	1.054**	0.435	0.0926***	0.0682	0.0225	0.0794***	0.0692	0.0217
	(0.0311)	(0.0584)	(0.0382)	(0.279)	(0.408)	(0.391)	(0.0332)	(0.0584)	(0.0494)	(0.0296)	(0.0516)	(0.0444)
LNALB	-0.0457*	-0.0271	-0.0486	0.0721	-0.306	-0.198	0.0548*	-0.0505	-0.0152	0.0432	-0.0526	-0.0222
	(0.0273)	(0.0388)	(0.0297)	(0.253)	(0.267)	(0.288)	(0.0300)	(0.0387)	(0.0363)	(0.0267)	(0.0342)	(0.0324)
MSB	-19.02***	-1.055	-14.60***	-144.3***	-9.257	-77.32**	-12.78**	-15.85***	-15.58***	-11.61**	-14.48***	-14.19***
	(4.627)	(4.735)	(4.522)	(43.42)	(32.15)	(37.37)	(5.156)	(4.617)	(4.643)	(4.601)	(4.078)	(4.122)
MSBA	0.523**	0.00592	0.464**	4.443**	-0.548	2.097	0.518**	0.743***	0.567**	0.481**	0.702***	0.540**
	(0.209)	(0.241)	(0.206)	(2.116)	(1.696)	(1.941)	(0.253)	(0.246)	(0.244)	(0.226)	(0.217)	(0.217)
OPEXGLP	-0.0574***	-0.0485***	-0.0498***	-0.546***	-0.249**	-0.466***	0.0390**	-0.00726	0.0104	0.0422**	0.00321	0.0169
	(0.0167)	(0.0153)	(0.0155)	(0.147)	(0.125)	(0.125)	(0.0174)	(0.0155)	(0.0155)	(0.0155)	(0.0136)	(0.0137)
LNSIZE	0.102***	0.0924***	0.0946***	0.757***	0.408**	0.717***	0.0379**	0.0706***	0.0536***	0.0342**	0.0635***	0.0492***
	(0.0183)	(0.0254)	(0.0187)	(0.161)	(0.177)	(0.177)	(0.0174)	(0.0202)	(0.0170)	(0.0170)	(0.0225)	(0.0180)
PAR30	-0.127*	-0.215***	-0.144**	-2.118***	-3.012***	-2.890***	-0.105	-0.185**	-0.180**	-0.107*	-0.172***	-0.171***
	(0.0687)	(0.0730)	(0.0680)	(0.602)	(0.500)	(0.568)	(0.0712)	(0.0722)	(0.0710)	(0.0636)	(0.0637)	(0.0631)
DER	0.00125*	0.000609	0.000776	0.00845	0.00207	0.00338	0.000674	0.000907	0.000837	0.000651	0.000828	0.000773
	(0.000752)	(0.000696)	(0.000727)	(0.00663)	(0.00483)	(0.00586)	(0.000784)	(0.000692)	(0.000725)	(0.000699)	(0.000612)	(0.000642)
INF	-145.0***	-0.436	-112.0***	-1,060***	7.121	-572.0*	-73.53***	-80.06***	-82.40***	-72.73***	-80.12***	-81.52***
	(36.70)	(5.111)	(36.07)	(337.1)	(34.31)	(294.0)	(22.44)	(20.81)	(20.59)	(20.02)	(18.38)	(18.30)
LNGDPC	-5.685***	-0.340	-4.436***	-42.63***	6.021	-23.76**	3.926***	4.065***	4.274***	3.825***	4.035***	4.181***
	(1.357)	(4.995)	(1.319)	(12.94)	(33.21)	(11.08)	(1.106)	(1.030)	(0.987)	(0.987)	(0.910)	(0.905)
CONSTANT	50.13***	1.074	38.78***	371.5***	-47.93	202.2**	-22.97***	-23.57***	-24.56***	-22.31***	-23.36***	-24.00***
	(12.09)	(35.90)	(11.80)	(114.8)	(239.0)	(98.95)	(6.388)	(5.926)	(5.862)	(5.701)	(5.234)	(5.210)
OBSERVATIONS	211	211	211	216	216	216	210	210	210	210	210	210
R-SQUARED	0.383	0.305		0.415	0.388		0.347	0.278		0.368	0.360	
NUMBER OF ID		35	35		39	39		38	38		38	38

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Further, our results illustrate that the average loan per borrower (LNALB) is negatively associated with ROA as depicted by the coefficient value of OLS estimate (-0.0457) and significant at 10%. This relationship turns insignificant in other models as well as by using alternative proxies of financial performance. LNABPL is an inverse measure of social outreach that means smaller loan size indicates the greater depth of outreach (Quayes, 2012), the greater the average loan size per borrower smaller is the depth of outreach which ultimately decreases the financial performance. One of the possible reasons for the decrease in financial performance is that bigger size borrowers may use their influence to gain bigger size loans, although they do not make it enough productive which can increase default risk, and lead to lower profitability of banks. In response to the lower profitability, MFPs charge higher interest rates to cover the operating cost which results in higher yield. These findings confirm the hypothesis 2 of the present study.

