

PARTICIPANT COURSE MATERIALS

Delinquency Measurement and Control

AND

Interest Rate Calculation and Setting



CGAP CONSULTATIVE GROUP TO ASSIST THE POOR

NOTE The Participant Course Materials contain the main technical messages and concepts delivered in this course. It is not intended to serve as a substitute for the full information and skills delivered through the individual courses ***Skills for Microfinance Managers*** training series. During the actual courses, key concepts are presented with case studies, exchange of participant experiences and other activities to help transfer skills. CGAP would like to thank those who were instrumental to the development and design of the original course that led to this participant summary: Michael Goldberg, Ruth Goodwin-Groen, Brigit Helms, Jennifer Isern, Patricia Mwangi, Janis Sabetta, and all CGAP training hubs and partners. Copyright 2008, The Consultative Group to Assist the Poor (CGAP).

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Overview and Goals

Overview

International best practice for microfinance suggests that sustainability is an attainable goal for microfinance institutions. *Delinquency Measurement and Control and Interest Rate Calculation and Setting* involves the participant in a study of the **two critical issues affecting the goal of sustainability** for microfinance institutions: **delinquency management** and **interest rate setting**. Sustainability, distinct from self-sufficiency, is a concept that goes beyond simple financial break-even and assumes the following:

$$\begin{aligned} \text{Sustainability} = & \\ & \text{Coverage of financial expense (cost of funds + inflation) +} \\ & \text{Loan loss +} \\ & \text{Operating expenses (personnel + admin expenses) +} \\ & \text{Capitalization for growth from financial revenue} \end{aligned}$$

Goals of the Course

Module One: Delinquency Management

- Analyzing the causes of delinquency
- Reviewing the costs of delinquency to the institution
- Controlling delinquency

Module Two: Sustainable Interest Rates

- Understanding the role of interest rates for sustainable microfinance
- Establishing interest rates for sustainability
- Calculating effective interest rates
- Determining the impact of interest rate on borrowers
- Confronting barriers to sustainable interest rates

Module One

DELINQUENCY MANAGEMENT

Understanding Causes and Costs of Delinquency

What is Delinquency?

The situation that occurs when loan payments are past due.

- ...a delinquent loan (or loan in arrears) is a loan on which payments are past due. **(Calmeadow)**
- ...also referred to as arrears or late payments, measures the percentage of a loan portfolio at risk. **(USAID)**
- ...delinquent payments/payments in arrears are loan payments which are past due; delinquent loans are loans on which any payments are past due. **(adapted from SEEP)**

Delinquency occurs when one loan payment is one day late

Zero percent delinquency is an obtainable and a reasonable goal but requires the commitment of the whole agency. Acceptance of a delinquency level above zero percent is the decision of the institution itself and is a decision that has its own costs.

Causes of Delinquency

Ultimately the microfinance institution itself is responsible for delinquency (even when the proximate cause seems external to the MFI) because it sets its own principles, promotes its own repayment culture, instills credit discipline in staff and borrowers, and must plan for events beyond its control. There are many stakeholders in delinquency, but only the MFI can do something about it.

Costs of Delinquency and Default

Delinquency is expensive for an MFI. It affects a program by

- Slowing rotation of the portfolio
- Delaying earnings
- Increasing collection costs (visits, analysis, legal costs)
- Decreasing operating spreads
- Causing program to lose credibility
- Leading to ever-increasing repayment problems
- Threatening long-term institutional viability

What is Default?

Default occurs when a borrower cannot or will not repay his or her loan and the MFI no longer expects to receive repayment. The MFI may continue its collection efforts.

Usually a loan is declared in default when the borrower has stopped payment on a loan for more than 2 or 3 due dates. The time period is determined by the MFI.

The **defaulted amount** depends on **how much is outstanding** when the borrower stops making payments.

Amounts that will have to be written off or counted as loan loss **may be different** from the defaulted amount depending on the ability of the MFI to collect any collateral or on a guarantee.

