

Competition and Social Performance of Microfinance Institutions in India: An Empirical Investigation

Joyeeta Deb*

Abstract

The paper attempts to assess the impact of competition on social performance of microfinance institutions measured in terms of outreach breadth and depth. The study evidenced growing competition in the microfinance sector in India. The analysis reveals that though microfinance institutions have extended the breadth of the outreach but have narrowed the depth of outreach. However, the empirical investigation of the association between competition and social performance reveals a significant positive impact of competition on all parameters of social performance except percentage of female borrowers.

Keywords: Microfinance Institutions, Social Performance, Competition, Breadth of Outreach, Depth of Outreach

Introduction

Microfinance sector has undergone a paradigm shift from an impact-driven development programme to a commercially oriented and profit-motivated entity. From primarily funded through donations and grants, microfinance institutions today procure fund from a variety of sources ranging from bank loans to private equity investments driven by the influx of commercial investment in MFIs (Taylor, 2011). Also, 2000s saw a growing emphasis on the “down-scaling” of commercial banks to serve the poor, and the “transformation” of NGO-MFIs into commercial banks (Sharma and Wright, 2010). In India, NBFC-MFIs account for about 80% of

the total loan portfolio. A high growth potentiality in the 20th century attracted many new players in the sector resulting into intense competition. However, increased competition is characterised by multiple-borrowings, double dipping, non-repayments, etc. Further, it has also resulted into challenges for MFIs to balance sustainability with ultimate mission to reach the poor. Seeking profit by serving the poor in this way has fear of “mission drift” due to the trade-off between profitability and outreach to the poor (Morduch, 2000; Armendariz and Szafarz, 2011). In Indian context, Hossain (2013) view that commercialization translated into deluge of funds for investment in MFIs, caused huge market penetration, market saturation, multiple lending and over lending; and finally, over-indebting their clients. But there are thinkers who also suggest that only competitive MFIs have long-term sustainability and commercialization of microfinance is a win-win scenario of widening outreach and attaining sustainability (Christen, 2001). However, the existing empirical studies are inadequate for the simple reason that not many studies are found embracing the performance of MFIs in Indian context. Also, there exists a lacking consensus as to what could be the ideal measure of performance for an MFI. If we consider the special case of India, of late certain reform measures are initiated (e.g. setting MFIN as SROs, granting banking license to MFI, downscaling of banks, etc.), which are sufficient to evidence the dynamic nature of the sector. Hence, it is of interest to gauge the performance of MFIs on a social dimension in view of increased competition.

This paper is an outcome of financial assistance received from Indian Council of Social Science Research (ICSSR) New Delhi and author duly acknowledges the same.

* Assistant Professor, Department of Commerce, Assam University, Silchar, Assam, India. Email: joyeetadeb03@gmail.com

Geographical Spread of MFI Branches

Table 1 exhibits the category-wise and region-wise number of MFIs. It is clear that the sector is mainly

dominated by NBFC/NBFC MFIs constituting 43% of the total share. Region-wise spread reflects a major concentration of MFIs in the southern region followed by the eastern region.

Table 1: Region-Wise and Legal Form-Wise Number of MFIs as on 31st March 2017

Legal Form	No of MFIs	North	East	West	South	North-East	Central
Society	44 (26)	1	25	2	8	3	5
Trust	18(11)	1	4	2	10	-	1
Section 8 Companies	26(15)	6	4	5	4	1	5
Macs or Co-operative	7(4)	-	2	2	1	1	1
NBFC/NBFC MFIs	73(43)	9	14	10	29	8	4
Total	168	17(10)	49(29)	21(13)	52(31)	13(7)	16(9)

Source: Extracted from Bharat Microfinance Report 2017. Figures in the parenthesis represent percentage.

Table 2 exhibits the category-wise and region-wise spread of branches from the year 2013 to 2017. It is again evident that major branch expansion has been preceded by the NBFC/NBFC-MFI category constituting about 87% of the branch network by the year 2017. Eastern region accounts for the maximum number of MFI branches followed by southern region. However, the

eastern region exhibits a negative growth rate of branches from 2013 to 2017.

Table 3 represents the outreach of MFIs in terms of number of borrowers and gross loan portfolio classified by legal status and regional spread. Under both the parameters, NBFC/NBFC-MFIs make the headway with the maximum outreach in the southern region followed by eastern region.

Table 2: Category-Wise and Region-Wise Spread of Branch Network

Year	Branch Network (No.)	Category-Wise Break Up of Branch Spread						Regional Spread of MFIs					
		NBFC/NBFC-MFIs		Section 8 Companies		Others*		NR	EST	WST	STH	NE	CRL
		No.	%	No.	%	No.	%	No.	No.	No.	No.	No.	No.
2013	10697	9446	88	539	5	712	7	11	54	15	50	12	13
2014	11687	10351	89	575	5	761	6	12	52	17	46	15	13
2015	12221	10569	87	753	6	899	7	11	48	20	46	15	16
2016	11644	9775	84	916	8	953	8	14	53	23	47	13	16
2017	10233	8852	87	450	4	931	9	17	49	21	52	13	16
CAGR	-0.92	-1.85		1.05		7.91		10.79	-1.74	10.24	1.00	0.17	6.43

Source: Extracted from Bharat Microfinance Report (2014–2017)

NR- Northern, EST-Eastern, WST-Western, STH-Southern, NE-North East, CRL-Central

CAGR - Compound Annual Growth Rate.

