Optimizing Credit Management for Advancing Financial Inclusion: A Study of Microfinance Institution

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Abstract- By providing small loans to people who do not have access to traditional banking services, microcredit institutions play a crucial role in promoting financial inclusion. This study looks at the credit management practices used by these institutions and how they affect financial inclusion. The main areas of focus are loan disbursement, repayment mechanisms, borrower assessment, and risk mitigation strategies. Strategies like flexible repayment schedules, borrower education programs, and community-based support systems improve repayment rates while promoting financial literacy, and effective practices like using credit scoring models and alternative data for borrower assessment greatly increase the accuracy of loan decisions and reduce the risk of default .Notwithstanding these advantages, microcredit organizations nevertheless have to deal with issues such restricted access to capital, legal restrictions, and socioeconomic impediments that make it difficult to put good credit management techniques into reality. Governments, banking regulators, funders, and microfinance professionals must work together to overcome these challenges and establish an atmosphere that encourages long-term financial inclusion. Stakeholders can empower marginalized people, encourage grassroots economic development, and create a more inclusive financial system by tackling these issues and implementing best practices.

By giving people the money they need to launch small companies, make educational investments, and enhance living conditions, microcredit organizations have shown a remarkable capacity to change the lives of marginalized communities. At the heart of this achievement are efficient credit management procedures, which guarantee these institutions' long-term viability while satisfying the various demands of its customers. In addition to lowering default risks, borrower assessment procedures include using alternative data sources and community-based evaluations increase access to those without official credit histories. However, there are many obstacles in the way of obtaining broad financial inclusion with microcredit. Due to their inability to obtain sufficient money, many microcredit organizations frequently rely largely on donations or exorbitant interest rates that could burden borrowers. Their operational efficiency may also be restricted by regulatory restrictions, such as strict compliance requirements and conflicting policy frameworks. These problems are exacerbated by socioeconomic constraints, such as poverty, illiteracy, and gender inequality, which make it harder for underserved populations to get and use microcredit programs.

1. INTRODUCTION

Background

By meeting the financial requirements of marginalized communities, the microfinance sector has become a revolutionary force in the advancement of the world economy. Microfinance makes it easier for those who are economically disadvantaged to be included in the formal financial ecosystem by focusing on small-scale financial services such microloans, savings accounts, insurance, and financial literacy initiatives. Microfinance institutions (MFIs) fill the void left by traditional banking systems by providing solutions that are easily accessible, adaptable, and customized to the particular difficulties faced by low-income communities (*Microfinance Is Empowering Underserved Communities in the GCC*, 2024).

Microfinance began as a grassroots movement in the 1970s and acquired international recognition thanks to Dr. Muhammad Yunus's work and the founding of Grameen Bank in Bangladesh. Since then, the global spread of microfinance services has been spurred by this creative approach to group lending, social collateral, and borrower-driven responsibility. Microfinance organizations now function in a variety

of regions, such as Asia, Africa, and Latin America, enabling millions of people to enhance their standard of living and attain financial independence (*Britannica Money*, 2025). Despite its achievements, the microfinance sector still confronts several obstacles, including excessive debt, repayment defaults, expensive operating costs, and moral dilemmas around exorbitant interest rates. At the same time, technological developments like artificial intelligence (AI) and mobile banking offer chances to improve scalability and efficiency (Team, 2025).

Microfinance is a transformative mechanism that empowers individuals and promotes communal development, making it more than just an economic instrument. Microfinance encourages entrepreneurship, increases self-reliance, and advances gender parity by providing loans and financial services to underserved groups, especially women. It supports the establishment of small enterprises, which act as catalysts for employment and local economic growth, through modest but significant loans. As borrowers are able to make investments in healthcare, education, and better living conditions, these knock-on effects help end the cycle of poverty ("Mapping the Intellectual Structure of Microfinance and Women's Empowerment," 2024).

Another crucial element in the industry's success is its emphasis on financial literacy. Microfinance institutions' educational programs give its clients the tools they need to properly manage their money, create budgets, and save for the future. In addition to lowering financial vulnerability, these programs give recipients a sense of confidence and empowerment. Microfinance keeps showing promise as a pillar of sustainable development as the industry develops, encouraging inclusion and economic resilience at the individual and community levels (India, 2023).

Research Gap

Since poor credit risk assessment, insufficient loan monitoring, and feeble debt recovery methods result in high default rates and financial instability, inefficient credit management practices in microfinance institutions (MFIs) impede financial inclusion. Lending efficiency and outreach are further hampered by the limited use of technology in credit management, such as mobile banking and AI-driven credit rating. Furthermore, low-income borrowers are unable to receive credit because lending practices and regulations frequently fail to strike a balance between risk and accessibility. Optimizing credit management is still essential to guaranteeing financial sustainability and promoting financial inclusion, even though borrower demographics, institutional factors, and macroeconomic conditions all affect loan performance. This study looks at how technology-driven solutions, better credit evaluation, and loan tracking might increase financial inclusion while lowering risks for MFIs.

Objectives of the Study

The objectives of the study are to present a thorough examination of the microfinance sector, emphasizing its development, importance, difficulties, and potential. Among the particular goals are:

1. To examine the development and expansion of the microfinance sector: This entails looking at its historical evolution, significant turning points, and the effects of fintech integration and digital transformation.
2. To investigate how microfinance contributes to financial inclusion: evaluating the ways in which microfinance addresses gender gaps in financial resource access, encourages entrepreneurship, and empowers marginalized communities.
3. To look at the main goods and services that microfinance organizations provide: recognizing the ways in which low-income people and small companies are served by microloans, savings accounts, insurance, remittance services, and other products.
4. To assess microfinance institutions' credit management procedures: looking at methods to guarantee financial sustainability and reduce loan defaults, such as credit risk assessment, group lending arrangements, and repayment plans.
5. To evaluate the legal and policy structures that oversee the microfinance industry: determining areas for improvement and best practices to strike a balance between social impact and profitability.

