



## INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, ECONOMICS AND MANAGEMENT

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**NEED FOR CREDIT SCORING IN MICRO-FINANCE: LITERATURE REVIEW**

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**ABSTRACT**

Poverty alleviation has been one of the most important objectives of development planning in India. Various approaches to alleviate poverty have been undertaken by the Government of India since independence especially from Fourth Five Year plan (1969-74) onward. The approach has been mainly dominated by many subsidy linked credit for income generating activities to poor. Lending to poor involves various risks and in particular risk of default. Credit risk is one of the most important risks to be addressed by any lender. An effective method of credit scoring and information sharing can greatly increase the speed of loan processing and reduce the cost & delinquency of microloans. The paper draws insight on various factors affecting recovery of microloans and highlights benefits & issues of implementing credit scoring system & credit information bureau.

**KEYWORDS**

Credit, Micro-finance, Poverty alleviation.

**INTRODUCTION****POVERTY ALLEVIATION SCHEMES**

 Growth with social justice has been the basic objective of development planning in India since independence. There have been several initiatives to tackle the problem of poverty since the early 1950s [1]. Formulation of specific programmes for poverty alleviation began from the first Five-Year Plan period in the 1950s. A majority of rural development programmes introduced up to 1979 in India were, piecemeal, target driven or sectoral in nature. With a view to overcoming these drawbacks a comprehensive and holistic self-employment programme, called the Integrated Rural Development Programme to bring poor people above poverty line was introduced for the first time in the country in 1979.

The strategies & approaches for poverty alleviation deployed over the period are summarized in the Table 1 below:

**TABLE 1: POVERTY ALLEVIATION STRATEGIES ACROSS TIME [2]**

Period	Dominant Development Paradigm	Poverty Alleviation Strategies & Approaches
1950s	Growth through industrialization	Community development Programme
1960s	Agriculture intensification, Human capital development	Trickle-down Approach
1970s	Redistribution with growth	Basic needs, Integrated Rural Development Programme
1980s	Structural adjustments, private	Growth, human resource development, safety nets, Non Governmental Organizations (NGOs) driven
1990s	Human development, growth	Labour-intensive growth, human resources development of the poor, targeted programmes and safety nets
2000s	Pro-poor economic growth	Facilitating opportunity, promoting empowerment, enhancing security

Many studies have reported that the evil of corruption has become deeply entrenched in the Integrated Rural Development Programme (IRDP). Even the late Rajiv Gandhi, during his tenure as the Prime Minister, had observed that out of every rupee spent on rural development, only 15 paise reached the intended beneficiary [2]. The proportion of people below the poverty line (BPL) declined perceptively in the late 1970s and 1980s from 51% in 1977-78 to 39% in 1987-88. Yet there are 267 million poor who lived below a dollar a day in 2005. It is not just income growth alone that has brought about poverty reduction through the trickle down process. There have been direct interventions too in a major way for poverty alleviation in India [3]. Although growth is important for reducing chronic poverty, targeted anti-poverty programmes have a crucial role in reducing risk and vulnerability and increasing incomes of the chronic poor [4].

Considering the capital as scarce resource, the Indian economy has pursued planned approach to achieve overall development. One of the major goals was to achieve minimum level of living standard and to make available the basic needs, be it financial, social or physical. The poverty alleviation programme, thus, became integral part of the Government Policy. The Government launched a drive to reduce poverty by introducing various programmes viz. IRDP, Development of Women and Children in Rural Areas (DWCRA), Training of Rural Youth for Self Employment (TRYSEM) etc. Later, implementing the recommendation of S. R. Hashmi Committee report, IRDP and its five allied programmes were restructured and redesigned into single micro-finance driven self-employment programme called SGSY (Swarnajayanti Gramin Swarozgar Yojna) on April 1, 1999. The programme design of SGSY emphasizes the linkages between banks and SHGs (Self Help Groups) with the subsidy as enabling element. With the implementation of SGSY the micro-finance has become synonymous with SHGs linkages with the banking. However it was much earlier during 1987, when an action research project on SHGs was started by MYRADA (Mysore Resettlement and Development Agency) with NABARD (National Bank for Agriculture and Rural Development) providing a research and development grant. Encouraged by the action research NABARD launched in 1991-92 a Pilot Project for linking 500 SHGs with banks [5]. Since then micro-finance in India has grown many-folds.