*include Society and Trust and Co-operatives.

Table 3: Geographical Spread of MFI Outreach

Year	No of Borrowers (in lakhs)	Category-Wise Break Up of No of Borrowers (in lakhs)						Region-Wise Break up of Number of Borrowers (in %)					
		NBFC/NBFC-MFIs		Section 8 Companies		Others*		NR	EST	WST	STH	NE	CRL
		No.	%	No.	%	No.	%	No.	No.	No.	No.	No.	No.
2013	275	234	85	9	.0003	31	11	-	-	-	-	-	-
2014	330	270	82	11	3.33	49	15	4	25	11	43	5	13
2015	371	316	85	13	3.50	42	11	4	25	11	39	6	15
2016	399	339	86	13	3.26	47	12	6	20	13	39	2	20
2017	295	233	79	14	47	48	16	5	25	9	38	3	19
Year	Gross Loan	Category-Wise Break Up Gross Loan (in Crores)						Region-Wise Break up of Gross Loan (in %)					
		NBFC/NBFC-MFIs		Section 8 Companies		Others*		NR	EST	WST	STH	NE	CRL
		No.	%	No.	%	No.	%	No.	No.	No.	No.	No.	No.
2013	22338	19033	85	596	2.67	2709	12.13	-	-	-	-	-	-
2014	33517	24250	72	735	2.19	4457	13.30	6	23	10	41	6	14
2015	48882	43072	88	1408	2.88	4403	9	5	24	11	38	7	15
2016	63853	56223	88	1556	2.44	6075	9.51	7	18	14	40	2	19
2017	46852	37032	79	2007	4.28	7803	16.65	5	23	9	43	3	17

Source: Extracted from Bharat Microfinance Report (2014–2017)

NR- Northern, EST-Eastern, WST-Western, STH-Southern, NE-North East, CRL-Central

*include Society and Trust and Co-operatives.

Growing Competition in Microfinance Sector

Microfinance sector in India has witnessed growing competition not only in terms of numbers of players in the sector, but also in terms of loan portfolio and loan disbursement. Prima facie, the evidence of growing competition can be ascertained by the dilution of the share of top MFIs in the outreach, spread, loan disbursement and borrowings as depicted in Table 4. As per the report of BMR of 2017, top 10 MFIs account for over 50% of

the industry Branch Network as against 63% in 2014. There has also been a decline in the industry's client outreach of the top 10 MFIs from 72% in 2014 to 65% in 2017. Top 10 MFIs contributed Rs 31,185 crores of loan portfolios, which is 67% of sector's total, which was as high as 81% in 2014. Further, there seems to be a trend towards a symmetrical spread of microfinance services as indicated by the number of branches of MFIs in the states. Top 10 MFIs disbursed Rs 35,463 crores, which is 68% of sector's total indicating a drastic decline from 72% in 2014. As per the report of 2017, top five states accounted for 60% of total client, which was as high as 88% in 2014

Table 4: Share of Country's Top MFIs

	2014	2015	2016	2017
Share of Top Ten MFIs in Industry's Total Branch Network	63%	56%	42%	50%
Share of Top Ten MFIs in Industry's Client base	72%	69%	65%	65%
Share of Top Ten MFIs in Industry's Loan Portfolio	81%	70%	67%	67%
Share of Top Ten MFIs in Industry's Loan Disbursement	72%	73%	75%	68%
Share of Top Five States in Industry's Client Outreach	88%	85%	85%	60%

Source: Extracted from Bharat Microfinance Report (2014–2017)

What could be the best measure of competition/market share/concentration has been a matter of great discussion in academic literature. The concept of competition is acknowledged as a “complex notion”, which is not directly observable and has thus resulted in the development of many methods for its assessment (Florian, 2014). The empirical literature pertaining to competition is segregated into the ones that follow traditional Industrial Organization (IO) approach, which focuses on market structure-performance linkages to assess competition and also known as Structure-Conduct-Performance (SCP) paradigm, while the others focus on non-structural measures of competition and emerged as New Empirical Industrial Organization approach. Nonetheless, The Herfindahl-Hirschman Index (HHI) is a popularly used concentration measure. It is computed by summing the squares of the market share of all firms and can be specified as follows:

$$HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2,$$

where S_1 , S_2 , etc., refer to the percentage market share that all the firms hold in the given industry. The HHI index ranges from $1/N$ (for equal-sized firms) to 1 for monopolies.

Fig. 1 shows the HHI of MFIs computed in terms of loans and borrowings. On the basis of both, the parameters a declining trend in both the ratios is observed. This reveals a growing trend towards a competitive market and dilution of monopolistic tendencies.