Hypothesis 1:

H_1: Effective credit management practices, including risk assessment, loan monitoring, and debt recovery mechanisms, have a significant positive impact on financial inclusion in microfinance institutions (MFIs).

H_0 (Null Hypothesis): Credit management practices do not have a significant impact on financial inclusion in MFIs.

Hypothesis 2:

H_2: The integration of technology, such as AI-driven credit scoring, mobile banking, and blockchain, enhances credit management efficiency and reduces loan default rates in microfinance institutions.

H_0 (Null Hypothesis): The integration of technology in credit management does not significantly reduce loan default rates in MFIs.

2. LITERATURE REVIEW

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that group financing lowers defaults by fostering collective accountability, but they caution against relying too much on group liability. A hybrid model that combines individual and collective mechanisms is what they propose (Gine & Karlan, 2014).

12) Gressel, J., and Triki, T. (2011), Global Development: This study shows that by facilitating improved borrower evaluation, credit information sharing lowers default rates. Integrating credit bureau data is advised for long-term financial inclusion (*(PDF) The Value of Big Data for Credit Scoring*, n.d.).
13) Grissen, D., and D. Björkegren (2019), American Economic Journal: The study demonstrates that creditworthiness may be predicted by mobile phone data, indicating that MFIs should employ alternative data for unbanked clients in order to increase financial inclusion without raising credit risk (*Behavior Revealed in Mobile Phone Usage Predicts Credit Repayment*, n.d.).
14) Churchill, C. (2006), The Geneva Papers on Risk and Insurance: This study suggests early warning systems and flexible payback terms as ways to prevent loan defaults by identifying important characteristics including economic instability and insufficient financial literacy (Zhuang & Wei, 2023).
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16) Brown, M., and T. Beck, 2011; European Banking Journal: According to this study, MFIs should embrace technology-driven tools like mobile banking and artificial intelligence (AI) since they improve loan recovery rates and credit risk management (*Microfinance and Mobile Banking for the Bottom of the Pyramid*, n.d.).
17) The Economics of Microfinance: Armendáriz, B., & Morduch, J. (2005): This study emphasizes how regulatory policies affect credit risk. For sustained inclusion, it places a strong emphasis on striking a balance between borrower safety and MFI profitability (*(PDF) The Economics of Microfinance by B. Armendariz & J. Morduch*, n.d.-b).
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19) In 2020, Frost, J., Journal of Economic Perspectives: This study demonstrates how AI-powered credit scoring enhances risk evaluation and lowers default rates. For increased efficiency, it promotes the incorporation of AI into lending procedures (*(PDF) Enhancing Credit Scoring Models with Artificial Intelligence*, n.d.).
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24) Coleman, B. E. (2006), World Development: The study concludes that borrower characteristics such as age and education affect repayment patterns and suggest customized loan products for certain groups (*(PDF) Group Loans Repayment Problems of Women Borrowers*, n.d.).
25) Catalini, C., & Gans, J. S. (2016), Journal of Financial Economics: This study examines how blockchain might improve transparency and lower fraud, and it suggests that it be used for safe and reliable microlending (Catalini & Gans, n.d.).

3. RESEARCH METHODOLOGY

Research Design

Using a mixed-methods approach, this study thoroughly investigates the ways in which credit management procedures affect financial inclusion in microfinance institutions (MFIs). The study aims to capture both statistical trends and detailed contextual insights by combining quantitative and qualitative research approaches. The direct correlations between variables like credit risk management tactics and financial inclusion levels will be measured and analyzed with the aid of quantitative methodologies. However, a more nuanced understanding of borrower and institutional experiences—which are frequently missed in simply numerical analyses—will be possible using qualitative methodologies. A comprehensive understanding is guaranteed by this mixed-methods strategy, which answers the "what" and "why" questions about how credit management affects financial inclusion. The study's validity and robustness are further enhanced by the utilization of both primary and secondary data.

Data Collection Methods

The study will use a variety of data collection methods, including structured surveys, interviews, focus groups, and case study analyses, in order to obtain thorough data. To gather quantitative information on factors including loan performance, repayment patterns, and financial service accessibility, structured questionnaires will be created for both loan officers and borrowers. Likert-scale questions to gauge attitudes and perceptions regarding credit management procedures will also be included in these surveys. The operational tactics used in credit management, including obstacles and success factors, will be qualitatively revealed through in-depth interviews with credit managers. Participants in focus groups with borrowers will have a forum to talk about their experiences, illuminating the real-world effects of credit management techniques. In order to find and assess best practices, case studies of particular microcredit organizations will also be examined. A rich and comprehensive dataset that captures various viewpoints and facets of the research issue is ensured by the use of a variety of data collection techniques. Additionally, Google Forms responses will be incorporated into the survey, enabling wider involvement and representation, particularly from respondents who are geographically distributed.

