Article

Impact of Microfinance on Poor Women: Lessons from Sabarkantha, Gujarat

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Abstract

Microfinance, in simple terms, can be defined as financial services for the poor. Currently, the policy-makers all over the globe are increasing their emphasis on microfinance. At this point of time, considering the energy and money being channelized to this sector, one of the issues that need to be addressed is that of effectiveness of the various models of microfinance delivery. With this backdrop in mind, the present study is an attempt at carrying out an impact assessment of microfinance. This cross-sectional research has been conducted in the Sabarkantha district of the state of Gujarat among the women living below the poverty line (BPL), where the control group comprises new entrants, while the treatment group has old participants of the programme. The study involves both quantitative and qualitative data analysis at the household level and the individual level.

The study found that microfinance increases the income of the poor clients who are into the programme for more than two years. It also found that consumption expenditure came down during the initial period of participation as the participants learnt financial prudence, and after that, the change was negative but insignificant. At the individual level, it was found that participation in the programme improved the financial security for the clients and the proportion of daughters attending school to those eligible for schooling. However, there was no significant change in the financial decision-making process.

The impact assessment concluded that microfinance does impact the poor women positively, but in order to improve the quality of their lives and to sustain this improvement over a period of time, further interventions at the social and human level are required.

Keywords

Microfinance, poor women, impact, household level impact, individual level impact

We got rid of colonialism, we got rid of slavery, and we got rid of apartheid—everyone thought each one of them was impossible. Let's take the next impossible, do it with joy and get it finished with and create a world free from poverty. Let us create the world of our choice.

—Mohammad Yunus[1]

> Microfinance refers to small-scale financial services—primarily credit and savings—provided to people who farm or fish or herd; who operate small enterprises or micro enterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at local levels of the developing countries, both rural and urban. (Robinson, 2001)

Microfinance plays an important role in bringing the people living below the poverty line into main stream of the economy, and thereby, participating in the process of nation-building (Amarnani, Amarnani & Achuthan, 2010). With this perspective, significant funding is being channelized to the sector through both the private and public routes. Hence, there is an acute need to ascertain whether these microfinance programmes are actually fulfilling their stated goals. An increasing number of donors, microfinance institutions (MFIs), governments and social

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organizations are trying to assess the impact, outreach and sustainability of the various microfinance programmes. Consequently, there have been numerous impact assessments conducted in various countries. The occurrence of these impact measurements has increased in the recent years with more and more institutions looking at these studies not only for establishing their impacts but also for improving their programmes and products, with the various governments trying to understand how reliable these programmes are, and with academia trying to look at the various methodological issues. These studies vary mainly in terms of research design and the method of analysis.

With this backdrop in mind, the present study is an attempt at carrying out an impact assessment of microfinance; the data for which was collected in 2009–2010 from the Sabarkantha district of north Gujarat. For the purpose of this study, only those women were considered who belonged to families that were below the poverty line. Considering the fact that it would be difficult for the researchers to ascertain the income of the family and decide whether they were below the poverty line or not, only those families were studied that had the BPL card issued by the government.

The first part of this study comprises a literature review of impact assessments of microfinance carried out in different parts of the world using different ways to deal with the various methodological issues. It subsequently discusses the methodology that has been used here to carry out a cross-sectional impact assessment in the Sabarkantha district of Gujarat. Regression analysis, chi-square test and t-test have been used for the quantitative analysis, and focus group discussion and case study methodology have been used for the qualitative analysis.

The study concludes that microfinance increases the income of the poor clients who are more than two-years old into the programme. It also finds that consumption expenditure comes down during the initial period of participation as the participants learn financial prudence, and after that, the change was negative but insignificant. At the individual level, it finds that participation in the programme improves the financial security for the clients and the proportion of daughters attending school to those eligible for schooling. However, there was no significant change in the financial decision-making process reported.

Literature Review

The Grameen Bank, established in 1976, was one of the first MFIs which received international attention (Godberg, 2005). Hence, it is no wonder that the Grameen Bank was the focus of many earlier studies. One of the first impact studies was carried out by Hossain (1988). This study compared Grameen Bank's members with eligible non-participants in Grameen villages as well as target non-participants in comparison villages. Hossain found the Grameen members' average household income to be 43 per cent higher than the target non-participants in comparison villages. Another important study worth a mention here is the one conducted by Hulme and Mosley (1996). This was a cross country study, conducted in Indonesia, Bangladesh, India and Sri Lanka. This was essentially a before-and-after study carried out for the borrowers and the control samples. It also found that the growth of incomes of borrower group always exceeded that of the control group.

Todd (1996) instead of attempting a large-scale study came up with a unique methodology. To understand the extent of impact of microfinance, she spent a year in two Grameen villages and studied 64 households (40 borrower households and 24 comparison households). She also discovered a positive impact of the intervention.

Khandker (2005) and Pitt and Khandker (1998) are widely cited evaluations of microfinance programmes. 'They were influential because it was for the first time a serious attempt to generate a truly accurate assessment of the impact of microfinance by dealing with selection bias and non-random programme placement' (Goldberg, 2005). It was based on data collected by the World Bank and the Bangladesh Institute of Development Studies (BIDS). The first study was a cross-sectional study, while for the second one, Khandker used panel data. However, for both the studies, the results were positive.

