

Microfinance Institutions In India: A Study Of Sustainability And Its Determinants

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INTRODUCTION

India is considered as the second largest populated country but major portion of its total population living a vulnerable life. Government has taken so many initiatives to reduce poverty through poverty alleviation programmes but that were not very successful. The formal financial institutions are not willing to provide financial assistance to the poor as they are considered as less creditworthy because of their unbalanced income. Microfinance is considered as a significant tool to alleviate poverty through financial inclusion. Since their main target is to reach the bottom of the pyramid which is the ultimate mission of each MFI, there exists a question of remaining sustainability because they mostly depend on grants, donations and subsidies which are very inconsistent in nature. Hence it is very essential to become Self-Sufficient for MFIs without relying on any kind of donations. Therefore there is a need to examine Sustainability of MFIs in terms of Social and Financial parameters and also to bring out the determinants which affect Sustainability. The present study addresses this issue of sustainability of selected MFIs in India based on some established parameters as well as attempts to identify the determinants of sustainability of the selected MFIs.

OBJECTIVES OF THE STUDY

The present study attempts to examine the sustainability of selected MFIs based on selected parameters and also to identify the determinants of sustainability of the selected MFIs considering endogenous and exogenous factors.

REVIEW OF LITERATURE

The present study reviewed a large number of studies to understand the various aspects of Microfinance Institutions (MFIs) and its Sustainability. **Mahapatra and Dutta (2016)** studied on Determinants of Sustainability of MFIs in India. They attempted to identify the factors which affect operational self-sufficiency of MFIs in India. 65 MFIs were selected for the study purpose and used Probit Regression Model to analyze the data. The study revealed that Average Loan Balance per Borrower, Size of an MFI, Cost per Borrower and Yield on Gross Loan Portfolio were found to be significantly associated with Operational Sustainability of Indian MFIs. **Mbira and Tapera (2016)** investigated the key factors behind the successful Microfinance Institutions in Zimbabwe. The study used both inferential and descriptive methods and found that factors like prudent risk management, regulatory framework, corporate governance, technology and innovations, and staff training and motivation were significant for the success of Microfinance Institutions in Zimbabwe. In addition some other factors i.e, management and leadership, access to resources as well as coverage, reach and marketing are indispensable for the success of MFIs. **Veenapani (2017)** studied on performance and sustainability of MFIs in India based on selected NBFC- MFI to identify the factors influencing sustainability of MFIs and used 16 parameters to measure the performance of selected MFIs. The study choose Operational Self Sufficiency as a dependent variable to measure sustainability and found that sustainability was greatly dependent on ROA, Operating expenses per loan portfolio, Debt Equity Ratio and Portfolio at Risk>30 days. **Muriithi (2017)** tried to discover the critical factors that influence sustainability of MFIs in Murang'a town, Kenya. The study was based on 45 respondents. Questionnaire was administered to 15 managers and the rest were from the persons those were involved in MFIs of Murang'a town of Kenya. The study revealed that factors like number of clients served, financial coverage, financial regulations, and volume of credit supplied were factors that affected sustainability of MFIs.

DATA, VARIABLE AND METHODOLOGY

The present study relies on secondary sources of data which are collected from Microfinance Information Exchange (MIX) over 55 MFIs for the period of seven years i.e, from 2009 to 2015 However, different published and unpublished sources such as reports, articles, research journals and different internet sources

are also used to accomplish the objectives. However, the data of macroeconomic variables are obtained from World Bank National Accounts Data, World Bank Statistics, Planning Commission, etc.

The present study examines Sustainability of MFIs through two different measures and one of them is Social/Mission Sustainability and it has been examined through Outreach Breadth and Outreach Depth and the other is Financial Sustainability.