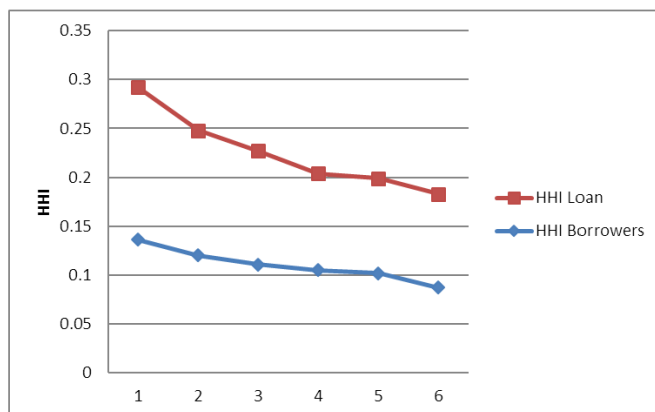


Fig. 1: Trend in HHI of MFIs (2009-2014)

Competition and Its Impact on Microfinance Sector: Gauging the Theoretical Viewpoint

It is argued, in the literature on competition, that monopolistic power is associated with allocative and technical inefficiencies, leading to welfare losses and it acts as deterrent for firms to invest in efficient technology and introduce new products (Assefa et al., 2013). In contrast, increased competition among MFIs may contribute to well-functioning markets, protection of consumers, promotion of allocative and technical efficiencies, and the provision of incentives to develop new products (Motta, 2004). Decrease in monopoly power and market share may compel MFIs to explore new markets dealing with new clients in a cost-effective manner thereby increasing efficiency. The increased competition may stimulate MFIs to reduce costs and increase the efficiency of their operations by improving the quality of their services in order to retain clients (Hermes, 2009). However there exist limited empirical evidences of association between competition and MFI efficiency.

Kar and Swain (2014) view that degree of competitiveness matters for productive efficiency of financial services and quality, diversity, and innovativeness of financial products. Further, Claessens (2009) argues that competition impacts financial stability of an organization. It is purported that competition in context of microfinance institutions is necessary to enhance households' access to financial services, which is likely to impact consumers' wealth and economic growth which in turn results into social welfare in an economy. Increasing competition may contribute to lowering production costs and lower prices of goods and services (Assefa, 2013) coupled with new products and efficient technologies (Motta, 2004). Further, competition allows technological change and financial market policies, which focus on strengthening market forces and improving the stability of MFIs that may positively contribute to efficiency of microfinance institutions (Hermes, 2008). Christen (2001) suggests that only competitive MFIs have long-term sustainability and support the institutionalist view of win-win scenario of widening outreach and attaining sustainability. However,

increased competition in the sector has drawn serious criticisms. First and foremost, increase in the number of microfinance players results in multiple lending which is recognized as the problem of '*double dipping*'. As noted by Kar and Swain (2014), increased competition weakens the functioning of dynamic incentive mechanism and leads to a decline in the borrower quality and increase in loan defaults. Besides, owing to increased interest rates, profitability declines. In this situation, it becomes difficult for the MFIs to cross subsidize less profitable projects. Competition often leads to switching over of clients from socially motivated MFIs to profit-motivated MFIs. It may also provoke the clients to substitute their loans from MFIs for loans from commercial banks (Hermes et al., 2009). This substitution effect reduces the demand for services of MFIs, which impedes their sustainability and also induces them to shift from social orientation to profit motivation.

The Empirical Evidences from Received Literature

Assefa et al. (2010), in their study, attempted to identify how competition is associated with outreach, default rates, efficiency and profitability of MFIs. Lerner Index is used to measure competition, which captures competition as a difference between the output price and marginal cost of production (scaled by the output price) at the firm level. Cull, et al. (2013) recognised the potential influence of the presence of formal, regulated providers of financial services in an economy on profitability, and outreach of MFIs. Further, analysis was also made in relation to the funding pattern (commercially funded or subsidized) of MFIs and MFI outcome. The study was based on 342 observations from 238 MFIs in 38 developing countries. The results of the study revealed a negative relationship between bank penetration and average loan size in case of demographic branch penetration variable and a positive relationship with the share of women borrowers in case of geographic penetration variable. The relationship between bank branch penetration and average loan size is found much stronger for MFIs that faced stronger competition from banks, viz., the commercially funded MFIs which are mainly individual lender and deposit taker. Also, such institutions increase outreach to women in response to competition from banks. Their results reveal strong supportive evidence that there is a positive relationship

