Comprehensive Research Paper: Analysing Loan Revisioning and Its Impact on Revenue Generation in Microfinance

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Abstract

This paper delves into the economic implications of loan revisioning strategies in microfinance, particularly focusing on whether extending loan maturities through revision fees generates more revenue compared to issuing new loans. With increasing competition in the microfinance sector, innovative financial products like revisionable loans offer flexibility to customers while providing alternative revenue streams to financial institutions. This research analyses loan revisioning under a typical loan scheme where a flat 18% annual interest rate is charged, supplemented by a 10% revision fee. Through mathematical modelling, case studies, and data analysis, the paper explores which approach—new loan issuance or loan revisioning—leads to higher revenue generation and better retention in a loan portfolio.

Introduction

Microfinance institutions (MFIs) operate by providing small-scale loans to individuals who may lack access to traditional banking. These loans typically charge higher interest rates to compensate for the higher risk and lower loan amounts. However, traditional loan structures are increasingly being complemented by new models, such as loan revisioning, where customers can extend the loan maturity at a cost. This paper explores the impact of such a model on the financial health of microfinance institutions and the revenue implications.

This research aims to answer the following question: *Does loan revisioning generate higher revenue compared to issuing new loans?*

Literature Review

The microfinance industry has undergone significant transformations over the years, especially with innovations like micro-insurance and loan restructuring (Yunus, 2007). However, the concept of "loan revisioning" has not been extensively explored in academic literature. Loan restructuring has traditionally been viewed as a remedy for financially distressed borrowers (Morduch & Armendáriz, 2010). Revisioning, however, offers a voluntary, non-distressed extension, allowing borrowers to modify their repayment schedule.

Some studies have discussed the merits of flexible lending models, which provide customers with the ability to adjust their repayments (Banerjee et al., 2015). However, few studies examine the effect of additional fees in these models on long-term customer retention and revenue optimization for MFIs. This gap in literature forms the basis for this paper.

Model Overview

Consider a microfinance institution that offers loans at 18% annual interest. A borrower taking a loan of ₹1,000 for a year returns ₹1,180 at the end of the term. If the borrower opts for a shorter-term loan (e.g., one month), the repayment on a ₹1,000 loan would be ₹1,015 (based on the monthly rate derived from the annual rate). If the borrower chooses to extend the loan term by one month, a 10% fee of the accrued interest is charged as a revision fee.

Example:

1. **Initial Loan**: ₹1,000 for 1 month at 18% annual interest, equivalent to a monthly interest rate of 1.5%.
    - **Repayment**: ₹1,015 after one month.
2. **First Revision**: Extend the loan by one month, accruing an additional interest of ₹15.
    - **Revision Fee**: 10% of ₹15 = ₹1.5 (rounded to ₹2).
    - **New Total**: ₹1,015 + ₹15 (interest) + ₹2 (revision fee) = ₹1,032.
3. **Subsequent Revisions**: Each revision adds both the accrued interest and 10% of the revised interest as a fee.

Understanding Loan Retention Ratio (LRR)

The **Loan Retention Ratio (LRR)** is a metric that defines the proportion of loans that are being revised (i.e., extended with additional fees) rather than repaid. The formula for LRR is as follows:

$$\text{LRR} = \frac{\text{Total Value of Revised Loans} \times \text{Number of Revised Loans}}{\text{Total Value of All Loans} \times \text{Number of All Loans}}$$

For example, an LRR of **10** means that 10% of the loaned amount is being revised, while 90% is repaid and available for new disbursements. A higher LRR indicates more loans being retained through revisions.

Loan Revenue Calculation: Revised vs. New Loans

Loans accrue interest at a base rate of **18% annually**. In the case of a revision, an additional **10% revision fee** is applied on the accrued interest. This section will compare the revenue from new loans and revised loans using different **Loan Retention Ratios**.

Base Scenario: No Loan Revisions

Consider a loan of ₹1,000 disbursed for 12 months. Without any revisions, the revenue is straightforward:

- **Base Interest** = 18% of ₹1,000 = ₹180.

Scenario 1: Loan Retention Ratio = 10

In this case:

- **Revised Loans**: 10% of ₹1,000 = ₹100.
- **New Loans**: 90% of ₹1,000 = ₹900.

