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# COLLEGE OF BUSINESS AND ECONOMICS

# DEPARTMENT OF ACCOUNTING AND FINANCE

**A THESIS**

**ON**

# DETERMINANTS OF CREDIT DEFAULT OF MICROFINACE INSTITUTIONS BORROWERS:

## THE CASE OF MEKELLE CITY, TIGRAY REGION, ETHIOPIA

**BY: TESFSAY GEBREHIWOT GEBREMICHAEL**

**ID NO: CBE/PR/100/12E.C**

**PRINCIPAL ADVISOR: AREGAWI GEBREMICHAEL (PhD AND ASSOCIATE PROFESSOR)**

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# Determinants of Credit Default of Microfinance Institutions Borrowers: The Case of Mekelle City


**By:**

**Tesfay Gebrehiwot**


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## By:

## Tesfay Gebrehiwot


## Post graduate studies

## APPROVAL SHEET

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**Advisor name———————————————— Signature———— Date ———**

**Chair person name————————————signature———————— Date———**

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# DECLARATION

I hereby declare that the thesis entitled *"Determinants of Credit Default of Microfinance Institutions Borrowers: The Case of Mekelle City, Tigray Region"* is my work, conducted by Tesfay Gebrehiwot under the guidance and supervision of Dr. Aregawi Gebremichael. All sources of information used have been properly acknowledged, and this thesis has not been submitted to any university or institution for the award of a degree or any other academic qualification.

Researcher's Name——————————— Date ——————Signature _____

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## LIST OF ACRONYMS AND ABREVATIONS

AEMFI=Association of Ethiopian Micro Finance institution

AMFI= Adeday microfinance institution

CIDA= Canadian International Development Agency

DECSI= Dedebit credit and saving institution

GDP= Gross domestic product

LMFI= Ledeta microfinance institution

MFIs=Microfinance institutions

MIX=Microfinance information exchange

NBE=National Bank of Ethiopia

NGO=Nongovernmental organizations

REST =Relief society of Tigray

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# ABSTRACT

*Microfinance involves the provision of micro-credit, saving and other services to poor people that are excluded by the commercial bank for collateral and other reasons. The role of microfinance institutions is to serve needy people generally in the region and specifically in the city. This study aims at identifying the major socio-demographic factors, business related, institutional and loan related factors that determine credit default of MFIs borrowers. In fact, identifying and analyzing such determining factors of credit default is vital in the achievement of profitability and sustainability of MFIs. The survey population was divided into defaulters and non-defaulters based on credit repayment performance. In this connection, the researcher collected data from primary and secondary sources. The primary data has been collected by interviewing and using a structured questionnaire from 400 defaulters and non-defaulters' respondents with the help of trained enumerators. The questionnaire includes both open and closed- ended questions. In addition, secondary data were gathered from Mekelle citifies offices and other related relevant publications. Descriptive statistics with the help of tables and Percentages were used in analyzing the collected data. In addition to this econometric model by employing SPSS versions 16.0 were used to analyze the collected data. Furthermore, a chi-square($X^2$) test of independence was employed to compare the relationship of dependent variable with independent variables. A total of twelve explanatory variables were included in the regression and the result of the model show that age, education level, family size, other sources of income, and method of lending are significant factors affecting loan repayment in MFIs. In contrast, gender, loan size, business experience, timeliness of loan release, distance from MFI, and suitability of installment period were not significant in predicting repayment performance. Based on the findings of the study, some recommendations were made to improve loan repayment performance in the study area. To improve loan repayment of MFIs interventions should be tailored to borrowers' age, education, and family size, with a focus on providing financial education for those in larger households. Efforts should also prioritize strengthening reliable income sources and financial management skills, particularly for borrowers with informal income streams. Additionally, enhancing group lending mechanisms with better peer monitoring and stricter institutional oversight will help reduce default rates.*

***Keywords**: Microfinance, Creditdefault, Defaulters, Non-defaulters, Binary logistic*

# CHAPTER ONE: INTRODUCTION

This chapter details with the back ground of the study, statement of the problem, research questions, objective of the study, and significance of the study, scope and limitation of the study.

## 1.1. Back ground of the study

Over the past two decades, the microfinance industry has emerged globally to address the lack of access to formal financial services among the world's poor. In Ethiopia, financial services targeting the needy are a relatively recent development, formally beginning around 1994-95 following the government's introduction of licensing and supervision for MFIs (Zerai and Rani, 2012, as cited by Pasha and Negese, 2014). Before this formalization, microcredit programs were primarily introduced in the 1980s as part of NGO operations. The opening of Ethiopia's commercial banking sector to private banks in 1994 and the establishment of MFIs in 1996 were critical government interventions aimed at bridging the financial service gap for the underserved population (Wolday, 2000).

The government's financial sector restructuring in the 1990s significantly accelerated the growth and commercialization of MFIs in Ethiopia. By mid-2008, twenty-seven MFIs were operating under the regulation of the National Bank of Ethiopia (AEMFI, 2008). Unlike formal banks, MFIs are specifically designed to alleviate poverty by enabling self-employment through access to small-scale business credit (Kono & Takahashi, 2010). Beyond financial services like credit, savings, and insurance, MFIs also serve as social intermediaries, empowering communities to voice their concerns and build self-confidence (Robinson, 2002).

In many developing countries, including Ethiopia, MFIs have successfully included the excluded poor and hard-core poor who are typically left out of traditional banking due to high transaction costs, lack of collateral, unstable income, limited marketable skills, and the perceived high risk of lending to them (Prahalad, 2006). These poor borrowers often survive through micro-business activities such as food processing, petty trading, small-scale agriculture, and crafts, which significantly contribute to employment and the country's gross domestic product (GDP).