Financial Impact of Delinquency and Default

- Provision for loan impairment (provision for bad debts) reduces surplus.
- The institution loses nonrecoverable portion of outstanding loan.
- Written-off loans require decapitalization of the institution.

Measuring Delinquency

Quality of Loan Portfolio

The gross loan portfolio of a microfinance institution is defined as the principal amount of loan balances outstanding

Features of a gross loan portfolio

- Largest asset
- Generates income (interest and fees)
- Main product of the business; demanded by clients
- Reason for MFI existence

For all ratios measuring loan portfolio quality, ask what is in the numerator and denominator. Only those ratios with “gross loan portfolio” in the formula measure the quality of portfolio.

Repayment rate does not measure the risk of potential losses.

Ratios allow you to examine financial relationships to diagnose the well-being of your institution. Key ratios should be monitored regularly to measure performance. The following table shows the purpose of each indicator and gives a range of acceptable ratios.

Performance Ratios and Loan Portfolio Quality

Indicator	Ratio	Measurement
Portfolio at Risk (PAR) by Age	unpaid principal balance of all loans with payments at least 1, 30, or more days past due + <u>renegotiated loans</u> gross loan portfolio	Answers the question "How much could you lose if all late borrowers default?" Portfolio aging separates more risky loans from less risky. (The longer a loan goes unpaid, the higher the risk it will never be paid.)
Arrears Rate Past Due Rate	<u>amount past due</u> gross loan portfolio	Answers the question "How commonplace is non-payment?" Measures amount of loan principal that is due but not paid.
Repayment Rate	<u>amount received (current and past due) less prepayments</u> total amount due this period + amount past due from previous periods	Shows amount paid compared to amount due or expected during a specific period. Does not provide useful information about the performance of the outstanding portfolio.
Current Recovery Rate	<u>amount received this period (P or P+I)</u> amount due this period (P or P+I) under original loan terms P = Principal I = Interest	Fluctuates from month to month. Is meaningful only for longer periods. Can be processed algebraically to predict eventual loan loss rates.
Annual Write-off Rate	<u>value of loans written off as unrecoverable</u> average gross loan portfolio	Annual cost of default, which must be balanced by higher interest income.

Measuring Portfolio at Risk

Common: Amount Past Due

$$\frac{\text{amount past due}}{\text{gross loan portfolio}}$$

Better: Portfolio at Risk (PAR)

$$\frac{\text{unpaid principal balance of all loans with late payments at least 1, 30 or more days past due + renegotiated loans}}{\text{gross loan portfolio}}$$

- PAR is the best indicator for assessing the risk of potential losses
- Arrears rate overestimates portfolio quality

Although PAR is the best when looking at portfolio quality, it is difficult to apply to village banking schemes that accept partial payments. The institution makes the loan to the village bank as a whole and often does not track individual clients. PAR also has limitations for rapid growth portfolios and will be lower after adjusting for write-offs. This may mask institutional lending problems.

Measuring Repayment Rates

- The formula for repayment rate **does not** properly measure loan portfolio quality.
- Repayment rate is good for **cash-flow planning**.

Accounting for Impairment Loss Allowance, Provisions for Loan Impairment, and Write-Offs

Loan losses or **write-offs** occur when it is determined that loans are unrecoverable. Because the possibility that some loans would be unrecoverable has been provided for in the accounting books through impairment loss allowance, loan losses are written-off against impairment loss allowance and are also removed from the gross loan portfolio.

The accounting transaction is:

Dr Impairment loss allowance
Cr Gross loan portfolio

Write-offs do not affect the net portfolio outstanding unless an increase in the impairment loss allowance is made.

When write-offs are recovered, they are booked in the income and expense statement as miscellaneous income.

A **provision** records the possibility that an asset in the Balance Sheet is not 100% realizable.

The loss of value of an asset may arise through the wear and tear such as the depreciation of physical assets, loss of stocks, or unrecoverable debts.