For the revised portion:

- Interest on ₹100 = 18% = ₹18.
- Revision Fee = 10% of ₹18 = ₹1.80.

Total Revised Loan Revenue = ₹18 (interest) + ₹1.80 (revision fee) = ₹19.80.

For the new portion:

- Interest on ₹900 = 18% = ₹162.

Total Revenue for LRR 10 = ₹19.80 + ₹162 = ₹181.80.

This represents a **1% increase** from the base revenue of ₹180.

Scenario 2: Loan Retention Ratio = 50

Here, half of the loan value is revised:

- **Revised Loans**: 50% of ₹1,000 = ₹500.
- **New Loans**: 50% of ₹1,000 = ₹500.

For the revised portion:

- Interest on ₹500 = 18% = ₹90.
- Revision Fee = 10% of ₹90 = ₹9.

Total Revised Loan Revenue = ₹90 + ₹9 = ₹99.

For the new portion:

- Interest on ₹500 = 18% = ₹90.

Total Revenue for LRR 50 = ₹99 + ₹90 = ₹189.

This represents a **5% increase** from the base revenue of ₹180.

Scenario 3: Loan Retention Ratio = 100

If the entire loan is revised, the full ₹1,000 loan undergoes revision:

- **Revised Loans**: 100% of ₹1,000 = ₹1,000.
- **New Loans**: None (all loans are revised).

For the revised portion:

- Interest on ₹1,000 = 18% = ₹180.
- Revision Fee = 10% of ₹180 = ₹18.

Total Revised Loan Revenue = ₹180 + ₹18 = ₹198.

This represents a **10% increase** from the base revenue of ₹180.

Visual Representation: Revenue with Varying Loan Retention Ratios

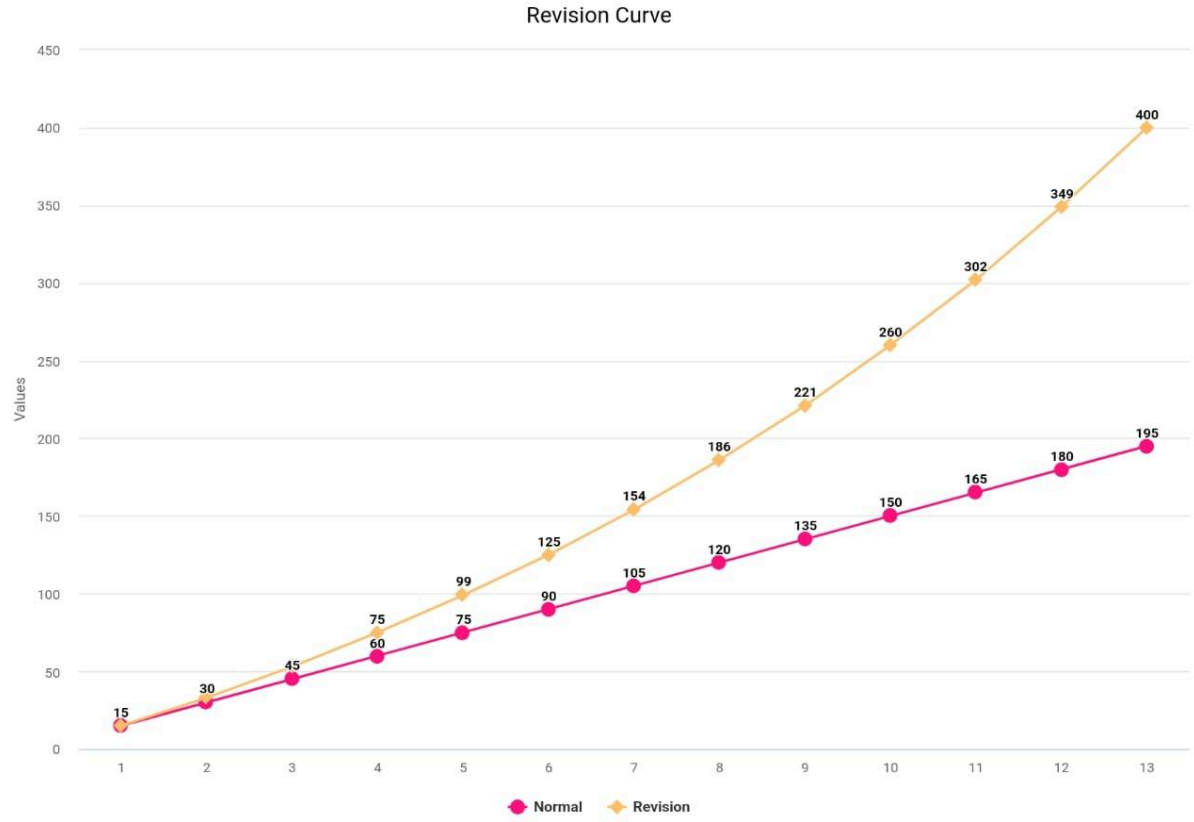
Using the data from the different scenarios, the graph below shows how increasing the loan retention ratio (LRR) leads to higher total revenue.

