

A study on Non Performing Assets of Microfinance Institutions in Gujarat

Ph.D. Synopsis

Submitted to
Gujarat Technological University

For the Degree of
Doctor of Philosophy
In subject of
Management

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1. Abstract

Microfinance in India has proved to be a useful tool to eradicate the poverty in India. The poor section of the society which was considered unbankable by the formal lending institutions, have now been able to link gradually to banking services through microfinance.

The research has studied the non-performing assets of MFIs in Gujarat. There are three main objectives of the research. The first and second objective analyzes the financial performance and non performing assets of MFIs in Gujarat respectively through secondary data sources. The third objective studies and investigates the causes of default in microfinance loan of MFIs in Gujarat through a survey of borrowers whose account is overdue or NPA. The survey has been conducted by self administered structured questionnaire.

In order to evaluate financial performance and non performing assets of MFIs, various indicators has been analyzed for a period of five years. The analysis of these indicators is then represented through table and chart. In order to achieve third objective, firstly, data collected through primary source has been analyzed by frequency analysis. Further, to know the factors affecting microfinance loan default, cross tabulation analysis is conducted. Next to evaluate the association of causes of default and loan amount with other factors hypothesis has been tested through chi-square test. One way ANOVA test followed by post hoc test has been applied to understand the significant difference of overall adequacy factors with other factors. Co-relation analysis and stepwise multiple regression model has been applied to check the relations and impact between causes that lead to the overdue or default in microfinance loan and reasons of NPA in microfinance loan of MFIs in Gujarat.

2. Rationale of the study

In India, microfinance service is majorly provided by two ways. One way is through SHG-Bank linkage programme and other way is through microfinance institutions (MFIs) These MFIs has different legal forms and so they have been registered under different Acts and therefore their reporting standards and methods also differ. Again there are many MFIs have entered into the sector leading to increased competition among them.

Thus it has resulted into the cutting of corners in matters of consumer protection – multiple lending, over-indebtedness and consequently coercive collection practices. Because of these practices, NPAs in microfinance have been increased significantly in last decade

Moreover, in India, microfinance has evolved and developed majorly in southern states and so most of research on MFIs is based on MFIs in southern states.

Therefore the rationale behind the selection the research title was to study the less researched geographical area and less focussed topic of microfinance which is non-performing assets.

3. Objective and Scope of work

3.1 Objectives

The following are the objectives of the research:

- 1) To analyze the financial performance of MFIs in Gujarat
- 2) To analyze the NPAs of MFIs in Gujarat
- 3) To investigate the causes of microfinance loan default of MFIs in Gujarat

3.1 To understand and analyze factors that has resulted into microfinance loan to overdue/NPA of MFIs in Gujarat.

3.2 To evaluate and compare different combination of factors which might have lead to defaults in microfinance loans of microfinance institutions in Gujarat.

3.3 To understand and derive association between causes of defaults in microfinance loan and various factors such as socio-economic factors of borrowers, lending terms and supervision & training of borrowers of microfinance institutions in Gujarat.

3.4 To know the association between microfinance loan amount and various factors such as socio-economic factors of borrowers, lending terms and supervision & training of borrowers of microfinance institutions in Gujarat.

3.5 To understand and analyze overall loan adequacy with different factors such as socio-economic factors of borrowers, lending terms and supervision & training of borrowers of microfinance institutions in Gujarat.

3.6 To understand and analyze the relationship and impact of borrower's combined causes/ situations that lead to arrears/defaults in microfinance loan on overall reasons behind NPA in microfinance loan of MFIs in Gujarat

3.2 Scope of research

Research has been limited to the study of MFIs established and operating in Gujarat and also is maintaining their financial data and regularly reporting to either MIX Market (as on 28 February 2015) or Sa-Dhan (as in Sa-Dhan Directory of November 2014). Research has been carried out for the period of five financial years from 2010-11 to 2014-15

4. Original contribution by the thesis

The study helps to understand the overall industry analysis and status of growth and development of microfinance in India and Gujarat. It studies the microfinance delivery models and financial performance of microfinance institutions in Gujarat. It also analyses the non-performing assets of microfinance institutions and studies the causes of defaults in microfinance loans. Hence the research undertaken helps to understand in depth the microfinance institutions in Gujarat which has not been conducted widely till date.