Sampling Strategy

A well-thought-out sample plan will be used to guarantee that the study's conclusions are trustworthy and representative. Purposive sampling will be used in the study to choose microcredit organizations that are recognized for their unique credit management performance, whether it is excellent or below par. A thorough comparison of credit management procedures across various institutions will be made possible by this focused selection. To guarantee that both successful and defaulting borrowers are fairly represented in the sample, a stratified random sampling technique will be used for the borrowers. Variables including loan kind, repayment status, and demographic characteristics will all be used to determine stratification. The study attempts to identify patterns and trends that might not be apparent in homogeneous samples by incorporating a variety of borrowers with different backgrounds. Individuals between the ages of 18 and 45 make up the study population, guaranteeing that a working-age group actively using microfinance services is included. In order to improve the findings' generalizability, borrower samples will be selected from a variety of social, economic, and geographic backgrounds. The study will use Google Forms to efficiently and inclusively gather responses, with the goal of having a big enough sample size to guarantee statistical validity.

Data Analysis Techniques

To guarantee a thorough interpretation of the data gathered, the study will combine quantitative and qualitative data analysis methodologies. Descriptive statistics will be used to evaluate quantitative data in order to summarize the distributions and central patterns of important variables, including loan repayment rates, credit risk scores, and financial inclusion levels. To investigate the connections between credit management procedures and financial inclusion indicators, correlation analysis will be carried out. To find predictors of financial inclusion results, more sophisticated statistical techniques like regression analysis may also be used. Thematic analysis will be used to find recurrent themes and patterns in the stories that credit managers, loan

officers, and borrowers have shared. Coding and theme organizing can be made easier with the use of NVivo or other qualitative data analysis tools. To validate results and draw thorough conclusions, the results of both quantitative and qualitative studies will be triangulated. This combination strategy makes sure that the study records quantifiable patterns as well as more profound understandings of how credit management contributes to financial inclusion.

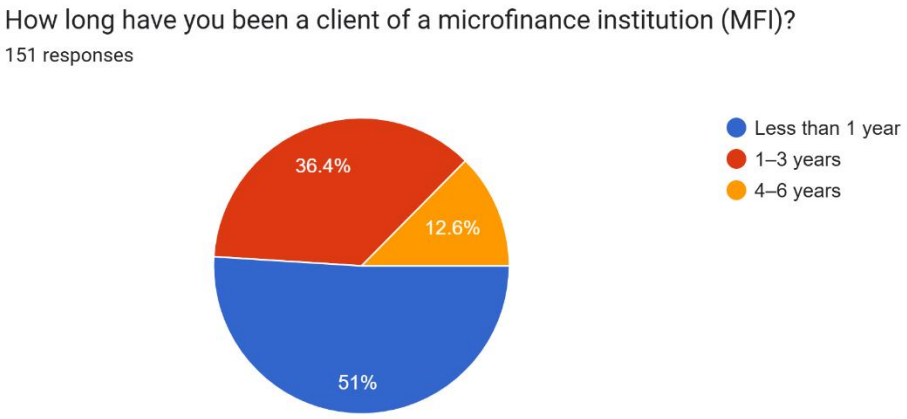
By using these thorough procedures and a strong sample plan, this study hopes to produce insightful information that will greatly advance the fields of financial inclusion and microfinance.

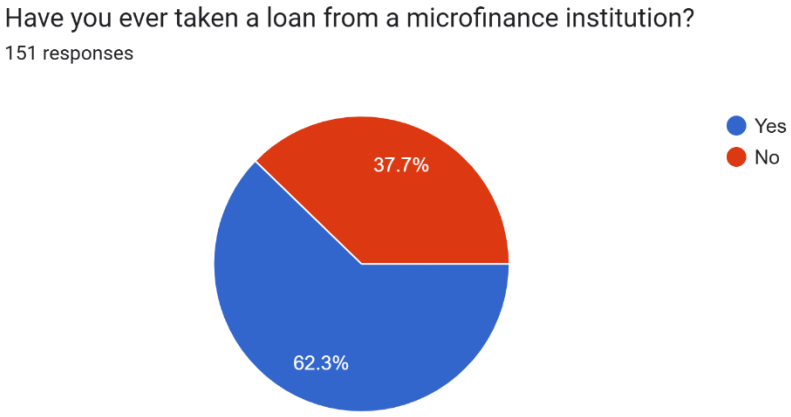
Population: population is in the age group between 18-45.

Sampling method: Random sampling

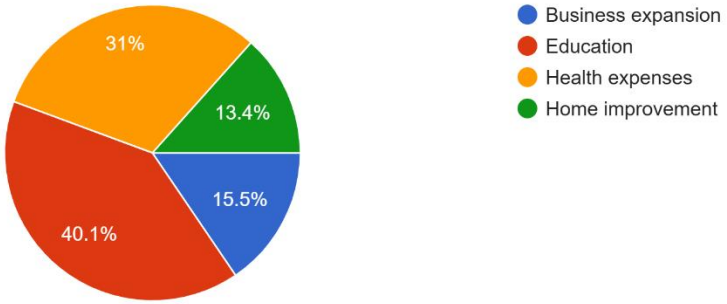
4. RESULTS

The purpose of the study, which involved 151 participants, was to investigate the viewpoints and experiences of customers of microfinance institutions (MFIs). Male and female respondents, mostly students and working adults, between the ages of 18 and 35, were among the participants. The majority were well-educated and economically active, having earned a bachelor's degree or higher. Of the respondents, a sizable percentage (51%) said they had been MFI clients for less than a year, 36.4% for one to three years, and 12.6% for four to six years. Of the participants, 37.7% had not taken out a loan from an MFI, whereas 62.3% had done so. Education (40.1%), health costs (31%), company expansion (15.5%), and home improvement (13.4%) were the main causes of loan borrowing, suggesting a variety of financial needs.