Provisions expense this anticipated loss of value in the portfolio gradually over the appropriate periods in which that asset generates income, instead of waiting until the actual loss of the asset is realized.

Provisions are only accounting estimates and entries, and they do not involve a movement of cash, like saving for a rainy day.

Provisions for loan impairment charged to a period are expensed in the Income and Expense Statement. The corresponding credit accumulates over time in the balance sheet as the **impairment loss allowance** shown as a negative asset.

The accounting transaction is:

Dr Provision for loan impairment
Cr Impairment loss allowance

An impairment loss allowance is an accounting entry that represents the amount of outstanding principal that is not expected to be recovered by a micro-finance organization. It is recorded as a negative asset on the balance sheet as a reduction of the gross loan portfolio or as a liability.

Effect of Provisions for Loan Impairment, Impairment Loss Allowance, and Write-Offs on Financial Statements

MFI's must have an impairment loss allowance and provisions for loan impairment for accurate financial statements.

These should be based on historical portfolio performance.

Provisions for loan impairment are an expense and affects sustainability.

The impairment loss allowance is recorded as a negative asset on the balance sheet and reduces the gross loan portfolio.

MFI's should have a reasonable write-off policy.

Controlling Delinquency

Borrowers' Perspective

- Rescheduling and refinancing are **not** recommended.
- If used to reduce delinquency, rescheduling and refinancing can spell disaster for the portfolio.
- Once clients discover they have the option of rescheduling, they tend to stop paying.
- Rescheduling and refinancing are measures to try to hide the problem, not solve it.
- Hiding the problem does not make it go away – these are still late loan payments with all the associated costs however you try to hide it.
- Hiding the problem from yourself as a manager means you may end up with an even greater problem of delinquency.

Borrowers behave rationally based on incentives and disincentives to repay.

***MFI's need to create more incentives and reduce disincentives for
borrowers to pay.***

Borrowers' Perceptions

	On-Time Payments	Late or No Payments
B E N E F I T S	<ul style="list-style-type: none"> • Probability of immediate larger follow up loans • Development of positive credit history • Positive reputation among peers • Access to training, savings or other program services • Access to advice from credit officers • Award or prizes for timely repayment • Lower interest rates on second / third loans • Interest rebate 	<ul style="list-style-type: none"> • Lower expenses if interest payments not made • Maintain capital (or portion) from loan in business or use for other purposes. • Fewer or no trips to financial institution to make payments (lower transaction costs) • Lower transaction costs of attending meetings and other activities of lending institution • May not have to repay at all, if there is a low cost to default.
C O S T S	<ul style="list-style-type: none"> • Pay interest and capital of current loan • Pay time and transportation costs to make payments • Opportunity costs 	<ul style="list-style-type: none"> • Late fees for late payments • Delay future loans or loss of access to future loans • Possible legal action and costs • Possible loss of collateral • Loss of access to other program services • Hassle of frequent visits by loan officers • Hassle of pressure from group members if group loan • Negative reputation among peers

Key Elements of Delinquency Prevention

- Understand the causes of the problem before developing a solution
- Prevention is better than cure
- Program's image and philosophy
- Methodology
 - ◆ Borrower selection
 - ◆ Loan size and terms
 - ◆ Incentives
- Information Systems
 - ◆ Reliable, accurate and timely data
 - ◆ Relevant detail for level of use (BOD, Mgmt, Staff)
 - ◆ Relevant and timely dissemination
 - ◆ Cost-effective

Uncontrollable Factors in Delinquency Management

Natural disasters

Earthquakes, fires, floods, drought wreak havoc on economies and the activities of micro-entrepreneurs

Changes in government policy

A crackdown on street vendors, a new tax

Individual crisis

An illness or death that throws the household into a dire economic situation

State of local, national and world economies

Even petty traders are often dependent on imported goods

Factors such as these require constant monitoring and consideration. While the institution may not be able to control them, they can influence the quality of the portfolio. The institution should be able to compensate for them in its design, methodology and collection procedures.