In another study, Husain and Muazzam (1998) carried out a longitudinal study for Bangladesh Rural Advancement Committee (BRAC). In this case, the comparison group was found to differ socio-economically from the participants. Though the groups were not perfectly comparable, the panel data allowed BRAC to compare the change in participants versus non-participants. This impact assessment listed down several positive impacts from participation in BRAC.

In his study in 1999, Coleman looked at two MFIs—the Rural Friends Association and the Foundation for Integrated Agricultural Management. Coleman used a unique research design to deal with selection bias. In order to determine who in the comparison villages would have chosen to enroll in village banks, had they been available, he actually had interested villagers sign up a year in advance—that way, he could compare borrowers with people having the same 'entrepreneurial spirit', who had not been offered credit. The correct specification found no impact on physical assets, savings, sales and school expenditures.

The effect on household medical expenditures was negative, and female clients' borrowing from moneylenders actually increased (presumably to pay off their village bank loans). Coleman (2002) through a follow-up article for the Asian Development Bank segregated the participating members to study the impact by type of client, and found that the impact on rank and poor members is significantly smaller than the impact on the comparatively better off, and is largely insignificant.

Chen and Snodgrass (2001) carried out a study that is relevant and interesting because it compared the impact of clients who borrowed for productive purposes to those who saved with Self-employed Women's Association (SEWA) Bank without borrowing, and then compared both the groups with non-clients. It was found that the borrowers' income was over 25 per cent higher than the savers (and 56 per cent higher than the non-participants). The savers also exhibited household income 24 per cent higher than the non-participants. These findings indicate that microfinance—microcredit as well as microsavings—can both create an impact, although credit has a higher impact in financial terms. This study made an important contribution to the debate between those who favour a credit-led approach and those who support a savings-led approach.

National Bank for Agriculture and Rural Development (NABARD) (2004) conducted a study in Kalahandi district of the Kalahandi Bolangir Koraput (KBK) region in Odisha. Data was collected from 997 members of 80 sample self-help groups (SHGs), which were more than two years old. The study aimed at evaluating the effectiveness of the SHG-Bank Linkage Programme in the various aspects of group functioning, bank linkage and the socio-economic impact at the household level. The women members increased the literacy (26 per cent), and could empower themselves socially by protesting against the sale of country liquor and lobbying for roads and drinking water facilities through their newly found organizational strength. Economic empowerment was the prime aspect for community development, and this was distinctly visible in the confidence level of the members of the sample SHGs, especially among the groups that were functioning regularly.

Kaboski and Townsend (2012) provide an impact assessment of Thailand's Million Baht Village Fund programme, a government microfinance initiative launched in 2001. The objective of the Million Baht programme was to 'improve the economic and social status of villagers, and to enable villages to be less dependent on government aid in the future'. The programme involved the transfer of 1 million baht (USD 24,000 using the exchange rate used in the article) to participating villages; these funds were used to form an independent village bank for lending within the village. This article uses the survey data collected over the years 1997–2003, five prior years (1997–2001) and two after-years (2002–2003), which enabled the researchers to estimate the village-level effects of the programme. The study found that when looking at the sources of income, credit caused a larger increase in the percentage of female-headed households reporting positive and above average business income. As against the expectation, female-led households did not show an increase in spending on children's education, it did show a shift towards consumption of auto-repair services, clothing, meat and alcohol at home.

In another study, Karlan and Zinman (2009) conducted a randomized evaluation of the effects of lending by First Macro Bank, a second generation microcredit organization in Manila, Philippines. They found no significant effect on household incomes, poverty or remittances received, nor on food quality or household members' likelihood of visiting a doctor. They also found almost no significant effect on a series of subjective measures of well-being,such as optimism, calmness and stress.

Banerjee, Duflo, Glennerster and Kinnan (2009) reported the first randomized evaluation of the group-lending microcredit model. The study was performed in Hyderabad, India, where 50 per cent of the neighbourhoods were selected for opening of a branch of Spandana (one of the fastest growing microfinance institutions in the area), while the remaining 50 per cent were not selected. Data was collected about 15 to 18 months after the branch opening in each area using the sample survey method. The difference in economic parameters was small and statistically insignificant. Effects on women's empowerment, child health or participation in or spending on children's education were also found to be statistically insignificant. The researches pointed out that the study had a short time frame, indicating that over a longer period, the results might vary.

In conclusion, two issues emerge from the review of literature of microfinance impact studies. One is that of selection of an appropriate methodology in order to reduce the selection bias in the data being analyzed, and second is that of selection of appropriate variables to understand the impact at different levels.

Methodological Issues

The first and foremost debate in an impact study is that of the use of qualitative or quantitative methodologies. Both these approaches have certain limitations, and many

studies have concluded that either of these cannot appropriately ascertain the impact of microfinance alone. 'Each approach has an appropriate time and place, but in most cases, both are required to address different aspects of a problem and to answer questions that other approaches cannot answer well or cannot answer at all' (Carvalho & White, 1997).

The problem with the quantitative approach is that of establishing a contra factual to test factual information coming from the clients such that it takes care of selection bias and also the attribution problem. In other words, the issue is that of establishing a proper comparison group. Several options have been used by various studies for this such as the use of non-clients in non-treatment villages, non-clients in treatment villages or as suggested by AIMS-SEEP (Assessing the Impact of Microenterprise Services (AIMS) - the Small Enterprise Education and Promotion Network (SEEP))methodology[2] of use of new clients. For a number of technical reasons, the best way of doing this is using randomized controlled trials (RCT). However, RCTs have their own limitations. One of the major ones being that it can test the impact for new programmes only. 'RCT cannot be used for programmes that are already in place' (Odell, 2010). The ethical debate regarding the use of RCTs also continues.