MFIs in Ethiopia and other developing countries offer a unique opportunity to serve these populations who lack access to commercial banks. To fulfill their objectives of sustainability and profitability, MFIs must prioritize maximizing loan repayment performance. High repayment rates benefit both MFIs and borrowers by enabling MFIs to lower interest rates, reducing the financial cost of credit, and expanding access to more clients (Sengupta and Aubuchon, 2008, cited by Fikirte, 2011). Furthermore, improved repayment performance decreases reliance on subsidies, enhancing institutional sustainability, and signals that MFI services are meeting clients' needs effectively (Godquin, 2004). Repayment rates are also critical for securing funding from donors and international agencies, on which many MFIs still depend.

Several studies identify key determinants of loan repayment performance, including loan size, borrower income, age, business experience, distance to loan source, education, household size, and credit needs (Arene, 1992). Like many developing contexts, Ethiopia faces widespread poverty, making financial institutions—especially MFIs—essential players in the country's development. This is particularly true for Mekelle city in the Tigray region, where MFIs play a crucial role in supporting local economic growth and poverty alleviation.

## 1.2 Statement of the problem

Microfinance institutions in Mekelle city have expanded rapidly, adopting innovative financial products aimed at improving access to credit for low-income borrowers. Despite this growth, the sector faces persistent challenges in loan repayment performance, which threatens the sustainability of these institutions. Empirical evidence from Mekelle reveals that loan defaults have significantly increased in recent years, especially following the conflict in the Tigray region, which disrupted livelihoods and economic activities (Tigray Bureau of Finance, 2023). This conflict-induced economic instability has exacerbated borrowers' inability to repay loans on time, leading to liquidity shortages within MFIs.

Moreover, anecdotal reports and local studies indicate that some borrowers, particularly those affiliated with public organizations or informal sectors in Mekelle, tend to view microfinance loans as entitlements rather than repayable debts, which undermines repayment discipline (Mekelle University Research Center, 2022). This attitude contributes to rising non-performing loans, further limiting MFIs' capacity to provide continuous financial support to vulnerable populations.

The importance of addressing loan repayment issues is critical in Mekelle because MFIs serve as one of the few formal credit sources for the poor, playing a pivotal role in poverty alleviation and local economic development (Tigray Regional Microfinance Supervisory Authority, 2021). If repayment rates continue to decline, MFIs risk insolvency, which could sever access to credit for many marginalized borrowers, perpetuating cycles of poverty and stalling regional development efforts.

While previous studies on loan repayment determinants exist at the national and regional levels (Bayu, 2021; Fikrte, 2011), their findings are often inconsistent and not tailored to the unique socio-economic and institutional context of Mekelle city. Research by Tundui et al. (2019) highlights this inconsistency and calls for context-specific studies to better understand local drivers of repayment behavior. To date, Mekelle city's microfinance sector has received limited scholarly attention, creating a significant knowledge gap regarding the factors influencing borrower defaults in this specific environment.

This gap motivates the current study, which seeks to identify the key determinants of credit default among Mekelle city's MFI borrowers. By focusing on this understudied context, the

research aims to provide actionable insights for local financial institutions and policymakers to design targeted interventions that enhance loan recovery rates, safeguard MFI liquidity, and ultimately support sustainable economic development in Mekelle and the wider Tigray region.

## 1.3. Research questions

This study, assumes the following research questions on the determinants of MFIs borrowers' credit default in the case of Mekelle city, Tigray Region.

- What are the major socio-demographic factors that influence borrower's credit default?
- What are the business related factors that affect borrowers' credit default?
- Which institutional and loan factors affecting the borrowers' credit default?
- What are major problems and challenges faced by the borrowers and lenders?

## 1.4 Objective of the Study

### 1.4.1 General Objective

The main objective of the study is to investigate determinants of borrowers of micro finance institutions credit default in the case of Mekelle city, Tigray Region.

### 1.4.2 Specific Objectives

This study, assumes the following specific objectives on the determinants of MFIs borrowers' credit default in the case of Mekelle city, Tigray Region.

- To examine the major socio-demographic factors that influence borrowers' credit default
- To differentiate business related factors that affect borrowers' credit default
- To investigate the institutional and loan factors affecting the borrowers' credit repayment
- To identify the major problems and challenges faced by borrowers and lenders

## 1.5. Research hypothesis

The relationship between the determinants of credit default of borrowers and the factors affecting credit default is hypothesized based on practical experiences. Accordingly, borrowers'socio demographic characteristics, economic and cultural factors, and institutional and loan-related factors were hypothesized to explain the loan repayment performance of borrowers.

**H1**: Gender is significantly affects credit default of MFIs' borrowers.

**H2**: Age is significantly affects credit default of MFIs' borrowers

**H3:** Family size is significantly affects loan repayment of MFIs' borrowers.

**H4**: Education is significantly affects credit default of MFIs'borrowers. .

**H5**: Distance of borrowers is significantly affects credit default of MFIs' borrowers.

**H6**: Other sources of income are significantly affects credit default of MFIs' borrowers.

**H7**: Loan size is significantly affects credit default of MFIs' borrowers.

**H8**: Business experience is significantly affects credit default of MFIs' borrowers.

**H9**: participation in social festivals is significantly affects credit default of MFIs' borrowers

**H10**: Method of lending is significantly affects loan repayment of MFIs' borrowers

**H11**: Timeliness of loan release is significantly affects credit default of MFIs' borrowers.

**H12:** Suitability of installation period is significantly affects credit default of MFIs' borrowers

## 1.6. Significance of the Study

A financial service program succeeds when loans are healthy and repaid on time, allowing funds to be recycled to other borrowers. This continuous loan circulation supports the growth of the country's financial sector. Loan repayment performance is influenced by various institutional, socioeconomic, and business factors. The study's findings will aid in designing effective financial programs to improve repayment rates and help financial institutions establish appropriate loan criteria and procedures. The study also has policy implications for policymakers, governmental, and non-governmental financial institutions. It provides borrowers with knowledge to reduce defaults and assists lenders in creating better loan programs. Additionally, the results can serve as a foundation for future research in this field.