between MFI efficiency and domestic financial development. Thus, the authors conclude that more developed financial system create more efficient MFIs. In a similar attempt, Hermes et al. (2009) investigated in the context of Latin America, whether in the country-level financial environment in which MFIs operate affects their operations. The authors argue that efficiency of MFIs is determined by the extent to which financial markets of countries are developed. The study is carried over 435 MFIs over the period 1997–2007. Gwasi and Ngambi (2014) attempted to examine the impact of competition and institutional characteristics on MFIs financial performance in Cameroon. The authors acknowledge the justification of SCPI (Structure, Conduct, Performance, and Impact) Path to gauge the social performance of the MFIs. The authors also affirm that social-economic performance is not equal to social-economic impact. Rather, social-economic performance precedes social-economic impact. The study uses multivariate linear regression model to examine the significant determinants of microfinance performance. ROA was taken as a measure of financial performance whereas competition (measured by HHI), portfolio at risk > 30 days, staff productivity, savings mobilization ratio, concentration index (representing industry competition) and other macroeconomic indicators like GDP growth rate and inflation were taken as explanatory variables. The results revealed a positive impact of competition on MFI performance but statistically insignificant whereas other variables, viz., operational expense ratio, portfolio at risk, and staff productivity were found to be the major determinants of performance for MFIs. Further, the study ascribes a negative impact of inflation and positive impact of GDP growth on the growth and sustainability of MFIs. Christen (2001) in his paper addresses the impact of commercialization on the strategy and performance of MFIs in Latin America. He evaluated the profitability of the MFIs and impact of as well as the response to competition. The author identifies three key elements of a commercial approach, viz., profitability, competition, and regulation. Study identified clear trend towards individual lending as well as improved delivery mechanism. The author views that competition has spawned much product diversification. It was thus concluded that larger loan sizes are not necessarily an indication of mission drift and could be a function of different factors including the "generational factor" e.g., choice of strategy, period of entry into the market, or natural evolution of the target group.

Though studies encompassing the different aspect of microfinance like sustainability of microfinance institutions, role of microfinance in poverty alleviation, etc., have enriched the literature from time to time, studies on competition and the latter's impact on social performance of MFIs is scarce. Currently, there has been a major move towards up-scaling of MFIs as well as downscaling of banking operations to serve the bottom of the pyramid. Hence, it is of interest to see how Indian MFIs are responding to such competitive move in terms of their social performance specifically in terms of outreach.

Social Performance of MFI

As most of the approaches to microfinance performance lie between the two extremes, viz., the poverty approach and self-sustainability approach (Schreiner, 1999), there often exists lack of consensus as to what constitutes the best measure of performance of MFIs. Social performance connotes the extent to which a MFI caters to the financial need of poor clientele.

In the study of social performance of MFIs, the academic literature often uses outreach as a common proxy to appraise MFIs' contribution to reach the poor. It reflects the degree to which the MFIs contribute towards the ultimate objective of reaching the poor. In other words, this indicator reflects moving forward towards social objectives and priorities in allocating scarce public fund. Outreach can be expressed in terms of *Breadth and Depth*.

- **Outreach Breadth:** This refers to the number of poor clients served by MFIs. It is viewed that wider the spread of micro-finance services, greater is its scope for sustainability. Generally, the number of borrowers is considered to judge Outreach Breadth.
- **Outreach Depth:** Depth signifies ability of MFIs to reach client poverty level. Since most of the microfinance projects have poverty reduction as an explicit objective, they are, therefore, expected to reach poor clients, and therefore, average loan balance per borrower or average amount of loan sanctioned to per client, etc., are often considered to measure the outreach depth. Percentage of female borrowers indicates the ratio of women clients, since empowering women is also considered to be a vital objective of the microfinance project; therefore, higher ratio of female borrowers represents better performance and vice versa.

Schreiner (2001) identifies seven aspects of loan size, which are frequently used as a measure of depth of outreach. The seven aspects so discussed not only impact depth, but also profitability. The seven aspects are term to maturity, dollars disbursed, average balance, dollars per instalment, time between instalments, number of instalments, and dollar years of borrowed resources. Author establishes that a best measure of loan size should encompass multiple dimensions and "dollar-years of borrowed resources" should be the preferred summary measure of loan size. Dollar-years of borrowed resources is the average balance that would obtain if the loan had a term to maturity of 1 year.

In another contribution, Schreiner (2002) proposed a framework for measuring outreach with a focus on both poverty approach and self-sustainability approach. He developed six aspects of outreach, viz., worth, cost to clients, depth, breadth, length, and scope. The author establishes that social benefit depends upon worth, cost, depth, breadth, and scope but the greatest of these is the length. Also, the debate between the poverty and self-sustainability approaches hinges on the effects of length on the other five aspects as because more length requires either more profit or more donations and profits and donations affect all aspects of outreach through their effects on incentives. The author further puts forward that the drive for profit also trends to reward innovations that either increase worth to clients or decrease cost to clients.

However, lack of availability of published data on the loans to clients on all the identified aspects of loans restricts the analyses to only the following parameters of outreach breadth and depth as presented in Box 1.

Box 1: Measures of Outreach Breadth and Depth

Outreach Breadth	1. Number of Active Borrowers (NOAB) 2. Average Loans Outstanding (ALO) 3. Average Loan Outstanding/GNI Per Capita (ALO/GNI)
Outreach Depth	1. Average Loan Balance per Borrowers (ALPB) 2. Average Loan Balance per Borrowers/GNI per capita 3. Percentage of Female Borrowers (PFB)

Number of Active Borrowers (NOAB)

This refers to the number of individuals who currently have an outstanding loan balance with the MFI or are

responsible for repaying any portion of the Gross Loan Portfolio (*MIX Market*). A larger figure represents greater outreach of MFIs. Table 5 represents positive growth (CAGR) in NOAB. The annualized growth rate in all the years is positive, except the year 2011 being the crisis period which brought uncertainties in the sector resulting in a marked decline of 17% in NOAB from 457537 to 377805.

