A REPORT
ON THE INTEREST RATES
OF MICROFINANCE INSTITUTIONS

Prepared By:

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Submitted to:

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LIST OF ABBREVIATIONS

APR Annualised percentage rate
MFI Microfinance institution
OER Operational Expense Ratio
OER (A) Operational Expense Ratio-Administrative
OER (P) Operational Expense Ratio-Personnel
MIX Microfinance Information exchange
NBFC Non Banking Finance Company
NGO Non Governmental Organisation
RBI Reserve Bank of India
SBLP Self Help Group bank linkage
SERP Society for Elimination of Rural Poverty
SFMC SIDBI Foundation for Micro Credit
SHG Self Help Group
SIDBI Small Industries Development Bank of India
WA-APR Weighted Average Annualised Percentage Rate
XIRR Irregular Internal Rate of Return
YoP Yield on Portfolio

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ABSTRACT

This report titled "A REPORT ON THE INTEREST RATES OF MICROFINANCE INSTITUTIONS" highlights the various aspects interest rates in microfinance, the factors that cause them and ways to effectively reduce these rates. It includes a proposed model based on non pecuniary as well as pecuniary parameters for effective credit risk management.

1. INTRODUCTION

Microfinance plays a pivotal role in various developing and under-developed economies. Providing financial aid to people below the poverty line thereby alleviating them and creating sustained development is the main purpose of microfinance. Though various MFIs have come under the scanner repeatedly for the usurious interest rates and collection practices, the pros of microfinance largely outweigh the cons.

The purpose of this report was to assess microfinance as a whole as well as its impact in India. The report also aims to create an alternate credit risk model that will aim at reducing bad debt, thereby reducing interest rates and aiding in a more sustainable microfinance. It carries out an indepth analysis about the various causes of the seemingly usurious interest rates and suggests ways to reduce the same.

This report has been written under the aegis of Mr. Swagat Kishore Mishra and also for the fulfillment of BITS C323 (Subject Oriented Project).

The data for this report was primarily gathered from the SKS and other related websites Some material from various research papers related to microfinance have also aided in the writing of this paper.

1. Microfinance: An introduction.

Microfinance provides financial facilities to people who otherwise wouldn't have had access to such facilities. The scope of microfinance is wide in the sense that it isn't confined to just providing credit but also helps the deprived class access to resources such as pension,s insurance etc. It discards the belief that the poor aren't credit worthy and devises methods that enable the poor to uplift themselves out of poverty.

Clearly considering the growing disparities in the society, microfinance will play an effective role in the years to come, as we have seen in some African countries where MFI's have been more successful than the government in uplifting the lower classes.

*Microfinance refers to a movement that envisions a world in which low-income households have permanent access to a range of high quality and affordable financial services offered by a range of retail providers to finance income-producing activities, build assets, stabilize consumption, and protect against risk.

*Source of definition:: Microfinance focus

2.1 Interest Rates: The devil or the saint?

Usurious interest rates have been one of the most important factors and most controversial factors in microfinance. Though the rates may seem unduly high, around 26% in India due to the cap and ranging from 26-35 percent in most other regions of operation, the rates are infact justified.

Cost of capital, Operating expense and bad debt are the three most significant contributors of bad debt in microfinance.

Cost of capital	23
Operating Expense	62
Tax Expense	2
Contingency reserve(provision for bad debt)	6
Profits and others	7

Determinants of Interest rates in microfinance

Legend:
- Cost of capital — 23%
- Operating Expense — 62%
- Tax Expense
- Contingency reserve(provision for bad debt) — 6%
- Profits and others — 7%
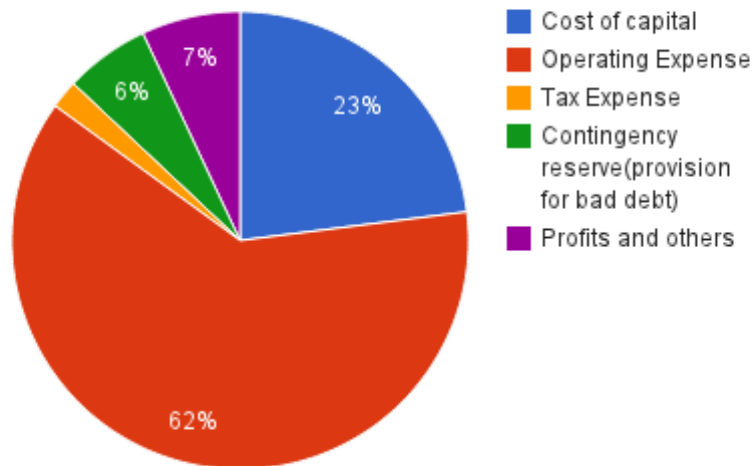
Though most of the factors contributing to the interest rates are unavoidable, i.e the operating costs will be high due to the large workforce needed to manage the small loans and collection efforts, some others can be reduced through optimisation, i.e Use of efficient algorithms to reduce workhours needed in collection efforts etc.This will be discussed in further sections.