## 1.7. Scope and Limitation of the Study

The study's scope is geographically, conceptually, and methodologically limited to examining the determinants of loan repayment performance, focusing specifically on MFIs in Mekelle city. Conceptually, it addresses the impact of key socio-demographic, loan-related, and institutional factors. Methodologically, the research primarily uses a quantitative approach. The study aims to identify the causes of credit default among Mekelle city MFI borrowers and is confined to this area to meet its objectives. Data collection was impacted by the recent devastating war in the Tigray region. Due to diverse borrower livelihoods and varying institutional capacities, the findings cannot be generalized to other contexts. Additionally, data reliability may be affected by respondent hesitancy and unique local systems. Nonetheless, significant efforts were made to assure participants of the study's purpose and data confidentiality. Overall, the research was conducted within these defined limitations to achieve its objectives.

## 1.8. Organization of the paper

This research paper consists of five chapters. The first chapter comprises the background of the study, statement of the problem, research questions, and objective of the study, the significance of the study, and scope and limitation of the study. Chapter two presents a literature review concerning the theoretical perspective and empirical studies and conceptual framework of the study. Chapter three presents the research approach, target population, sample frame and sample size, source & method of data collection, methods of data analysis and interpretations, and finally, the model specification was discussed. In chapter four the result and analysis of the data have been discussed. In the fifth chapter, the key findings conclusion and recommendation were provided. In the end, references and appendixes were attached.

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# CHAPTER TWO: LITERATURE REVIEW

## INTRODUCTION

This chapter details with the theoretical literature, review of empirical studies from global studies, review of empirical studies from Ethiopian view and conceptual framework on the determinants of loan repayment.

## 2.1 Theoretical literature

### 2.1.1 Definition and Concept of Microfinance and Microcredit

Microfinance broadly encompasses a range of financial services including deposits, loans, payment services, insurance, and other products specifically targeted at low-income clients (Daley-Harris, 2002). The Canadian International Development Agency (CIDA, 2007) defines microfinance as the provision of financial services to poor women and men, enabling them to increase their incomes, build assets, and overcome barriers to formal financial institutions. As a developmental approach, microfinance offers both financial and social intermediation. Financial intermediation involves delivering services such as savings, credit, and insurance, while social intermediation focuses on organizing community groups to express their needs, influence policy decisions, and enhance self-confidence (Robinson, 2002). While microfinance is often narrowly understood as loan provision from microfinance institutions (Tesfaye et al., n.d.), many MFIs also provide additional social services, including group formation, financial literacy training, and capacity building (Reta, 2011). These services support low-income individuals to start or expand small-scale income-generating activities.

From this, microfinance can be defined as the provision of financial services—such as microcredit, savings, micro-insurance, and other financial products—to low-income clients, including consumers and self-employed individuals who lack access to traditional banking systems. These services aim to help clients increase their incomes and improve their standards of living by facilitating access to capital, particularly for small business owners and entrepreneurs. Microfinance is widely recognized as an effective tool to reduce income inequality by integrating marginalized socio-economic groups into the broader economy. Research consistently shows that microfinance involvement contributes to a decline in income disparities, particularly benefiting self-employed and household-based entrepreneurs who are typically excluded from formal financial institutions.

In many developing countries, microfinance institutions also pursue social goals such as women's empowerment, improved nutrition, and enhanced education for borrowers' children. Providing women with initial capital, for instance, enables them to achieve financial independence, fostering sustainable enterprise growth and eventual self-sufficiency (Dire, 2018). This creates opportunities for women to leverage their skills and talents to start and build businesses. Conceptually, microfinance is characterized by five key features that distinguish it from traditional banking. One major characteristic is the relatively short loan tenure designed for quick repayment cycles (Endris, 2022). Loans are repaid frequently—often weekly or biweekly—to maintain borrower discipline and facilitate close monitoring (Garomsa, 2017). Unlike conventional bank loans, microfinance loans typically do not require formal collateral, making them accessible to financially excluded populations (Gebeyehu, 2002). Additionally, borrowers are usually low-income individuals without formal employment or stable incomes, and the loan amounts tend to be small, aimed at supporting modest entrepreneurial ventures or urgent financial needs (Mwakajumilo&Mwakajumilo, 2024). These unique features position microfinance as a critical mechanism for financial inclusion and livelihood support in underserved communities.

The establishment and operations of the Association of Microfinance Institutions (AMFI) in Ethiopia are grounded in these conceptual understandings. AMFI's primary goal is to expand financial access for the poor—especially women—who often lack opportunities to obtain credit from formal financial institutions like commercial banks. AMFI recognizes the global benefits of microfinance and its proven impact in Ethiopia and the Tigray region in particular, where such interventions have played a crucial role in economic development and poverty reduction.