Present Study

The present study is an attempt to understand the impact of microfinance on the poor women of Sabarkantha district in Gujarat. It uses the AIMS-SEEP methodology of using the new clients as the control group. The clients under the study are either linked to a non-government organization working in the area or to a nationalized bank. The study assesses impact at the individual and the household level using both qualitative and quantitative cross-sectional data.

Selection of Variables

Impact can be assessed at several levels such as individual level, household level, micro-enterprise level, village level, community level and so on. At each of these levels, several variables are selected to understand the impact. The variables range from easily measurable ones such as income, expenditure, wealth, assets and so on to wider impacts such as empowerment, quality of life, use of contraceptives, nutrition, education of the children in the household and so on.

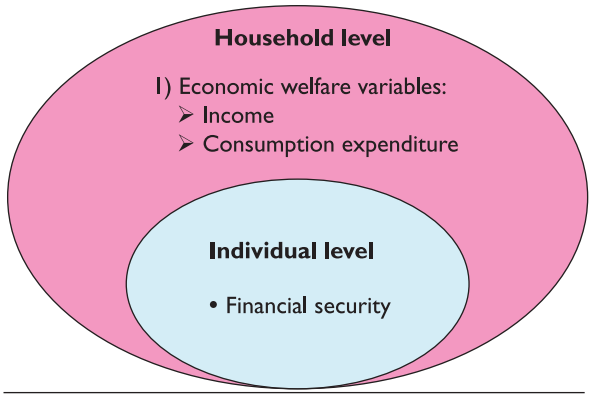

Figure 1. Impact Variables

Source: Authors' representation.

On the basis of the literature survey, the variables identified for the study at each of these levels are (Figure 1):

1. Household Level Variables
   - Total Household Income
   - Total Household Expenditure
   - Total Size of the Household Land Holding
2. Individual Level Variables
   - Assets in clients name
   - Role in decision making

Variables under Study

The variables that are being documented and analyzed in the present study have been categorized into two: impact variables and control variables.

Impact Variables

Microfinance is expected to affect a poor household in a number of ways. Researchers have analyzed a range of outcome or impact variables—social as well as economic ones such as household income, consumption, business profits, schooling, nutrition, contraception, asset holding, risk, empowerment, well-being, changes in social consciousness and so on—to understand the impact of microfinance. The variables being examined in the present research are described below:

1. Income

Income is often used as a variable to understand the level of economic condition of the household. Here, the total household income is taken into consideration, and the impact of microfinance participation and the amount of borrowing on this variable is measured.

2. Consumption Expenditure

The second variable that needs to be studied is the standard of living of the poor. The purpose is to examine if there has been any improvement in the standard of living, resulting in a better quality of life for the poor. The proxy used for this variable is consumption expenditure. Consumption expenditure of the household includes food, medical, educational and other expenses such as gifts to the younger members of the extended family.

3. Total Size of the Household Landholding

The next parameter that is looked at is the increased financial security for the client household. To measure the financial security, asset holdings of the household need to be considered. However, it was found that the comparison of the various asset portfolios was difficult as it was not possible to ascertain the value of various assets. Hence, the size of the family landholding is the variable being studied here as a proxy for financial security. This assumption has its limitations as the landholdings will also vary with the occupation, that is, a farmer is likely to have more land compared to a labourer.

4. Assets in the Clients' Name

At the individual level, there is a need to understand whether there is improvement in the level of financial security for the client. To measure the level of financial security, the number of assets in the name of the client is being measured. The assets include all physical and financial assets in the client's ownership. This also gives the researcher an idea of the resource allocation or the distribution of the resources within the household.

5. Role in Decision-making within the Household

After understanding the resource allocation within the household and the impact of microfinance on the same, the next step is to understand the status of the women clients within the household. To measure the impact of microfinance in terms of improved status of the women within the family, their contribution in the family decision-making process was looked at. This was further analyzed on the basis of two parameters: (a) say in the use of the loan amount (financial decision) and (b) daughters' education level (social decision).

- **Say in the Use of the Loan Amount (Financial Decision)**

  It has been observed by a number of studies that a large number of women pass on their loan money to their husbands, and thus, have no role in the financial decision-making process. As the size of the loan increases, the percentage of women participating in the decision-making process for the use of the loan further goes down.

- **Daughters' Education Level (Social Decision)**

  Quite a few studies have looked at children's education as the outcome variable, but the researcher in the present study feels that daughter's education will be a better measure. This is so because of the existing problem of preferential treatment in educating male child to a female child in India, even more so in the state of Gujarat.[3]

Control Variables

The other independent variables used in the study are also as adopted from the existing literature (e.g., Coleman, 1999; Montgomery & Weiss, 2005). They are the education level of the client, number of working members in the household, family size and new skills learnt, if any. The independent variable, new skills learnt, was defined using the dummy variable methodology.

Treatment Variables

- **Participation in the microfinance programme is the treatment variable and is considered on the basis of two aspects:** Period of Participation in the Programme:

  We use the dummy variable method to define this variable. The base value D_0 is defined as less than six months of participation in the programme. Further, we define the rest of the dummy variables as follows:

  - D_1—participation in the programme from six months to one year.
  - D_2—participation in the programme from one year to two years
  - D_3—participation in the programme for more than two years.