Summary: Delinquency Causes and Controls

- Accept that most delinquency is caused not by bad borrowers but by MFIs that have not implemented an effective methodology.
- Create an image and philosophy that does not consider late payments acceptable. The benefit of creating disciplined borrowers is critical to the success of the microfinance institution.
- Clients must value the credit service. Loan products should suit clients' needs, the delivery process should be convenient, and clients should be made to feel that the organization respects and cares about them. Incentives won't work if the clients do not value the access to the credit.
- There are no bad borrowers only bad loans. Make sure loan sizes and terms do not make repayment difficult. Do not base loans on projections, base on capacity to repay.
- Establish an incentive system that uses both financial and non-financial incentives to encourage on-time repayments. For the borrower these can include larger loans, follow up loans, interest rebates, and access to training (or disincentives—penalty fees, no further access to loans, collection of collateral, legal action.)
- Design an incentive system for the field staff/loan officers that include on-time payments as an important variable. An incentive system places the responsibility for portfolio quality on the shoulders of the loan officers who with support can best respond to repayment problems. It can motivate officers to look for and eliminate the causes of arrears.
- Ensure that from the borrowers' perspective the benefits of on-time repayment and costs of late repayment far outweigh the benefits of late repayment and costs of on-time repayment.

- Develop systems that provide information to field workers that enable them to conduct effective and timely follow-up of loans and to manage their portfolios efficiently. The easier it is for the field staff to figure out whose payments are due and when, who is late and by how much, the more time they can spend with borrowers.
- Develop a portfolio information system that enables management to conduct timely and useful analysis of portfolio quality, determine trends in the portfolio over time, and identify possible causes of delinquency.
- Effective delinquency follow-up procedures are needed. Develop policy that lists the steps one takes when a loan becomes past due. Examples included activating the group to follow up, visiting clients, holding frequent staff meetings to discuss problem loans, etc.
- Establish a target level of acceptable delinquency based on thorough understanding of the costs and effects of delinquency on the program. Establish prudent impairment loss allowance and write off policies. Ensure that income and assets are accurately reflected in the financial statements.

Adapted from Gemini Technical Notes, Methods of Managing Delinquency.

Module Two

SUSTAINABLE INTEREST RATES

Interest Rates and Microfinance

Interest rates create income for the MFI, which allows the MFI to grow bigger and to be less dependent on donors.

CGAP Occasional Paper No. 1, revised November 2002

Microcredit Interest Rates

<http://www.cgap.org/p/site/c/template.rc/1.9.2696>

Introduction to MFI Sustainability

- Interest and fees are the main source of operating income
- Interest rates are key to sustainability
- MFI interest rates compete with rates from informal finance

Levels of Sustainability

Institutional performance can be analyzed in terms of four levels of self-sufficiency.

Level One (lowest)

- Highly subsidized programs
- Grants/soft loans cover operating expenses and establish revolving loan fund
- If performing poorly, value of loan fund erodes quickly through delinquency and inflation
- Revenues fall short of operating expenses so a continual need for grants
- MFIs characterized by high operating costs, and either reluctance to charge full cost recovery interest rates or ignorance of the high effective interest rates being charged

Level Two

- Interest income covers cost of funds and some operating expenses
- Using proven principles, increasing efficiency in credit methodology
- Raises funds by borrowing at near, but still below, market rates
- Some grants still required but subsidies significantly smaller than level one
- Most charge above commercial interest rates, but below informal sector rates

Level Three

- Most subsidy is eliminated so interest income covers all operating costs
- Large scale operations
- Difficult to eradicate dependence on some element of subsidy (subsidized loans for example)

Level Four (highest)

- Fees and income cover the real cost of funds, impairment loss allowance, operations and inflation
- Program is fully financed from the savings of its clients and / or funds raised at commercial rates from formal financial institutions
- Maintain full cost pricing policies, interest rates tend to be at or above commercial rates

Adapted from Otero and Rhyne, *A New View of Microenterprise Finance*, 1994.