**MICRO-FINANCE**

During 1976, Muhammad Yunus, an economics professor in Bangladesh, dispensed a total of \$27 in small loans to 42 impoverished people caught in the clutches of moneylenders. He formed Grameen Bank in 1983. Since then the bank has disbursed \$66.4 billion till 2009 in microloans to people too poor, remote, or uncollateralized for traditional banks. Yunus didn't invent the field of micro-finance. Social cooperatives, credit unions, and other forms of collective lending had already existed in society. But he helped change the goal of what is now called as micro-finance. The goal became to help reduce poverty by providing credit and other financial services to the poor, and to do so commercially - that is, at a profit so that the overall enterprise could be financially sustainable.

Micro-finance is defined as provision of thrift, credit and other financial services and products of small amount to the poor in rural, semi-urban and urban areas for enabling them to raise their income levels and to improve their living standard. The basic idea of micro-finance is simple: if poor people are provided access to financial services they may be able to start or expand a micro-enterprise that will allow them to break out of poverty [6]. According to the Noble Committee, micro-finance can help to break out of poverty, which in turn is seen as important prerequisite to establish long lasting peace [7].

Given the rapid expansion of micro-credit, innovative tools like credit-scoring of borrowers along with information and communication technology (ICT) may help MFIs (Micro Finance Institutions)/ Banks to develop efficient credit delivery system so as to contribute as a change agent in the process of development in better, faster and economic ways.

#### CREDIT SCORING

Recovery of loan is a future event and has uncertainty associated with it and so is the case with loan default. Prediction of loan default has practical value and appears to be of paramount interest to every lender, especially if the ticket size of loan is small and the number of loans is quite large. Credit scoring is a statistical tool to analyze the characteristics and credit history of prospective borrowers to predict the performance of future loans. The credit scoring model helps micro-finance industry in the following manner:

- i) Informed decision making for lending
- ii) Inbuilt quantitative assessment
- iii) Brings objectivity in pre-sanction appraisal
- iv) Improved speed of disposal of loan applications
- v) Reduces cost and facilitates risk based pricing

A credit rating is a summary indicator of risk for banks' individual credit exposures. Traditionally, most financial institutions relied mainly on subjective analysis or the so-called banker expert system to assess the credit risk of borrowers. Bank loan officers used information on various borrower characteristics like character of borrower (reputation), capital (leverage), capacity (volatility of earnings), collateral, and condition (macroeconomic cycle).

#### OBJECTIVE OF THE STUDY

- To study the factors affecting recovery in microfinance.
- To study the benefits of implementing credit scoring in microfinance.

#### LITERATURE REVIEW

Generally poverty is defined as an income (or more broadly welfare) level below a socially acceptable minimum and micro-finance as one of a range of innovative financial arrangements designed to attract the poor as either borrowers or savers [8].

Improvement in access to a broad range of financial services to manage price and other risks, with ease and at reasonable prices can have a strong welfare impact on the very poor. These financial services allow participants to smooth consumption across time and help them tide over the impact of adverse shocks during their life cycle and allow the participants to invest in and benefit from their skill sets [9]. Poor households that do join a microcredit program tend to have better access to insurance smoothening devices than those who do not. However the vulnerable poor may either choose not to join or they may be excluded by micro credit program due to higher default risk [10].

