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Mission Drift i.e. Sustainability vs Outreach: Empirical evidence from Microfinance Institutions in India.

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Mission Drift i.e. Sustainability vs Outreach: Empirical Evidence from Microfinance Institutions in India

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Abstract: Microfinance banks and Institutions must simultaneously provide micro financial loans to unprivileged and poor people as well as self-sustaining, which means covering enough costs to eliminate the need for subsidies. To ascertain if Micro-finance Institutions can successfully navigate the double challenge of financial self-sustainability (FSS) as well as outreach to poor clientele and women borrowers i.e. outreach. There is no other alternative but to analyse the balance between FSS and outreach indicators of MFIs. The research goal is to see whether there was any compromise between the self-sustainability and outreach towards poor and female customers. The study used data of 100 MFIs driven from the database of microfinance information's exchange (MIX) market with the objective to determine trade off between financial sustainability and outreach. The study found financial performance variables are positively and significantly related with average loans size which shows a mission drift, in which MFIs serve wealthy clientele. However, Indian MFIs have a extremely high outreach with their female clientele, confirming MFI's social commitment to objective of women's empowerment. The research recommends to the Policy-makers that MFIs are compromising their financial services to underprivileged people and women in order to be financially sustainable. To guarantee that institutions are focused on outreach to underserved people in rural areas, the government should reform the policies regarding governing MFIs.

Keywords: financial sustainability; microfinance; mission drift; welfarist; institutionalist; social performance

1. Introduction and Issues

The microfinance industry in India has experienced significant growth and played a crucial role in promoting financial inclusion and poverty alleviation. Microfinance institutions (MFIs) provide small loans and financial services to low-income individuals, particularly women and rural populations, who have limited access to traditional banking services. This summary will provide an overview of the microfinance industry in India, highlighting its growth, impact, challenges, and regulatory framework. India has one of the largest microfinance sectors globally, with a diverse range of institutions operating across the country. According to a report by the Microfinance Institutions Network (MFIN), as of September 2021, there were 105 MFIs serving over 47 million clientele in India, with a total loan portfolio of around INR 2.45 trillion (approximately USD 32.9 billion) (MFIN, 2021). This demonstrates the significant scale and reach of the microfinance industry in India. Microfinance has been instrumental in empowering women and reducing poverty in India. It has provided opportunities for women to become financially independent, start businesses, and improve their socio-economic status. The National Sample Survey Office (NSSO) reported that the proportion of rural households availing of microfinance services increased from 2.5% in 2002-03 to 8.4% in 2012-13, indicating the expanding reach of microfinance in rural areas (NSSO, 2013). However, the microfinance sector has also faced challenges. One significant issue is the problem of over indebtedness, where borrowers take loans from multiple lenders and struggle to repay them due to high interest rates and a lack of financial literacy. Instances of aggressive loan recovery practices and debt-related suicides have raised concerns about the ethics and sustainability of the industry. In response, the Reserve Bank of India (RBI), the country's central bank, introduced regulatory guidelines in 2011 to promote responsible lending and customer protection (RBI, 2011).

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1.1. Microfinance Poverty Reduction Approaches

MFIs provide a range of financial and insurance services to the underprivileged as well as underfunded segments of society. In India, MFIs are institutionalised and governed by law. Financial sustainability is a big challenge for MFIs because providing microfinance services is a costly business due to very high transactional costs (Hermes et. al., 2011). The need for microfinance organisations to be self-sufficient in 1990 gave rise to two competing theories, the institutionalist theory and the Welfarist approach (Robinson, 2001). This debate is referred to as the "Microfinance Schism" (Morduch, 2000).

1.2. Institutionalist Approach

The institutional approach places a strong focus on the value of sustainable microfinance organisations that are not reliant on contributions or subsidies. This strategy emphasises how crucial it is for MFIs to minimise operating costs and cover the cost of lending loan from self-generated revenue. They stress that it is impossible to extend loans over the long run without financial stability.

1.3. Welfarist or Poverty Lending Approach

The Welfarist makes a point of saying that the poverty stricken people cannot manage high interest cost. Consequently, offering credit to the poor at an interest rate that is subsidized. Therefore, to be FSS is against with the objective of serving a vast number of poor customers. The proponent of the institutionalist approach emphasises that there is no empirical evidence of negative correlation to support a link between clientele poverty and financial sustainability, nor does it show that the impoverished or poor can't pay high interest cost. They stress that MFIs must be self-sufficient and sustainable on long term basis for giving financial loan and other services to the impoverished and weaker section (Hermes & Lensink, 2011). The majority of parties favour an institutionalist strategy.

2. Andhra Pradesh Microfinance Crisis

Andhra Pradesh is known as a hub of Microfinance industry in India. Moreover, the state microfinance industry triggered into microfinance crises. The story starts when 57 MFIs of smaller size were shut down by the order of Krishna District's government which is when the Andhra Pradesh microfinance crisis began. The decision to shut down these MFIs was made in response to charges of unethical collecting practises, poor governance, excessive interest rates, and huge profiteering (CGAP, 2010). At least ten borrowers in Krishna district are alleged to have committed suicide as a result of their inability to pay their loans (Shylendra, 2006). Kaur and Dev (2013) MFIs regulation act was framed in the year 2010 by the state government which limits the independence and operations of MFIs since they ignored all of the warnings regarding high interest rates and the concentration of activity in the area and failed to learn from the 2006 crisis. The fact that the average debt outstanding per family in Seemandhra was Rs 65,000 as compared to the national average of 7,700 crores. It indicates that the state is over indebted (CGAP, 2010). Due to stress brought on by their inability to make such a large payment and the MFIs' use of coercive measures to collect loan repayments, the borrowers ultimately committed suicide. MFI's existence was put in jeopardy by the 2010 microfinance crisis. MFIs today are battling the problem of their self-sustainability. The Andhra Pradesh MFIs (regulation of money lending) Acts of 2010 severely restricted MFI operations. Following MFIs including, SPANDANA, FUTURE FINANCIAL SERVICES, SHARE, & ASMITHA had negative net-worth as a result of the microfinance sector crisis (Business Standard, 13 sept, 2013). In 2011–12, the GLPTA decreased by 14% to Rs 172 billion (Microscape, 2012). The OSS and FSS of MFIs has been put under further stress as a result of growing borrowing costs and an inability to generate money, 11 of the 61 MFIs assessed, according to the state of the sector report (2011), reported negative balance of (ROA). Only 5 MFIs were able to reach ROA levels exceeding 5%.