Average Loan Outstanding (ALO)

This represents the average loan size remaining unpaid (*Mix Market*). This is computed by dividing gross loan portfolio by number of outstanding loans. Table 5 reflects consistent growth in the ALO throughout the study period except the year 2010 where a decline is observed followed by a marked rise in the year 2011 and 2012. This is followed by a sharp decline again in the year

2013 followed by a sharp rise in 2014. On a whole, ALO reflected inconsistent trend.

Average Loan Outstanding /GNI Per Capita

This is a measure to assess outreach of loans in relation to low-income population of the country (*Mix Market*). This is computed by dividing average outstanding loan balance by GNI per capita. The Mix Market employs a functional definition of microfinance and draws the line where the average balance of microfinance services does not exceed 250% of the average GNI per capita (*Mix Market*). A higher ratio of ALO/GNI per capita represents greater outreach. This variable follows a similar trend to that of ALO as reflected in Table 5.

Hence, it can be apprehended that year 2011 is characterized by declining number of NOAB and corresponding increase in ALO and ALO/GNI per capita.

Table 5: Descriptive Statistics of Breadth of Outreach

YEAR	NOAB		ALO		ALO/GNI per capita	
	NO.	AAGR	Rs.	AAGR	%	AAGR
2009	374207		141		12.25	
2010	457537	22.27	138.89	-1.50	9.53	-22.20
2011	377805	-17.43	144.44	4.00	9.74	2.20
2012	414883	9.81	159.24	10.25	10.75	10.37
2013	503455	21.35	159.08	-0.10	10.61	-1.30
2014	604130	20.00	175.15	10.10	11.16	5.18
MEAN	455336	11.20	152.97	4.55	10.67	-1.15
SD	87965.17	16.77	14.02	5.52	0.99	12.52
CAGR	8.25		4.65		-0.13	

Note: NOAB- Number of Active Borrowers, ALO- Average Loan Outstanding

Table 6 reflects the descriptive statistics of depth of outreach. This measure reveals the deepening of MFI's outreach to reach the poorest of the poor.

Average Loan Balance per Borrower (ALBPB)

This variable is computed as gross loan portfolio divided by the total number of active borrowers and represents a value of an outstanding finance accessed by the borrowers (*MixMarket*). It is generally believed that a lower value is indicative of the fact that microfinance reaches the poorest of poor clientele with the assumption that poor generally account for lesser loan balances as against better off clients. However, this assumption is subject to criticism

as in many cases, the quantum of loan for lending by an MFI is linked with past borrowing history of a borrower and follows a sequential ladder. The ALBPB shows a consistent growth. This is indicative of a rise in the average balance of loans per borrower which somehow reveals MFI's drive towards reaching not-so-poor clients.

Average Loan Balance per Borrowers/GNI per capita (ALBPB/GNI)

This represents the average outstanding loan balance in relation to country's GNI per capita (*MixMarket*). It reflects the MFI's outreach of loan in relation to the low-income population of the country. In other words, it refers

to a MFI's loan outreach in relation to a country's social and economic well being as GNI per capita is closely linked with the level of development of a country and its people. In a low-income country, there is a greater need for deepening the outreach. From Table 6, it is clear that on an average this ratio is 11.21%. This implies that on average MFIs are able to reach 11 persons out of every 100 low-income populations. However, year-wise trend reveals that there has been a remarkable decline in this variable in the year 2010 of 23.13%. This result is in line with ALBPB, which also reflected a negative growth in the year 2010.

Percentage of Female Borrowers

One of the objectives of microfinance institutions is to empower women. Since women in most of the countries are subject to disparity in the socio-economic status precisely expressed in terms of privilege, power, and control, microfinance works with women empowerment as one of its mission and is considered as a means to elevate the status of women. Table 6 reflects a consistent trend in the percentage of women borrower over the years. Most of the MFIs are women-centric and as such women account for majority of the loan portfolio.

Table 6: Descriptive Statistics of Depth of Outreach

YEAR	ALBPB		ALBPB/GNI per capita		POFB	
	Rs.	AAGR	%	AAGR	%	AAGR
2009	146.65		12.71		96.27	
2010	142.55	-2.80	9.77	-23.13	96.44	0.18
2011	150.6	5.65	10.16	3.99	96.93	0.51
2012	163.58	8.62	11.04	8.66	96.65	-0.29
2013	169.83	3.82	11.32	2.54	97.04	0.40
2014	192.33	13.25	12.25	8.22	97.24	0.21
MEAN	160.92	5.71	11.21	0.05	96.76	0.20
SD	18.55	5.94	1.14	13.23	0.37	0.31
CAGR	5.77		0.98		0.19	

Note: ALBPB- Average Loan Balance per Borrower, GNI- gross National Income, POFB- Percent of Female Borrowers

Competition and Social Performance of MFIs - Empirical Analysis

This section analyses the association of increased competition and social performance of MFIs. Towards

this end, the study raises the following two research questions:

- Does rising competition impede the social performance of MFIs?
- Do the MFI-specific variables and exogenous variables impact MFIs' social performance differently?