Access to affordable financial services - especially credit and insurance - enlarges livelihood opportunities and empowers the poor and aids to social and political stability. One of the ways in which access to formal banking services has been provided very successfully since the early 90s is through the linkage of Self Help Groups (SHGs) with banks. SHGs are groups of usually women who get together and pool their savings and give loans to members [11]. SHGs helped poor women to cultivate banking habits [12].

Though micro-finance encompasses all the services required by the poor people, till now excluded from the formal financial system, may it be credit, savings, insurance or other services, the term micro-finance has become a generic term for micro credit.

The exclusion of large numbers of the rural population from the formal banking sector may be for several reasons from the supply side, such as: persons are un-bankable in the evaluation/perception of bankers, loan amount being too small, distances are too long for servicing and supporting the accounts, high transaction costs, lack of collateral security, inability to evaluate and monitor cash flow cycles and repayment capacities, human resources related constraints, adverse security situation prevailing, lack of banking habits and credit culture, information-shadow geographical areas, and inadequacy of extension services which is crucial to improve the production efficiency of the farmers leading to better loan repayments. From the demand side, there are several reasons for the rural poor remaining excluded from the formal banking sector, such as: high transaction costs at the client level, documentation, lack of awareness, lack of social capital, non-availability of ideal products, very small volumes / size of transactions which are not encouraged by formal banking institutions, hassles related to documentation and procedures in the formal system, easy availability of timely and doorstep services from money lenders/informal sources and prior experience of rejection by/indifference of the formal banking system [13].

The dominant models of micro credit are:

- The SHG-bank linkage programme and
- The NGO/MFI model.

Other models include the cooperative model and the recent innovation of banks lending with the NGO/MFI as the administrative partner with risk sharing. An analysis of the trends in the SHG-Bank Linkage programme reveal that NGOs and other Self-Help Promoting Institutions (SHPs) are gradually playing less of a financial intermediation role and limited to social mobilization which in turn affects their commercial effectiveness. Holistic approach of NGOs/MFIs are lacking for socio-economic development of borrowers. The emergence of MFIs and NGOs willing to facilitate financial intermediation presents an important opportunity for the accelerated delivery of insurance [14].

In order to reduce default rate i.e. credit risk, the borrowers as well as their project must be assessed in terms of credit worthiness & business risk. Assessment of the borrower may be on the basis of quantitative parameters or by subjective appraisal by the lender. The delivery models can be broadly classified into two categories- **group lending and lending to individual**. Individual lending needs more attention in selection of borrowers as the credit risk is dependent on the sole borrower. This risk sought to be minimized with the available collateral. Micro-finance borrowers in general lack collateral therefore group lending is preferred over individual lending. The role of collateral, as an asset whose potential loss motivates the borrower to proper behavior, is replaced by the reputation of the borrower as a solvent debtor [15]. Joint liability addresses four main problems namely **adverse selection, moral hazards, costly audits and enforcements**. The group lending has two opposite effects on repayments. The advantage is that they allow a member whose project yields very high returns to pay of the loan of a partner whose project does very badly. The disadvantage is that a moderately successful borrower may default on her own repayment because of burden of having her partner's loan. With sufficient social capital, a group enforces repayment better than would take place with individual liability [16].

Ahlin and Townsend [17] empirically found the support for the fact that repayment performance is negatively associated with higher levels of relatedness and sharing within groups and with higher levels of joint liability and is positively associated with the strength of local sanctions and with higher correlations between borrower return. They also found that social ties between group members are not necessarily positive in promoting repayment. Wydick [18] found evidence that the social ties within groups reduce pressure, the members put on each other to repay loans. If the members are more homogeneous they have lower incentives to screen, monitor and enforce each other and/or may start to collude against the program. Sharma and Zellar [19] show that repayment problems increase when there are more relatives in the same group. The findings of Karlan [20] show that peer lending programs can be more effective if groups are more concentrated geographically and have similar cultural background. However, complete homogeneity might result in collusive activities or may make punishment more difficult.