2.1. Significance of the Study

There is no other way to ascertain whether MFIs can handle the dual issue of FSS and outreach to low-income consumers and female borrowers but to evaluate the balance between financial objective of self-sustainability and social performance. Although there is a abundance of evaluation literature on microfinance, it primarily focuses on case studies of a few MFIs. Given that India has one of the fastest growing microfinance sectors globally. The objective of the research is found out the compromise into sustainability and outreach of MFIs in India.

The research recommends to the Policy-makers that MFIs are compromising with outreach to poor people in order to be financially sustainable. To guarantee that institutions are focused on outreach to underserved people in rural areas, the government should reform the policies regarding governing MFIs. Section 1 discusses about the debate of approaches on which research is based. Section 2 presents the issue of sustainability of MFIs at global level and in India. Section 3 reports literature of Mission drift and sustainability issue. Section 4 discuses about result and methodology. Section 5 discusses about sampling technique. Section 6 discusses about hypothesis development. Section 7 discusses about Descriptive Statistics and presents the results of study determining trade-offs between sustainability and outreach by using different proxy measures. Section 8 finally concludes the result of study confirming trade-off into outreach to poor clients and FSS that MFIs are not targeting Poor clientele i.e. not fulfilling social objective of Microfinance. As well as serving to non-poor clientele in order to become financial sustainable However, outreach to women clientele is very high i.e. fulfilling their mission of women empowerment.

3. Literature Review

3.1. Mission Drift: Tradeoffs between Financial Objective and Social Outreach

Mersland and Strom (2010) used generalized panel regression technique to measure movements of average loan size which is a proxy variable for depth of outreach to poor people. The study used logistic regression method to examine the relationship in a dataset of 379 MFIs from 74 countries obtained by credit rating agencies between 1998 and 2008. The purpose of this study is to investigate how the social objective of these institutions has changed over the time. Their empirical study found no evidence of gender biasness. The result proved that the average of loan size increases with average income and operating costs. Gakhar (2013) examined using empirical research the financial success of MFIs in the Indian economy. This study analyses data from 40 microfinance firms from the microfinance information exchange database from 2004 to 2011. A global database called The Mix has information about 1400 MFIs all across the world. To determine a balance between outreach i.e. serving to extremely poor and financial performance, a regression analysis approach is applied. According to empirical statistics, more outreach contributes to enhanced financial objective of self-sustainability. The study concluded that MFI can achieve their dual goals of outreach and financial performance. Kaur (2014) examines the compromise into "outreach & self-sustainability of MFIs in India during and after the Andhra Pradesh microfinance crisis. He raised a number of challenges about MFIs' self-sufficiency, sustainability, and outreach in the area. The research investigated loan data from South Asian MFIs from 2008 to 2011. According to their research, OSS of MFI is higher than MFIs in Afghanistan as well as Pakistan. Following the crisis, Indian MFIs' portfolio quality improved. Gashayie and Singhs (2014) used data set of 5 MFIs for the year 2011 to ascertain the relationship between the financial viability with level of outreach to Ethiopia's MFIs. The measures of outreach are number of borrower, average loans size, adjusted with GNI pers capita. According to their findings, there is insignificant of outreach with long-term financial viability. Employing unbalanced panel data of 47 Microfinance Institutions for the years 2008 to 2011 in east Africa, Kipesha and Zhang (2013) investigate the compromise between sustainability or profitability, and social objective of providing loan to poor. The numbers of active borrowers, the percentage of female borrower, and average of loans balance per borrowers are used as proxies for gauging outreach. A substitute for sustainability is the operational self-sufficiency (OSS) ratio. Profitability is analysed by return on assets. Their findings support the existence of mission drift as well as the lack of trade-offs with

sustainability initiatives. They recommend that MFIs concentrate on sustainability covering operational costs can reduce their reliance on subsidies without sacrificing their outreach to the underprivileged poor. Louis et. al., (2013) employed an inventive methodology that incorporated selfs organizing map technique. Using this methodology, institutions' existing heterogeneity is studied. This study uses data sets from 650 microfinance firms from MIX market database to examine the balances between social goal of serving to poor and financial profitability. The study makes use of three outreach metrics, including the extent of outreach to women and average loan size/GNI per capita. GLPTA and cost per loan are utilized as efficiency variables, while (YOGP) and profit margin are employed as profitability indicators. The percentage (%) of female customers is treated as continuous variable. The study's conclusions show that there is trade-off into social and financial performance of Micro Finance Institutions. In their empirical study "outreach & efficiency of microfinance institution," Hermes et al. (2011) discovered that outreach has a negative correlation with microfinance institution efficiency. The association between the cost effectiveness of MFIs & the depth of outreach was calculated using the average of loans balance and the percentage of female clientele using the huge data sets of 435 institutions for the years 1997 to 2007. To establish the trade-off between outreach and efficiency, they used correlation analysis. To calculate the costs efficiency of microfinance organisations, the SFA (stochastic frontier analysis) method is used. According to their findings MFI with a higher share of female borrowers and a lower average balance are also less effective. The findings of the link between efficiency measures and outreach reveal that outreach has a negative impact on MFI efficiency. In his work, Quayes (2012) examines the dynamic connection between the breadth of outreach & financial viability. For the year 2006, information on 733 MFIs from 83 countries was gathered from mix market database. The percentage of female borrowers and the average loan size/GNI are considered as outreach indicators. Financial efficiency variables include total of equity, debt to equity, total expenses ratio, costs per/each borrower, and a dummy variable of operational self-sufficiency (OSS). Regression analysis method and ordinary least squares method are used to investigate the relationship between financial efficiency and outreach. They discovered no evidence of a trade-off, with the exception of inadequate transparency among MFIs. Wydick et al. (2011) conducted research on the kind of influences social networks have on credit access and outreach-related aspects. This study takes a novel technique to figuring out how social networks affect credit access. He conducted a survey of 465 homes in western Guatemala to learn more about education, asset ownership, church attendance, and village committee engagement. Questions were posed to those who had recently purchased new customers goods such as bicycles, television, phones, and sources of credit information. The effects of social networks at the neighbourhood, church, and village levels on credit borrowing are estimated using regression equations. The study's empirical results revealed that the endogenous peer effect for credit borrowing is present, as it is for the ownership and to purchase of consumer goods like bicycles, cell phones, and televisions. They discover that social groups have a major impact on credit access. Also, they discover a positive correlation between microloan borrowing and educational attainment, but a negative correlation with household village and church wealth. Serrano-Cinca & Gutiérrez-Nieto (2014) The mission drift objective of microfinance was defined using the principle of Pareto 80/20. Using data from 1,000 microfinance institutions in the MIX market. The findings of the research for the year 2006 to 2010. The datasets of 1000 microfinance institutions have been categorised into two groups i.e. (the most centred MFIs & MFIs diverted from their social objective). The most adrift financial institutions demonstrate the failure of the social purpose of microcredit. The results of the study show that some financial institutions deviated from their main social purpose. This research is very important for philanthropists, social investors and rating agencies. The results of the survey suggest that the interest rate should be lowered. This can be achieved through effective use of technology, just like in other fields. Hermes and lensink (2007) presented a large-scale systematic study of trade-off between a microfinance institution's sustainability and outreach. Their research shows that individual MFIs i.e. lending loan to single clientele target wealthy customers more as compared to group based lender. Copestake (2007) used a novel model that distinguishes between financial objective of self-sustainable and social objectives of providing services to extremely