- **The Amount of Loan Taken:**

  The amount of loan taken is defined in terms of Indian rupees.

Research Questions

The following research questions have been posed:

- Does microfinance impact the household income?
- Does microfinance impact the standard of living, measured in terms of increased household consumption expenditure?
- Does microfinance impact the size of the household landholding?

- Does microfinance impact the number of assets owned by the client?
- Does microfinance result into a changed role in the household decision-making for the participating women?
- Does microfinance have an impact on empowerment of the participating women?

Research Design

The research design for an impact assessment could be longitudinal or cross-sectional. The longitudinal design, while generating valid results, is difficult to conduct in scenarios of time and budget restrictions.

A cross-sectional design is fast and requires comparatively lesser resources. According to Karlan (2001), a valid control group is the Holy Grail for a good impact assessment in case of a cross-sectional design. There are three options available for this kind of design:

- **Clients-only survey**: In this case, the clients' opinion about the impact of microfinance is taken into consideration. However, this has its own limitations. There is no comparison group, and it is only the clients' perception which is the basis of research.
- **Clients and non-clients**: In this option, non-clients from the same village or from a different village are taken as the control group and are compared with the treatment group. The problem with this kind of design is that there is a high level of selection bias in the data.
- **Mature clients and new clients**: Here, the veteran clients are compared with the new entrants of the microfinance programme. The logic behind this is that there is a basic similarity between the two groups as both the groups are eligible for the membership in the programme.

For the present study, *a cross-sectional research design* has been adopted along with the option 'mature clients and new clients', wherein the two groups are set as mentioned below:

- **Control Group:** The control group comprises of *new entrants* from the same geographical area, that is, the Sabarkantha district in Gujarat.
- **Test Group:** The test group comprises of those clients who have been part of the microfinance programme for *more than six months*.

The Instrument

The various parameters to be studied to understand the impact of microfinance were identified by looking at the available literature and by conducting interviews with several officials at various organizations. Some of the organizations that were visited were NABARD, Friends of Women's World Banking (FWWB), Khadi and Village Industries Commission (KVIC), International Centre for Entrepreneurship and Career Development (ICECD) and Arman Financials. On the basis of these parameters, a structured questionnaire was framed. It had in all 22 structured questions. The instrument was pilot tested at Mochivas[4] in Himmatnagar of Sabarkantha district, and subsequently, refined.

Sample Size and Data Collection

A sample size of 350 was selected. The sampling approach used was convenience sampling. The data of clients in the Sabarkantha district of Gujarat was taken from a non-government organization and a bank, and then to keep the cost of the study manageable, large clusters were identified. Within the cluster, all the clients who were available on those particular days were interviewed. So in all, three talukas[5] in Sabarkantha were identified and from each taluka, around two areas were selected which included both rural and urban centres. The chart for data collection (Figure 2) is as follows:

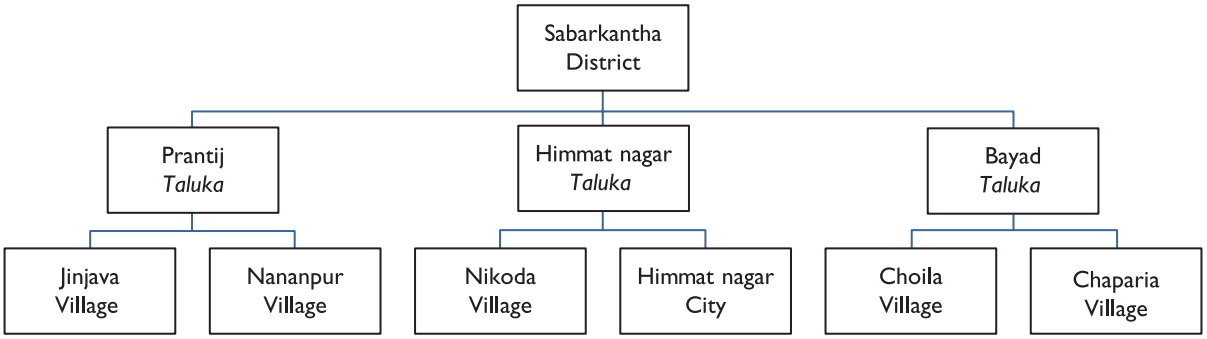

Figure 2. Data Collection Pattern

Source: Authors' representation.

Selection Bias

One of the major issues in a cross-sectional design is that of selection bias. Selection bias which is essentially a problem of attrition is a major source of concern for all researchers in social sciences, especially while carrying out an impact assessment. This arises because of the presence of certain exogenous factors like the entrepreneurial capabilities of the participants as compared to non-participants. There are different ways in which this can be tackled. Some methods emphasize on selecting a proper control group, for example, Coleman's (1999) innovative method of actually making the eligible group for non-participant villages one year in advance, and this group forming the control to randomized controlled trials which are becoming very popular nowadays. Other methods rely on statistical techniques to help them deal with selection bias. However, the debate about an appropriate method to handle selection bias continues.

Several steps at every stage were taken to reduce the amount of selection bias.

As a first step, while deciding on the research design, the AIMS-SEEP method of using the new members as the control group was selected. Since both the control and treatment groups are eligible for participation in the programme, it ensures that they are basically similar.