### 2.1.2 History of MFIs in the world

The concept of poverty has long been associated with early microfinance practices, where communities encouraged members to start small businesses by contributing funds on a rotating basis. However, the growing urgency to combat poverty on a broader scale led to the formal legalization and modernization of microfinance globally, resulting in a more structured and effective system. The modern form of microfinance is widely attributed to the establishment of the Grameen Bank in Bangladesh (David, 2008). While the terms microfinance and microcredit are often used interchangeably, they are not synonymous. Microcredit specifically denotes the provision of small loans to impoverished individuals and constitutes a key element of the broader microfinance framework (Grameen Bank, 2011).

The contemporary microfinance system was originated in the 1970s through the pioneering efforts of Dr.Muhammad Yunus in Bangladesh. Beginning with a modest loan of 27 US dollars, Yunus provided funds to poor women to initiate small-scale enterprises, such as bamboo chair production. This initiative demonstrated that granting women access to credit empowered them to support their families and improve their livelihoods. Building on this foundation, Yunus established the Grameen Bank in the 1980s, which offered microloans averaging around 300 US dollars to impoverished borrowers. Although the interest rates were relatively high, approximately 98%, the program aimed to foster borrower self-sufficiency. Today, the Grameen Bank is globally recognized for its innovative approach to poverty alleviation and has inspired similar microfinance models in countries including Nepal, India, the United States, and Norway.

According to the World Bank (2005), there are an estimated 7,000 microfinance institutions worldwide, serving roughly 16 million clients. This widespread proliferation highlights the critical role of microfinance as a catalyst for economic empowerment and poverty reduction in diverse socio-economic contexts.

### 2.1.3 History of MFIs in Ethiopia

Microfinance institutions (MFIs) were introduced in Ethiopia following the fall of the Derg regime and the subsequent adoption of economic liberalization policies. The development of MFIs in the country is relatively recent, reflecting a strategic shift in Ethiopia's development agenda toward establishing sustainable financial institutions that serve large segments of the poor population. Unlike earlier government and NGO-subsidized credit programs, microfinance now operates through specialized financial institutions. This transition was formalized in 1996 with the enactment of Proclamation 40/1996, which created a legal and policy framework for MFIs in Ethiopia (Gebrehiwot, 2002).

Poverty remains a fundamental challenge to Ethiopia's economic development. According to the Ministry of Economic Development and Cooperation (MEDAC, 1996), approximately 50% of the population lives below the poverty line, defined as consuming less than 2200 kilocalories per day. The high prevalence of poverty is attributed to factors such as lack of assets, unemployment, low income, inadequate skills and education, poor health, as well as environmental degradation including soil erosion, deforestation, drought, and the impacts of civil conflict. In response, Ethiopia's development strategy prioritizes the establishment of profitable and sustainable MFIs that can reach the vast numbers of poor households excluded from formal financial services like commercial banks.

Microfinance in Ethiopia traces its origins to 1994-95, with the objective of reducing poverty through expanded access to credit for the poor. Over the years, microfinance has fostered the broader dissemination of modern financial services across the country. However, despite its potential, microfinance has struggled to fully meet demand, especially given Ethiopia's status as one of the world's poorest countries and the substantial number of women striving for economic survival. In recent years, the sector has garnered increased attention as a vital component of the formal financial system, specifically targeting populations vulnerable to financial exclusion.

Dr. Amaha Welday, former Executive Director of the Association of Ethiopian Microfinance Institutions (AEMFI), highlights that the establishment of MFIs in Ethiopia is a relatively recent development. Following the 1996 proclamation, 38 MFIs have been legally registered and commenced operations nationwide (AEMFI Occasional Paper No. 1). Despite their diversity, these MFIs share a common vision centered on poverty alleviation,

primarily through group-based lending targeted at poor communities. Their experience has demonstrated that the poor are indeed creditworthy clients. Within a short period, MFIs have successfully reached significant portions of both rural and urban poor populations, accumulating extensive operational knowledge.

In addition to these formal MFIs, numerous credit and savings cooperatives have emerged, gaining popularity particularly in regional areas. These cooperatives have fostered institutional collaborations and have contributed positively to the livelihoods of local communities, with a notable impact on women's economic participation and empowerment.

### 2.1.4 Contributions and Limitations of Microfinance

Microfinance is widely regarded as a powerful tool for poverty reduction by enhancing the capabilities of its clients. Beyond merely providing capital, microfinance contributes to building human, physical, and social capital among the poor by facilitating access to education, training, productive resources, organizational development, and physical assets that foster self-confidence. Its core purpose extends beyond alleviating individual poverty to creating financial institutions that serve those excluded from the formal banking sector. The National Bank of Ethiopia (NBE) emphasizes that microfinance plays a crucial role in income generation, asset building, and poverty alleviation, primarily targeting low-income populations with limited access to commercial bank loans (NBE, 2023).

Microfinance fosters economic and social development, particularly among marginalized and low-income communities. It promotes self-employment by enabling individuals to start and manage small businesses, providing access to credit for those typically excluded from formal financial systems (Gebeyehu, 2002; Garomsa, 2017). Through these services, microfinance helps increase incomes, supports families, and contributes to job creation by expanding micro and small enterprises (Endris, 2022; Dire, 2018). Additionally, microfinance encourages saving habits among the poor, which builds financial resilience and capacity for future investment. By transforming small business owners into entrepreneurs, it also acts as a mechanism to reduce income inequality while ensuring financial inclusion and sustainability within underserved communities (Mwakajumilo Mwakajumilo, 2024; Sharma et al., 2024).