Parameters of Mission Sustainability		Parameters of Financial Sustainability
Outreach Breadth	Outreach Depth	Operational Self Sufficiency Ratio (OSSR)
Number of Active Borrowers (NAB)	Percentage of Female Borrowers (PFB)	Operating Cost Ratio (OCR)
	Average Loan Balance per Borrower	Return on Assets(ROA)
	Average Loan Balance per Borrower/ GNI per capita	Return on Equity (ROE)
		Portfolio at Risk>90 days (PAR> 90days)
		Financial Revenue/Assets
		Gross Loan Portfolio to Total Assets (GLPTA)

The present study uses various endogenous and exogenous variables to attain the objective where endogenous variables refer to MFIs specific variables which influence the performances of Microfinance Institutions (MFIs). This is also known as internal variables of MFIs. On the other hand, exogenous variables are another important classification of variables which refer to the macroeconomic variables which are independent in nature. Different endogenous and exogenous variables are been chosen for the study purpose which are listed below:

Endogenous Variables	Exogenous Variables
Return on Equity (ROE)	Gross Domestic Product (GDP)
Average Loan Balance per Borrowers/GNI Per Capita (AVLBPGNIPC)	Inflation (IFL)
Number of Active Borrowers (NAB)	Rural Population Growth Rate (RPGR)
Percentage of Female Borrowers (PFB)	
Scale of Operation (SC)	

The study uses selected accounting ratios and basic statistical tools to assess sustainability of selected MFIs. In order to identify the determinants of sustainability, a panel data regression model is used to accomplish the objectives of the study. In order to ensure homogeneity in analysis as well as to facilitate comparison, the MFIs are further classified as Large, Medium and Small based on their size of assets.

RESULTS AND DISCUSSIONS

Table 1 reflects the **NAB** which is a key factor of determining outreach breadth of MFIs. It can be seen from the Table that the growth rate of NAB of all MFIs is 12.08 percent and it is also seen that Medium MFIs are more aggressively reaching the poor as its growth rate is 21.04 percent whereas CAGR of Large MFIs is 10.46 percent and for the Small MFIs, it is 3.99 percent which is the least. Andhra Pradesh Microfinance crisis of 2010-11 is characterized by a sharp decline in NAB for all categories of MFIs, but major decline of 18.17 percent and 18.98 percent is noticed in case of Large and Small MFIs respectively whereas Medium MFIs reflected a lesser decline of 0.84 percent. Since on an average there is a positive growth in case of all categories of MFIs, so it can be said that MFIs are able to spread their outreach in terms of NAB but better performance is observed in case of Medium MFIs as the CAGR is highest.

Table-1: Number of Active Borrowers (NAB) (2009-2015)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	374207	1428987	141451.5	46849.04
2010	457537	1730471	182722.9	59215.54
2011	377805	1416017	162916.4	47976.04

2012	413828	1568140	179459.7	47234.39
2013	503455	1910581	230754.9	46491.21
2014	635186	2325507	327397.7	54925.63
2015	792435	2686425	507513.2	71706.27
Mean	507779.1	1866590	247459.5	53485.44
SD	154578	480760.1	130062.2	9392.346
CAGR	12.08379	10.45547	21.04259	3.988551

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 2 exhibits the trend of **PFB** for selected MFIs to measure the Outreach Depth. Table reflects that there is a negative growth experienced by all MFIs and the same trend is followed by Large and Small MFIs. The CAGR is -2.25 percent and -0.93 percent respectively for Large and Small MFIs. Whereas Medium sized MFIs reflect positive growth rate of 1.8 percent which is an indication of relatively better performance than that of Large and Small MFIs. If we consider the Andhra Pradesh microfinance crisis period, then it can be seen that there is a sharp decline followed by Large MFIs by 6.71 percent and a slight decline followed by Small MFIs of 0.51 percent but Medium MFIs exhibit a positive growth and an increase by 0.37 percent. The average PFB of Medium MFIs is also shows better results compared to Large and Small MFIs. Thus it can be said that MFIs are not going deeper which is the ultimate mission of their establishment. However, relatively better performance can be seen in case of Medium MFIs whose CAGR is found positive and mean value is also found highest than other categories of MFIs.