Data, Variables, and Methodology

The study is conducted over 53 MFIs on which a complete set of data is available. The study period is confined to 7 years from 2009 to 2015. In order to establish the association between competition and MFIs' social performance, panel data regression is adopted. Table 7 exhibits the explanatory and dependent variables for the study. The study takes into account the depth and breadth of outreach as the dependent variable. Depth is proxied by percentage of female borrowers and average loan balance per borrower to GNI per capita. Breadth of outreach is explained by the number of active borrowers and average loan outstanding to GNI per capita. The explanatory variables include competition as measured through HHI and MFI specific variables, which are likely to influence MFIs' social performance and include operational sustainability measured by operational self-sufficiency ratio (Financial Revenue-Operating Expenses to Total Assets), financial sustainability, measured through ROA, and debt/equity ratio. Besides, variables like age of MFIs and scale of operation is taken as dummy variables which are also expected to influence the social performance of MFIs.

There exists lacking consensus as to how can competition influence MFIs' social performance. The empirical evidences reveal duality of opinion. With information asymmetry, competition enhances borrowers' indebtedness and lower expected loan repayment and impeding loan quality. Furthermore, in order to overcome these problems, MFIs would engage in more screening that raises their operational costs. This encumbers the sustainability of MFIs. Thus, the socially oriented MFIs, in order to remain sustainable, start targeting the less poor borrowers. Also, as competition becomes fierce profitable clients withdraw from socially motivated MFIs to profit-motivated MFIs declining profitability and cross-subsidization of socially motivated MFIs. Thus, in order to satisfy budget constraints, socially motivated

MFIs need to limit their wide outreach in competitive markets (Hisako, 2009). But the other view holds that as competition intensifies, it provokes the MFIs to remain committed with the social objective and strives to retain

the clients. The theory on impact of competition on the social performance of MFIs may be either positive or negative which calls for further investigation.

Table: 7: Dependent and Explanatory Variables

	Dependent Variable	Proxy	Computation/Representation
Model I	MFI Outreach Depth	Percentage of Female Borrowers	PFB
Model II	MFI Outreach Depth	Average Loan Balance per Borrower to GNI per capita	ALBPB/GNI per capita
Model III	MFI Outreach Breadth	Number of Active Borrowers	NAB
Model IV	MFI Outreach Breadth	Average Loan outstanding to GNI per capita	ALO/GNI per capita
	Independent Variables	Computation	Expected Sign of Beta Coefficient
Endogenous Variables	Competition	HHI	-/+
	Age of MFIs	Vector of Dummy Variable representing 1 for matured MFIs and 0 otherwise	+
	Scale of Operation	Vector of Dummy Variable representing 1 for Large Scale MFIs and 0 otherwise	+
	Yield on Gross Portfolio	Financial revenue from loans compared to average loan portfolio	+
Exogenous Variables	GDP	Gross Domestic Product	+
	INFL	Inflation	-

Testing Efficient Model

As already discussed, the study uses panel data regression to establish the association between competition and social performance of MFIs. Effective analysis requires determination of efficient model for analysis. As against cross section, panel data set allows flexibility of modelling differences in behaviour across individuals. The basic regression model can be specified as:

$$Y_{it} = x'_{it}\beta + z'_i\alpha + \epsilon_{it}$$

In the above equation, the heterogeneity or individual effect is $z'_i\alpha$ where z_i contains a constant term and a set of individual or group-specific variables, which may be observed or unobserved. If z_i contains only a constant term, ordinary least squares, i.e., the Pooled OLS, provides consistent and efficient estimates of the common α and the slope vector β . If, on the other hand, z_i is unobserved but correlated with x_{it} , the least squares estimator of β is biased and inconsistent as a consequence of an omitted variable. In this case, the Fixed Effect approach is desirable. The model can be specified as $Y_{it} = x'_{it}\beta + \alpha_i + \epsilon_{it}$. In this case, $\alpha_i = z'_i\alpha$ takes all the observable effects and specifies

estimable conditional mean. In other words, in a fixed effect approach, α_i denotes group specific constant term. However, if the unobserved individual heterogeneity is assumed to be uncorrelated with the included variables, the Random Effect approach is desirable and the model can be formulated as

$$Y_{it} = x'_{it}\beta + E[z'_i\alpha] + \{z'_i\alpha - E[z'_i\alpha]\} + \epsilon_{it}$$

$$= x'_{it}\beta + \alpha + \mu_i + \epsilon_{it}$$

This approach specifies that μ_i is a group specific random element, similar to ϵ_{it} , except that for each group that there is but a single draw that enters the regression identically in each period.

- In order to test between Pooled OLS and Fixed Effect Model, f-statistics is used and the following results are obtained as depicted in Table. The null hypothesis is that pooled OLS is the best model and the alternate hypothesis is that fixed effect model is the best model. As the p-value is less than 0.05, the null hypothesis is rejected and hence fixed effect is the efficient model under all the Models (I, II, III and IV).