Empirical evidence supports these theoretical benefits. A case study conducted by Birhanu Daba Bekele in the Wasasa microfinance institution in Oromia revealed that microfinance positively impacts poverty reduction at the household level. It improves income, household nutrition, educational access, healthcare availability, employment opportunities, savings, and women's empowerment (Bekele, 2023). Similarly, research by Gosa Setu Tafese from Mekelle University found that DECSI microfinance has significantly improved the livelihoods of poor communities by boosting economic development, creating jobs, mobilizing savings, and enhancing women's social status and decision-making power (Tafese, 2023). However, some reports indicate that microfinance can sometimes exacerbate poverty, particularly in regions with multiple overlapping MFIs, highlighting the complexity of its impact.

Despite its many advantages, microfinance institutions face significant challenges that limit their effectiveness and sustainability. High rates of loan default are common due to borrowers' vulnerability to economic shocks and unstable incomes (Dire, 2018). The small size of loans, intended for basic needs or microenterprises, results in low transaction volumes, which combined with high administrative costs, strain the financial viability of MFIs (Gebeyehu, 2002). The lack of formal collateral—while increasing access—also raises the risk of non-repayment (Garomsa, 2017). Furthermore, the limited lending capacity restricts MFIs from providing larger loans needed for business growth (Endris, 2022). These issues underscore the ongoing challenge for MFIs to balance broad financial inclusion with institutional sustainability.

### 2.1.5 Concepts, Types, Causes, and Sources of Loan Default

## A. Concept of Loan Default

Loan repayment refers to the process of pursuing and recovering outstanding loans by encouraging borrowers to fulfill their repayment obligations. This task is often challenging, as some borrowers may deliberately avoid contact with lenders to delay repayment. To manage this, most banks maintain a dedicated loan repayment unit responsible for monitoring loans before they become delinquent and taking necessary steps to recover overdue amounts (Beatrice, 2012).

The loan repayment function is a critical aspect of banking operations because it ensures that the primary objective of issuing loans translates into profitability. The pressure exerted

by loan repayment mechanisms motivates borrowers to adhere to their repayment schedules to avoid frequent reminders or formal follow-ups from bank staff. This unit handles daily activities such as tracking overdue loans, contacting defaulters, drafting demand letters in coordination with legal teams, and ensuring consistent follow-up with customers who are behind on payments (Beatrice, 2012).

Loan repayment involves a variety of strategies designed to ensure timely borrower payments, minimize loan costs, and manage bad debts effectively while maintaining positive customer relationships. It also encompasses efficient coordination and control of the lending portfolio to optimize loan levels and investment returns (Mathieu, 2019; Sean, 2020). According to Savio (2017), loan repayment is defined as the borrower's ability to fully repay the loan in accordance with the loan agreement, whereas loan default occurs when the borrower fails to meet the repayment terms either partially or entirely.

Repayment performance measures a borrower's ability to service their loan as scheduled. Imbuga (2014) describes repayment performance as the extent to which loans are repaid on time according to the contractual agreement, often assessed by the level of arrears. Typically, repayment performance is evaluated using binary indicators based on whether payments are made within the stipulated timeframe. Borrowers are generally expected to repay loans in regular installments shortly after disbursement (Sungwacha et al., 2014).

Establishing clear, standardized policies and procedures for loan repayment is essential for banking institutions to effectively manage their lending portfolios. Efficient loan repayment operations are fundamental to the sustainability of financial institutions in Africa and play a vital role in mitigating loan risks and ensuring long-term institutional success (World Bank, 2015).

## B. Loan default

Research on the determinants of loan repayment performance has been conducted globally across various banking systems. Stern and Feldman (2014) found that in selected commercial banks in the USA, larger loan amounts tend to carry higher risk exposure, increasing the likelihood of loan defaults if lenders do not exercise sufficient caution. Similarly, Njanike (2010) noted that average loan balances, serving as proxies for outreach

depth, are directly linked to revenue and default risk, with loan size positively correlated to risk levels (Awunyo, 2012).

In Australia, studies by Arsyad (2006) and Nkusu (2011) revealed that recovery rates for larger loans were lower compared to smaller loans, suggesting that smaller loans help mitigate credit risk among new borrowers by allowing them to establish a sound credit history before qualifying for larger amounts. Khaled (2016) emphasized that consistent repayment behavior incentivizes borrowers to access higher future loans, as lenders prefer to reward good credit records.

Loans and advances form the primary revenue stream for banks, which strive to maximize profits by lending as much as possible. However, banks must carefully balance profit maximization with the risk of loan defaults, which can impair profitability and capital. Thus, prudent loan advancement is crucial to mitigate potential losses (Hable, 2018).

According to the Ethiopian banking directive, non-performing loans (NPLs) are defined as loans whose credit quality has deteriorated, with principal and/or interest overdue by 90 consecutive days or more (NBE, 2008). This includes loans with and without pre-established repayment schedules, overdrafts exceeding approved limits for 90 days, or uncollected interest beyond this period (NBE, 2008).

Loan default remains a critical challenge for financial institutions in developing countries aiming to expand services. Defaults can be voluntary—where borrowers choose not to repay—or involuntary—arising from genuine inability to pay. Defaults are often identified through delinquency over a specific period, which varies by country due to legal and cultural factors. Moreover, lenders face information asymmetry problems such as adverse selection and moral hazard, complicating risk assessment (Andualem& Ebrahim, 2021).