2.2 APR-Defination

The true price of a loan includes not only interest but other charges required by the lender as well as other techniques that influence the amount of money the client actually has and the amount of time the client has use of that money.The Annual Percentage Rate (APR)
is used to express the true price as a standard measure that allows for the comparison of credit charges among different loan products.

Based on the data provided by the latest SIDBI report we have the following data for MFI's in India

Median APR of the dataset
Interest+ Fee: 28.96%
Interest + Fee + Insurance: 30.57%
Interest + Fee + Insurance + Deposit: 32.33%
Interest + Fee +Deposit: 30.44%

Costliest loan sample in the dataset
APR (Interest + Fee): 60.27%
APR (Interest + Fee + Insurance): 60.27%
APR (Interest + Fee + Insurance + Deposit): 60.27%
APR (Interest + Fee + Deposit): 60.27%

Cheapest Loan sample in the data set
APR (Interest + Fee): 14.88%
APR (Interest + Fee + Insurance): 15.74%
APR (Interest + Fee + Insurance + Deposit): 15.74%
APR (Interest + Fee + Deposit): 14.88%

 The weighted average of the APRs varies from around 18 percent to 42 percent with a median of around 28 percent.
 An interesting observation however was that the median for for profit organisations is 30% compared to 26.5% for not for profit organisations. Thereby demystifying the myth of MFIs laundering the poor of their money, and it seems that a very small percent of the rates are actually due to the profit motive of MFIs.
Across Geographical regions the median of the WA APRs varies as follows

North	East	West	South	North East
29.48%	27.96%	25.66%	28.03%	35.01%

3. The determinants of interest rates in microfinance.

3.1 Cost of capital

Cost of capital is one of the primary causes of the interest rates. Since MFI's **aren't allowed to borrow from the people directly they have to rely on commercial banks for loans.** Due to this reason the cost of the funds borrowed is the market interest rates. Since most micro loans given are without collateral, the risk is considerable and hence the rates charged by the commercial banks is considerably high. The rate of interest charged by these banks is around 12 to 15 percent, significantly higher than the interest rates charged to other borrowers.

The cost of capital however is pretty much fixed and not much can be done to reduce this expense.

3.2 Operating Expense

Microfinance is a human resource intensive service delivery model and transaction costs tend to be higher than other financial service providers since average loan sizes are small and services are usually delivered at doorstep. Transaction costs or operating costs in MFIs are typically driven by the lending model (Grameen/ SHG/individual), average loan sizes, the processes of client acquisition and servicing practices of the institution.

Operating expense is the single largest contributor to the interest rates in microfinance , contributing as much as 62 percent. The good news is that through various optimisation techniques, that many of the MFIs have started adopting , these operating expenses can be reduced significantly.

Administrative expense and personnel expense are the two major contributors od operating expense. Administrative expense is the charge due to office space, utilities needed etc. This is more or less a fixed expense. The other aspect is personnel expense that includes salary for the on field as well as off field agents , travel expenditure needed in the collection effort.

Based on my talks with a few people currently working in Indian MFIs it can be said that personnel expense is the one with most scope of improvement and all efforts at cost reduction are currently focused on that feature.

3.3 Bad Debt/Contingency Reserve

Sometimes the people who borrow aren't able to payback and thus the MFI loses some money. This situation is known as bad debt. The MFI therefore has to charge a bit higher interest rate to compensate its losses and thereby stay profitable.

However the bad debt are closely related to interest rates. i.e If the interest rates are raised too high then the people won't be able to repay thereby causing the MFIs to charge higher to compensate the losses. This sort of vicious circle is very harmful to any

credit industry and can lead to catastrophic consequences as were observed in Ghana. Bad debt constitutes around 6% of the interest rates charged.