Box 2: Model Efficiency (Pooled OLS vs. Fixed Effect Model)

	<i>Pooled OLS</i>	<i>Fixed Effect</i>	<i>p>f</i>	
Model I	X	√	0.000	F(52,251)
Model II	X	√	0.000	F(52,224)
Model III	X	√	0.000	F(52,252)
Model IV	X	√	0.000	F(52,237)

In order to test between pooled OLS and Random Effect Model, Breush and Pagan Lagrangian Multiplier test is used and the following results are obtained as depicted in Box 3.

Box 3: Model Efficiency (Pooled OLS vs. Random Effect Model)

	<i>Pooled OLS</i>	<i>Random Effect</i>	<i>Prob>chibar2</i>	<i>chi-bar2(01)</i>
Model I	X	√	0.000	201.72
Model II	X	√	0.000	377.48
Model III	X	√	0.000	139.18
Model IV	X	√	0.000	48.96

In order to choose between fixed effect and random effect, the Hausman test statistics is used. The null hypothesis

is that random effects model is consistent as against the alternate hypothesis that fixed effect model is consistent. In all the models, the p-value is found to be more than 0.05 except Model III and hence the null hypothesis cannot be rejected; thus, random effect is found to be the best model. In case of Model III, the p-value is less than 0.05 and hence the null hypothesis is rejected and fixed effect is likely to be the efficient model.

Box 4: Model Efficiency (Hausman Test Results for Fixed vs. Random Effect Model)

	<i>Fixed Effect</i>	<i>Random Effect</i>	<i>Prob>chibar2</i>
Model I	X	√	0.3001
Model II	X	√	0.5431
Model III	√	X	0.000
Model IV	X	√	0.2649

Empirical Results and Discussion

The results are presented in Table 8. The results of Model 1 reveal a significant impact of HHI on outreach depth as

measured by Average Loan Balance per Borrower to GNI per capita. The coefficient is positive. A unit increase in competition results into 38% increase in social outreach of MFIs. Besides, the scale of operation of MFI is also found to be positively associated with outreach depth. The coefficient is found to be positive indicating that large-sized MFIs remain committed to social objective as compared to medium- and small-sized MFIs. Yield on gross portfolio also reflect a significant association. However, the coefficient is found to be negative implying a unit increase in yield on gross portfolio impedes the social performance of MFIs.

Model II establishes the association between HHI and social performance, measured as percentage of female borrowers. The results reveal no significant association between HHI and social performance. The MFI specific and exogenous variables too reveal no significant association.

Model III studies the association of competition with social performance. Competition is found to be having a significant impact on social performance and the coefficient is found to be positive. Besides, the age of MFI is also found to be significant and positively associated with the breadth of outreach.

In Model IV, the association between competition and social performance is studied taking outreach breadth measured in terms of average loan outstanding as a proxy for social performance. HHI shows a positive coefficient and significant at 5% level. Further, yield on gross portfolio is also found to be significant but negatively associated.

The empirical analysis reveals that competition has a significant positive impact on all parameters of social performance except the percentage of female borrowers. This implies that as competition increases in the sector it provokes MFIs to remain committed to their social objective. In a competitive market, MFIs compete for clients and hence strive to retain their clients by catering to the social objective. In other words, increased competition in the sector makes the MFIs more responsive towards the clients in order to check switching of profitable clients to other MFIs. Age of MFI is found to be significantly associated with outreach breadth. This is indicative of the fact that matured MFIs are more socially committed as against younger counterparts. Stated differently, the

matured MFIs are born and brought up with the social objective as compared to the new generation MFIs which strives for self-sufficiency. Scale of operation is positively associated with the depth of outreach. This is explained by the fact that large-sized MFIs, owing to the larger scale of operation, are able to reduce the operation cost associated with lending to the poor which allows them to stay committed to social objective. For example, large-sized MFIs may afford to appoint additional loan staffs to monitor and supervise the clients' borrowings thereby

improving the loan repayment performances. Hence, it eliminates the chances for the large-sized MFIs to drift from the ultimate mission of reaching the poor. One interesting observation that follows from the empirical analysis is that yield on gross portfolio bears negative association with outreach depth (Model 1) and breadth (Model IV). This variable is taken as a proxy for interest rate (direct and additional fees) charged by MFIs (Cull, et al.). Thus, a higher interest rate is associated impeding social performance. The endogenous variables are found to be insignificant in all the models.