Interest Rates Concepts

Following are important concepts and definitions related to interest rates:

Interest	The amount a borrower pays in addition to the principal of a loan to compensate the lender for the use of the money.
Interest Rate	The expression of interest as a percentage of the principal.
Nominal interest rate	The stated rate to be paid on a loan contract, usually as a monthly or annual percentage. It does not reflect inflation or take into account related loan fees, commissions, and other expenses.
Effective interest rate	Converts all financial costs such as interest, fees and commissions into a declining balance interest calculation and includes the effect of compounding. The effective rate represents the financial cost to the borrower. It includes all financial charges as a percent of the loan amount used during each payment period and represents everything the MFI earns. (The best way to calculate this rate is to use the internal rate of return function on a financial calculator.)
Annual percentage rate (APR)	The rate of interest on a declining balance for a period (for example for a month) and then multiplied by the number of periods in a year (for example 12 months) to get the annual interest rate. The key difference between APR and effective interest rate is that the APR does not include the effects of compounding or forced savings
Real interest rate	Adjusts the interest rate to reflect the rate of inflation. A negative real rate implies that the rate of interest charged falls below the inflation rate. People frequently speak of positive rates of interest to mean that the rate is set above the inflation rate.
Interest Spread	The amount between the nominal lending rate and the nominal rate of interest paid on savings stated as a percentage.
Flat rate method	Interest is calculated by multiplying the term of the loan by the monthly interest rate by the principal amount, irrespective of the payment plan (which may be a lump sum or in installments).

Declining balance method	Interest calculated on the principal amount of the loan that is actually in the hands of the borrower during each period of the loan term. For example, if a borrower has a 100 loan for two months with two equal payments of the principal and an interest rate of 3% a month, she would pay 3 (3% x 100) in interest the first month and 1.50 the second month. Thus her monthly payments would not be equal. The first month she would pay 53 and the second she would pay 51.50. <i>Normally both institutions and clients prefer to pay in equal installments.</i>
Fees	Fixed amount one-time charges that are part of the loan process. Examples would be registration, stationary, notary or legal fees. Fee amounts are normally independent of the principal amount of the loan.
Commission	One-time charges, generally calculated as a percent of the loan amount. A commission is not normally considered an ongoing charge.
Penalty	Interest charged on a loan when payments are missed or delayed. Normally a penalty interest is stipulated in the loan contract as a certain percent increase over the interest rate applied to the loan. In some cases it is a fixed and predetermined rate.
Compound	The concept of earning interest on top of interest in a savings account. This occurs when the interest is left in the account from period to period and the bank 'capitalizes' the interest (adds the interest to the savings account balance) for purposes of paying interest in later periods.
Adjustable	Rates that change over the term of the loan to reflect changes in general market rates. The manner in which this adjustment occurs is clearly stated in the loan contract.
Indexed	A rate tied to something other than local currency; for example an inflation index or a foreign currency.

Setting Sustainable Interest Rates

- Interest rates must cover **all** the MFI's costs and capitalization for growth
- Set interest rates to reach **sustainability in the future**
- MFI **managers have control over (most) elements** of the formula

$$R = \frac{AE + LL + CF + K - II}{1-LL}$$

where

R = interest rate the MFI needs to realize on its loan

AE = administrative expenses

LL = loan losses

CF = cost of funds including inflation

K = the desired capitalization rate

II = investment income

Each variable should be expressed as a decimal fraction denominated on the average outstanding loan portfolio.

Effective Interest Rates

Calculating Effective Interest Rates

Effective interest rate is used to calculate amount that the interest income **portfolio should yield**

Declining Balance Method

Interest charged on outstanding loan balance at given point in time, hence interest amount is different for every period.