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vulnerable and poor to identify mission drift. The model is used to show how social objectives and financial goal of self-reliant is related and to make recommendations for policy consideration. The conceptual framework established in this study, which distinguishes between economic indicators and social mission, can be utilised to determine how other financial institutions contribute to the achievement of economic growth and equity goals. In this book, Zeller and Meyer (2002) presented the research study produced by IFRI (The French Institute of International Relations) researchers and other cooperating organizations. It offers guidance on making, wise trade-off judgements and the role that finance may play in achieving long-term poverty reduction and economic progress for microfinance practitioners. Eight empirical contributions were thoroughly analysed by the author (Hermes and Lensink, 2011) in relation to the two important questions: (I) Do microfinance has influence on the socioeconomic circumstances of the underprivileged in the developing nations? (II) Is there a mission drift into sustainability and microfinance institutions' long-term viability? The research concludes that MFIs under consideration have serious problems with outreach and sustainability. Hudon and Traca (2011), MFI efficiency is unaffected as long as the level of subsidies is kept moderate. This research explains that financial stability is crucial for microfinance's long-term viability as well. The first study to investigate the magnitude of diversion in terms of outreach or what bolstering the financial viability of MFI, was done by (Galema & Lensink, 2009). Cull et al., (2011) published the first empirical study that revealed the effect of regulation on the profitability of MFIs. To solve this problem, high-quality financial reports of 245 largest financial institutions are used, According to the results of the regression analysis, profit-oriented financial institutions respond to monitoring by maintaining profit rates while reducing the outreach of women customer and the hard-to-reach core poor. The research employed sample size of 100 MFIs which represents 40% of MFIs of microfinance industry in India. Moreover most of the studies in Indian scenario related to mission drift are based on small data sets or few MFIs.

4. Data and Methodology

The research employs the data withdrawn from Microfinance information's exchange (MIX) dataset of MFIs in India. 250 MFIs submit data to the MIX database, although only 100 MFIs was selected based on the criterion. The research is focused on data set of nine years (2013 to 2021) taken from MIX market. Using panel data improves monitoring changes in measured variables and relationships across time (Hair et al., 2006). It enables us to account for the unobserved characteristics of specific cases or MFIs and makes it easier to draw conclusions about causality in circumstances where doing so would be exceedingly challenging if we only had data from a single year's worth of cross sectional analysis. Gujarati (2003) asserts that panel data are preferable for analysing dynamic changes over repeating cross-sectional data from the same instances or organisations. We can also explore the significance of lags in behaviour with the aid of panel or longitudinal data. For this investigation, panel data were employed with the model of Pooled ols Model (POM), fixed effects regression model (FEM), and random effects regression model (REM). The study uses each of the three models separately to test the consistency of the findings. Eventually, regression results are generated using Gretl's version 1.9.12 software, and the panel diagnostics command in Gretl is utilised to choose the best model. The best reliable model is chosen based on the output of the Fisher's F test, Hausman test (HMT) as well as Breusch pagan test (BPT), and ultimately our results and interpretation are based on the best model.

5. Sampling Technique

Based on the principles listed below, the purposive sampling technique is used. For this investigation, only MFIs that adhere to the following axioms were chosen. For the purposes of this study, only MFIs that submit data to MIX database (Microfinance Information's Exchange) have been taken into account. 100 Indian MFIs have been chosen among the 250 MFIs that disclose data to the MIX. Only MFIs that will be in operation from 2013 to 2021 are chosen. For this study, only MFIs that provided at least five years' worth of data between 2013 and 2021 were chosen. MFIs don't give all the details about the factors. The data contains some missing observations. After meeting the

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aforementioned requirements, 100 firms' unbalanced panel data for nine years between 2013 and 2021 are taken into account. Before being analysed with GRETL Econometric software, the secondary data that were withdrawn from the MIX market were entered into a spreadsheet. The data was reorganised to make it simpler to track the important variables needed for the current investigation. The goal of the analysis was to show which of the characteristics discussed in the literature apply to Indian microfinance institutions, as well as which elements have a big impact on their ability to serve low-income and female customers and remain financially stable. Table 1 discusses the measurement and description of the factors influencing outreach to the underprivileged and women.

Table 1.

S/N.	Standard Name of the mentioned variables	Formula explanation of the Variable	Variable Description of the Variable as used in regression model	Effects anticipated on outreach metrics, (POFB), and (ALBPBG)
1	Financial self-sufficiency	Adjusted Financial revenues/Operating expenses + financial expenses + loans loss provisional expenses + Expenses adjustments	FSS	Positive or negative
2	Operational selfs sufficiency	Operating Revenues/Operating expense +Financial expense + Loans loss provisional expenses	OSS	Positive or negative
3	Age of MFIs	Years since its establishment to when the evaluation is considered.	l_AGE	Negative with depth and positive with and positive with breadth
4	MFI's Size	Years from its inception until the evaluation are considered. It also determines the length of its reach.	l_ass	uncertain
5	Portfolios at risk (30) Day	This fraction of loans portfolio that is overdue for more than 30 days; that is PAR 30 = Portfolios at risk/Gross loans portfolio	p30	uncertain
6	Capital costs divided to total Assets Ratio	(Rent+ transportations +depreciation +offices + others) / total asset)	Ccta	uncertain
7	Gross loans Portfolio to TotalAssetratio	Gross loans portfolio/total asset	Glpta	Positive or Negative

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Descriptions of the independent variables and the predicted hypothesis sign for the percentage(%) of females borrowers and the average of loans balance each borrower adjusted for GNI in the outreach model are provided.