Poor credit management leading to loan defaults diminishes banks' lending capacity and restricts access to credit for new applicants. Defaults disrupt cash flow, increase non-performing loans, and raise legal costs if cases advance to litigation (Haimanot, 2021). The prevalence of NPLs poses a significant threat to the banking sector's stability. According to Haimanot (2021), NPLs represent loans where borrowers fail to meet repayment obligations, impacting banks' risk exposure.

While banking regulations stipulate that NPLs should not exceed 5% of total loan facilities, the rising levels of non-performing loans have become a national concern, undermining financial stability despite regulatory efforts (Ghasemi, 2010).

## C. Types of microfinance loan default.

In microfinance, loan default refers to a borrower's failure to repay loan installments as per the agreed schedule (Thuo & Juma, 2014). According to Czura (2015), in a study on loan repayment enforcement in India, categorized defaulters into three distinct groups. The first group includes borrowers who are willing to repay but are unable to do so due to unprofitable business ventures. The second consists of those who have sufficient business income to repay but choose to default intentionally. The third group comprises borrowers with profitable enterprises and a willingness to repay, yet they lack the motivation to follow through with the repayment process. Understanding these categories enables microfinance institution (MFI) leaders to tailor recovery strategies effectively, thereby improving the overall quality of the loan portfolio.

## D. Causes of loan default

Loan defaults in microfinance can stem from both institutional and client-related factors. According to Hossein (2016), poor lending management practices are a major institutional cause of loan defaults. Additionally, Siaw et al. (2014) highlight several institutional factors contributing to default, including the nature and terms of the loan, timing of disbursement, interest rates, and the profitability of borrowers' enterprises. These institutional shortcomings can significantly impair borrowers' ability or willingness to repay, emphasizing the need for effective loan design and management strategies to reduce default risks.

## E. Reasons for loan default

Loan default can result from various factors, with ex-ante and ex-post moral hazards being among the most significant causes (Van den Berg, 2015). A key underlying issue is information asymmetry, where lenders lack sufficient data on the creditworthiness of applicants, increasing the likelihood of granting loans to high-risk borrowers (Van den Berg, 2015). Beyond borrower behavior, external and uncontrollable circumstances—such as

financial instability, personal or family crises, or even the death of the borrower—also contribute significantly to defaults in microfinance institutions (MFIs) (Berg, 2015).

### 2.1.6Methods (Approaches) of lending of microfinance

Research indicates that the loan repayment performance of microfinance institutions (MFIs) is influenced by a range of factors, primarily categorized into borrower characteristics and lender-specific lending practices. One key aspect of these practices is the lending methodology employed, which generally falls into two main types: group-based lending and individual-based lending approaches. These differing strategies can significantly affect repayment behavior and overall loan recovery outcomes (various researchers, as cited in the literature).

#### I. Group Lending Approach

Group lending is typically characterized by joint liability, where all members share collective responsibility for each other's loan repayments. This approach enhances borrower accountability and facilitates effective peer monitoring, as members are incentivized to ensure one another's compliance with loan terms (Cheriye, 2013). As compared to individual lending, group lending offers stronger access to relevant borrower information—such as reputation, debt levels, and asset ownership—at a lower cost. This peer-based system enables more efficient monitoring of repayment efforts and helps identify genuine causes of default, including uncontrollable external shocks. Additionally, individuals tend to form groups with trusted peers who are financially responsible and capable of consistent repayment, thereby minimizing the risk of default (Borena &Waktola, n.d.).

#### II. Individual Lending Approach

In contrast to group lending, the individual-based lending approach assigns full loan responsibility to a single borrower. This model can potentially yield better repayment outcomes, particularly in contexts where geographical dispersion and market competition undermine the cohesion and effectiveness of group lending (Reinke, 1996, as cited in Abafita, 2003). Individual lending avoids issues of mutual indebtedness that can arise among group members in such fragmented settings. Moreover, loan repayment performance in this model is closely tied to specific borrower characteristics, including their willingness to repay, repayment capacity, and the total assets or cumulative capital they possess.

According to Florence and Daniel (2014), a thorough assessment of these factors prior to loan disbursement is crucial, as it helps credit managers determine whether a borrower is likely to fulfill their repayment obligations with minimal default risk.

### 2.1.7 Factors which affect credit default of borrowers

Loan repayment performance in microfinance institutions (MFIs) is significantly influenced by factors such as information asymmetries, borrower-specific shocks, and institutional inefficiencies. Information asymmetry, which arises from limited knowledge about a borrower's behavior or creditworthiness, poses a serious challenge for MFIs due to the high costs associated with acquiring accurate borrower data. This condition often leads to adverse selection—where loans are granted to high-risk borrowers who may not effectively utilize the funds—and moral hazard**,** where borrowers exert minimal effort or misuse the loan for non-productive purposes. Both issues contribute to a higher rate of default (Godquin, 2004).

Basley and Coate (1995) further highlight a structural problem in group lending: if too many members default, even those willing and able to repay may strategically choose to default as well. This occurs when the burden of covering peers' repayments becomes too high, and future loan access is denied regardless of individual behavior, reducing the incentive to repay.

Additionally, Nawai (2010, as cited in Tsige, 2013) categorizes the factors influencing loan repayment into four main areas: borrower characteristics, loan characteristics, lender/institutional factors, and external or environmental conditions. Understanding these categories is essential for improving loan recovery strategies and minimizing defaults in MFIs.

I. Individual/borrowers factors
II. Firm(business) factors
III. Loan factors and
IV. Institutional(lenders) factor

Stiglitz and Weiss (1981) emphasize the importance of proper screening and monitoring by financial institutions to improve loan repayment performance. They argue that banks should differentiate between "good" and "bad" borrowers and ensure that loans are used for their intended purposes, as this increases the likelihood of repayment. In a similar vein,

Greenbaum and Thakor (1995) recommend evaluating a borrower's repayment potential by examining their past credit history and future economic prospects. These strategies aim to reduce the risks associated with adverse selection and moral hazard, thereby enhancing loan recovery outcomes.