Table-2: Percentage of Female Borrowers (2009-2015)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.91578	0.921458	0.845436	0.976893
2010	0.964359	0.920692	0.989229	0.975489
2011	0.952282	0.858942	0.992867	0.970543
2012	0.966225	0.924508	0.994413	0.969004
2013	0.97042	0.946108	0.986513	0.972468
2014	0.95371	0.857245	0.99574	0.970277
2015	0.90223	0.756467	0.9963	0.898265
Mean	0.946429	0.883631	0.9715	0.961849
SD	0.026675	0.065645	0.055702	0.028183
CAGR	-0.17154	-2.25296	1.799175	-0.92594

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 3 exhibits the **Average Loan Balance per Borrower** of selected MFIs for the period 2009-2015. This variable signifies the extent to which MFIs reach the poorest of the poor clients and hence increase in the amount of Average Loan Balance per Borrower indicates that MFIs deal with richer clients than that of the poorest of the poor. It can be seen from the Table that the mean value accounted for by all MFIs is 165.95 and an upward trend throughout the study period is identified except for the year 2010 where a decline is noticed which could be attributable to the Andhra Pradesh microfinance crisis. But highest mean value and CAGR is found for Medium MFIs which indicates that Medium MFIs are having lesser depth of outreach. However, relatively better performance can be observed in case of Small MFIs where mean value and CAGR is estimated at 141.52 and 4.40 percent respectively.

Table-3: Average Loan Balance per Borrower (2009-2015) (US \$)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	146.6193	164.9358	170.4733	125.2448
2010	142.5453	168.0267	143.8287	130.9371
2011	150.6038	175.0208	162.1333	133.9629
2012	161.7845	183.1558	178.7333	143.5457
2013	169.8357	185.2858	217.4	136.5444
2014	191.27	208.3458	247.6	152.3863

2015	198.9573	231.743	224.4407	168.0442
Mean	165.9451	188.0734	192.0871	141.5236
SD	22.0605	24.00537	35.13396	14.63136
CAGR	5.971441	5.530991	8.192614	4.395135

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 4 represents *Average Loan Balance per Borrower/ GNI Per Capita*. This is an important indicator of measuring Sustainability. It indicates the per capita loan as a proportion to country's gross national income. It is revealed from the Table that there exists positive growth rate (CAGR) of 5.97 percent in case of all MFIs. Considering the size wise MFIs, it can be seen that the mean value is highest in case of Medium MFIs than that of Large and Small MFIs. Further, it is also seen that CAGR is highest in case of Medium MFIs of 4.08 percent whereas CAGR for Large and Small MFIs are 1.77 percent and 0.37 percent respectively which indicates Medium MFIs are having lesser depth of outreach. Moreover, Small MFIs reflect a relatively better performance in terms of AVLBPB/GNIPC. Overall MFIs account for per capita borrowings of 11 percent of the country's GNI.

Table-4: Average Loan Balance per Borrower/ GNI per Capita (2009-15) (US \$)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.127094	0.141883	0.14816	0.108819
2010	0.097745	0.115208	0.098627	0.089789
2011	0.101611	0.118067	0.109387	0.090393
2012	0.110356	0.123625	0.122673	0.098071
2013	0.113181	0.123775	0.145967	0.090259
2014	0.121809	0.132675	0.157693	0.097044
2015	0.126556	0.149775	0.1429	0.107038
Mean	0.114	0.129287	0.132201	0.097
SD	0.012	0.012757	0.022162	0.008
CAGR	1.930	1.772395	4.076124	0.374

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 5 shows the *Operational Self Sufficiency Ratio (OSSR)* which indicates whether MFIs are earning sufficient revenue to meet its operational costs. From the Table it can be seen that in almost all the years OSSR is greater than 1 for all categories of MFIs. This means greater self sufficiency on the part of these MFIs. The average result of OSSR for all selected MFIs over the study period is estimated at 1.13 which indicates 13 percent excess of revenue over operating costs of MFIs. It is also clear from the Table that average performance of OSSR is highest in case of Medium MFIs than that of Large and Small MFIs. CAGR is also highest in case of Medium MFIs of 2.51 percent compared to Large and Small MFIs of 1.35 percent and 1.41 percent respectively.