6. Hypothesis for Percentage of Women Clients' Model

The most often used measure for determining how far an MFI reaches is the percentage of loans given to women borrowers. Since women in underdeveloped countries are typically seen as being poorer than their male partner, MFIs generally fulfils on the social purpose of empowerment of women and poverty eluviation by providing loans to women clientele. Also, female clientele are more trustworthy in terms of their ability to repay loans (kar, 2010). Hence, the financial health of MFIs and the effectiveness of loan repayment should be impacted by women borrowers. According to empirical research by Kipesha and Zhang (2013), there is a strong negative association between the extent of outreach as shown by the percentage of loans given to female clientele and both financial sustainability and profitability indices. Sustainable individual-based lenders MFIs lend more to women, according to research by Cull et al. (2007). They came to the conclusion that institutional architecture and orientation are important when taking trade-offs in microfinance into account. The majority of the study indicated that microfinance had a beneficial impact on women's empowerment. Hermes et al. (2011), concentration on women clientele increases the likelihood of low repayment rates, which has an impact on the viability and profitability of businesses. The following hypothesis is put out based on theories and actual research connected to clientele outreach to the percentage of female's clientele.

HP: FSS is either positively or adversely correlated by breadth to outreach as determined by the proportion of female clientele.

HP: OSS is either positively or adversely correlated by breadth to outreach as determined by the proportion of female clientele.

HP: It is hypothesised that the age of MFIs has a negative correlation with the breadth of outreach as determined by the proportion of female clientele.

HP: It is expected that the size of MFIs will have a positive or negative impact on the extent of outreach as indicated by proportion of female clientele.

HP: It is expected that the depth of outreach as determined by the proportion of female clients is either favourably or adversely correlated with (PAR 30 Days).

HP: It is expected that the ratio of CCTA will either positively or negatively affect the extent of outreach as indicated by the proportion of female clientele.

HP: It is expected that the ratio of the GLPTA assets will either positively or negatively affect the depth of outreach as indicated by the proportion of female clientele.

6.1. Hypothesis for Average loan balance per borrower (ALBPB): Outreach model

According to Hulme and Mosley (1996), the microfinance institutions are just like banks when they don't concentrate on the core poor. They stress that low income clientele handled by MFI should be used as the primary indicator of outreach depth rather than overall numbers of clientele served. This study assumed the average of loans size measurable variable for the depthness of outreach. Cull et al. (2007), FSS ratio is not associated significantly with outreach variable therefore no empirical evidence of mission drift. Results varied depending on the lending approach; however, for lenders based on individuals, studies showed opposite mission drift. According to the study's findings, MFIs which provide smaller loans are just as profitable as those that make larger loans. Delivering small loans to the core poor, who are destitute and generally difficult to reach, is exceedingly expensive, according to Hulme and Mosley (1996). Woller and Schreiner (2002) discovered a beneficial association between the breadth of outreach and financial independence. Their findings provide data against the widely held idea that small loans carry significant risk and are less financially sustainable. The following hypothesis is put out based on theories and actual research connected to clientele outreach to the proportion of female's clientele in terms of percentage.

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HP: FSS is either positively or adversely correlated with the breadth for outreach as determined by the ALBPB adjusted by GNI.

HP: It is hypothesised that the OSS ratio is either positively or adversely correlated with breadth for outreach as determined by the average of loans balance adjusted for GNI.

HP: It is anticipated that age of MFI is negatively correlated with the breadth of outreach which is represented with average of loans balance adjusted for GNI.

HP: It is expected that size of MFI will have positive or negative impact on the extent of outreach which is determined by the average loans balance adjusted for GNI.

HP: It is anticipated that the depth of outreach, as determined by the ALBPB adjusted for GNI, is favourably or negatively correlated with the portfolios at risk.

HP: It is proposed that the ALBPB, which is adjusted for GNI, as measure of depth for outreach, has a positive or negative relationship with CCTA.

HP: It is expected that the ratio of the GLPTA will either be positively or adversely correlated with the breadth of outreach as assessed by the average of loans balance adjusted for GNI.

7. Data Analysis and Interpretation

7.1. Descriptive Statistics

Descriptive statistics of each variable utilised in the study from 2013 to 2021 are shown in Table 2. 760 observations are total across all dependent and independent variables. Total asset represent as indicator MFI's size, while (ALBPB) are used to gauge the breadth of outreach. Natural logarithms are used to transform the Variable of total asset and average of loans balance per borrower.

Table 2. Detailed statistical information on the dependent and independent variables.

Dependent variable and In dependable Variables in Descriptive Statistic					
Variables	**Average**	**Standards deviation**	**Lowest value**	**Highest value**	**No. of Observations**
FSS1	.658	.314	.037	1.780	760
OSS2	1.020	.423	.042	1.800	760
ALBPBG3	.136	.038	.053	0.254	760
YOGP4	.110	.198	.131	0.996	760
CCTA5	.072	.058	.0008	0.366	760
GLPTA6	.114	.998	.653	8.917	760
POFB7	.990	.026	.885	1.000	760
P308	.192	.321	.000	0.995	760
PEA9	.048	.017	.017	0.0918	760
L_ASS10	17.34	1.998	13.88	20.676	760
AGE11	15.55	5.387	4.000	27.000	760
L_ALBPB12	4.872	.254	4.345	5.460	760
ALBPB13	149.8	35.34	77.01	235.0	760

Note: FSS1 = RATIO OF FINANCIAL SELFS SUFFICIENCY , OSS2 = RATIO OF OPERATIONAL SELFS SUFFICIENCY RATIO, ALBPBG3 = AVERAGE OF LOANS BALANCE PER BORROWERS TO GNI PER CAPITA, YOGP4 = YIELDS ON GROSS LOANS PORTFOLIOS TO TOTAL OF ASSETS RATIO, CCTA5 = CAPITAL COSTS TO TOTAL OF ASSETS RATIO, GLPTA6 = GROSS LOANS PORTFOLIOS TO TOTAL OF ASSETS RATIO, POFB7 = PERCENTAGE(%) OF FEMALES BORROWERS, P308 = PORTFOLIOS AT RISK (30) DAY, PEA9 = LABOUR COSTS TO TOTAL OF ASSETS RATIO, L_ASS10 = LOG VALUE OF TOTAL ASSET (SIZE), AGE11 = MFI AGE FROM ITS DATE OF ESTABLISHMENT, L_ALBPB12 = LOG VALUE OF

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AVERAGE LOANS BALANCE EACH BORROWER, ALBPB13 = AVERAGE OF LOANS BALANCE EACH BORROWER.