4. Tax Expense:

Tax expense accounts for around 2 % of the interest rates in microfinance and is a significantly small factor. This is purely determined by the tax laws of the country of operation and not much can be done to reduce this factor

4.1 Scope for Improvement

A few points that can make a huge difference in reducing operating costs , the single biggest contributor to interest rates:

1. Train employees:

Though this may seem counter intuitive, spending extra money to train staff to work efficiently in such markets can help improve efficiency, thus enabling lesser number of people to serve a larger customer base, thus increasing revenue and reducing expense.

2. Digitize to reduce office supply expense:

Use of computers and digital medium and technologies like cloud computing can help save a lot of unwanted expense. Though this may not be feasible for microfinances targeting very remote locations, it can be used in most other cases.

3. Reduce travel expense and collection expense via efficient algorithms:

Travel and collection expense is one of the major portion of operating costs. Due to the very small size of loans and door to door collection efforts, this factor increases exponentially. Scheduling trips through efficient use of algorithms meant specifically for this purpose can help minimize the expense greatly.

5.1 Credit Risk and a Proposed Model

Since the micro financial model is highly unorganised and organic with lack of any credit history etc for most clients availing loans, I wish to come up with a model by analysing as much data as I can get from micro financial institutions across the country. This model will be built specially for Indian markets based on behavioral and various other factors that can be easily availed from the recipients of such loans.

Bad debt is considered one of the most important factor that causes the high interest rates in microfinance. By reducing the risk of lending to non payers the other people who need the loan will be able to avail it at a much lower rate. Interest rates across India today vary from 26-30 percent. Although this is substantially lower than the rates village money lenders charge(around 150%) it is quite high compared to the usual interest rates and there is definitely scope of improvement.

Some of the factors that can be considered are:
* This is a hypothesis and the factors may or may not play a role in the repayment rate of an individual. However various studies have shown certain correlations and I want to analyse the extent of these factors in the Indian microfinancial market.
1.Age. (Variation of bad debt across various age groups)
2.Sex(Various studies have shown that women default less as compared to men.
3. Amount of loan.(As covered later this factor also affects interest rates.
4. Rural/Urban
5.Annual income.(Of Individual & family)
6.Number of dependents. (In some cases where the borrower has many dependents and the annual income isn't proportional, it may affect the repaying ability)
7.Purpose of loan:Personal vs Business.
8.Geographical variation.(Repayment rates are substantially higher in Andhra Pradesh as compared to other states in the country.)
*9.For tourism industry: Ambience vs Functionality. (Comparing return to client based on their return rates and guiding others in the industry accordingly.
10.Growth rate of sector: Interest rates should be reduced a bit for low growth rate sectors to allow people a fair chance to sustain their business and payback.
11. Government policies: Recently the Govt. of India had tried to impose a 24% upper cap on interest rates. Such policies could cause MFIs to reduce their lendings substantially and affect the growth of the bottom of the pyramid.
12.Immigrants/Natives(Studying whether a person is an immigrant or a native affects his repaying rate.)
13.Family model(Joint/Nuclear.)
14.Individual vs group loans.
15.Loan payable to? (Studying a model if people are more likely to people they know and like. This could help create a model with a local leader (sarpanch) helping the MFIs

to give and collect loans to the people of his/her village.) { In addition to helping reduce the bad debt rate, this factor could also influence the operating costs,(Personnel and administrative expenses form the largest component (62%) of interest rates charged by sustainable microfinance providers) and can thus help in a two fold fashion.

16.Marital Status.

17. Alternate sources of income

18.Approximate net-worth of clients assets.(The loan amount can be proportional to this by a certain factor.)

On the basis of the data made available by the various microfinance institutions we can create a tabular/graphical model for ideal interest rate. We can study the variation of interest rates with respect to bad debt having current inflation rate and growth rate of the geographical area as well as the occupational sector as variables.

Modelling:

Step1:

Each selected parameter will be given a value of 0/1 depending on positive or negative correlation.

Eg: In a dataset of 200 entries if 150 people are likely to default the ratio correspoding to that parameter will be ¾. This will be used to calculate the weights.

Step2:

The ratio used in step 1 is then used with all other ratios to get a weight.

Eg (¾)/(3/4+sum of all other remaining ratios)

Thus the sum of all weights will be equal to 1.

Step 3:

The formula will be of the type

$(A_1W_1)+A_2W_2+.....A_nW_n$

Where W corresponds to the weights of the given parameter and A is either 0/1 depending on the person's details.

Thus a score closer to 0 signifies lesser risk to default and a score closer to 1 signifies a higher risk to default.