Table 5: Operational Self-Sufficiency Ratio (OSSR) (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	1.124286	1.258567	1.071521	1.072953
2010	1.120104	1.127517	1.150913	1.098908
2011	1.027249	0.92085	1.05588	1.057511
2012	1.070905	0.973575	1.104013	1.094882
2013	1.166251	1.154	1.211293	1.144746
2014	1.187256	1.211045	1.202747	1.169611
2015	1.199704	1.261567	1.252557	1.142692
Mean	1.128	1.130	1.150	1.112
SD	0.063	0.135	0.075	0.041
CAGR	1.577	1.351	2.509	1.413

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

In the Figure 1, MFIs are classified into three categories i.e, Dependent, Emerging and Self Sufficient. For Sustainability it is expected that OSSR should be higher and for this, MFIs having OSSR of less than 1 value is treated as Dependent MFIs. MFIs having more than a value of 1 of OSSR is considered Self Sufficient MFIs. Again, MFIs falling below the mean OSSR of Self Sufficient MFIs are classified as Emerging MFIs and above that is considered as Self Sufficient MFIs. It is seen from the figure that in the initial year of the study period i.e, 2009 MFIs were not self-sufficient, mostly they were emerging MFIs and rests were dependent. After that in the year 2010, maximum number of MFIs were self-sufficient but in the next two years i.e, 2011 and 2012, it declined to zero (0.00) percent but from 2013 majority of selected MFIs are coming under Self-sufficient category.

Fig. 1

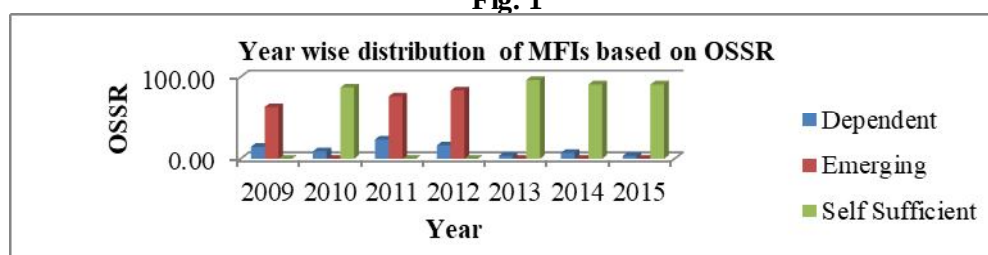


Table 6 represents **Operating Cost Ratio (OCR)** of selected MFIs for the period of 2009-2015 and it is calculated as a proportion of operating expenses to average performing assets. It is revealed from the Table that overall, a negative growth rate (CAGR) is found in all categories of MFIs which indicates that MFIs are able to reduce their cost on their operations. The mean value is estimated at 0.12 in case of all MFIs which indicate that operating cost constitutes 12 percent on its total performing assets. Moreover, Large MFIs are found to be more cost efficient than the other categories of MFIs in terms of the mean value of OCR.

Table-6: Operating Cost Ratio (OCR) (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.161344607	0.11139484	0.20880927	0.15564449
2010	0.135277076	0.11148874	0.14530593	0.14389291
2011	0.131010708	0.11279517	0.13717058	0.13591249
2012	0.112357759	0.09783476	0.11780043	0.11586057
2013	0.103350588	0.07840385	0.09734101	0.11893077
2014	0.104879182	0.07613447	0.09090569	0.12535201
2015	0.105469471	0.06522752	0.07807073	0.13415255
Mean	0.121955627	0.09332562	0.12505766	0.13282083
SD	0.021651066	0.01984729	0.04428329	0.01409024
CAGR	-6.965343239	-9.2967121	-14.0289273	-3.0079314

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 6.1 represents the distribution of number of MFIs with **OCR<1**. MFIs having OCR<1 value are better managed in terms of cost of operation. From the Table it can be seen that in the initial year of the study period of 2009-2012, all MFIs exhibited an increase in the number of MFIs having OCR<1 but thereafter a declining trend is found in the numbers. However, on the basis of mean value, Small MFIs are found more in numbers having OCR<1 as the mean is estimated at 23.43 which is highest than the other categories of MFIs.