Theoretical models of group lending and peer pressure predict that peer monitoring will lead to more effective borrower-side sorting and higher borrower effort [21]. Since the borrowers are not required to put up collateral, the creation of joint liability is relied on to induce fairly subtle sanctions from fellow villagers that help to discipline borrowers. While it has advantages when serving the very poor, group lending is clearly not the only way for micro-finance to succeed in transition economies. The ability to secure collateral helps the individual-based programmes and the success of micro-finance programme in general, and of individual programme in particular, is also linked to particular methods of gathering information, monitoring loans and enforcing contracts [22].

Individual lending is feasible provided monitoring costs are not too large. The group lending has the risk of under-monitoring by group members. Thus though peer monitoring is cheaper, the borrowers may not monitor each other at all. Therefore, group lending should involve either sequential financing, or a combination of lender monitoring and joint liability [23].

Gine and Karlan [24] conducted a randomized control trial in which no difference in repayment of group borrower and individual was found. The existing literature on micro-finance focuses almost entirely on group lending, without paying much attention to individual-lending. In the light of the current move to individual-based lending system (even the most well-known examples of group-based lending, the Grameen bank and Bancasol now use individual-based models) this is bit surprising. However, until now there has been no systematic and rigorous comparison about performance of group-based versus individual-based micro-finance institutions [25].

Most models focus on explaining so-called joint liability group lending and its implications for reducing information asymmetries. Yet, there are only a few empirical studies investigating whether and how micro-finance helps to reduce existing information asymmetries in spite of the abundance of theoretical literature. There is a lack of systematic empirical analyses on the nature and determinants of the trade-off between financial sustainability and outreach of micro-finance programmes [7].

Scoring is another new (to microcredit) way to judge repayment risk. It detects historical links between repayment performance and the quantified characteristics of loan applications, and then—based on the characteristics of current applications—forecasts future repayment risk. Microlenders currently judge risk with subjective scoring and forecast repayment behaviour based on their quantified knowledge and qualitative characteristics of the client. Statistical scoring ignores everything but quantified characteristics, while subjective scoring focuses mostly on qualitative characteristics. In micro-credit statistical scoring and subjective scoring both complement each other. The benefits of scoring include reduced loan losses, greater client loyalty, and ability to adjust interest rates and fees according to risk (risk-based pricing). Most important, scoring can reduce time in collections and introduce the microlender to explicit, quantitative analysis as an aid to decision making by managers [26]. Scoring improves the efficiency of loan evaluations, recovery of arrears, and customer retention, frees staff to spend more time on the subjective “gray areas” of decision-making and offers a basis for variable pricing by including individual client risk in lending decisions [27]. Predictive power increases with the number of characteristics available. The output of scoring is a percentage, the predicted risk that a loan will go “bad” before it is repaid. Scoring can only work on average for a large group of loans [28].

For customers, good performance means repeated use. The repeated nature of the interactions and the credible threat to cut off any future lending when loans are not repaid can be exploited to overcome information problems and improve efficiency, whether lending is group-based or individual-based. [29]. Micro-finance clients at all poverty levels face frequent and wide ranging risks. The risk of default and losing access to a valued financial service can be compounded by the loss of self-esteem, confidence, and social assets [30]. Regardless of the client’s poverty level, if the MFI does not take repayments seriously, borrowers certainly will not repay. as long as the problem clearly stems from an inability, rather than an unwillingness, to repay [31]. Luders and Osborne [32] (1996) looked into the issue of SHG longevity and the causes of group failure, while APMAS, a NGO [33] (2003) examined the differences between older and younger groups and found a cyclical pattern in group performance with groups younger than 4 years or older than 7 years displaying better performance in saving and credit behaviour than the middle-aged groups [34]. The characteristics of strong groups are homogeneity in economic status, affinity, migration & additional factors- trust building, ownership & autonomy, transparency & accountability and literacy [35].