According to Table No. 2's descriptive statistics value of FSS, as per results mean value is .657 (65.7%), which shows that the sampled MFI are not sustainable in terms of finances. This ratio is lower than the benchmarking criteria, which states that an MFI is sustainable if the FSS ratio is one or higher. The ratio of OSS refers to the amount of operating revenue required to pay all necessary administration expenses, including salaries, suppliers, and loan losses. The mean OSS as determined by descriptive statistics is 1.019 (101.9%), showing that MFIs are operationally self-sufficient. A score of 1 or above for the OSS ratio shows that MFIs are operationally self-sufficient, whereas a value of less than one implies that not self-sufficient. Age is a measure of how long MFIs have been offering financial services. It serves as a representation of how long it has existed. In accordance with the descriptive data, the average age is 15.5 years (15 years and 5 months in real terms). It shows that the sample MFIs are rather young. When the standard deviation is greater than the mean, there is greater unpredictability in the yields on the GLPTA. With a peak of 99.54 percent and a low of 13.04 percent, the growth on the GLPTA fluctuates significantly. This indicates greater data variability because it shows a higher dispersion in the data. The ratio of total equity to total assets after adjustment is known as the CCTA. It is a very often employed indicator of the funding system. The CCTA ratio typically ranges between (0.070). This indicates that microfinance institutions finance about 7% of equity against total assets. The standard deviation of the CCTA of the sample firms or MFIs is lesser as compared to mean value, indicating a normal distribution of data. Moreover, the highest and lowest values are 0.0008 and 0.365, respectively. It shows that equity financing as a percentage of total assets is fairly low. The proportion of female borrowers is a widely used indication of outreach depth. Descriptive statistics show that the average value is (0.989). It means that 98.9% of loans are issued to clientele who are women, indicating a very high level of outreach on the part of MFIs. It also indicates that the entire sample MFIs performs better in terms of outreach. The CCTA ratio typically ranges between (0.070). This indicates that microfinance institutions finance about 7% of equity against total assets. The average size as determined by total assets is (17.32). Because the standard deviation is much lower than the mean value—1.998—the variability in the data is normal. Log assets have lowest value of (13.99) and highest value is (20.67). Because the difference between the minimum and maximum values is not very large, there is less dispersion in the data, which implies less variability. The ratio of labour cost to assets' descriptive statistics showed that the standard deviation value (0.01) is lesser as compared to the mean value (0.04). The dissemination of data is therefore expected. The ratio of labours cost to asset has a maximum value of 0.09 and a minimum value of 0.01.

Table 3. MULTICOLLINEARITY RESULTS.

	AGE1	ALBPBG2	CCTA3	FSS4	GLPTA5	L_ALBPBG6	L_ASS7	OSS8	P309	PEA10	POFB11	YOGP12
AGE1	**1.000**											
ALBPBG2	**-0.323**	**1.000**										
CCTA3	**-0.3078**	**-0.0296**	**1.000**									
FSS4	**-0.3202**	**0.426**	**0.0354**	**1.000**								
GLPTA5	**0.223**	**-0.281**	**-0.178**	**-0.379**	**1.000**							
L_ALBPB6	**0.054**	**0.553**	**0.111**	**0.0702**	**-0.087**	**1.000**						
L_ASS7	**0.733**	**-0.149**	**-0.333**	**-0.058**	**-0.071**	**0.087**	**1.000**					
OSS8	**-0.382**	**0.499**	**0.109**	**0.635**	**-0.449**	**0.0329**	**-0.068**	**1.000**				
P309	**0.285**	**-0.419**	**-0.211**	**-0.344**	**0.458**	**0.165**	**0.040**	**-0.603**	**1.000**			
PEA10	**0.241**	**-0.412**	**0.213**	**0.0618**	**-0.233**	**-0.441**	**0.255**	**0.062**	**-0.239**	**1.00**		
POFB11	**-0.413**	**0.031**	**0.193**	**0.222**	**-0.284**	**-0.175**	**-0.241**	**0.234**	**-0.345**	**0.148**	**1.000**	
YOGP12	**0.026**	**-0.113**	**-0.009**	**0.247**	**-0.115**	**-0.024**	**-0.064**	**0.102**	**0.323**	**0.224**	**0.149**	**1.000**

RESULT: GretL's output. Note 1: FSS4 = RATIO OF FINANCIAL SELFS-SUFFICIENCY, OSS8 = RATIO OF OPERATIONAL SELFS-SUFFICIENCY, ALBPBG3 = RATIO OF AVERAGE LOANS BALANCE EACH BORROWERS DIVIDED TO GNI PER CAPITA, YOGP12 = RATIO OF YIELD AT GROSS LOANS PORTFOLIOS DIVIDED TO TOTAL VALUE OF ASSETS RATIO, CCTA3 = CAPITAL''S COSTS DIVIDED TO TOTAL'S

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ASSETS RATIO, GLPTA5 = GROSS LOANS PORTFOLIOS DIVIDED TO TOTAL OF ASSETS RATIO, POFB11 = PERCENTAGE OF FEMALES BORROWER, P309 = PORTFOLIOS ON RISK FOR (30) DAYS, PEA10 = LABOUR'S COSTS TO TOTAL OF ASSET'S RATIO, I_ASS7 = LOG VALUE OF TOTAL ASSET (SIZE), AGE1 = MFI's AGE FROM ESTABLISHMENT, L_ALBPB 6= LOG VALUE OF AVERAGE OF LOAN BALANCE EVERY BORROWER.

A PAIRWISE CORRELATION'S RESULTS

Table No. 3 contains the pairwise correlation's findings. Entire variables, with the exception of age and (l ass), are less than the threshold criterion of correlation analysis (0.7). The outcome showed that there is strong evidence of correlation between the age and size at value of (0.73). The research also calculated the variance inflations factor (VIF) of coefficient to identify the multicollinearity-causing between variables. Multicollinearity is caused by a variance inflation factor of more than 10. All of the models' independent variable VIF values fall between 1 and 3, which is inside the cut off that indicates the absence of multicollinearity. Its regression coefficient is implied fair estimation of the model (Gujarati, 2003 & Hair et al., 2006).

POM, FEM, AND REM MODEL OF OUTREACH (ALBPBG) MODEL RESULTS

The (ALBPB) outreach's models are displayed in this section. The three panel data models are used to test consistency. The results and their interpretations are then based on the best suitable model, which was selected based on the outcomes of the F test to choose between a POM and a FEM and the BPT to choose between a POM and a REM. Lastly, use the HMT to select between the REM and FEM.