Table-6.1: Operating Cost Ratio (OCR) <1 (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	40(72.73%)	12 (100%)	13 (86.67%)	15 (53.57%)
2010	43(78.18%)	12 (100%)	13(86.67%)	18 (64.29%)
2011	53 (96.36%)	12 (100%)	14 (93.33%)	27 (96.43%)
2012	54 (98.18%)	12 (100%)	14 (93.33%)	28 (100%)
2013	52 (94.55%)	12 (100%)	15 (100%)	25(89.29%)
2014	50 (90.91%)	11 (91.67%)	14 (93.33%)	25 (89.29%)

2015	49(89.09%)	9 (75%)	14 (93.33%)	26 (92.86%)
Mean	48.714	11.429	13.857	23.429

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 7 reflects the **Return on Assets (ROA)** of selected MFIs for the period of 2009-2015. ROA is an important indicator of measuring profitability of selected MFIs and it can be seen from the Table that mean value is found positive but poor returns is observed for all categories of MFIs. The Large MFIs exhibits on an average a negative return on their assets i.e., -0.01 percent and a relatively better performance can be seen in case of Small MFIs in which mean is estimated at 0.02 percent.

Table-7: Return on Assets (ROA) (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	-0.00417	0.027183	-0.0352	-0.00252
2010	0.015388	0.0157	0.014133	0.015992
2011	-0.01491	-0.08958	-0.00077	0.009525
2012	-0.00295	-0.06403	0.00994	0.016329
2013	0.015429	-0.00866	0.027613	0.019225
2014	0.02492	0.023209	0.02596	0.025036
2015	0.024255	0.021755	0.028757	0.022888
Mean	0.008282	-0.01063	0.010061	0.015211
SD	0.015558	0.047267	0.022704	0.009311

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 8 represents **Return on Equity (ROE)** which is also an important indicator of measuring financial performances of selected MFIs and it indicates the return of MFIs over their investment in share capital/equity. From the Table it can be seen that the mean value of all MFIs is estimated at 0.18 which indicates that on an average 18 percent return can be generating from its investment in share capital or equity. However, on the basis of size of MFIs, Medium MFIs are accounted for highest growth rate and mean values in terms of ROE than the other categories of MFIs.

Table 8: Return on Equity (ROE) (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.151502	0.187025	0.185471	0.101488
2010	0.13091	0.102875	0.11398	0.154242
2011	0.064415	-0.03869	0.02135	0.126868
2012	-0.19808	-0.73329	0.075853	-0.13438
2013	0.156357	0.24165	0.13982	0.122079
2014	0.426854	1.783936	0.133107	0.046032
2015	0.536525	-0.07287	1.739336	0.137696
Mean	0.181212	0.21009	0.344131	0.079146
SD	0.240874	0.766153	0.61741	0.100314
CAGR	NIL	NIL	37.44077	NIL

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 9 represents **Portfolio at Risk (PAR)>90 days** being an important risk indicator of MFIs. This variable represents the amount of loan due for more than 90 days. From the Table it is clearly seen that average PAR is highest in case of Medium MFIs compared to Large and Small MFIs. Medium MFIs account for a negative growth rate of -38.83 percent which indicates improvement in loan recovery position. But the other categories of MFIs reflect a positive growth rate in this variable. Overall, for all MFIs, the PAR>90 days exhibits a positive growth of 1.35 percent which indicates rise in riskiness of Loan Portfolio. However, Medium MFIs are better managed in this regard.