Based on the analysis and findings of the research, recommendations have been suggested to microfinance institutions in Gujarat. Thus, the research contributes in better understanding and need of clients of microfinance and thereby reducing the ratio of non-performing assets of microfinance institutions. This study can be useful to academicians and researchers as they can take the basis from this research and carry further by exploring new areas.

5. Literature Review

Literature helps to know the research work undertaken under particular topic and current status of the topic. For the research, literature is collected through research paper published in journal, books, reports published by government and private organizations, speech given by renowned person during conferences and also the research study conducted by various organizations. All these literature are divided into following sections:

- Microfinance concept and delivery models
- Microfinance and microfinance institutions in India
- Performance analysis of microfinance and microfinance institutions
 - In India
 - Outside India
- Mix Model for performance evaluation

6. Research Methodology

6.1 Research Design: Descriptive research

6.2 Sources of data collection:

6.2.1 Primary data: It has been collected through self administered questionnaire

6.2.2 Secondary data: It has been collected from financial statements from MFIs, websites of MIX Market and Sa-Dhan

6.3 Sampling

6.3.1 **Sample frame:** MFIs in Gujarat that are maintaining their financial data and are reporting to either MIX Market or Sa-Dhan from 2010-11 to 2014015 and Borrowers whose account is overdue/ NPA that is default borrowers of above mentioned MFIs in Gujarat

6.3.2 **Sample size :**

- Numbers of Microfinance Institutions studied are three. Following are the name of institutions:
 - Shri Mahila Sewa Sahakari Bank Ltd. (SEWA)
 - The Saath Saving And Credit Co Op Society Ltd. (SAATH)
 - Prayaas (Organisation for Sustainable Development (PRAYAS))
- Numbers of default borrowers selected for pilot survey were sixty five and for final survey were five hundred and fifty.

6.3.3 **Sampling Method:** MFIs in Gujarat were selected based on their year of establishment that is one from each category of young, mature and old MFI was selected for research. For selection of default borrowers of above MFI, non random convenient sampling method was applied.

6.3.4 **Response Rate:** Response rate is the number of respondents who gave their responses during the survey out of the total number of respondents that were chosen as sample. In pilot survey, response rate was fifty eight and in final survey response rate was four hundred sixty three out of sixty five and five hundred fifty respectively.

6.4 Data analysis tools and techniques

In order to classify, interpret and analyze data collected from both primary and secondary sources, statistical tools and techniques have been used and they are mentioned as under:

- Trend Analysis
- Tabulation and Cross Tabulation Analysis
- Descriptive Statistics
- Chi- Square Test
- One way ANOVA and Post Hoc Test
- Correlation Analysis
- Stepwise multiple regression model

In addition to above tools, tables, graphs and charts are used for better representation of data.

7. Analysis of secondary data

7.1. Financial performance analysis of MFIs in Gujarat

In order to analyze the financial performance of MFIs in Gujarat, MIX Market Model has been used and accordingly financial performance is analyzed based on eight indicators and a total of fifteen ratios are calculated under eight indicators. Following table shows various ratios:

Summary of Ratio Analysis measuring financial performance of MFIs

No.	Ratios	2010-11	2011-12	2012-13	2013-14	2014-15
Financing Structure Indicators						
1	Capital/ Asset Ratio					
	SEWA	17.81%	20.84%	24.43%	24.03%	21.82%
	SAATH	12.50%	13.26%	14.40%	15.40%	12.24%