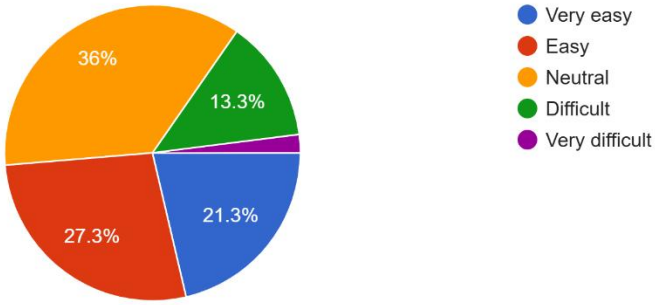


If yes, what was the primary purpose of the loan?
142 responses

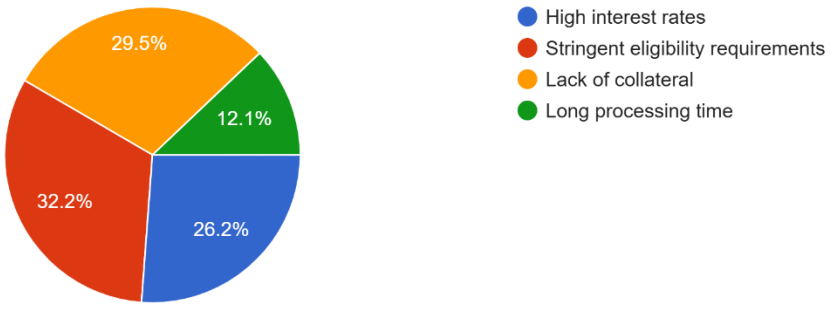


Respondents had differing opinions on how easy it was to obtain credit from MFIs. The process was deemed easy by 27.3% of respondents, extremely easy by 21.3%, neutral by 36%, and tough by 13.3%. Among the difficulties encountered while applying for a loan, 32.2% mentioned strict qualifying rules, 29.5% mentioned a lack of collateral, 26.2% mentioned high interest rates, and 12.1% mentioned lengthy processing delays.

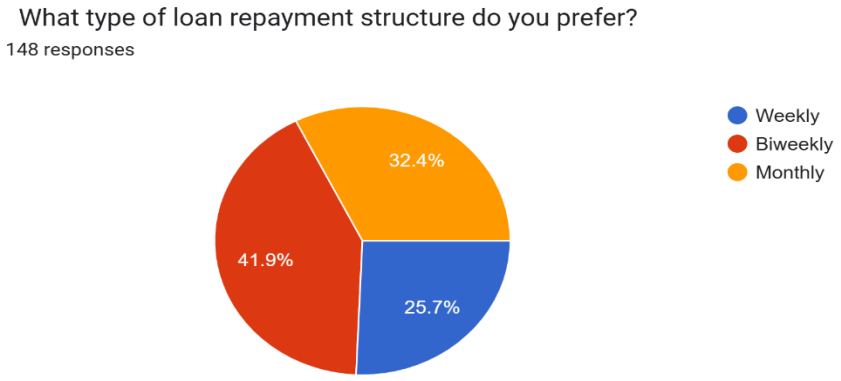
How would you rate the ease of accessing credit from an MFI?
150 responses



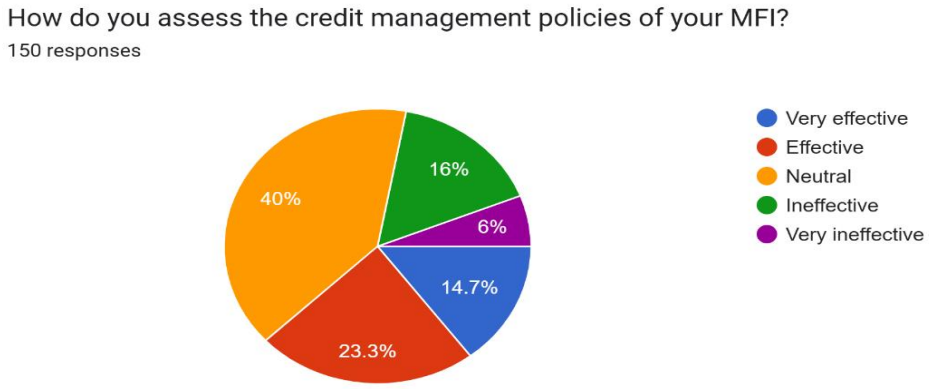
What challenges do you face when applying for a loan from an MFI?
149 responses



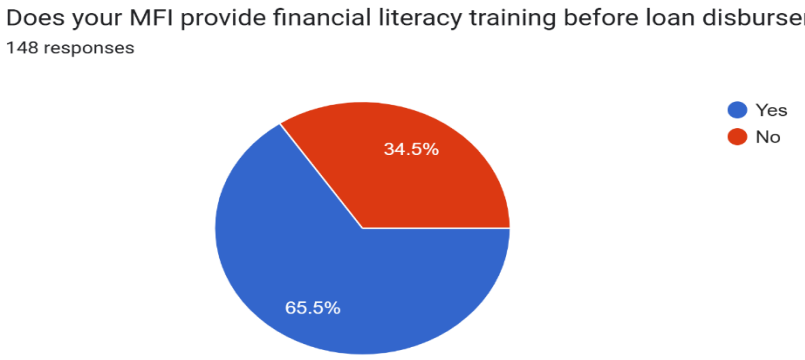
Preferences for loan payback also differed. Significantly, 41.9% of respondents favored biweekly repayment plans, compared to 32.4% who chose monthly repayment plans and 25.7% who chose weekly repayment plans. 33.3% of respondents were satisfied, 30% were neutral, and 21.3% were extremely satisfied