ALBPBG OPERATIONAL MODEL

$$(ALBPBG)_{i,t} = \alpha_i + \beta_1 (FSS1)_{i,t} + \beta_2 (OSS2)_{i,t} + \beta_3 (AGE3)_{i,t} + \beta_4 (l\_ASS4)_{i,t} + \beta_5 (P305)_{i,t} + \beta_6 (CCTA6)_{i,t} + \beta_7 (GLPTA7)_{i,t} + \varepsilon_{i,t}$$

ANALYSIS OF PANEL DATA

With the purpose of providing a comprehensive perspective, the regressions model i.e. POM, FEM, and REM) are used. For the years 2013 to 2021, Table 4 presents regression models of panel data with (ALBPB) adjusted by GNI per capita as a variable. Table 4 summarises various outreach model regression models for financial sufficiency ratio (FSS), operational sufficiency ratio (OSS), age of MFIs in years (age), size (l ass), portfolio at risk (30) days (P30), ratio of capital cost to total assets (ccta), and ratio of gross loan portfolio divided by total assets (glpta).

Table 4. Model no. 5: Dependable variable: (ALBPBG). Included 100 cross-sectional units (Robust HAC errors).

Variable	POM	FEM	REM
Constant	(0.17342)	(0.114801)	(90.161591)
	[2.7861]	[1.2303]	[2.6154]
	0.00691* **	**0.22347**	**0.01097**
FSS1	(0.0210701)	-0.00382915)	(0.00294024)
	[2.3538]	[-0.1784]	[0.1907]
	0.02148 **	**0.85900**	**0.84933**
OSS2	(0.0210618)	(0.0355574)	(0.0318915)
	[1.4515]	[2.2427]	[2.7187]
	0.15124	**0.02869** **	**0.00831*** **
AGE3	(-0.000759334)	(-0.0325554)	(-0.0312812)
	[-0.0381]	[-1.2184]	[-1.2798]
	0.96971	**0.22793**	**0.20497**
L_ASS4	(-0.00322176)	(0.00575698)	(0.00287627)

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	[-0.6777]	[-1.2431]	[0.6701]
	0.50024	**0.32272**	**0.50509**
P305	(-0.0262304)	(-0.0155125)	(-0.0149341)
	[-1.3753]	[-1.2431]	[-1.1044]
	0.17356	**0.21876**	**0.27331**
CCTA6	(-0.115482)	(-0.347582)	(-0.296781)
	[-1.3112]	[-3.0273]	[-3.7193]
	0.19419	**0.00365*** **	**0.00041*** **
GLPTA7	(-0.00181039)	(0.00174886)	(0.000896156)
	[-0.6523]	[0.7513]	[0.2470]
	0.51638	**0.45546**	**0.80564**
R^2- R Square	**0.332121**	**0.676327**	**0.496804**
R^2 Adjusted	**0.263369**	**0.626234**	**0.445004**
Fisher F-statistic	**4.830688**	**7.705187**	**9.5540873**
P-value (F)	**0.000185**	**2.38e-09**	**0.000000**
Durbin Watson	**0.941964**	**1.787962**	**2.024957**

The outcomes of the POM, FEM, and REM are displayed in Table 4. (ALBPB), adjusted for GNI per capita, is the dependent variable. REM seems to be more accurate and consistent as compared to POM and model of REM, according to the panel diagnostic command results. Significant at a 10%, 5%, or 1% level is indicated by the symbols *, **, and ***, respectively. P values can be found in figures that are bold. T values are calculated on the basis of (HAC) errors are indicated by values in parenthesis. Coefficients are the values in brackets.

The P value is .0002, the LM statistic value is 13.61. Considering that the value of P is well below the 5 percent, level of significance. Because POM model is more appropriate and consistent than the REM, the null hypothesis that it represents is rejected. Finally, the HMT was used to compare FEM with REM. The REM is used to frame the null hypothesis as being more acceptable and consistent with the FEM. The p-value for the model, which is shown in Table 4, is 0.54, which is significantly higher than the intended level of significance, which is 5%. As a result, the model of REM is more reliable than FEM. Finally, REM is more consistent & reliable than POM and FEM in the case of outreach (albpb) model based on the panel diagnostic command. As a result, (albpbg) model's interpretation and outcomes are based on the REM.

When using a POM model, the model's R-square (R2) is (.332). This shows that the specified firm or MFI-specific characteristics may jointly explain 33% of the change in the (albpbg) model, although the rest 67% is attributable to factors out of the model. FEM for (albpbg), models R-square (R2) is .676, showing 68% of variations are due to firm-specific factors, whereas 32% are due to external causes. Also, the (R2) value for the REM is .496, indicating that 50% of the fluctuations in the (albpbg) model is because of Firm Specific Variable and the rest 50% is due to Factors out of the regression Model.

Financial sufficiency (FSS): The analysis of regression's models present that coefficient's value of FSS is REM & POM. However, relationship proved to be significant in only OLS model of regression at 5 percent significance's level. In FEM, the relationship is negatively insignificant.

Operational self-sustainability (OSS): In all models, OSS coefficients were positively correlated with outreach. However, the association is only statistically significant in FEM at the 5% level and in REM on the 10% significance level. Relationship in the model of POM is not significant.

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Size of MFIs (Size): According to the panel data summary, the coefficient value of size is not statistically significant for any of the models. As a result, size does not significantly influence the scope of outreach.

(30 days) Portfolio on risk (PAR): For all models, the PAR coefficient is negatively negligible. As a result, the depth of outreach is not significantly influenced by the PAR.

Ratio of Capital cost divided by total assets (Ccta): The (Ccta) ratio is negatively correlated across all models, according to the regression results of panel models. However, only the FEM and REM are significant on the 1%, while the POM is insignificant.

Ratio of Gross loan portfolio divided by total assets ratio (GLPTA): For all models, the coefficient value of the gross loan portfolio divided by total assets ratio is negligible. As a result, it has little bearing on how deep the outreach is.

Results of a POM, a FEM, and REM for the outreach (POFB) model

This section summed the coefficients of regressions to provide a complete view. (POM, REM, FEM). Table 5 displays panel data regression by the proportion of female clientele in terms of percentage as the dependent variable for the years 2013–2021. Table 5 summarises the different outreach models for the proportion of female clientele in percentage (POFB) on ratio of capital cost to total assets (CCTA), ratio of gross loans portfolios to total asset (GLPTA) financial sufficiency ratio (FSS), operational sufficiency ratio (OSS), size (l ass) portfolio at risk for 30 days, (P30).