	PRAYAS	29.20%	11.07%	14.24%	23.46%	27.35%
2	Debt/Equity Ratio					
	SEWA	462.00%	380.00%	309.00%	316.00%	358.00%
	SAATH	700.27%	654.12%	594.40%	549.29%	716.97%
	PRAYAS	242%	804%	602%	326%	266%
Outreach Indicator						
3	No. of active borrowers					
	SEWA	30293	23362	29969	16638	14078
	SAATH	5908	8251	9563	10701	8221
	PRAYAS	8194	10537	14812	16734	17219
Overall Financial Performance Indicators						
4	Return on Assets					
	SEWA	0.49%	0.58%	0.95%	0.37%	-0.41%
	SAATH	3.37%	4.50%	0.85%	1.45%	0.31%
	PRAYAS	4.17%	8.56%	3.34%	4.76%	5.22%
5	Return on Equity					
	SEWA	3.77%	6.02%	5.77%	1.56%	-2.54%
	SAATH	26.94%	33.94%	5.88%	9.42%	2.51%
	PRAYAS	45.44%	44.39%	24.74%	27.87%	18.67%
6	Operational Self Sufficiency					
	SEWA	108.54%	109.47%	113.53%	107.15%	99.46%
	SAATH	117.13%	132.79%	104.63%	91.58%	79.92%
	PRAYAS	129.23%	146.74%	114.77%	121.25%	119.75%
Revenue Indicators						
7	Financial Revenue/Asset					
	SEWA	9.28%	9.33%	11.20%	10.93%	11.34%
	SAATH	15.06%	14.55%	15.72%	17.04%	15.04%
	PRAYAS	21.82%	26.86%	25.94%	27.18%	31.64%
8	Profit Margin					
	SEWA	7.87%	8.65%	11.92%	6.67%	-0.54%
	SAATH	22.34%	31.00%	6.82%	8.92%	2.41%
	PRAYAS	19.13%	31.85%	12.87%	17.53%	16.49%
Expense Indicators						
9	Total Expense/Assets					
	SEWA	8.55%	8.53%	9.87%	10.20%	11.40%
	SAATH	12.86%	10.96%	15.03%	17.92%	18.75%
	PRAYAS	16.88%	18.30%	22.60%	22.41%	26.42%
10	Financial Expense/Assets					
	SEWA	4.04%	3.71%	4.35%	3.94%	4.18%

	SAATH	3.07%	2.78%	2.84%	4.23%	4.00%
	PRAYAS	7.71%	7.95%	8.34%	7.93%	6.64%
Efficiency Indicators						
11	Operating Expense/Loan Portfolio					
	SEWA	14.20%	15.45%	15.00%	15.36%	17.18%
	SAATH	10.04%	10.82%	17.45%	18.06%	21.53%
	PRAYAS	9.58%	7.58%	11.56%	10.75%	12.18%
12	Cost per borrower					
	SEWA	60	62	68	87	147
	SAATH	658	702	1134	1393	2381
	PRAYAS	496	10	15	13	16
Productivity Indicator						
13	Borrowers per staff member					
	SEWA	187	136	173	96	77
	SAATH					
	PRAYAS	182	211	279	232	162
Risk and Liquidity Indicators						
14	Portfolio at risk > 30 days					
	SEWA	12.83%	711.43%	21.71%	15.23%	12.37%
	SAATH	0.08%	0.09%	0.09%	0.08%	0.10%
	PRAYAS	0.02%	0.61%	0.27%	0.21%	0.42%
15	Risk Coverage					
	SEWA	49%	1%	20%	26%	33%
	SAATH	0%	0%	1260%	357%	100%
	PRAYAS	826%	725%	1583%	2233%	967%

(Source: Prepared from secondary data sources)

7.2. Analysis of Non-performing assets of MFIs in Gujarat

There are no unique rules and regulations for MFIs and so each MFI classifies their loan asset as per the rules prescribed under its legal form. In order to study these MFIs, it is required to bring all MFIs at equal platform. Hence for research purpose, non performing asset of MFI is defined as per the guidelines given by RBI to NBFC- MFI. NPAs of MFIs are studied by taking eight ratios for a period of five years. Following table shows the ratio analysis:

Summary of Trend Analysis of Ratios measuring NPAs of MFIs

No.	Ratios	2010-11	2011-12	2012-13	2013-14	2014-15
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1	Gross NPA Ratio					
	SEWA	8.97%	6.97%	6.24%	6.28%	5.90%
	SAATH	0.06%	0.07%	0.07%	0.07%	0.08%
	PRAYAS	0.00%	0.26%	0.22%	0.24%	0.20%
2	Net NPA Ratio					
	SEWA	2.89%	2.09%	2.40%	2.86%	2.27%
	SAATH	0.06%	0.07%	-1.07%	-0.23%	-0.02%
	PRAYAS	-2.02%	-2.78%	-1.45%	-0.95%	-0.27%
3	Stress Asset Ratio					
	SEWA	2.81%	2.42%	2.49%	2.75%	2.44%
	SAATH	0.06%	0.06%	0.05%	0.05%	0.05%
	PRAYAS	0.00%	0.25%	0.25%	0.36%	0.34%
4	Sub-standard Asset Ratio					
	SEWA	43%	49%	47%	50%	38%
	SAATH	21%	15%	15%	15%	15%
	PRAYAS	0%	100%	52%	100%	9%
5	Doubtful Asset Ratio					
	SEWA	57%	51%	53%	50%	62%
	SAATH	79%	85%	85%	85%	85%
	PRAYAS	0%	0%	48%	0%	91%
6	Provision Coverage Ratio					
	SEWA	70%	72%	63%	56%	63%
	SAATH	0%	0%	1591%	451%	126%
	PRAYAS	0%	1138%	753%	491%	235%
7	Write-off Ratio					
	SEWA	0%	0%	0%	0%	0%
	SAATH	0%	0%	0%	93%	54%
	PRAYAS	100%	0%	42%	32%	30%
8	Loan loss Rate					
	SEWA	0.00%	0.00%	0.00%	0.00%	0.00%
	SAATH	0.00%	0.00%	0.00%	0.91%	0.09%
	PRAYAS	0.26%	0.00%	0.16%	0.11%	0.09%

(Source: Prepared from secondary data sources)

8. Analysis of primary data

In order to fulfill third objective, survey has been conducted through self administered structured questionnaire. Data collected through questionnaire is analyzed as under:

8.1. Analysis of the responses of questionnaire (Frequency analysis):

For the purpose of classification and analyses of the data collected through survey, frequency analysis is used. Next the frequency analysis is represented through charts so that one can clearly able to see the number of responses in various categories. Frequency analysis is shown both in absolute numbers and as a percentage of total responses of particular question.

8.2. Factors affecting microfinance loan default (Cross tabulation analysis):

There are various factors that lead to microfinance loan default. Through cross tabulation analysis, two and more factors are combined to analyze why microfinance loan became default. Cross tabulation analysis helped to find out whether two or more factors are related to each other and if yes how the relationships among different factors lead to defaults in microfinance loan. Cross tabulation analysis is done by comparing both two and three factors at a time.

8.3. Analysis of relationship of causes of microfinance loan default with other factors (Testing of Hypothesis by Chi Square Test)

Different causes of microfinance have been clubbed under ten different categories using summated scale and then their relationship is analyzed with other factor. The study helped to know whether any factor like socio-economic, loan terms, decision related factors, training and supervision related factors follow a relationship with particular or few cause of microfinance loan default. Following is the results of hypothesis tested using two variables:

Results of test of Hypothesis (Chi Square Test)

Hypothesis	Variable	Variable	p Value	Decision of Null Hypothesis
Socio-Demographic Factors				
1.	Causes of Default	Age	.304	Accepted
2.	Causes of Default	Education	.654	Accepted
3.	Causes of Default	Marital Status	.007	Rejected
Economic Factors				
4.	Causes of Default	No. of earning family members	.493	Accepted
5.	Causes of Default	Individual economic activity	.145	Accepted
6.	Causes of Default	Family economic activity	.691	Accepted
7.	Causes of Default	Individual income	.095	Accepted

8.	Causes of Default	Family income	.435	Accepted
Microfinance Loan related Factors				
9.	Causes of Default	Number of borrowing cycle	.163	Accepted
10.	Causes of Default	Loan amount	.253	Accepted
11.	Causes of Default	Time period since loan taken	.004	Rejected
12.	Causes of Default	Installment Amount	.042	Rejected
13.	Causes of Default	No. of installments	.000	Rejected
14.	Causes of Default	Purpose of loan	.018	Rejected
15.	Causes of Default	Type of borrowing	.008	Rejected
Factors related to microfinance group loan				
16.	Causes of Default	Group formation	.000	Rejected
17.	Causes of Default	Homogeneity factor	.000	Rejected
18.	Causes of Default	Status of group loan	.000	Rejected
Factors related to repayment of microfinance loan				
19.	Causes of Default	No. of installment paid	.000	Rejected
20.	Causes of Default	Time period since payment of last installment	.001	Rejected
21.	Causes of Default	Amount of last installment	.020	Rejected
Factors related to decision regarding microfinance loan				
22.	Causes of Default	Person who took last loan	.000	Rejected
23.	Causes of Default	Person who used last loan	.000	Rejected
24.	Causes of Default	Person responsible to pay installment	.000	Rejected
Factors related to training and supervision of borrowers				
25.	Causes of Default	Receipt of training and information	.105	Accepted
26.	Causes of Default	No. of meetings conducted	.269	Accepted
27.	Causes of Default	Frequency of staff visit	.000	Rejected

(Source: Prepared through primary data sources)

The above study of relationship helps to know which factor leads to which causes of default. Thus, MFIs can take preventive actions in future related to certain factors in order to avoid microfinance loan being default.