Results further reveal that there is a negative significant relationship between market share of number of borrowers (MSB) and ROA as depicted by the value and sign of coefficient -19.02 and p<0.01. This is consistent across all the models and by using alternative proxies. One of the possible reasons is that when the breadth of outreach increases the number of borrowers per MFPs increases, which reduces the efficiency of monitoring role of banks and can possibly lead to poor financial performance. Therefore, the results confirm the hypothesis 3 that MSBA has a significant relationship with the financial performance of MFPs in Pakistan.

Findings suggest a positive and significant relationship between adjusted market share of borrowers and ROA across all the models and by using alternative proxies of financial performance. The possible explanation for these findings could be the economies of scale that are reflected by a larger asset base of MFPs. Hypothesis 4 is accepted as the depth of outreach has a positive impact on financial performance of MFPs.

Results for control variables are also significant and according to the literature. The relationship of operating expenses with ROA is negative and significant at 1% and 5% level in all models except fixed and random effects of YLD an YLDR. This result implies that as operating expenses increase the profitability tends to decline. These findings are also in line with previous literature (Abdullah & Quayes, 2016; Meyer, 2019; Quayes, 2015). There is a positive association between size of MFPs and performance as indicated by the coefficient and p values. Larger banks achieved economies of scale; therefore, their profitability increases with the increase in size. PAR30 is negatively associated with MFPs financial performance because PAR30 indicates the default risk and as default risk or repayment delay increases the financial performance would be harmed. DER have weak positive impact on ROA as depicted by the p-value which is 10% and this relationship turns insignificant in all other models and alternative proxies of performance. The inflation rate of the country is negatively significantly associated with MFPs financial performance. Because inflation negatively affects the repayment capacity of borrowers which

increases the default risk and harms financial performance. Moreover, with rising inflation rate the cost of borrowing for MFPs also increases and decreases the profit margin. GDP per capita is negatively associated with profitability and positively associated with yield. Because as GDP per capita increases leads to decrease in poverty, therefore, decreased demand for MFPs loans which in turn decreases the profit of MFPs. This decrease in MFPs loans could lead to the higher interest rates charged by MFPs thus leads to higher YLD and YLDR.

5. Conclusion

This study investigates the impact of outreach on the financial performance of MFPs in Pakistan by using a sample of 38 MFPs for the period of 1998-2014. Results suggest that there is significant and positive association between depth of outreach and financial performance. The empirical evidence shows that the percentage of women borrowers has a significant positive impact on the financial performance of MFPs. Because female borrowers are more efficient in repayment and also efficient in utilizing the amount borrowed. Average loan size per borrower found to be negatively associated with financial performance of MFPs. Because larger average loan size limits the repayment capacity and increases the burden of amount borrowed that leads higher default rate and in turn harm the financial performance of MFPs. The depth of outreach as measured by adjusted market share of borrowers also has a positive effect on financial performance of MFPs. Larger assets base increase operational efficiency and help achieve economies of scale which leads toward improved financial performance.

The current study has both theoretical and practical contributions. Theoretically, current study provides empirical support to welfarist approach, suggests that social outreach deepening can improve the financial performance of MFPs across Pakistan, and our findings suggest that simultaneous achievement of the dual mission of social outreach and better financial performance can be achievable.

Policy implications for the donors and governments are as follows: the supply of subsidies should be continuous and certain in order to help MFPs meet goals by covering part of associated costs of widening the breadth or scale of social outreach. Top managers of MFPs can take findings of the current study into consideration while decision making and specifically they should enhance the social outreach program, and besides enhancing the outreach program they should also maintain the efficiency of operations, which can help them to make the best use of the program and increase the organizational financial performance. Moreover, extending the breadth of outreach should be accompanied by larger asset base and cost efficiency of operations for better FP.

We acknowledge that there are some limitations of the study, and future studies can address those limitations. Due to limited availability of data, we could not examine the impact of some social outreach indicators on financial performance, for instance including *poverty level* of borrowers accessed. The current study can be replicated in some other country of South Asia.

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