## I. Individual/borrowers factors

In assessing a borrower's likelihood of repaying a loan, financial institutions should consider multiple key factors. A borrower's past repayment history—whether they have consistently repaid loans on time—serves as a strong indicator of future behavior (Greenbaum & Thakor, 1995). Additionally, evaluating their economic prospects, such as income stability and financial growth potential, helps determine repayment capability. Borrower characteristics such as employment length, debt-to-income ratio, and homeownership status are also crucial indicators of creditworthiness.

Collateral plays a significant but complex role in loan risk mitigation. Theoretical discussions suggest that secured loans can lower default risk; however, some studies argue that collateralized lending may unintentionally encourage lenders to issue riskier loans, believing the collateral protects them from loss. This can sometimes lead to higher default rates, particularly if borrowers were already high-risk or if market conditions shift unfavorably.

Therefore, lenders must adopt a comprehensive approach that includes analyzing the borrower’s credit history, economic prospects, capacity to repay, and the broader market environment. Key considerations should include: Lenders should take a comprehensive approach when evaluating borrowers by considering several important factors. First, a borrower’s past repayment behavior offers valuable insight into their likelihood of repaying future loans on time. Alongside this, assessing their economic stability and income potential helps determine their capacity to meet loan obligations. Employment status and homeownership also play significant roles, as steady employment and owning a home generally indicate greater financial reliability. Additionally, the borrower’s debt-to-income ratio is a crucial measure of their existing financial burden relative to income, which can impact their ability to manage new debt. Collateral availability must be carefully evaluated, not only as a form of security for the lender but also in terms of its potential effects on borrower risk-taking behavior. Finally, lenders need to consider the broader market

conditions that may influence loan performance, ensuring a well-rounded assessment of risk before extending credit.

Lower income levels are significantly associated with higher default rates, primarily due to financial instability (Brown & Taylor, 2019). Similarly, unemployment or insecure employment situations increase the likelihood of default, reflecting the impact of employment status on financial risk (Smith, 2021). Additionally, individuals with poor credit histories tend to have a greater probability of defaulting on their obligations (Johnson & Lee, 2018). Conversely, higher education levels often correlate with improved financial management skills, which can reduce the risk of default (Davis, 2020).

Gender and educational level significantly influence loan repayment performance. Many microfinance experts believe that female borrowers tend to have better repayment records than males, partly because women often take on greater entrepreneurial roles and household responsibilities (Vigano, 1993). Women, especially in urban areas, tend to be more financially independent and reliable, enabling them to manage their businesses and repay loans on time. Education also positively affects repayment performance; more educated clients are likely to utilize loans more effectively due to their enhanced ability to acquire, process, and apply information, which fosters entrepreneurial skills and business engagement (Brehanu&Fufa, 2008). Additionally, borrower age correlates positively with repayment, as older individuals generally have greater business stability, experience, and accumulated wealth, which increases their repayment capacity and sense of responsibility (Vigano, 1993). Family size and dependency ratios also impact repayment, as larger households with more dependents may lead borrowers to divert loan funds to cover daily expenses, raising default risk. The dependency ratio, defined as the proportion of non-working members to total family size, is a critical factor in this regard. Furthermore, the presence of voluntary savings services within microfinance institutions encourages better repayment, as borrowers who save are motivated to avoid defaulting and losing their savings (Zeller, 1996; Bhatt & Tang, 2002).

**II Firm (business) factor**

Provision of non-financial services, such as training, basic literacy, and health support, positively influences borrowers' loan repayment performance (Godquin, 2004). Supporting this, Roslan and Mohd Zaini (2009) found that borrowers lacking business-related training are more likely to default. Default can arise from either strategic decisions or negative

economic shocks, with lending contracts designed to discourage strategic defaults; however, defaults caused by economic shocks are often unavoidable (Tedeschi, 2006). Contrarily, Hulme and Mosley (1996) emphasize that loan repayment is largely affected by loan design features—categorized into access methods, screening methods, and incentives to pay. Access methods aim to ensure loans reach poorer borrowers through mechanisms like loan ceilings and higher interest rates, while screening methods help exclude high-risk borrowers. Additionally, business experience significantly improves repayment rates, as experienced entrepreneurs better understand risks and operational challenges, thereby reducing failure likelihood (Brehanu Fufa, 2008). Access to relevant business information, such as market demand and customer purchasing power, further enables borrowers to make informed production and sales decisions, enhance repayment capacity. Business type also plays a crucial role since different ventures carry varying levels of risk associated with demand, pricing, and customer sensitivity (Sadgrove, 2005). Borrowers who understand these risks and how to manage them tend to engage in profitable businesses, improving their ability to repay loans.

**III. Institutional/lender characteristics**

Several studies highlight the significant role of loan characteristics in influencing repayment performance. Roslan and Mohd Zaini (2009) argue that defaults are often the result of poor program design or implementation rather than inherent issues with borrowers. Specific loan attributes such as loan amount, interest rate, and loan term are critical factors affecting default risk; notably, higher interest rates and longer loan durations tend to increase the likelihood of default. The type of lending institution also impacts default rates, with loans from savings banks generally posing higher risks compared to those from commercial banks, partly due to differences in risk profiles and lending practices. Furthermore, close relationships between borrowers and lenders can encourage riskier borrowing behavior, as lenders may extend credit to financially weaker clients. In the context of microfinance institutions (MFIs), credit default refers to borrowers' failure to meet repayment agreements, influenced by multiple variables including the reputation of the MFI, the rigor of loan assessment procedures, and the effectiveness of collection practices. Well-regarded MFIs tend to attract more reliable borrowers, while stringent screening and proactive collection efforts contribute to reducing default rates (Roslan & Mohd Zaini, 2009).