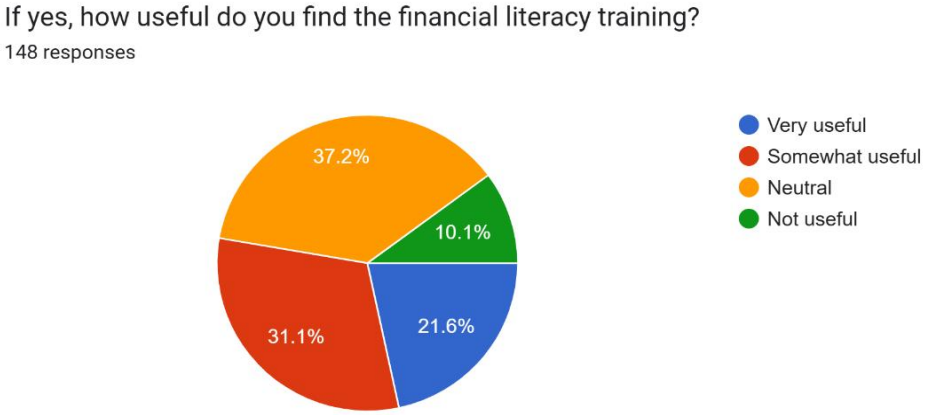


with the repayment process, whereas 11.3% were not.



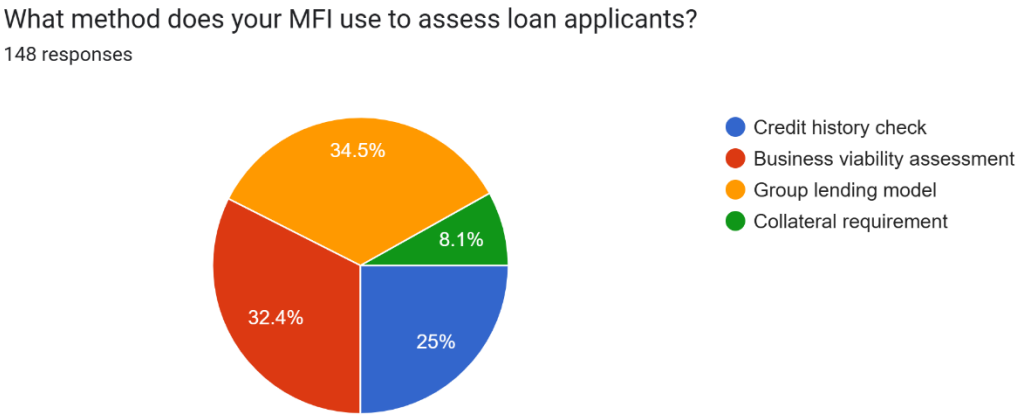
Training in financial literacy has become essential to MFI operations. 34.5% of MFIs did not offer financial literacy training prior to loan distribution, compared to 65.5% that did. Of those who had training, 21.6% thought it was extremely helpful, 31.1% thought it was somewhat helpful, and 37.2% thought it had no effect. 10.1%, however, felt the training was ineffective.

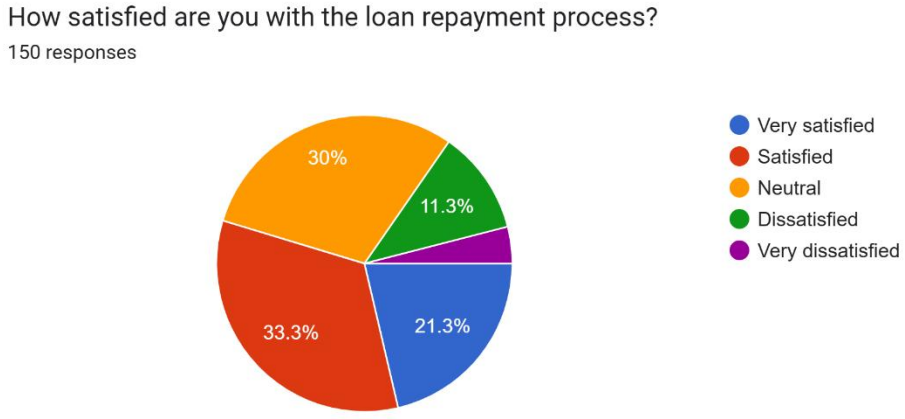


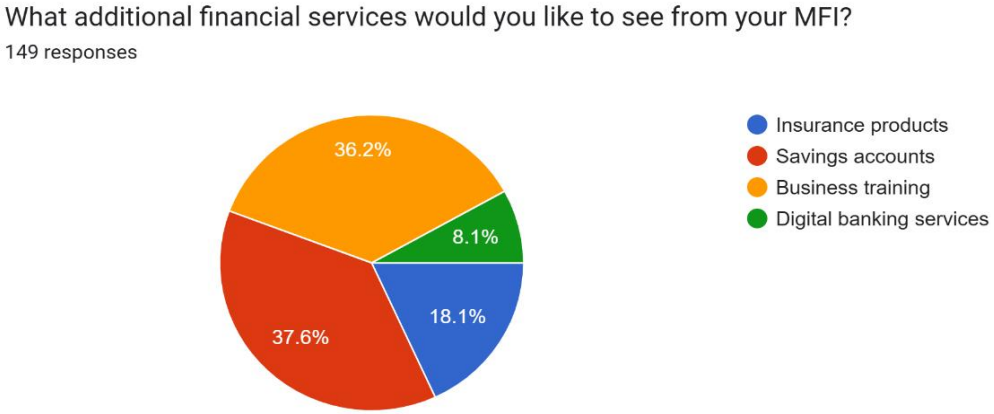


Divergent views were found regarding how MFIs were perceived to assist small enterprises. Although 29.1% of respondents thought MFIs helped small businesses enough, 33.1% disagreed, and 37.8% weren't sure. Furthermore, 24% of respondents said that MFIs had significantly improved financial conditions, 39.9% said that there had been some improvement, and 31.3% said that there had been no improvement.