At the time of data collection, large numbers of clients were generally picked up from a single geographical location. The fact that the entire sample came from a single district also implies that there was not much difference in the sample because of clients belonging to different geographical locations.

To further reduce the amount of selection bias in the data, the first group of clients which joined about four years back has been excluded from the study. While working in the field, it was observed that this group which joined the programme under study in the first phase did have certain characteristics which set them apart from the rest of the group. They were generally the leaders in the community, willing to experiment with the unknown. While the rest of the group was very sceptical about joining the programme, these people were willing to take the initiative. These clients, because of their entrepreneurial spirit, probably would have been at a different level even without this programme. As far as the rest of the members were concerned, they all seemed to be on a similar platform. The time of their joining the programme was more a function of the different circumstances in their life, rather than anything else.

Sample Profile

The basic profile of sample is given in Table 1.

Table 1. Sample Profile

Sr.	Parameter	Mean Values	Std. Deviation
1	Age (in years)	36.5	9.7
2	Education—number of years in school	5.01	4.90
3	Size of the family	4.71	1.54
4	Number of working members in the family	2.16	1.15
5	Number of children in the family	1.62	1.17

Source: Sample data collected from the Sabarkantha district in Gujarat.

Education Levels of the Clients in the Sample

It is strongly believed that education plays an important role in broadening a person's perspective, and also in his or her earning capacity, given a certain set of resources.

As can be seen from Table 2, the education level of this group is approximately 59 per cent. About five per cent of the female clients have attended to college.

Family Size

There is a wide variation in the size of the household within the sample. The family size varies from a two member household to a 12-member household. However, majority of them (about 88 per cent) have families with the number of members varying from three to six (Table 3).

Table 2. Educational Profile of the Sample

Education Level	Number	Per cent
Illiterate	144	41.14
Primary education	87	24.86
Secondary education	101	28.86
College education	18	5.14
Total	**350**	**100.00**

Source: Sample data collected from the Sabarkantha district in Gujarat.

Table 3. Distribution of Family Size of the Sample Households

Family Size	No. of Households	Per cent of Households
Small (<=2)	13	3.71
Medium (3–4)	163	46.57
Large (5–6)	144	41.14
Very Large (>=7)	30	8.57
Total	**350**	**100.00**

Source: Sample data collected from the Sabarkantha district in Gujarat.

Analysis of Data

Analysis of the data is divided into three parts—the first part examines the reliability of the data collected. Cronbach's alpha is calculated to look at the reliability of the data. The second part involves carrying out a descriptive data analysis to understand whether the two groups—the control group and the treatment group—are basically comparable or not. This is followed by the final impact analysis where we use various statistical tools to understand the impact of the microfinance at the household level and at the individual level.

Reliability Test

Cronbach's alpha[6] was calculated for the impact variables as well as control variables. A total of six variables were tested and a value of 0.573 of Cronbach's alpha on standardized item was obtained. This implies that the data is reasonably reliable.

Descriptive Analysis

Descriptive analysis is carried out to test whether the two groups (the treatment group and the control group) under the study are comparable or not. This type of analysis also helps us to understand the differences in the poverty levels of the two groups, and the reasons thereof. Further, according to Henry, Sharma, Lapenu and Zeller (2003), these kinds of descriptive statistics provide a background that can contribute to the interpretation of quantitative poverty related findings.

Descriptive analysis involved comparing the two groups on the basis of three parameters: (a) Age, (b) Educational level and (c) Primary household occupation. T-test was used to compare the age and educational level of the two groups. Chi-square test was used to find whether the primary household occupation of the two groups was similar or not. The results were as follows:

- Age: It was found that the difference between the two groups was not significant at 5 per cent level of significance.
- Educational level: The educational level of the clients was measured in terms of the number of years of education undertaken. Through the t-test, it was concluded that the difference in the educational level of the clients in the control group and the treatment group was not significant at the 5 per cent level.
- Primary household occupation: The primary occupation of the household was analyzed to understand whether any difference existed in the primary occupations of the clients in the control and the treatment groups. It was concluded that there was a substantial difference in the patterns of distribution of primary occupations, the difference being statistically significant even at the 1 per cent level.

As can be seen in Table 4, the percentage of clients belonging to the households which have labour as their primary household occupation is much higher in the control group than the treatment group. On the other hand, the percentage of clients belonging to the households in the farming and animal husbandry professions is much higher in the treatment group as compared to the control group. From this, two possible interpretations emerge—one that the microfinance providers have initially targeted the households from less risky occupations, like the ones which have a stable source of income from jobs or established occupations in the area such as farming and animal husbandry, or the people from these professions have been more willing to take the loan and the risks associated with the increase in their debt burden.

Table 4. Primary Household Occupation of All Respondents from Sabarkantha District

	Number		Per cent	
Occupation	Treatment Group	Control Group	Treatment Group	Control Group
Farming	163	26	57.8	38.24
Animal Husbandary	31	5	10.99	7.35
Self-employed*	40	8	14.18	11.76
Labour	20	25	7.09	36.76
Salaried Worker	28	4	9.93	5.88
Total	**282**	**68**	**100.00**	**100.00**

Source: Sample data collected from the Sabarkantha district in Gujarat.
Note: *Non-farm and non-cattle rearing enterprises.

Quantitative Impact Analysis

As has been mentioned earlier, for this study, the impact has been measured at the individual and the household level.

Household-level Analysis

The household level impact analysis involves the measurement of impact of microfinance service provided to the client on various household parameters.