Flat Rate Method

Interest is charged on initial loan amount rather than outstanding loan balance.

The flat method of interest rate calculation gives a higher yield than the declining balance method

Simple formulas represent rough approximations of effective rates, and can only be used accurately for loans with relatively simple fee structures. For anything more complicated (i.e. including forced savings), **a financial calculator and/or computer spreadsheet is required.**

Simple formulas for calculating effective interest rates:

$$\text{Effective Interest Rate} = \frac{\text{total interest paid}}{\text{average outstanding loan balance}}$$

$$\text{Average Outstanding Loan Balance (for flat method)} = \frac{\text{initial balance} + \text{final balance (before zero)}}{2}$$

$$\text{Average Outstanding Loan Balance (for declining balance method)} = \frac{\text{initial balance} + \dots \text{all monthly balances} \dots + \text{final balance (before zero)}}{\# \text{ of payment periods}}$$

Impact of Fees, Forced Savings, and Loan Terms on Effective Interest Rates

MFI managers can **change the effective interest rate** using fees, up front interest payments, frequency of payment, term of the loan etc., **with the same nominal interest rate**. The key is to know the effective interest rate and be transparent to clients about actual costs.

Costs of Credit from the Borrower's Perspective

MFIs must understand the borrower's perspective when designing products. Three types of costs—**financial, transaction, and opportunity costs**—are important to borrowers.

Cost	Definition	Examples
Financial	Money, cash, paid to the MFI for the loan	<ul style="list-style-type: none"> • Interest • Fees (loan or membership) • Commissions • Discounting • Group fund or insurance fund contributions • Savings requirements
Transaction	Refers to money paid out to access a loan and not paid directly to the MFI. Costs other than those paid to the financial institution but often imposed by lenders through the delivery system.	<ul style="list-style-type: none"> • Transportation costs involved in receiving and repaying loan • Fees paid to obtain financial documents or business registration • Costs of needed professional services (lawyer, business plan consultant, etc.) • Photos for mandatory identification cards • Cost of maintaining a bank account that is a requisite for obtaining a loan • Communication costs • Bribes

Cost	Definition	Examples
Opportunity	<p>Non-cash costs incurred by the borrower associated with forgone opportunities related to accessing the loan. These costs are frequently greater than financial and transaction costs.</p>	<ul style="list-style-type: none"> • Forgone income because money isn't available to be used elsewhere • Attendance at meetings and the corresponding absence from the business • Missed procurement/investment opportunities • Extra time spent processing a loan because of lost/misplaced documents by either MFI or borrower • Costs of holding savings rather than using the money directly in the business • Group guarantee responsibilities • Time spent by borrower collecting needed information to access loan.

Transaction and opportunity costs benefit neither the MFI nor the borrower

MFI's need to reduce borrowers' transaction and opportunity costs

Costs of Credit

From the borrower's perspective:

**Financial costs +
Transactions costs +
Opportunity costs
Total borrowing costs**

CHALLENGE: to *minimize* transaction and opportunity costs because they don't benefit either the borrower or the lender

From the lender's perspective:

**Operational costs +
Impairment loss allowance +
Financial costs
Total lending costs**

CHALLENGE: to *reduce* operational costs and become more efficient in order to provide improved services and compete.

Confronting Barriers to Setting Sustainable Interest Rates

- Do not subsidize interest rates.
- If you care about clients then you need a sustainable interest rate because:
 - ◆ Sustainable interest rates ensure long-term service for clients.
 - ◆ Sustainable interest rates enable the MFI to reach more clients.

Arguments Against Subsidized Interest Rates

- Implies a give-away and this leads to delinquency.
- The agency operates at a deficit, decapitalizes its assets, and depends on donor funds.
- Paternalistic attitude—implicit attitude toward borrowers that they are too poor to pay the product's price results in delinquency.
- The only way to reach larger numbers of poor people is to become sustainable and profitable.
- When demand for a credit product is greater than supply, the richer people always get credit first.