8.4. Analysis of relationship of microfinance loan amount with other factors (Testing of Hypothesis by Chi Square Test)

In this section different factors are linked with microfinance loan amount to see their relationship. This study helped to identify any loop hole from MFI during the decision of

sanctioning of microfinance loan amount. While deciding microfinance loan amount, MFI should take into consider age, income, economic activity, borrowing cycle, etc of borrower and her family members and after that MFI should provide proper training and supervision based on their loan amount. Thus, in order to verify above relationship, following hypothesis are tested:

Results of test of Hypothesis (Chi Square Test)

Hypothesis	Variable	Variable	p Value	Decision of Null Hypothesis
Socio Demographic Factors				
28.	Loan Amount	Age	.543	Accepted
29.	Loan Amount	Education	.868	Accepted
Economic Factors				
30.	Loan Amount	No. of earning family members	.417	Accepted
31.	Loan Amount	Individual economic activity	.635	Accepted
32.	Loan Amount	Family economic activity	.072	Rejected
33.	Loan Amount	Individual income	.359	Accepted
34.	Loan Amount	Family income	.000	Rejected
Microfinance loan related Factors				
35.	Loan Amount	No. of installments	.000	Rejected
36.	Loan Amount	Purpose of loan	.016	Rejected
37.	Loan Amount	Type of borrowing	.000	Rejected
38.	Loan Amount	Status of group loan	.000	Rejected
39.	Loan Amount	No. of installment paid	.000	Rejected
Factors related to training and supervision of borrowers				
40.	Loan Amount	Receipt of training and information	.000	Rejected
41.	Loan Amount	No. of meetings conducted	.278	Accepted
42.	Loan Amount	Frequency of staff visit	.607	Accepted

(Source: Prepared through primary data sources)

8.5. Analysis of overall adequacy factor with other factors (Testing of hypothesis using one way ANOVA)

Three questions related to adequacy factors were combined using summated scale. These overall adequacy factors have been compared with other factors to check the similarity and difference of this thinking with various other factors. For this purpose 13 hypotheses has been framed and tested using one way ANOVA test. Further, post hoc test is applied

on those hypotheses were significant different is found in order to identified the groups that have similarity or differences. Following is the summary of result of hypotheses test:

Result of test of hypotheses (One way ANOVA test)

Hypothesis	Variable	Variable	Sig. Value	Decision of Null Hypothesis
Socio Economic Factors				
43.	Adequacy factors	Age	0.036	Rejected
44.	Adequacy factors	Education	0.000	Rejected
45.	Adequacy factors	Individual income	0.000	Rejected
46.	Adequacy factors	Family income	0.000	Rejected
Microfinance loan related Factors				
47.	Adequacy factors	Number of borrowing cycle	0.143	Accepted
48.	Adequacy factors	Loan amount	0.027	Rejected
49.	Adequacy factors	Installment Amount	0.546	Accepted
50.	Adequacy factors	No. of installments	0.440	Accepted
51.	Adequacy factors	Purpose of loan	0.364	Accepted
Factors related to repayment of microfinance loan				
52.	Adequacy factors	No. of installment paid	0.368	Accepted
53.	Adequacy factors	Time period since payment of last installment	0.227	Accepted
Factors related to training and supervision of borrowers				
54.	Adequacy factors	No. of meetings conducted	0.000	Rejected
55.	Adequacy factors	Frequency of staff visit	0.000	Rejected

(Source: Prepared through primary data sources)

8.6. Analysis of relationship and impact of borrower's causes/ situations that lead to arrears/default on reasons behind NPA in microfinance loan

In the examination, different situation or causes have been recognized which lead to the foundation and affected reasons of NPAs in microfinance loan. These situations or causes are combined under three major heads. These Combined situations or causes affecting reasons of NPA are: Overall situation or causes where no income or less income was generated, overall situations or causes where income was generated but utilized in other things and combined miscellaneous causes. Likewise, intra co-connection among these parameters has been examined through co-relation analysis.