1. Total Household Income

The impact of microfinance intervention on the total monthly household income was analyzed with the period of participation in the microfinance programme and the total amount of loan as the treatment variables.

The hypotheses for this part of the study are:

- The total household income of the client does not change with the duration of participation in the microfinance programme.
- The total household income of the client does not change with the amount of loan received under the microfinance programme.

In order to test these hypotheses, we conduct a multivariate regression analysis. In this case,

$$HI = \alpha + \beta_1 Ed + \beta_2 Work + \beta_3 LAMT + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3$$

where,

HI = Total household income per month
Ed = Number of years of schooling
Work = Number of working members in the household
LAMT = Total loan amount
D1 = 1, where participation in the programme is from six months to one year, else = 0
D2 = 1, where participation in the programme is from one to two years, else = 0
D3 = 1, where participation in the programme is more than two years, else = 0

It was found that the amount of loan taken from the MFI had a positive and significant impact even at 1 per cent level of significance on the total household income, and that for *every ₹ 100 of loan given, there is an increase in the monthly household income by ₹ 4.40.*

For the second treatment variable, it was found that for participation between six months and one year, the impact on the household income is negative but insignificant. For participation varying from one to two years, the impact on the household income is negative and significant. The possible explanation for this could be that the business during this short span is not yet a profitable one, and in fact, needs more money to be put into it. For participation greater than two years, the impact is positive and significant at 10 per cent level of significance. So it can be concluded that for the client who is more than two years into the programme, there is an increase in the monthly income of the household by ₹ 1102.91 which is statistically significant at 10 per cent level of significance.

According to the results, the number of years of education and number of working members in the household have a positive and significant impact on the income (Table 5). With every additional year of education, the

Table 5. Effect of Participation in the Programme on Household Income

Dependent Variable: Household Income			
Variable	Coefficient	t-Statistic	Sig.
Constant	**1635.621**	**2.220**	**0.028**
Number of years of schooling	**161.293**	**3.815**	**0.000**
Number of working members in the household	**1253.121**	**7.604**	**0.000**
Total Loan Amount, ₹	**0.044**	**4.320**	**0.000**
D1 (Participation in the programme for 6 months–1 year)	–879.812	–1.397	0.164
D2 (Participation in the programme for 1 year–2 years)	**–1611.108**	**2.825**	**0.005**
D3 (Participation in the programme for > 2 years)	**1102.906**	**1.784**	**0.076**
N		**343**	
R-squared		**0.415**	
Adjusted R-squared		**0.397**	
F-statistic		**23.504**	
p (F-stat)		**< 0.001**	

Source: Output table for regression analysis carried out with household income as the dependent variable.

income increases by ₹ 161 and with every additional working member in the family, the household income increases by ₹ 1,253.

It is worth noting that the intercept is positive and significant, which indicates the accrual of some income to the household irrespective of presence of working members or education/participation in the programme. This is likely and expected due to the presence of some subsidies for child education and other benefits provided from the government. However, specific information on these points was not easy to obtain from the participants.

2. Total Household Consumption Expenditure

The second impact variable is the monthly household consumption expenditure. The impact of microfinance intervention on the total monthly household consumption expenditure was analyzed with the period of participation in the microfinance programme and the total amount of loan as the treatment variables.

The hypotheses for this are:

- The total household consumption expenditure of the client does not change with the duration of participation in the microfinance programme.
- The total household consumption expenditure of the client does not change with the amount of loan received under the microfinance programme.

The methodology used to test these hypotheses was multivariate regression analysis.

$$CE = \alpha + \beta_1 Ed + \beta_2 Work + \beta_3 LAMT + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + \beta_7 D_4$$

where,

CE	=	Monthly household consumption expenditure
Ed	=	Number of years of schooling
Work	=	Number of working members in the household
LAMT	=	Total loan amount
D1	=	1, where participation in the programme is from six months to one year, else = 0
D2	=	1, where participation in the programme is from one to two years, else = 0
D3	=	1, where participation in the programme is more than two years, else = 0
D_4	=	1, if the client has participated in any training and learnt a new skill, else = 0

The results of regression are given in Table 6:

Table 6. Effect of Participation in the Programme on Household Consumption Expenditure

Dependent Variable: Household Consumption Expenditure			
Variable	Coefficient	t-Statistic	Sig.
Constant	**1805.040**	**4.458**	**0.000**
Number of years of schooling	**79.217**	**3.924**	**0.000**
Number of members in the household	**354.079**	**6.706**	**0.000**
Total Loan Amount, ₹	**0.015**	**2.955**	**0.004**
D1 (Participation in the programme for 6 months–1 year)	**–762.221**	**–2.553**	**0.011**
D2 (Participation in the programme for 1 year–2 years)	**–966.944**	**–3.569**	**0.000**
D3 (Participation in the programme for > 2 years)	–60.488	–0.206	0.837
D4 (New Skills learnt)	**–1063.176**	**–3.717**	**0.000**
N	**343**		
R-squared	**0.355**		
Adjusted R-squared	**0.332**		
F-statistic	**15.576**		
p (F-stat)	**<0.001**		

Source: Output table for the regression analysis carried out with household consumption expenditure as the dependent variable.

It was found that the amount of loan taken from the MFI had a positive and significant impact even at one per cent level of significance on the total household income. Every loan of ₹ 100 results in an increase in the household consumption expenditure by ₹ 1.50 per month.