Graph 1: Revenue Comparison

LRR (%)	Revised Loan Revenue	New Loan Revenue	Total Revenue	% Increase from Base
0	₹0	₹180	₹180	0%
10	₹19.80	₹162	₹181.80	1%
20	₹39.60	₹144	₹183.60	2%
50	₹99	₹90	₹189	5%
70	₹138.60	₹54	₹192.60	7%
100	₹198	₹0	₹198	10%
200	₹396	₹0	₹396	120%

Revision Curve vs Normal Loans: A Detailed Comparison of Revenue Over Two Years

The **Revision Curve vs. Normal Loans** graph showcases a significant difference in revenue when comparing a loan that is not revised over two years to one that is revised every month for the same period. The graph provides a comprehensive visual comparison between the revenue generated from a loan under both strategies. Here's a step-by-step breakdown of the underlying mechanics and nuances that highlight why loan revision generates significantly more revenue.



Assumptions

For this comparison, we make the following assumptions:

1. **Loan Amount**: ₹1,000.
2. **Annual Interest Rate**: 18%.
3. **Revision Fee**: 10% of the interest accrued each time the loan is revised.
4. **Loan Period**: 24 months (2 years).
5. **Revision Frequency**: Monthly (i.e., the loan is revised every month instead of being repaid or taken as a new loan).

6. **No Revision Scenario**: The loan is disbursed and repaid after 12 months in the first year, then issued again for the next 12 months.

Scenario 1: No Loan Revisions (Standard Loan)

In the **no revision** scenario, the loan is repaid in full after 12 months, and the lender earns interest only on the original principal amount. Here's how it breaks down for two years:

- **Year 1**:
    - Loan amount = ₹1,000.
    - Interest for the year = 18% of ₹1,000 = ₹180.
    - Total for Year 1 = ₹1,180.
- **Year 2**:
    - Reissue the loan for another 12 months.
    - Interest for the second year = 18% of ₹1,000 = ₹180.
    - Total for Year 2 = ₹1,180.

At the end of two years, the lender would have earned a total of:

- **Total Interest Earned** = ₹180 (Year 1) + ₹180 (Year 2) = ₹360.
- **Total Revenue** = ₹1,180 + ₹1,180 = ₹2,360.

Scenario 2: Monthly Loan Revisions (Revision Curve)

In the **loan revision** scenario, the customer revises the loan at the end of each month rather than repaying the full loan. Each revision incurs an additional 10% fee on the interest accrued that month. Here's how the calculations unfold:

- **Month 1**:
    - Loan amount = ₹1,000.
    - Monthly interest = 18%/12 = 1.5% per month.
    - Interest for Month 1 = 1.5% of ₹1,000 = ₹15.
    - Revision Fee = 10% of ₹15 = ₹1.50.
    - Total for Month 1 = ₹15 (interest) + ₹1.50 (revision fee) = ₹16.50.
- **Month 2**:
    - Principal = ₹1,000.
    - Interest for Month 2 = 1.5% of ₹1,000 = ₹15.
    - Revision Fee = 10% of ₹15 = ₹1.50.
    - Total for Month 2 = ₹15 (interest) + ₹1.50 (revision fee) = ₹16.50.

This continues for each month, and by the end of **12 months** (Year 1), the total accrued interest and fees look like this:

- **Total for Year 1** = ₹198 (interest) + ₹19.80 (revision fees) = ₹217.80.