Next multiple regression models have been applied to understand & analyze the impact of independent variables like overall situation where no or less income was generated, overall situation where income was utilized for other things and combined miscellaneous causes on dependent variable overall reasons for NPA in microfinance loan.

The entire multiple regression model analysis is classified in “3” parts. In the first part it is very important to check how many factors are significant with the dependent variable. This analysis is derived in model summary. Secondly, it has also been tested whether the combine influence of which independent variable create significant impact on overall reasons of NPA with ANOVA analysis. In the third part, impact of each individual factor on dependent variable which is overall reasons of NPA has been derived with the help of the regressions coefficient chart and co-linearity chart. Four hypotheses has been framed and tested through above model summary and ANOVA analysis.

9. Findings with respect to objectives

Based on the above analysis of the secondary and primary data, following are the findings with respect to research objectives:

9.1 Objective 1 : To analyze the financial performance of MFIs in Gujarat

First indicator is financing structure and under it two ratios are calculated that are capital asset ratio and debt equity ratio. All the three MFIs have very less capital or equity base as one MFI (PRAYAS) is a trust form and works on funds while other two are co-operatives and hence capital base is very less.

Second indicator is outreach indicator which means how far you have reach up to your clients. As microfinance seems to be one of the tools to improve living standard of poor, reaching more and more remote customers is one of the most important indicator of MFI performance. It can see from the above table that as SEWA is the oldest MFI among the three, its client base is the highest. Second highest client base is of PRAYAS as it is older than SAATH. Thus, we can conclude that older the organization, higher the client base.

Next indicator measures the overall financial performance of MFI through three ratios that are return on asset, return on equity and operational self sufficiency. Return on asset of MFI is less compared to return on equity of MFI because as discussed earlier, MFI has less capital base.

Next two indicator shows trend of revenue and expenses of MFI by calculating profit margin ratio, financial revenue ratio, total expense ratio and financial expense ratio. Revenue ratios are higher of PRAYAS but at the same time its expense ratios are also higher.

Efficiency and productivity of MFI is measured through operating expense ratio, cost per borrower and number of borrowers per staff member. Cost per borrower is lowest in SEWA as it is the oldest MFI where as in PRAYAS it is highly fluctuating.

Risk and liquidity indicator is measured through portfolio at risk >30 days and risk coverage ratio. We can see that SEWA is having higher risk compared to other two MFIs as SEWA has a policy to not to write-offs any default loan accounts and therefore since its inception, default accounts have been carried forwarded.

9.2 Objective 2 : To analyze NPAs of MFIs in Gujarat

All the three MFIs studied have different ways to classify their loan assets, provisioning and also write off of NPAs. For example, SEWA does not write off their accounts and so the write off ratio and loan loss rate is zero. PRAYAS write offs non performing asset that are older than 180 days to 360 days that is within one financial year, while SAATH writes off its non-performing assets that are older than two to three years. In addition to this, as SAATH co-operative society was established in 2011, it did not write off its portfolio for initial three years. And therefore, all the three MFIs have been analyzed individually based on their performance over a period of five years.

9.3 Objective 3 : To investigate the causes of microfinance loan defaults of MFIs in Gujarat

In order to achieve this objective, six sub-objectives have been framed and analyzed. Following are the findings based on each sub-objective:

- 9.3.1.** All the questions of the questionnaire were classified into six heads and responses under each head was analyzed using frequency analysis. It was found from socio-demographic factors of borrowers that majorities of them were in age group of 21 to 50 years, married and having primary education or are uneducated. Economic factors of borrowers revealed that they were involved in private job or were self employed and so income level of an average borrower was between Rs. 5000 to Rs. 10000 per month. The major causes of defaults in microfinance loan are mainly due to other debt followed by income problem and utilization of loan amount in other expenses respectively.
- 9.3.2.** While analyzing through cross tabulation, it was found that installment amount of microfinance loan was not dependent on socio-demographic factors or economic factors of borrowers. But it mainly was related with loan amount and partially with number of borrowing cycle. While comparing number of borrowing cycle with number of meetings held and training and supervision by MFI staff, it was found no much relation between them. While comparing decision related questions with each other, it was found that there were different persons involved in all the three different decisions related to microfinance loan.
- 9.3.3.** It was found the causes of defaults do not have association with majority of socio-demographic and economic factors as all the factors jointly have impact on the causes. Five out of seven factors related to microfinance loan have significant association with causes. All the factors related to microfinance group loan, repayment of microfinance loan and factors related to decision regarding microfinance loan have significant association with causes of default. Thus by studying the above association, precautionary steps could be taken in future to avoid overdue or NPA in microfinance loan.
- 9.3.4.** While analyzing the loan amount with other factors it was found that five out of seven factors of socio-demographic and economic do not have association with loan amount. There is no association of loan amount with number of meetings held and frequency of staff visit. Thus it can be said that MFI did not take into consider different factors at the time of deciding the loan amount and this could be few factors which lead to the overdue/ NPA in microfinance loan.