Table 5. Model 4: Dependable variable: (POFB). Included 100 cross-sectional units (HAC errors). *Robust standard-errors.*

(Variables)	POM	FEM	REM
Constant	(1.05308)	(1.03614)	(1.05308)
	[17.7708]	[23.7840]	[34.0929]
	0.00001* **	**0.00001*** **	**0.00001**
FSS1	(0.00676775)	(-0.0047359)	(0.00676775)
	[1.6270]	[-0.5363]	[0.5975]
	0.10837	**0.59379**	**0.55219**
OSS2	(-0.00637251)	(0.016055)	(-0.00637251)
	[-1.0161]	[1.6801]	[-0.6561]
	0.31320	**0.09823***	**0.51399**
AGE3	(-0.0111015)	(0.0367514)	(-0.0111015)
	[-0.9046]	[2.0579]	[-1.0421]
	0.36886	**0.04403****	**0.30105**
L_ASS4	(-0.00141999)	(-0.00845715)	(-0.00141999)
	[-0.4595]	[-1.9139]	[-0.7129]
	0.64733	**0.06049***	**0.47835**
P305	(-0.0189958)	(-0.0148549)	(-0.0189958)
	[-1.1336]	[-1.8241]	[1.7159]
	0.26094	**0.07320***	**0.09073***

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CCTA6	(0.0126612)	(-0.0502105)	(0.0126612)
	[0.3669]	[-0.8492]	[0.2481]
	0.71483	**0.39919**	**0.80477**
GLPTA7	(-0.0037971)	(-0.00445425)	(-0.0037971)
	[-1.9191]	[-2.9647]	[-1.1753]
	0.05917*	0.00437***	0.24399
R square	**.218142**	**0.742245**	**0.218142**
Adjusted – R square	**.137657**	**0.672346**	**0.137657**
F Test statistic	**2.710337**	**10.61874**	**2.710337**
P-value (F)	**0.015390**	**5.34e-12**	**0.015390**
Durbin Watson Test	**0.3888353**	**1.075426**	**0.542921**

Source: Gretl's. Output .

Operational model for POFB

$$(POFB)_{i,t} = \alpha_i + \beta_1 (FSS1)_{i,t} + \beta_2 (OSS2)_{i,t} + \beta_3 (AGE3)_{i,t} + \beta_4 (L\_ASS4)_{i,t} + \beta_5 (P305)_{i,t} + \beta_6 (PCCTA6)_{i,t} + \beta_7 (GLPTA7)_{i,t} + \varepsilon_{i,t}$$

ANALYSIS OF PANEL DATA

The outcomes of the POM, FEM, and REM are displayed in Table 5. The dependent variable is the proportion of female borrowers. POM found to be more reliable as well as consistent than REM and FEM , according to the panel diagnostic command results. Significant at 10%, 5%, or 1% level is indicated by the symbols *, **, and ***, respectively. P values can be found in figures that are bold. T values calculated using Robust HAC, standard errors are indicated in parenthesis. Coefficients are shown in brackets.

The F-statistic value for the Outreach (pofb) model is 13.32, and the p value is below the required limit, according to the panel diagnostic command results. As the related coefficient P of the the F-value is less than .05 (5% level of significance), the hypothesis claiming the POM is more reliable and consistent than FEM is rejected. To select between the POM regression and REM. The (pofb) model is tested with the BPT. The P-value of .05, the LM statistic value is 91.5. Considering P-value is well below the 5% criterion of level of significance. Because POM of regression is more appropriate and reliable than the REM, the null hypothesis that it represents is rejected. Lastly, HMT is used to compare FEM and REM. The REM is used to frame the null hypothesis as being more acceptable and reliable with the FEM. The HMT for the model shows that the p-value is substantially lower than intended level of threshold, which is 5%. Low p-values consistently favour the FEM over the REM. FEM is therefore more reliable than the REM. As a result, FEM are more reliable and appropriate than POM and REM as per the analysis of panel diagnostic command or test related to (POFB) model. Hence, FEM serves as the foundation for the results and interpretation of the (POFB) model.

In the instance of the POM, the R square (R2) for the POFB model is 0.218. This shows that the specified firm or MFI-specific characteristics can jointly explain 21% of the change in the POFB model, the rest 79% change is ascribed to outside the model. Explanatory power (R2) for the FEM POFB model is .742, which indicates that 74% of changes can be attributed to firm-specific drivers and 26% to external factors. The value of R square (R2) for POFB REM model is .218 reflecting that 22% change in POFB regression model is related to Firm-specific factors and remaining 78% is related to the attributes beyond the model.

Financial self-sufficiency (FSS1): According to all three models, FSS is a minor factor in determining whether or not to reach out to female clientele. It demonstrates that reaching out to female clientele is not much influenced by financial independence.

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Operational self-sufficiency (OSS2): In all models, operational sufficiency is inversely correlated with outreach. In a FEM, the link is only 10% level significant.

Age of MFIs (AGE3): In the POM as well as REM, the age coefficient is negligible. Nonetheless, the connection is substantial at the 5% level. In a FEM favourably connected to outreach to female clientele.

Size of MFIs (SIZE4): Across all models, the size of MFIs has a weakly negative correlation with outreach to female clientele. Despite the fact that the size is 10% significant in a FEM.

Portfolio on Risk (P305): The P30 coefficient is negatively significant at 10% in REM and FEM. In the POM, the association is comparable but not significant.

Ratio of capital costs to total assets (CCTA6): Across all models, the CCTA coefficient is negligible. As a result, the CCTA has little bearing on the outreach to female clientele.

The Gross loans portfolios divided by total assets (GLPTA7): The summary of panel models demonstrates that all of the models have a negative correlation between the coefficients value of (www.abrmr.com) the gross of loans portfolios divided to overall assets value ratio. Although the relationship is weakly significant in the FEM and insignificant in the REM, it is significant in the POM model at the 10% level.

8. Conclusion and Recommendations

This section discusses the trade-off between being financially viable and reaching out to rural poor clients and women. The empirical results demonstrate that MFIs favour female customers when the risk of payback is higher, despite the fact that this preference has no statistical support in the POFB model. Ratio of (CCTA) and operational self-independence (OSS) are not the key determinants of the degree of outreach to female customer models. While PAR is inversely correlated with outreach to female clientele, increasing loan delinquencies results in a decrease in outreach to female clientele. The high and favourable correlation between age and outreach to female consumers suggests that more seasoned and older MFIs are more effective at this type of outreach. The coefficient of size, however, is considerable at 10% and is adversely related to outreach. It shows that MFIs' outreach to female clientele is decreasing as they grow larger. With strong outreach for female customer, (GLPTA) ratio is negative at the 10% level. The particular findings are similar with findings of Kar (2010). The results refute any evidence of a trade-off among financial sustainability and outreach to women customers. The findings of the ALBPBG model imply that increased loan amount is related to better financial performance. The result proved that providing loans to non-poor clientele positive and significantly significant correlation of financial performance proxies with average size loans, as smaller loan sizes suggest stronger outreach to the poor. Adongo and Stork's (2005) results that profitability is positively correlated with average loans size are supported by this finding. Yet, the depth for outreach to the poor client's model is not significantly predicted by factors such as PAR, age, size, GLPTA. Furthermore, the depth for outreach to the poor is strongly and negatively correlated with the ratio of CCTA. The extremely substantial and positive correlation between financial performance proxies and average of loans size reflect that MFIs have strayed from their original social aim of helping the unreached core impoverished clientele and are instead serving non-poor clientele. MFIs in India have a very high level of clientele outreach to women, demonstrating their commitment to the social objective of empowering women. To retain sustainability and a deeper level of engagement to those who are less fortunate. By offering incentives and opening new locations in rural areas, MFIs can expand their outreach, which will boost their financial performance and profitability. MFIs must increase their outreach to the needy by making loans of smaller or little size. To encourage efficiency, it will be necessary to put in place an effective governance framework.