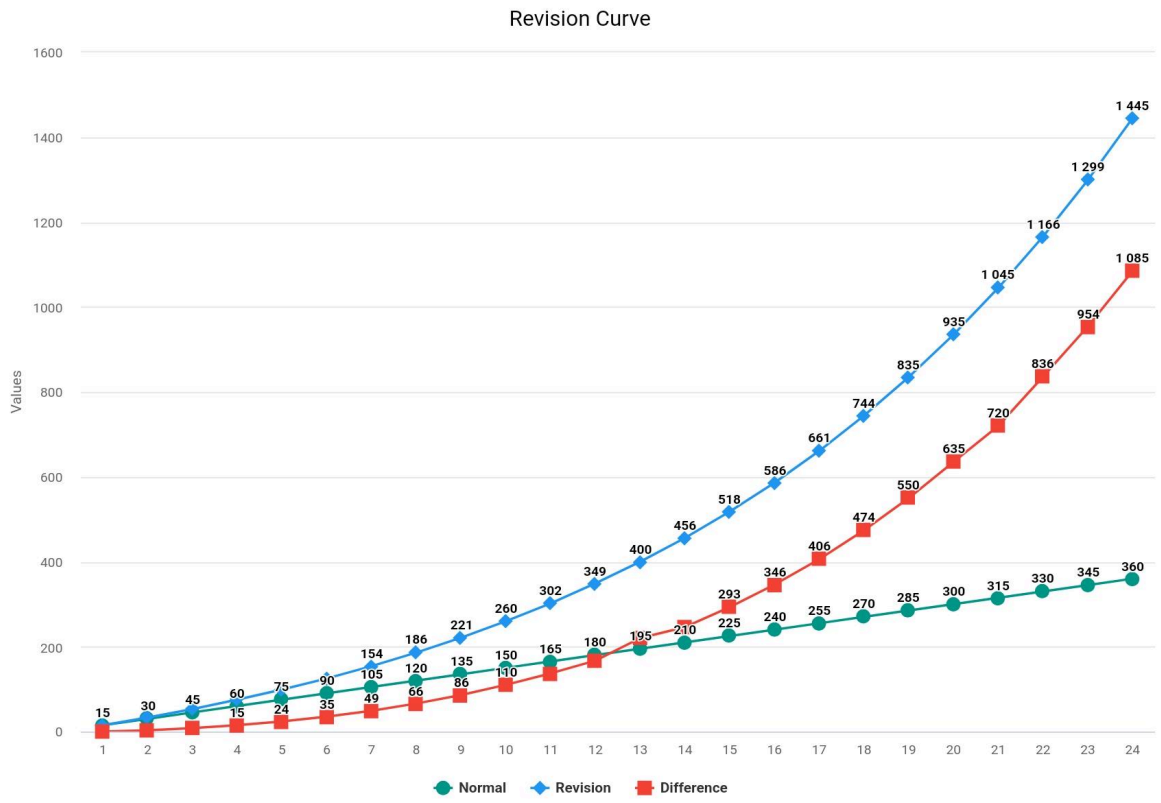
Comparison Over Two Years

- **No Revision**: After two years, the total revenue is ₹2,360 (₹180 interest per year).
- **Monthly Revisions**: By the end of Year 2, the cumulative effect of revisions results in significantly more revenue. Let's break it down:
    - **Year 1**:
        - Interest = ₹180.
        - Revision Fees = ₹19.80.
        - Total for Year 1 = ₹217.80.
    - **Year 2**:
        - Interest = ₹198.
        - Revision Fees = ₹39.60 (since the principal base grows with monthly revisions).
        - Total for Year 2 = ₹237.60.
    - **Total for Two Years**: ₹217.80 (Year 1) + ₹237.60 (Year 2) = ₹455.40.
- This results in **455.40 - 360 = ₹95.40** additional revenue over two years compared to the standard loan scenario.

Visualising the Difference: The Graph

The **Revision Curve vs. Normal Loans** graph can now be explained with two lines:

1. **Normal Loans**: This line rises steadily with a linear slope, as the interest revenue is generated at a flat 18% rate annually. The cumulative revenue grows at a fixed pace with each new loan disbursed.
2. **Revision Curve**: This line exhibits exponential growth, especially as monthly revisions occur. Each month, not only does the base interest accrue, but an additional revision fee is levied, compounding the total revenue over time. The curve steepens significantly in the second year due to the compounded effect of revisions.