The analysis for the period of participation showed mixed results. The two time periods, from six months to one year and from one year to two years of participation in the programme, show a negative relationship with the consumption expenditure, and this relation is statistically significant at a level of significance of one per cent. The probable reason could be that as they set up their businesses, they divert more money into the business, thus, reducing their consumption expenditure. Alternatively, it could be that due to the loan, they learn more financial prudence and cut down on their wasteful consumption. While in the third time period, that is, for participation of more than two years, the relationship between consumption expenditure and the period of participation is negative but insignificant. Therefore, it can be concluded that although there is a significant increase in the income of the

clients who are more than two years into the programme, it does not result into an increase in the consumption expenditure. There probably exists a time lag in the increase in the income, resulting in an improved standard of living.

The results for the other independent variables are also worth noting at this stage. For every additional year of schooling, the standard of living is going up and this is statistically significant even at one per cent level of significance. The new skill learnt is reducing the expenditure by a significant amount and this is statistically significant too. On closer investigation, it was found that this was because the training given was mainly financial training wherein they were taught the importance of saving, budgeting and so on. Only a very small group had received income generating training such as training for embroidery work, patchwork and other similar skills. However, it was found that this was resulting in an increase in income by not more than ₹ 300 per month, but even this had several positive effects; it was making them feel important, it was keeping them busy and the community feeling was increasing when all the women folk in the community were coming together in the afternoons and were working while chatting.

3. Total Household Landholdings

The total size of the landholdings of the households in the control group and the treatment group were compared using t-test (Table 7).

The hypothesis for this is:

The average size of the household landholdings of the clients in the treatment group and the control group is the same.

The null hypothesis was rejected. It was found that the average size of landholdings of the clients in the treatment group is significantly higher than that of those in the control group even at one per cent level of significance. However, this could be a function of their primary household occupation as observed in the descriptive analysis (Table 4), rather than a result of participation in the microfinance programme.

Table 7. Impact on Household Landholding

	Control Group	Treatment Group
Mean Household Landholding, bighas	1.799	4.197
Variance	10.538	60.402
Observations	67	275
t Stat	–3.907	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.969	

Source: Output table for t-test.

Individual-level Analysis

At the individual level, the study looks at two types of variables. The first one is to understand the economic security that the client enjoys in terms of the number of household assets in her name and the second one looks at the role that the client has in the household decision-making.

1. Number of Assets in the Name of the Clients

The number of assets in the name of the clients in the control group and the treatment group were compared to find whether participation in a microfinance programme increases their financial or economic security in terms of increased number of assets in their name. *T-test* was used to carry out this comparison. It was found that the average number of assets in the name of the clients in the treatment group was significantly higher than that of those in the control group. However, this difference may be because of their primary household occupation (as observed in descriptive analysis), rather than a result of the microcredit given to them.

2. Role in the Household Decision-making Process

The role of clients in the household decision-making process was analyzed on the basis of two parameters: (a) say in the savings amount or the use of the loan amount (financial decision) (b) daughters' education level (social decision). Pearson's chi-square test was performed to find whether the proportion of women having a say in the financial decisions of the household in the control and the treatment groups was the same or not. It was found that there did not exist any statistically significant difference in the role of the client in the household decision-making process as far as the financial decisions were concerned. However, for the level of daughters' education, it was found that the proportion of eligible school going daughters of the clients in the treatment group was significantly more than that of those in the control group.

Qualitative Impact Analysis

Apart from the above quantitative analysis, the researcher has also conducted qualitative research to understand the impact of microfinance. Focused group discussions and some in-depth interviews with participants to document a couple of case studies were also conducted. The same is presented below.

Focus Group Discussions

Two focus group discussions (FGDs) were carried out—one at Mochivas in Himmatnagar with the clients of an NGO and second at Nikoda village in the Himmatnagar district with the clients of a nationalized bank. There were about 15 to 20 women in each of the FGDs. Both the groups were very positive to the microfinance programme. The important points that emerged were:

1. Microfinance has helped them to come out of a vicious circle that they had entered into because of the moneylender. The moneylender had been charging them as high as 10 per cent interest per month, and in the case of default or delay on their part, he and his men were resorting to violence. As a result, they were all living in a continuous state of fear. In the case of any member of the family falling ill, or any social ceremonies needing to be performed, they had no other alternative but to take the help of the moneylender, and then the vicious circle would start as they were not able to pay these high rates of interest and the money due in their names would go on increasing. They all felt that microcredit was like a God sent gift to them. The clients of the NGO admitted that many of them just took loans to clear old debts with the moneylender, but that improved their cash flows and helped them lead a better life, while the nationalized bank group was very proud of their savings habit and the future security that came with it.
2. Through the discussion, it was found that they had taken microcredit for three main purposes: first, to repay their previous debts to the moneylender; second, for any social obligations that they had such as marriages, daughters' delivery, illness in the family, last rites that they needed to perform and other such requirements and finally, for productive purposes like buying stock for their *thelas* (mobile shops).
3. They all felt that they now had a better standing in the community, and when they went to visit their relatives, they could present small gifts to the children in their extended family. It appeared that this was giving them a lot of satisfaction.
4. They unanimously agreed that their confidence levels, self-respect and self-esteem had improved after being linked to a microfinance programme.
5. They were now able to give their children a better life, and even domestic arguments had considerably reduced.
6. They all collectively agreed that the community feeling was improving. They could understand each other's problems better, and as a result, the everyday conflict that they used to have previously was now a very rare occurrence.
7. Those members of the two groups who had received financial training felt that this training given to them which emphasized the importance of making budgets and saving had really helped them in reducing their wasteful expenses.