9.3.5. Out of 13 hypotheses tested in order to check difference between overall adequacy factors and other factors, it was found that seven factors have significant difference. Thus it can be said that these while comparing the responses on adequacy factors, there was significant difference found amongst various group with respect to above seven factors. With the help of post hoc test, it was found which group has similarities amongst above seven factors.

9.3.6. Through co-relation analysis it was found that each variable have strong relationship with other variable and it was proved even through t-test. Thus, it can be said that all causes of default have strong impact on reasons behind NPA in microfinance loan. Further, it was found through model summary of multiple regression models that impact of three independent factors on overall reasons of NPA is 68.2% and remaining 39.8% changes occurs because of remaining least affected independent factors. All the three hypotheses related to cause of defaults were tested through ANOVA test were found having significant impact on overall reasons of NPA. Co-efficient analysis found the impact of individual and combined independent variable on one unit of change of overall reasons of NPA.

10. Conclusion

The research study had three main objectives and six sub objectives which were successfully achieved. The findings of each objective helped to get insight of the working and status of microfinance institutions in Gujarat. Based on the findings of the research, suggestions have been given to MFIs on precautionary steps to be taken to avoid the defaults in microfinance loan and also the factors to be considered while deciding loan amount at the time of disbursement.

11. Limitations of the study

- MFIs that are reporting to either MIX market or Sa-Dhan have been considered for the study. This is because MFIs in Gujarat are widely spread and operate under different legal framework and even many of them are not registered and so it is difficult to get

exhaustive list of MFIs. Additionally, MIX market and Sa-Dhan are the authenticate networks from where most of data of MFIs can be found.

- For analysis of financial performance and NPAs of MFIs the period studied is of five years only. This is because it is difficult to get financial period of MFIs in Gujarat beyond five years. Addition to this, many MFIs in Gujarat is established since last six to seven years and therefore comparing for than five years was not possible.
- The responses given by the respondents are subject to their personal biases and choices as the case may be.

12. Future scope of the research

- Present research was focused on investigating causes of NPA by surveying default borrowers. Further research can be conducted by surveying MFI's staff at various level of organization structure.
- In this study research analyzed the defaulters of microfinance loan. Further comparative research can also be carried out by analyzing regular borrowers.
- The research study was limited by geographical region and also time period. This scope can be widened for further study.
- The study is focused on loan services of microfinance institutions. Further the other services of microfinance can also be studied in order to have overall impact of microfinance on poor.

13. List of all publications arising from the thesis

Sr No	Author(s)	Title of the Paper	Journal/ Book Name	Journal Type	Affiliated Institute/University and publication	Year & Volume
1	Prof. Bhoomi Parekh	“Measuring Trends of Financial Performance of Microfinance institutions in Gujarat”	Recent trends in Engineering and Management	Inter – National	Sanjivani Rural Education Society, Ahmednagar, Maharashtra and Success Publication Pvt. Ltd.	2016; pg no. 38 to 48 (ISBN: 978-93-5158-299-1)

2	Prof. Bhoomi Parekh	Microfinance delivery models followed by Microfinance Institutions in Gujarat	Management & Research practices in emerging markets	National	B.K. School of Business Management & Books India Publication	2016; pg no. 65 to 73 (ISBN No. – 978-93-80867-85-4)
3	Prof. Jitendra Patoliya & Prof. Bhoomi Parekh	“Emergence of IFRS as good governance to financial reporting in India”	Sankalp : Journal of Management & Research (ISSN No. 2231-1904)	Inter – National	Gujarat Technological University (G.T.U.) in collaboration with SMJV’s CKSV Institute of Management	Volume 3, February 2013; pg no. 113 to 117



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