Table-9: Portfolio at Risk (PAR) > 90 days (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.012971	0.004708	0.018493	0.014338
2010	0.057227	0.085958	0.092915	0.014663
2011	0.191039	0.095908	0.344713	0.147944
2012	0.100013	0.057717	0.020913	0.138614
2013	0.0298	0.097917	0.013213	0.007056
2014	0.030482	0.101173	0.009686	0.011024
2015	0.041549	0.046489	0.002521	0.060854
Mean	0.066154	0.069981	0.071779	0.056356
SD	0.061712	0.035692	0.124129	0.062135
CAGR	1.346899	29.39827	-38.8275	2.616884

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 10 represents **Financial Revenue / Assets (FRA)** of selected MFIs which is an important indicator of measuring financial sustainability. It can be seen from the Table that average revenue generated out of total assets is 0.22 in all categories of selected MFIs. In Large MFIs there is a mixed trend in this variable over the study period. Whereas in Medium and Small MFIs, it is marked by a sharp decline in the year 2011 and 2012 respectively which may be the effect of Andhra Crisis (AC) but thereafter it is followed by an upward trend. Moreover growth rate of Small MFIs is found to be highest which is estimated at 1.90 percent (CAGR) than that of other categories of MFIs. Overall, the MFIs are able to generate 22 percent revenue out of the total investments in assets.

Table 10: Financial Revenue / Assets (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.205824	0.226792	0.191421	0.2027
2010	0.24609	0.250067	0.2628	0.234156
2011	0.217565	0.20545	0.22882	0.216729
2012	0.204433	0.198958	0.204793	0.206586
2013	0.214047	0.2058	0.21492	0.217114
2014	0.225709	0.220145	0.217993	0.232029
2015	0.232652	0.219583	0.224693	0.242969
Mean	0.220903	0.218114	0.220777	0.221755
SD	0.015013	0.017231	0.02238	0.014997
CAGR	0.639046	-1.24249	0.158137	1.900503

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

Table 11 represents **Gross Loan Portfolio to Total Assets (GLPTA)** ratio of selected MFIs for measuring the sustainability. It is seen that during the Andhra crisis (AC) period i.e., 2010-2011 there is a sudden rise in this variable for all categories of MFIs. The average GLPTA is highest in case of Large MFIs with mean value of 1.08 compared to Medium and Small MFIs with mean values of 0.85 percent & 0.94 percent respectively. Similarly growth rate of Large MFIs is also highest of 9.41 percent (CAGR) whereas Medium & Small MFIs display a lesser growth rate (CAGR) of 2.32 percent & 6.50 percent respectively. Overall the MFIs account for 95 percent of investments in loans of their total investment in assets.

Table-11: Gross Loan Portfolio to Total Assets (2009-15)

Year	All MFIs	Large MFIs	Medium MFIs	Small MFIs
2009	0.820128	0.856833	0.78066	0.825958
2010	0.844584	0.907833	0.819187	0.831082
2011	0.896184	0.9484	0.9118	0.865439
2012	0.875111	0.976567	0.804207	0.869614

2013	0.935622	1.111675	0.829773	0.916875
2014	1.00377	1.183473	0.843793	1.018875
2015	1.263685	1.57695	0.978507	1.272658
Mean	0.94844	1.080247	0.852561	0.942929
SD	0.151637	0.247026	0.069028	0.159551
CAGR	6.204113	9.414128	2.321495	6.49562

Source: Own computation from MIX Market database 2009-2015 (www.mixmarket.org)

DETERMINANTS OF SUSTAINABILITY

An attempt has been made to identify the factors which influence sustainability and hence three different models have been developed for the study purpose. In the Model I, the study takes OSSR as a dependent variable whereas OCR and ROA is been chosen as dependent variable for Model II and Model III respectively and different endogenous and exogenous variables have been taken as explanatory variables for all the three Models.