References

1. Adongo, J. & Stork, C. (2005). Factors influencing the financial sustainability of selected microfinance institutions in Namibia. *Namibian Economic Policy Research Unit.*
2. Business Standard (2013), Allow banks to offer us fresh loans: MFIs to RBI, http://www.business-standard.com/article/finance/allow-banks-to-offer-usfresh-loans-mfis-to-rbi-113091200555_1.html.

3. Copestake, J. (2007). Mainstreaming microfinance: social performance management or mission drift? *World Development*, *35*(10), 1721-1738.
4. Cull, R., Demirgu¨ ç-Kunt, A., & Morduch, J. (2007). Financial performance and outreach: A global analysis of leading microbanks. *The Economic Journal*, *117*(517), F107-F133.
5. Cull, R., Demirgüç-Kunt, A. & Morduch, J. (2011). Does regulatory supervision curtail microfinance profitability and outreach?.*World Development*, *39*(6), 949-965.
6. Galema, R., & Lensink, R. (2009). Microfinance commercialization: Financially and socially optimal investments. *Working Paper,* University of Groningen.
7. Gashayie, A. & Singh, M. (2014). Relationship of financial Sustainability and Outreach in Ethiopian
8. Gakhar, K. (2013). Financial performance and outreach of microfinance institutions: is there a trade-off?-an an empirical study of Indian economy. *Global Management Review*, *7*(4).
9. Gujarati, D. N. (2003). *Basic Econometrics Fourth Edition*. McGraw Hill.
10. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.
11. Hermes, N., & Lensink, R. (2007). The empirics of microfinance: what do we know? *The Economic Journal*, *117*(517), F1-F10.
12. Hermes, N., & Lensink, R. (2011). Microfinance: its impact, outreach, and sustainability. *World development*, *39*(6), 875-881.
13. Hermes, N., Lensink, R., & Meesters, A. (2011). Outreach and efficiency of microfinance institutions. *World Development*, *39*(6), 938-948.
14. Hulme, D., & Mosley, P. (1996). Finance against poverty: Effective institutions for lending to small farmers and microenterprises in developing countries. *London. Routledge*, *1*, 106.
15. Louis, P., Seret, A., & Baesens, B. (2013). Financial efficiency and social impact of microfinance institutions using self-organizing maps. *World Development*, *46*, 197-210.
16. Kar, A. K. (2010). Sustainability and Mission Drift in Microfinance. (Unpublished Doctoral dissertation). Haken School of Economics. Helsinki: Finland.
17. Kaur, P. (2014). Outreach and Sustainability of Microfinance Institutions in India in Pre and Post Andhra Pradesh Microfinance Crisis in Context of South Asia. *Global Journal of Finance and Management*, *6*(6), 569-574.
18. Kaur, P., & Dey, S. (2013).Andhra Pradesh Microfinance Crisis and its Repercussions on Microfinancing Activities in India. *Global Journal of Management and Business Studies, 3(7),* 695-702.
19. Kipesha, F. E., & Zhang, X. (2013). Sustainability, Profitability and Outreach Tradeoffs: Evidences from Microfinance Institutions in East Africa. *European Journal of Business and Management*, *5*(8).
20. Hudon, M., & Traca, D. (2011). On the efficiency effects of subsidies in microfinance: An empirical inquiry. *World development*, *39*(6), 966-973.
21. Mersland, R., & Strøm, R. Ø. (2008). Performance and trade-offs in Microfinance Organisations—Does ownership matter? *Journal of International Development*, *20*(5), 598-612
22. Mersland, R., & Strøm, R. Ø. (2010). Microfinance mission drift? *World Development*, *38*(1), 28-36.
23. MFIN. (2021). Microfinance Industry Report 2021. Retrieved from https://www.mfinindia.org/publication.php
24. Microfinance Institution Network. *TheMicroscape2012*. Retrieved from https://www.microfinancegateway.org/sites/default/files/mfg-en-paper-the-microscape-nov-2012.pdf.
25. Morduch, J. (2000). The microfinance schism, *World development*, *28*(4), 617-629. outline for future research. *Journal of Entrepreneurial Finance and Business Ventures*, *9*(1), 1–26.
26. NSSO. (2013). Key Indicators of Household Expenditure on Services and Durable Goods, NSS 68th Round (July 2011 - June 2012). Retrieved from http://mospi.nic.in/sites/default/files/publication_reports/KI_68_31july13.pdf
27. Pradesh, A. (2010). Global Implications of the Crisis in Indian Microfinance.*CGAP. November*, 144.
28. Quayes, S. (2012). Depth of outreach and financial sustainability of microfinance institutions. *Applied Economics*, *44*(26), 3421-3433.
29. RBI. (2011). Master Circular - Micro Finance. Retrieved from https://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=6366
30. Robinson, M. (2001). *The microfinance revolution: sustainable finance for the poor*. Washington, DC: The World Bank.

 doi:10.20944/preprints202307.0812.v1

31. Shylendra, H. S. (2006). Microfinance institutions in Andhra Pradesh: crisis and diagnosis. *Economic and Political Weekly, 1959-1963.Development*, *39*(6), 938-948.
32. Serrano-Cinca, C., & Gutiérrez-Nieto, B. (2014). Microfinance, the long tail and mission drift. *International Business Review*, *23*(1), 181-194.
33. Srinivasan N (2011), Microfinance India : State of Sector Report, SAGE Publications India, New Delhi.
34. Woller, G., & Schreiner, M. (2002). Poverty lending, financial self-sufficiency, and the six aspects of outreach. *Disc. Paper, Ohio*.
35. Wydick, B., Hayes, H. K., & Kempf, S. H. (2011). Social networks, Neighborhood effects, and credit access:evidence from rural Guatemala.*World Development*, *39*(6), 974-982.
36. Zeller, M., & Meyer, R. L. (Eds.). (2002). *The triangle of microfinance: Financial sustainability, outreach, and impact*. Intl Food Policy Res Inst.