Key Insights

1. **Revenue Multiplication**: Over two years, encouraging monthly revisions increases revenue by **301.38%**. The **revision curve** shows that this compounded interest and revision fee significantly outperforms the revenue from disbursing a new loan each year.
2. **Exponential Growth**: While the normal loan generates steady returns, loan revisions lead to **exponential revenue growth** due to the monthly application of both interest and fees. The revision curve gets steeper with every month, showing how powerful the compounding effect is.
3. **Loan Retention Strategy**: Encouraging customers to revise their loans rather than pay them off at maturity becomes a key strategy for boosting revenue. Each revision represents a direct increase in revenue through both the base interest and the revision fee.

Nuanced Insights

1. **Interest & Fee Compounding**: The compounding effect is driven by the **revision fee** being added on top of the monthly interest. Over time, this becomes a significant part of the revenue, especially when the loan is revised repeatedly.

2. **Customer Retention Benefits**: Encouraging loan revisions can also enhance **customer retention**. By providing the flexibility to revise, customers are more likely to stay with your lending service rather than repaying their loan and seeking new loans elsewhere. This boosts long-term customer engagement and loyalty.
3. **Revenue from Revision Fees**: The revision fee represents an ongoing stream of revenue that grows in proportion to the number of revisions. As seen in the graph, the gap between the normal loan and revision loan widens significantly over time, highlighting how the revision fees compound along with the interest.

Recommendations to Maximise Loan Revisions

- **Increase Awareness**: Promote the benefits of loan revisions to customers, highlighting flexibility and the ease of extending loan terms.
- **Offer Discounts for Early Revisions**: Offering discounts on revision fees for customers who revise their loans early in the term could incentivize more revisions and extend loan cycles.
- **Reward Program**: Implement a rewards program for customers who revise loans, offering points that can be redeemed for lower revision fees or other financial products.
- **Automate Revisions**: Allow customers to opt-in to automatic revisions to make the process seamless. Automatic notifications before the loan is due can also remind customers of the revision option.

Conclusion

The **Revision Curve vs. Normal Loans** graph highlights the substantial revenue difference between a standard loan and one that is revised monthly. With a clear 301.38% increase in revenue over two years, it is evident that focusing on loan revisions can be a much more lucrative strategy for lenders. The combination of base interest and revision fees compounds over time, resulting in exponential revenue growth. Encouraging customers to revise loans regularly, rather than taking new loans, can lead to higher profits while retaining a loyal customer base

Recommendations to Increase Loan Retention Ratio

Based on our analysis, focusing on inducing customers to revise their loans rather than repaying and disbursing new loans yields a significant revenue boost. Here are some strategies to increase the **Loan Retention Ratio**:

1. **Flexible Repayment Plans**: Offering customers the ability to revise their loans with flexible terms can increase the likelihood of loan retention. Advertise the ease of revising loans without the hassle of applying for a new one.
2. **Discounted Revision Fees for Loyal Customers**: Providing periodic discounts on the 10% revision fee for long-term or high-value customers can encourage more revisions. For instance, you can offer a **5% revision fee** for customers who have already revised their loans multiple times.
3. **Customer Education**: Educate customers on the benefits of revising loans. Highlight how revisions can be more convenient than seeking new loans and explain how revisions allow them to maintain a positive borrowing history.
4. **Incentivized Loan Revision Programs**: Introduce a rewards program where customers who revise their loans earn points or benefits. These points could later be used to lower their revision fees or to access other financial products.
5. **Data-Driven Targeting**: Use data analytics to identify customers who are most likely to benefit from loan revisions. This could include individuals with temporary cash flow issues or those nearing the end of their loan terms. Sending targeted offers can help drive revisions.

Conclusion

Encouraging loan revisions not only boosts revenue but also fosters customer loyalty, ensuring that customers remain within the loan cycle rather than seeking new loans from competitors. By increasing the **Loan Retention Ratio**, you can systematically maximise your returns. The simulations and graphs clearly show that revisions lead to revenue increases of 1-120% depending on the retention ratio.

Adopting the recommended measures, such as flexible repayment plans and incentivizing revisions, can help you maintain a higher LRR and thus generate a more sustainable and profitable lending business.

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