Imperfect information about clients is all the more problematic that the poor lack credit history, track record and sometimes identification papers. Fighting loan delinquency is also a problem since the poor often lack collateral, are dispersed and remotely located [36]. Instead of relying on collateral, microlending primarily depends on good loan analysis of a client’s character and capacity to repay, positive incentives for on-time repayment, and effective supervision and collections procedures [37]. Some publicly observable characteristics such as drinking habits, involvement in gambling etc. help predict creditworthiness. Formal lenders may be able to profit from the fact that informal lenders consider females to be creditworthy. This is inferred because informal lenders are good judges of creditworthiness and because females borrow informally more than males do [39]. One advantage of the village money lender is that he knows the reputations of his clients and can monitor their activities much more easily and cheaply than potential competitors [39].

Credit reporting, at some level, is a critical part of the financial system in most developed economies; in developing countries it is often much weaker, if not altogether absent. This is because repayment discipline in credit transactions typically happens through oft-repeated transactions between a borrower and a single familiar lender in Less Developed Countries, whereas repayment incentives in developed countries are typically enforced via threats to a borrower’s credit rating [40].

Non-availability of information about credit-worthiness of potential clients, adverse selection and moral hazard can lead to negative effects on the performance of MFIs’ loan portfolios and increased over-indebtedness of clients. Local-level micro-finance administrators consider qualitative lifestyle information to be more important. In contrast, there are indications that national-level practitioners prefer quantitative data. Financial models using quantitative data would more accurately calculate the optimal loan size, interest rate, etc., given a potential borrower’s profile. However, perhaps local-level administrators realize that this quantitative data is hard to find and often not accurate. Unlike commercial sector borrowers, micro-finance clients do not have credit cards, phone bills or other quantitative indicators of cash flow that would be useful in optimizing loan administration [41].

The development of credit information about micro-finance customers has three main benefits: raises overall quality of loan portfolios and profitability of MFIs; incentives existing financial institutions, e.g. banks, to offer micro-finance products; and enables poor borrowers to build a credit history, facilitating their graduation to the formal financial sector [42].

In the Indian context, study by N. Jayaseelan suggests that even though the SHG lending is outside the purview of the individual credit risk rating framework right now and only the portfolio approach is adopted, as the bank’s exposure in SHG lending is on the increase day by day, all the banks have necessarily to be ready with a roadmap for managing both the credit risk and the operational risk in micro-finance. However like NABARD and individual banks the credit risk rating tool as suggested by N. Jayaseelan [43] puts emphasis on composition and discipline of the group.

Credit scoring is proven tool for individual loans, scoring for group loan considers group characteristics and its attributes only without giving much emphasis on individuals. Often group loans are recorded at group level and partial repayments are not encouraged to enforce joint liability contract.

## ISSUES AND CHALLENGES

The issues and challenges faced by the micro-finance industry in India are as under:

- Micro Finance Industry has grown at exponential rate and as on 31<sup>st</sup> March 2010 total 69.53 lakh SHGs have been linked to the banks for their savings. This figure does not include micro-finance borrowers who have been financed by Non Governmental Organizations/ Micro Finance Institutions (MFI) and other local players. Collecting the data of these borrowers is mammoth task.
- As the micro-finance borrowers are scattered and their characteristics as well as their financial requirements may vary, it is a very difficult task to develop a parametric model which is universally acceptable.
- Most of organizations disbursing microcredit are small in numbers and operate at local levels. For them credit scoring and credit reporting should not only be applicable but also affordable as the margins are low in this sector.
- Developing training modules as well investing in training infrastructure for competent manpower to perform the job of credit scoring & credit reporting are major challenges.



The paper basically focuses on need of a credit scoring model to improve effectiveness in micro-credit delivery processes.