6.Conclusion

The above report focuses on the various causes of the high interest rates in microfinance. To a naive observer the interest rates of around 30 percent may seem unjust but on digger deeper into the functioning of the microfinance industry , I have

come to believe that this figure is pretty much justified.

I have tried to focus on some of the most important factors that play a role in determining interest rates. The report goes on to explain the percentage contribution of each factor.

In the last two section of the report I have suggested measures to reduce the operating expense and bad debt, that in turn help reduce interest rates thus creating a positive cycle. Due to lack of concrete data the model couldn't be created, but the steps for creating the same have been clearly outlined.

APPENDIX A : Critical Analysis of a few research Paper.

Details of paper:

(I) Consumption credit Default predictions.
JACOBBSON and SIEMIATKOWSKI

While facilitation of customer credit increases purchasing power and the boosts sales, it also increases the risk of not getting paid in time or not at all.For this reason credit institutes try to minimize risk by predicting defaults.Better default predictions are not only beneficial to the institute but for the society at large because it enables the people to avail credit at lower cost.(*This is especially true for the microfinance sector where upto 6% of the cost to the institutes is attributed to bad debt)

The paper deals with 19 hypothesis relating to direct financial ability, indirect financial ability and moral hazards. It aims to create a specific model adapted to a particular business rather than a generic model. (* Since the microfinance industry in India, is very different from a lot of other credit institutes it is imperative that a customized credit model is built for the same.)

In the first paper they discuss the theoretical framework and previous research.Before the rise of statistical methods to assess credit applications, applicants were assessed based on the lender's previous experience of the debtor and/or the perceived "credit worthiness" of the applicant.As with any system based on prejudice rather than statistical observations this model has proven to give unsatisfactory results and the effects of using substandard scoring methods can be severe. (* Another commonly used instrument is external credit agencies. The ratings are based primarily on financial and demographic data such as age, income and gender as well as public records of how well a debtor handles her or his financial situation.)

Another popular model is discriminant analysis. With discriminant analysis one investigates which variables discriminate between two or more naturally occurring groups. In our case the two naturally occurring groups are good and bad debtors.

Regression:Regression analysis examines the relation of the dependent variable to some independent (explanatory) variables.(*This is the model that has been used as a part of this research paper.Probit regression model.)

Recursive partitioning creates a decision tree that strives to correctly classify members of the population based on a dichotomous dependent variable

(*I found the various models listed quite varied and well researched.However they haven't explained why they choose the probit regression model for their analysis. However the wide list gives a good perspective and allows you to choose between models and find one best suited for the model you intend to create.)

In the next section they explain how they collected the data for their study.The data consists of more than 170,000 observations.Purchases/credits amount to between

100 and 10,000 SEK, with a mean of about 600 SEK.(* Thus they have not only an extensive spectrum of data but a one with a very wide range.)

They then proceed to formulate and explain their hypothesis.The variables used to determine whether the hypothesis should be used or rejected are also explained.The hypotheses are divided into the three groups:1.Direct financial ability 2. Indirect financial ability 3. Moral factors

Here is a list of the hypothesis:

H1: High income is negatively correlated with probability of default
H2: A high debt burden is positively correlated with probability of default
H3: Personal wealth decreases the probability of default
H4: Marriage is negatively correlated with probability of default

H5: Age is relevant in determining the probability of default
H6: Men are more likely to default than women
H7: People from the countryside are less likely to default
H8: People's willingness and/or ability to pay varies between regions
H9: People's probability of default should differ depending on where they were born

H10: City size has an impact on the probability of default(*This is slighly connected to H7)
H11: People living on a care of-address are more likely to default
H12: People's probability of default should not depend on in which month they were born
H13: Payment history is relevant when estimating the probability of default

H14: People that submit voluntary information are less likely to default
H15: Probability of default should differ depending on type of store(*We could use a similar analysis to differentiate between the various sectors borrowing from an MFI)
H16: People that try to maximise their credit have a higher probability of default
H17: Loan size increases probability of default(*With respect to microfinance we will have to analyze cases on both sides of the spectrum, i.e very high as well as very low loans.)
H18: People's email-addresses tell us something about the probability of default
H19: People ordering at awkward times of the day are more likely to default

They then go one to explain how they went about making the data usable, and also expand on the econometric model used.

The probit function is the inverse cumulative distribution function associated with the standard normal distribution. Yn is the dependent variable that takes on only two values:

yn = 1

0

Pn = The probability that the nth person does not pay, 0 < Pn < 1

Pn is affected by some independent variables. An example of an independent variable is for example a person's income, denominated Xn. The probability of default expressed as a function of income

They then explain the various formulae used .