Table 12 represents the description of dependent and independent variables based on the different Models where Model I shows the relationship between the factors which influences the OSSR. Model II describes the relationship between the different endogenous and exogenous factors which influences the cost of MFI's operation. Similarly, ROA as a dependent variable in Model III shows the relationship between the different factors which influence the return/ profitability of MFIs.

Table-12: Description of Dependent and Independent Variables based on Different Models

Model I		Model II	Model III
Dependent Variable: OSSR		Dependent Variable: OCR	Dependent Variable: ROA
Independent Variables		Independent Variables	Independent Variables
Sl. No.	Variables	Description	
1	ROE	Return on Equity**	
2	AVLBPB/GNIPC	Average Loan Balance per Borrower/ GNI per capita	
3	NAB	Number of Active Borrowers	
4	PFB	Percentage of Female Borrowers	
5	SC	Scale of Operation	
6	GDP	Gross Domestic Products	
7	IFL	Inflation	
8	RPGR	Rural Population Growth Rate	
9	CONS	Constants	

Table 13 represents the summarization of all the hypotheses of different Models based on expected signs of different independent variables.

Table-13: Summarization of all the Hypotheses of different Models based on Expected Signs of Independent Variables

Sl. No.	Variables	Model I	Model II	Model III
1	ROE	+	-	NA
2	AVLBPBGNIPC	-	+	-
3	NAB	+	-	+
4	PFB	+	-	+
5	SC	+	-	+
6	GDP	+	-	+
7	IFL	-	+	-
8	RPGR	-	+	-

In order to choose between Fixed Effect and Random Effect for Model I, Model II and Model III, the Hausman test statistics is used. The null hypothesis is random effects model is consistent as against the alternate hypothesis that fixed effect model is consistent. In Model I, the p value is found to be more than

0.05 and hence the null hypothesis cannot be rejected and thus Random Effect is found to be the best model. Again for Model II and III, the p value is found to be less than 0.05 and hence null hypothesis is rejected and thus Fixed Effect is found to be the best model.

RESULTS OF REGRESSION

Table 14 reflects the results of panel data regression model in which OSSR is considered as dependent variable. In model I, it is found that there is an endogenous variable viz, PFB which is found to be having a positive impact on OSSR. It is revealed from the Table that 0.22 percent increase in PFB causes one unit increase in OSSR. Thus increase in the PFB enhances the self-sufficiency level of MFIs. Again, there are two exogenous variables viz, GDP and RPGR are found to be having a significant impact on OSSR. GDP is found to be having a positive impact and RPGR is found to be having a negative impact on OSSR. It shows that 0.02 percent increase in GDP influence the one unit increase in OSSR whereas one unit increase in RPGR will decrease the OSSR by 0.46 times.

Table-14: Result of Regression (Model I)

Dependent Variable= OSS		N=55	
Variable	Coefficient	Standard Error	P>z
ROE	.0039606	.0069854	0.571
AVLBPGNIPC	.2661309	.2910087	0.360
NAB	3.06e-08	1.78e-08	0.085
PFB	.2177875	.08461641	0.010
SC	.0634769	.0363193	0.081
GDP	.0271513	.0091811	0.003
IFL	.0042426	.0081683	0.603
RPGR	-.4593093	.1817679	0.012
CONS	.9425103	.1336823	0.000

Table 15 exhibits the regression result of model II where OCR is considered as dependent variable. In model II, it is found that there is an endogenous variable SC which has a negative impact on OCR. It means that with increase in scale of operation there is a decrease in cost of operation i.e, one unit increase in SC will decrease the OCR by 0.121 units. It is also seen in the Table that there is an exogenous variable RPGR which is found to be having a positive impact on OCR. It is seen from the table that 0.155 percent increase in RPGR causes one unit increase in OCR i.e, as the growth rate of rural population increases, the OCR also increases because to remain sustainable MFIs are more eager to give loan to rural people which leads to increase their costs.