### NEED FOR ROBUST CREDIT SCORING APPROACH IN MICRO-FINANCE

Implementation of credit scoring in micro-finance is not only important but inevitable considering large volume of clients, as it helps in improving credit processes. The micro-finance institutions need to have a proven lending methodology which can differentiate between lower risk and higher risk clients. Scoring predicts the future based on the past behavior and characteristics of the prospective borrower. As against middle and upper class where clients do possess documentary proof of income, residence, employer and collaterals etc, in micro-finance most clients are self-employed, own small businesses, work in informal sector and have neither records of their income nor credit history. Therefore, in micro-finance more variables may be required to build a robust credit scoring system. The implementation of credit scoring models will essentially involve the following steps:

#### I. DATA COLLECTION

To develop a credit scoring model which can predict the credit risk of client, micro-finance institutions may require client's characteristics along with loan characteristics. Data has to be captured from the application blank; a prospective borrower is going to fill. Application form has to be designed in such a manner that captures all the variables required for developing credit scoring model without sacrificing the ease of filling the form. Client characteristics may include demographics, asset holding as well as repayment record if any.

Usually the profile of clients vary from institution to institution, it will be disastrous to use credit scoring methodology developed by other institution without validating it with its own clients.

#### II. SYSTEM DEVELOPMENT

Once the data on associated variables is collected within the framework of credit scoring model, a system should be put in place where this data can be stored for sufficient period. The system should be able to facilitate the process of retrieval and it should also be able to perform analysis as per the policy framed by the institution.

#### III. POLICY DEVELOPMENT FOR SCORING

Credit scoring filters bad clients from good ones by assigning number to each borrower. Credit policy of the micro-finance institution should aim for minimum possible level of Type-I (rejecting a good borrower) and Type-II (accepting a bad borrower) errors both. A sound credit policy should establish the risk level below which applicants (borrowers) qualify as excellent risks and the risk level above which applicants qualify as unacceptable risk.

#### IV. ROLL OUT, MONITORING & VALIDATION

Once the scorecard is developed as per the credit policy of a micro-finance institution, it can be rolled out for statistical analysis. Statistical scoring is built on the quality of data and the span of time over which the data has been collected. It is of utmost importance to collect the relevant & reliable data. The data so gathered will help in testing & retesting the score card developed. The score card has to be continuously monitored to find out delinquencies which could not be predicted by the credit scoring.

### ADVANTAGES OF CREDIT SCORING MODEL

Scoring offers number of benefits that can improve microcredit efficiency & effectiveness. These are:

- Reduced Delinquency
- Improved consistency in decision making
- Objectivity & transparency in credit appraisal process
- Implementation of risk-based pricing
- Improved processing speed of loan application
- Improved risk management

### CONCLUSIONS

Credit risk is the largest risk faced by micro-finance institutions. Though microcredit on an average may not have reached saturation level, asymmetric penetration has posed threat to the sector where borrowers have availed loans from multiple micro lenders. The situation has not only posed problem of loan default to micro lenders but has also put the borrowers under severe stress. Credit Scoring and credit information sharing will reduce these types of incidences. Given the significant advantages that credit scoring can bring to the lending process, it is essential that micro lenders begin to use credit scores in their lending processes.

Micro-finance Institutions must innovate which would enable them to improve their efficiency without mission drift. New efforts should make best use of available technologies to push out productivity frontiers without overloading loan officers. One of such innovation may be use of credit scoring.

### SUGGESTIONS

Considering the enormous cost in setting up a nationwide credit registry and diverse composition of micro-finance industry in terms of their financial capability, it is necessary to start implementing the culture of credit information sharing at lower level. This process can be initiated at district level through District Consultative Committee. The cost can be borne by regional rural banks and other commercial banks (public and private sector banks) for setting up of the credit information system and other small players like NGOs and Section 25 companies may be allowed to access services by charging fee. These district level registries then can be linked to national level registry. This stepping up approach would help in overcoming some of the challenges faced by the sector in implementing credit scoring system and credit information bureau for micro-finance.

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