Table 8: Empirical Results

	Model I Dependent Variable: ALBPB/GNIpc		Model II Dependent Variable: PFB		Model III Dependent Variable: No of Active Borrowers		Model IV Dependent Variable: ALO/GNIpc	
	Beta	P value	Beta	P value	Beta	P value	Beta	P value
HHI	.3856162	0.000	-0.462665	0.672	3448903	0.003	0.2472762	0.002
Age	-.0023618	0.588	0.0016046	0.837	174449.3	0.044	-.0074052	0.099
Scale	.012241	0.004	0.049426	0.514	67531.72	0.403	.0086773	0.052
GDP	.0002074	0.826	-0.0007763	0.597	9470.825	0.542	-.0004618	0.689
Inflation	-.0010364	0.200	-0.0018916	0.130	-16240.93	0.222	-.0002192	0.825
Yield On Gross Portfolio	-.0568641	0.033	0.0122502	0.781	349506.2	0.441	-0.0766239	0.016
_cons	.1205068	0.000	0.9835732	0.000	321199.3	0.066	0.1232166	0.000

Conclusion

The study evidenced growing competition in the microfinance sector in India. The analysis reveals that though microfinance institutions have extended the breadth of the outreach but have narrowed the depth of outreach as indicated by the selected measures of depth except percentage of female borrowers. However, the empirical investigation of the association between competition and social performance reveals the fact that competition has a significant positive impact on all parameters of social performance except percentage of female borrowers. This justifies the fact that as competition increases, it provokes the MFIs to remain committed to its social objective and tend to retain their clients by meeting their financial needs. The study also uncovers the fact that matured MFIs are more committed to the social objective than the younger/new generation MFIs. Lastly, large-sized MFIs, owing to the larger scale of operation, are able better able to reduce the operation cost associated with lending to the poor, which allows them to stay committed to social objective.

References

- Armendáriz, B., & Morduch, J. (2007). The economics of microfinance' MIT press. Retrieved from <https://www.edutubebd.com> Visited on 17-08-2018.
- Armendáriz, B., & Szafarz, A. (2011). On mission drift in microfinance institutions. Retrieved from <https://www.worldscientific.com> visited on 17-08-2018.
- Assefa, E., Hermes, N., & Meesters. A. (2013). Competition and the performance of microfinance institutions. *Applied Financial Economics*, 23(9), 767-782.
- Banker, R. D., & Morey, R. C. (1986): Efficiency analysis for exobously fixed inputs and outputs. *Operation Research*, 34, 513-521.
- Bankers, R. D., & Natarajan. (2008). Evaluating contextual variables affecting productivity using Data Envelopment Analysis. *Operation Research*, 56, 48-58.
- Christen, R. P. (2001). Commercialization and mission drift: The transformation of microfinance in Latin America. CGAP: Occasional Paper No.5.

- Claessens, S. (2009). Competition in the financial sector: overview of competition policies. IMF. Retrieved from SSRN: <https://ssrn.com>. Visited on 11-05-2017.
- Deb, J. (2018). Competition and commercialization of microfinance institutions: Implications for the sector. *International Journal of Business Ethics in Developing Economies*, 7(2), 27–36.
- Funding Microfinance: A focus on debt financing. MicroBanking Bulletin. Retrieved from <https://www.themix.org/publications> visited on 12-06-2018.
- Gwasi, N., & Ngambi, M. T. (2014). Competition and performance of microfinance institutions in Cameroon. *International Journal of Research in Social Sciences*, 3(8).
- Hermes, N., Lensink, V., & Meesters, A. (2009). Financial development and the efficiency of microfinance institutions. Centre for International Banking, Insurance and Finance Working Paper, University of Groningen.
- Hermes, N., Lensink, R., & Meesters, A. (2008). Outreach and Efficiency of Microfinance Institutions. (SOM Research Reports; Vol. 08002). Groningen: University of Groningen, SOM research school.
- Hisako, K. (2009). Competition and wide outreach of microfinance institutions. *Economics Bulletin*, 29, 2628–2639.
- Hossain, S. (2013). Is commercialization of microfinance responsible for over- indebtedness? The case of Andhra Pradesh crisis. *Journal of Economics and Sustainable Development*, 4(7).
- Kipasha, E. F. (2012). Efficiency of microfinance institutions in East Africa: A data envelopment analysis. *European Journal of Business and Management*, 4(17).
- Kumar, K. A., & Bali. R. S. (2014). Competition, performance and portfolio quality in microfinance markets. Working Paper Series, 8, Uppsala University, Department of Economics.
- Jayadev, R., & Rao, N. (2012). Financial resources of the microfinance sector: securitisation deals - Issues and challenges Interview with the MFIs Grameen Koota and Equitas. *IIMB Management Review*, 24, 28–39
- Sharma, M. K., & Wright, G. A. N. (2010). Commercialization of microfinance in India: is it all bad? *MicroSave India Focus Note* 43 May.
- Morduch, J. (2000). The microfinance schism. *World Development*, 28(4), 617–629.
- Motta, M. (2004). *Competition Policy: Theory and practice*. Cambridge University Press.
- Schreiner, M. (2001). Seven aspects of loan size. *Journal of Microfinance*, 3(2), 27–48.
- Schreiner, M. (2002). Aspects of outreach: A framework for discussion of the social benefits of microfinance. *Journal of International Development*, 14, 591–603.
- Srinivasan, N. (2010). *Micro finance: State of the sector report*. New Delhi: Sage Publications India Pvt Limited.
- Taylor, M. (2011). Freedom from poverty is not for free: Rural development and the microfinance crisis in Andhra Pradesh, India. *Journal of Agrarian Change*, 11(4), 484–504.