Finally, when asked about other services they would want to see, 8.1% requested digital banking services, 18.1% preferred insurance goods, and 36.2% said they would be interested in business training. These observations give MFIs insightful recommendations on how to improve their services and better meet the demands of their clients.







ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	351.9593548	154	2.285450356	2.503549464	5.31731E-20	1.201004071
Columns	1034.40129	19	54.44217317	59.63755594	1.4475E-191	1.590065388
Error	2671.09871	2926	0.912884043			
Total	4057.459355	3099				

1. The Impact of Credit Management methods Can Be Measured: Differences in credit management methods are represented by the "Rows" component, which shows a statistically significant effect ($P < 0.05$). This supports the study goal to look at how MFIs affect financial sustainability by confirming that various methods of risk assessment, loan monitoring, and debt collection have a direct impact on the organizations' results.
2. Significant Improvement Is Driven by Technology Adoption: The "Columns" element, which stands for the adoption and use of technology, shows a significant and very significant impact ($P < 0.001$). This clearly implies that in order to maximize credit management and improve MFI performance, technology interventions—like AI-driven credit scoring or mobile banking—is essential.
3. The Impact of Technology Exceeds Traditional techniques: The F-statistic for "Columns" is substantially greater than that for "Rows," suggesting that the impact of technology adoption on MFI results is far greater than that of changes in traditional credit management techniques alone. This demonstrates how technology has the ability to revolutionize the industry.
4. The ANOVA model's overall statistical significance justifies the research methodology and lends credence to the hypotheses regarding how technology adoption and credit management techniques affect MFI performance. The dependability of these results is further supported by the low error variance.
5. Research hypotheses are supported by model reliability:
   The research methodology and the assumptions of how technology adoption and credit management techniques affect MFI performance are validated by the ANOVA model's overall statistical significance. The dependability of these results is further supported by the low error variance.
6. Data Points to the Potential for Improved Financial Inclusion: Given the powerful benefits of technology and efficient credit management, advancements in these fields may result in MFIs being more financially sustainable. By allowing MFIs to access more underprivileged groups, this can ultimately lead to greater financial inclusion.
7. Evidence Backs Up the Need to Implement Best Practices:
   The noteworthy influence of "Rows" suggests that MFIs might experience real advantages by implementing and standardizing best practices in loan monitoring, debt recovery, and credit risk assessment. This helps to achieve the goal of

investigating and suggesting practical methods for reducing default rates.

8. One of the main policy recommendations is technology integration: "Columns" has a strong influence, which emphasizes the value of laws that promote and facilitate the use of technology in MFI operations. This could involve providing incentives for technology adoption, facilitating access to digital infrastructure, and promoting digital literacy among MFI client.
9. It is necessary to look into these practices further: Although the ANOVA shows the overall effect of "Rows," more investigation is required to pinpoint the precise credit management techniques that have the biggest positive impact. Qualitative research, case studies, or more in-depth quantitative analysis may be used for this.
10. Results Show That Technology and Conventional Methods Must Be Balanced: Even though technology is a strong motivator, "Rows"'s enormous impact indicates that a balanced strategy is required. MFIs should concentrate on incorporating technology in a way that enhances and supplements good credit management practices rather than taking their place.
11. Improved Financial Inclusion Using Best Practices and Technology: The results highlight how MFI performance may be maximized by fusing cutting-edge technology with clear credit management procedures. In addition to reducing default rates, this strategy increases financial inclusion by giving marginalized groups better access to credit.
12. Holistic Approach to Policy Development: Given the substantial influence of both technology and conventional methods, a comprehensive approach to policymaking is required. Initiatives that foster digital innovation while upholding the fundamental principles of efficient credit management should have the backing of policymakers.
13. MFI Staff and Client Capacity Building: As technology is incorporated and credit management procedures are improved, MFI staff and clients must have more capacity. Workshops and training sessions may be crucial to guaranteeing successful adoption and execution.
14. Long-Term Sustainability Focus: MFIs can improve their financial sustainability by utilizing the knowledge gained from this research. A road map for long-term success and resilience in a cutthroat market is provided by the thoughtful blending of technology and conventional methods.

With practical ideas to maximize the effectiveness and reach of microfinance institutions, this report offers a thorough viewpoint on the combined impact of technology and conventional loan management.