To conclude, the women in general felt that with the participation in the microfinance programme, their quality of life had improved with lesser tensions, lesser conflicts in the family, better confidence and better community feeling. The power within the household that they enjoyed had not changed much because even before participating in the microfinance programme, they had a strong role to play in the household decision-making process. However, it was observed that the enthusiasm of the newer participants was considerably higher than the older ones.

Case Studies

Two case studies were conducted, both with the clients of an NGO. The first case study that was conducted was of Mayaben from Mochivas area in Himmatnagar city, while the second one was of Kakuben from the Jinjava village in Prantij taluka.

Both these clients were almost four years into the microfinance programme, and it was observed that their households were much above the poverty line now. However, they claimed that they were not so comfortable financially when they had joined the programme. They had, recently, even diversified into various activities reducing the vulnerability of their respective households.

At the personal level, both the female clients were currently handling the accounts of some of the women in their communities for the NGO. They were responsible for the collection of interest and repayment of amounts from the clients of the NGO within their community. Furthermore, the NGO gave loans to the new clients in the area on the recommendations of these 'leaders'. In fact, Mayaben from Mochivas had also been part of a delegation that had visited Delhi to understand the problems at the grass-roots level. All this had resulted in an increased level of confidence and self-esteem and a much better standing within the community. There was definitely an improved level of empowerment within the household and also within the community, resulting into a better quality of life.

The most important outcome as perceived by these women was the fact that they were now able to give their children (for Mayaben from Mochivas) and grandchildren (for Kakuben from Jinjava village) a better education and improved quality of life. This fact alone gave them ample satisfaction.

Thus, from these case studies, one can conclude that microfinance has played an important role in improving the lives of the participating women and their respective households.

Conclusion and Recommendations

The major results of the impact analysis have been summarily tabulated in Table 8:

Table 8. Summary of Impact Analysis Findings

Household Level	Findings
Monthly Income	For the client who is more than two years into the programme, there is an increase in the monthly income of the household of ₹ 1,103 which is statistically significant at the 10 per cent level.
	For every ₹ 100 of loan given, there is an increase in the monthly household income by ₹ 4.40.
Monthly Consumption Expenditure	Clients with the duration of six months to one year and of one year to two years of participation in the programme show negative relationship with the monthly consumption expenditure, and this relation is statistically significant at a level of one per cent.
	While in the third time period, that is, for participation of more than two years, the relationship between consumption expenditure and the period of participation is negative but insignificant.
	Every loan of ₹ 100 results in an increase in the household consumption expenditure by ₹ 1.50 per month.
Landholding	The landholdings of the treatment group are significantly higher than that of the control group.
Individual Level	
Number of Assets in Clients' Name	Increases with the participation in the programme.
Role in Decision-making	No significant difference in the role that the female client plays in decision-making within the household.

Source: Authors' own.

Hence, as can be seen from the above summary, there is a significant improvement in the financial condition of the clients' household level and also in the financial security for the clients themselves. However, this does not get converted into improved standard of the family. Moreover, while the female clients have an increased share of physical resources, there is not enough evidence to indicate that she enjoys an increased say in the decision-making within the household.

Both the FGDs and the case studies are indicating positive results of participation in the microfinance. It is worthwhile to note at this stage that even for those participants who are only into a savings programme and no credit has been given to them so far, there is an increase in confidence level. However, it was observed that the motivational level of the new clients was higher than their older counterparts.

While interacting with the poor women in the Sabarkantha district, the researchers felt that in order to improve the well-being of the participating women, intervention needs to be at three levels—financial level, social level and human level. Financial inputs will come in the form of appropriate savings and loan products with equal emphasis on both these aspects. Social inputs will involve social collateral for group as well as individual lending, and also significant structural changes at the social level in both gender and class relationships accompanied by a change in the attitude of people, all the countrymen and women, to ensure that a positive impact results in substantially improving the quality of life of the women in our country. In the case of human inputs, it was felt that a motivational training along with a skill development and financial training would help maximize the positive benefits of microfinance. To conclude, microfinance does impact the poor women positively but in order to improve the quality of their lives and to sustain this improvement over a period of time, further interventions at the social and human level are required.

Notes

1. Retrieved from www.muhammadyunus.org/Quotes/ on 23 July 2010.
2. AIMS-SEEP (SEEP Network, retrieved on June 15, 2014) Assessment tools is a study funded by the Microenterprise Impact Project (PCE-0406-C-00-5036-00) of USAID's Office of Microenterprise Development. The study was conducted through a contract with Management Systems International, in cooperation with the Harvard Institute for International Development, the University of Missouri and the Small Enterprise Education and Promotion Network.
3. According to the 2011 population census, literacy rate in Gujarat is 78.03 per cent. Of that, male literacy stands at 85.75 per cent, while female literacy is at 63.31 per cent.

4. *Mochivas* is an area in Himmatnagar where people for low income group are residing.
5. A taluka, taluk or tehsil is a subdivision of a district (though in a few rare cases, a taluka may spread across more than one district) in which revenue collection activities (e.g., land tax) take place.
6. Alpha was developed by Lee Cronbach in 1951 (Cronbach, 1951). to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1.

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