In the next section of the paper they show their results and plot various regressions, firstly with just demographic variables, then with behavioral variables and then one including all variables. They then conclde the study.

(*The study however hasn't been tried on a real life example.It would be intresting to note the difference in bad debt rates on implementaion of such a module and then recursively use the data from the practical implementation to improve upon the exising model.)

(II)Sustainable microfinance:The balance between financial sustainability and social responsibility

Quang Vinh Evans Luong

2010

Objective:Creating a sustainability model of microfinance to fulfill both social responsibility and financial sustainability by integrating remittance(A remittance is a transfer of money by a foreign worker to his or her home country.) flows and cross-border micro enterprise activities to microfinance business is the aim of this study

Argument:Focus on profit may lead to shift in customer groups from the bpl population to the slightly well off population. Focus on just the very poor may lead to lack of sustainability. MFIs should develop and tailor products to serve different levels of the poor

Gist: Remittances to increase profits. Remittances worldwide have increased from US$ 30 billion in 1990s to US$ 318 billion in 2007.Channel remittances towards productive uses. Encouraging MFIs and credit unions to serve as receiving institutions for remittance inflows in order to reach poorer recipients

Using remittances to support micro, small and medium sized enterprise development.

Analysis: Remittance as a source of income for MFIs is an interesting point, but no strong model presented to display the same.

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(III)Effect of Microfinance on Vulnerability, Poverty and Risk in Low Income Households

Ranjula Bali Swain

2007

Objective: To develop a theoretical framework to examine the mechanisms through which the pecuniary(monetary) and non-pecuniary effects of the SHG program are seen. Measure vulnerability. Studies Gini ratios across time in India.

Argument: Studies vulnerability. People in general, especially the bpl populace has a tendency to be risk averse, hence they prefer a low risk outcome , thereby having a low standard of living. Focuses on how SHG's via regular interactions etc reduce the vulnerability to idiosyncratic risk.(Non pecuniary measures)

Von_Neumann–Morgenstern_utility_theorem

It is often the case that a person, faced with real-world gambles with money, does not act to maximize the expected value of their *savings in dollars.* For example, a person who only owns $1000 may be reluctant to risk it all for a 20% chance odds to win $10,000, even though

Gist: The propensity of the household to cope with shock, ψi, is greater if household is a SHG member. This is due to the non-pecuniary impact of SHG through strengthened social cohesion and increased empowerment of its members. There is a difference in perceived household income in the future resulting from pecuniary (direct earnings) effect of SHG

Analysis: Solid mathematical proofs/backing. Data set chosen is fairly random, and overall all hypotheses are backed sufficiently.

(IV)Microfinance in India, a crisis at the bottom of the pyramid.

Gist: This paper by Legatum Ventures talks about how the government's current micro-finance policy may not be in the best interest of the people.

The direct effect of the enactment of the AP Act has been to deny millions of India's poorest citizens access to basic financial services. The impact of the AP Act has the potential to affect 450 million people. Since the AP Act was adopted, MFI disbursements in AP alone have diminished from Rs 5,000 crore ($1.13 billion) to a mere Rs 8.5 crore ($1.9 million), creating a severe shortage of much needed finance to the rural poor, India's most vulnerable citizens.

The paper says that the move is to promote the government run SHGs, which are not as effective as their private sector counterparts The paper then goes on to explain the reason of the usurious interest rates.Between 2008 and 2010 the number of clients of MFIs grew by an average of 61% each year, with loan portfolios growing 85% per year. The AP government-backed microfinance SHG program, on the other hand,

only grew its client base by 13.6% during the same period and its loan portfolio by 28%

The paper then also disproves the link between suicide rates and MFIis and states how the privately run MFIs have significantly improved the state of the rural poor

(V)CGAP: Making sense of microfinance interest rates

Gist:Microcredit interest rates are set with the aim of providing viable, long-term financial services on a large scale. MFIs must set interest rates that cover all administrative costs, plus the cost of capital (including inflation), loan losses, and a provision for increasing equity.

Unless MFIs do so, they may only operate for a limited time; reach a limited number of clients; and will tend to be driven by donor or government goals, not client needs.

High administrative costs are the reason many MFIs charge high interest rates. The papers also focus on how donors can provide support to MFIs for technical services that reduce costs and increase productivity, such as analyzing individual product costs and streamlining processes.

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