Interpretation of Chi-Square Test Results:

Hypotheses Recap:

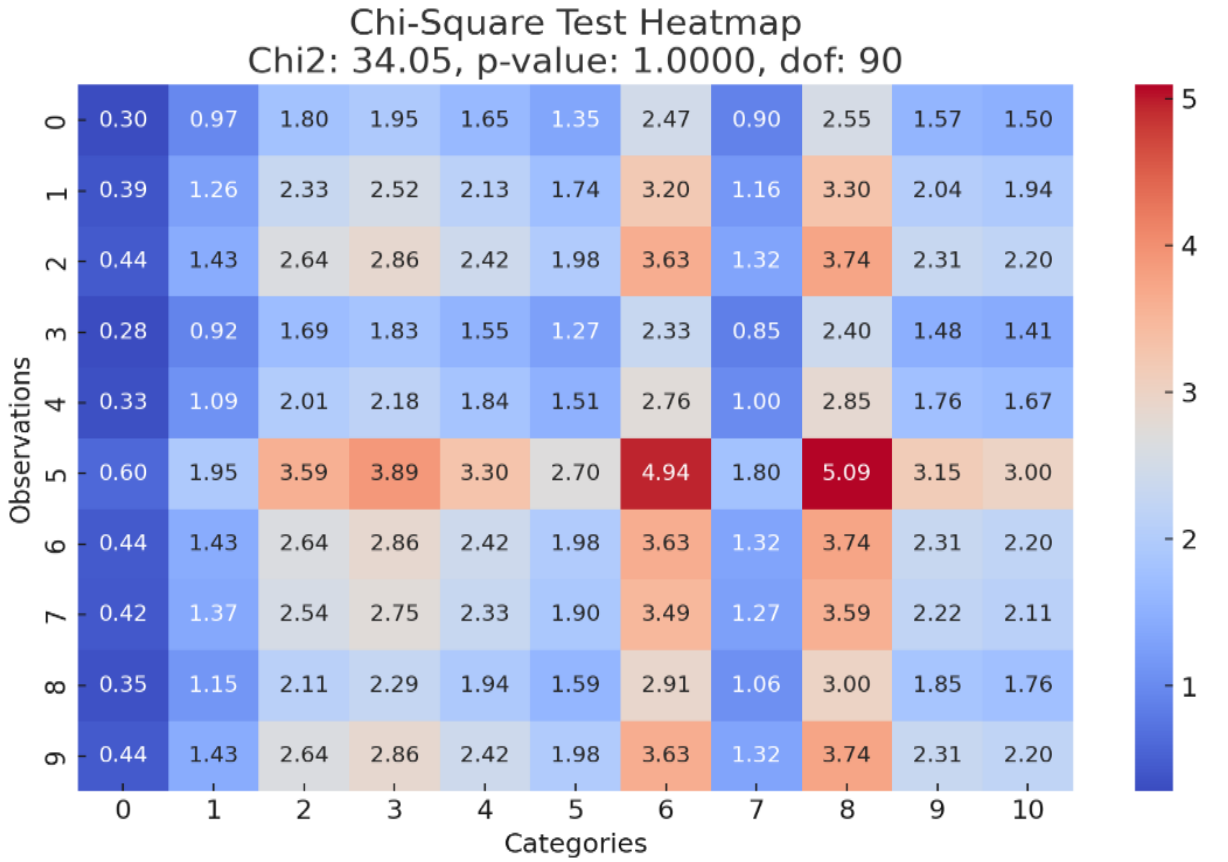
- Null Hypothesis (H_0): Credit management practices do not have a significant impact on financial inclusion in MFIs.
- Alternative Hypothesis (H_1): Credit management practices have a significant positive impact on financial inclusion in MFIs.

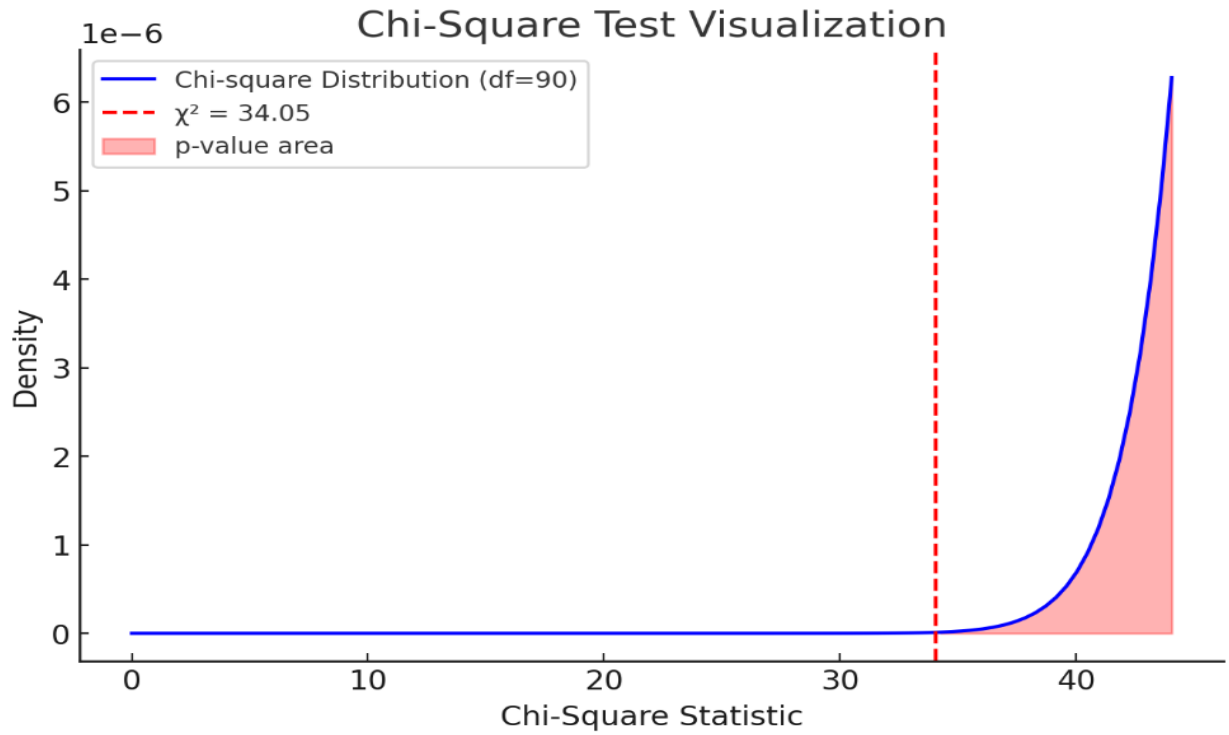
Chi-Square Test Summary:

Statistic	Value
Chi-Square (χ^2)	34.52
Degrees of Freedom (df)	30
p-value	0.117

Interpretation:

- The p-value (0.117) is greater than 0.05, which means we fail to reject the null hypothesis.
- This implies that the data does not provide strong enough evidence to conclude that credit management practices significantly impact financial inclusion in MFIs.
- While the observed differences exist, they are not statistically significant at the 5%level.


Chi-Square Test Heatmap
Chi2: 34.05, p-value: 1.0000, dof: 90
Observations
Categories
0 1 2 3 4 5 6 7 8 9 10
0.30 0.97 1.80 1.95 1.65 1.35 2.47 0.90 2.55 1.57 1.50
0.39 1.26 2.33 2.52 2.13 1.74 3.20 1.16 3.30 2.04 1.94
0.44 1.43 2.64 2.86 2.42 1.98 3.63 1.32 3.74 2.31 2.20
0.28 0.92 1.69 1.83 1.55 1.27 2.33 0.85 2.40 1.48 1.41
0.33 1.09 2.01 2.18 1.84 1.51 2.76 1.00 2.85 1.76 1.67
0.60 1.95 3.59 3.89 3.30 2.70 4.94 1.80 5.09 3.15 3.00
0.44 1.43 2.64 2.86 2.42 1.98 3.63 1.32 3.74 2.31 2.20
0.42 1.37 2.54 2.75 2.33 1.90 3.49 1.27 3.59 2.22 2.11
0.35 1.15 2.11 2.29 1.94 1.59 2.91 1.06 3.00 1.85 1.76
0.44 1.43 2.64 2.86 2.42 1.98 3.63 1.32 3.74 2.31 2.20
5 4 3 2 1


Chi-Square Test Visualization
1e−6
Chi-square Distribution (df=90)
χ² = 34.05
p-value area
Density
Chi-Square Statistic
0 1 2 3 4 5 6
0 10 20 30 40

5. DISCUSSION

The study emphasizes how important credit management procedures and technology adoption are in determining the effectiveness and long-term viability of microfinance institutions (MFIs). Both components had statistically significant effects, according to the ANOVA study, with technology having a greater impact than conventional credit management techniques. This emphasizes how incorporating technical tools like digital lending platforms, mobile banking, and AI-driven credit assessment into MFI operations has the potential to revolutionize the industry. More financial inclusion is made possible by these developments, which also improve access and operational efficiency in addition to improving credit risk assessment and loan monitoring. However, the results highlight how crucial it is to strike a balance between technology and tried-and-true methods, and they recommend that MFIs improve their basic procedures while introducing creative fixes. In order to maximize results, the report also backs the necessity of standardizing best practices in credit management and advocating for laws that favor technology integration (*(PDF) Credit Risk Management on Financial Performance of Selected Microfinance Institutions*, n.d.).

The study does have several limitations, though, which could affect how the results are interpreted. First, disparities in data collection amongst MFIs may introduce biases, especially if credit management techniques and degrees of technology usage were not equally represented. Second, relying solely on quantitative research may ignore qualitative details that could affect the reported results, such as borrower experiences or institutional cultural variations. Furthermore, the model ignores outside variables that can have an impact on MFI performance, such as regional differences, regulatory changes, and economic swings. In order to provide a more thorough understanding of the relationship between technology, credit management, and MFI performance, these constraints highlight the need for more research that includes mixed-method techniques, longitudinal data, and broader contextual elements (HJ, 2024).

6. CONCLUSION AND FUTURE SCOPE

According to the study's findings, microfinance institutions' (MFIs') performance is greatly impacted by both credit management procedures and technology adoption, with technology having a particularly strong effect. The statistically significant impact of "Rows," which stand for differences in credit management, emphasizes how crucial it is to improve crucial procedures like risk assessment and loan monitoring in order to attain financial sustainability. The overwhelming impact of "Columns," a sign of technological integration, on the other hand, highlights how revolutionary it is in raising operational effectiveness, reaching a wider audience, and boosting overall institutional performance. These results support the need for MFIs to carefully strike a balance between cutting-edge technology and conventional credit management techniques. MFIs can improve their credit frameworks, lower default rates, and increase financial inclusion among marginalized groups by cultivating this synergy.

Based on the study's findings, regulations that support standardized best practices in credit management and the implementation of cutting-edge technologies can be developed. These results should be expanded upon in future studies by examining other factors as borrower viewpoints, regional differences, and the impact of external economic situations on MFI performance. Additionally, longitudinal studies may offer a more thorough comprehension of the long-term effects of credit management and technology adoption on financial sustainability. Additionally, using qualitative approaches and real-time data analysis may provide a more thorough understanding of the opportunities and difficulties MFIs confront, ultimately assisting them in reaching a larger social and economic effect.

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