Table-15: Result of Regression (Model II)

Dependent Variable= OCR		N=55	
Variable	Coefficient	Standard Error	P>t
ROE	-.0019913	.0023731	0.402
AVLBPGNIPC	-.0702756	.1393593	0.614
NAB	-2.09e-08	1.10e-08	0.057
PFB	-.0368669	.0323505	0.255
SC	-.1215393	.016392	0.000
GDP	.0048582	.0030388	0.111
IFL	-.00402	.0027134	0.140
RPGR	.1551525	.0608249	0.011
CONS	.1423038	.0489168	0.004

Table 16 represents the results of regression of model III where ROA is taken as dependent variable. It is clearly seen in the table that NAB have a positive significant impact on ROA. As the NAB increases MFIs are more actively involved in giving loan to the deprived sections of the economy. It is found that 2.10 units increase in NAB leads to one unit increase in return of the MFIs. In addition, two more endogenous variables PFB and SC are found to be having a positive impact on ROA. In case of PFB, 0.056 unit increases in PFB

causes one extra unit return to the MFIs. It is been empirically proved that women are more disciplined borrowers (D'espallier & et al. 2012) they generally repay their loans unlike men. So, it is more profitable for the MFIs to give loans to the females. Again in case of SC, 0.038 unit increase leads an increase in ROA. It is also found that GDP as an exogenous variable have a positive significant impact on ROA where 0.007 percent increase causes one unit increase in ROA while RPGR is found to be having a negative impact on ROA. It shows that one unit increase in RPGR will decrease the ROA by 0.108 times.

Table-16: Result of Regression (Model III)

Dependent Variable= ROA		N=55	
Variable	Coefficient	Standard Error	P>t
AVLBPGNIPC	.1376063	.1252329	0.273
NAB	2.10e-08	9.60e-09	0.029
PFB	.0555134	.0269338	0.040
SC	.0377082	.0147072	0.011
GDP	.0068491	.0027284	0.013
IFL	.0027384	.0024269	0.260
RPGR	-.1079932	.0544382	0.048
CONS	-.0911739	.0430531	0.035

SUMMARY OF FINDINGS

In terms of Mission/ Social Sustainability, MFIs are found to be expanding their Breadth of Outreach and narrowing their Depth of Outreach which indicates towards the mission drift. On the other hand, in case of Financial Sustainability, MFIs are found to be increasing their Self-Sufficiency as there exists an increase in the number of MFIs having OSSR>1 and decrease in the number of MFIs with OCR>1. Although there has been a growth in the Gross Loan Portfolio (GLP) of the MFIs as well as positive returns in terms of ROA and ROE but there exists corresponding rise in PAR>90 days which implies bad loans lending to loan delinquency. Moreover, there are some endogenous variables viz, Number of Active Borrowers, Percentage of Female Borrowers and Scale of operation have been found to be having significant impact on the sustainability of MFIs and exogenous variables viz, GDP and Rural Population Growth Rate are found to be having significant impact which influence the sustainability of the MFIs.

CONCLUSION

Microfinance is regarded as a significant tool for reducing poverty as MFIs main target is to reach the poorest of the poor. Since poor are considered as less creditworthy, banks and other financial institutions are not paying attention towards the poor. Microfinance Institutions are the institutions which put forward their helping hands to those needy sections of the society. From literature it has been found that MFIs are mostly based on inconsistent funds i.e, grants, donations and subsidies. With this flexibility in funds MFIs sustainability remains key issue. The present study tries to examine the sustainability of selected MFIs based on selected measures and also to identify the determinants of sustainability of such MFIs. In the study, Social and Financial Sustainability are considered to examine the overall sustainability of the MFIs. The result of the study reflects that MFIs concentrates more on spreading financial their services instead of reaching the core objective of their establishment and hence there exist a trend towards mission drift. Overall, MFIs are found to be financially sustainable in terms of their OSSR, OCR, ROA, and ROE etc but there is a positive growth rate that can be seen in terms of PAR>90 days. However, endogenous variables namely, NAB, PFB, SC and exogenous variables namely, GDP and RPGR are found to be having a significant impact on Financial Sustainability of MFIs.

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