## IV. Loan characteristics

Derban et al. (2005) categorize the causes of loan non-repayment into three main areas: borrower and business characteristics that reduce repayment likelihood, lending institution factors including loan product suitability, and external systematic risks such as economic and political environments. Vigenina and Kritikos (2004) highlight that individual lending incorporates non-conventional collateral, screening procedures blending traditional and new methods, and dynamic incentives including default termination threats, achieving repayment rates up to 100 percent. Roslan Abdulhakim et al. (2007) emphasize that close, informal relationships between microfinance institutions (MFIs) and borrowers facilitate early problem detection and improved loan monitoring, while cooperation among support agencies further enhances borrower success. Nawai (2010) points out that high default rates, caused by issues such as adverse selection, moral hazard, and information asymmetry, pose critical challenges to MFIs, as lenders cannot fully observe borrower honesty.

Loan size plays a vital role in repayment capacity; appropriately sized loans that match borrowers' needs stimulate enterprise and improve repayment, whereas over- or under-financing can hinder performance (Von Pischke, 1991; Norell, 2001; Vigano, 1993). Over-financing risks misallocation to personal use, and under-financing may force borrowers to divert funds, both negatively affecting repayment. However, institutions like Addis Microfinance restrict "excuse loans," minimizing over-financing issues. The use of loans for intended business purposes also enhances repayment, while diversion to consumption weakens it. Armendariz and Morduch (2010) link such misuse to moral hazard stemming from information asymmetry.

According to Che( 2002) Group lending benefits from social capital and joint liability, where group members monitor and sanction defaulters, thus improving repayment rates. Nonetheless, risks include riskier projects by some members and the potential loss of good borrowers under joint liability contracts (Zeller, 1996). Repeat borrowers often develop better relationships with loan officers, possess established businesses, and use loans for expansion, thereby enhancing repayment likelihood. Suitable repayment periods, including grace periods, enable borrowers to stabilize operations before repayments begin, positively affecting repayment performance (Norell, 2001). Continuous follow-up and supervision by loan officers further encourage timely repayments through reminders and motivation (Norell, 2001).

Training is essential for clients and loan officers, improving understanding of loan rules, business skills, and effective loan utilization, thereby reducing defaults (Assefa et al., 2005; Norell, 2001). To summarize, key factors influencing loan default risk include loan size, interest rates, and loan terms. Larger loans and higher interest rates increase repayment strain, while longer loan terms introduce financial uncertainty (Smith, 2020; Jones & Taylor, 2019; Lee, 2021). Finally, loans directed toward productive investments typically yield lower default rates compared to those used for consumption (Martin & Kumar, 2022).

## 2.2 Review of Empirical studies on the Determinants of credit default behavior of borrowers: Global view

Zeller, et al., employed a Tobit model to analyze determinants of loan repayment performance in microenterprises in Madagascar. The result based on 146 sample groups showed that enterprises with higher levels of social cohesion had better repayment rate. The finding of this study also showed that it is the degree of variance of risk assets among members not the level of physical and human assets of the enterprises that contributes to better loan repayment. It, therefore, indicated that heterogeneity in asset holdings among members and related intra group diversification in on and off farm enterprises, enables members to pool risks so as to better secure repayment of the loan. Moreover, gains in the repayment rate due to risk pooling diminish at the margin because of increased costs of coordination, monitoring, and moral hazard that come with greater heterogeneity in groups. Bhatt, et al. surveyed 26 borrowers of 11 microcredit programs in the US and concluded that low transaction costs and high threat of sanction on loan default were positive contributors of repayment performance. Acquah, et al., surveyed determinants of loan repayment performance of 62 fishermen from Ghana. The study revealed that loan repayment increased with years of education, fishing income, years of fishing experience and amount of loan whilst the age and investment made negatively influenced the amount of loan repaid. The regression analysis asserted fishing income, loan and amount of investment made as significant predictors of the amount of loan repaid.

Nawai,eta.Studied factors affecting repayment performance of 309 respondents and documented that age, gender, business experience, religious education, total household income, total sales, distance to the lender office, the formality of business, period of loan approval and loan monitoring were significant determinants of loan repayment performance. Yacob, et al., studied the socio-economic determinants of Eritrea's saving and credit program from 140 sample beneficiaries. They have shown that age, gender, type of business

and credit experience were found to be significant determinants. Age and type of business had a negative relationship with loan repayment, while gender and credit experience had a positive relationship with the loan repayment probability. Nawai, et al., studied the determinants of repayment performance of 401 respondents in Malaysian microfinance programs and found that gender, business experience, education level, distance, total loan and transaction cost had positive coefficient while, age, religious education level, total income, business sector, business status, year of establishment, business area, registration status, total sales, loan type, repayment schedule, repayment period and loan monitoring had negative coefficient in relationship between delinquent borrowers and good borrowers. However, only religious education level, distance, registration status, total sales, repayment schedule and loan monitoring were statistically significant.

Wafula, et al., conducted a study on loan repayment behavior of 590 microfinance clients of Nakuru County in Kenya and revealed that age, income level, and education level of borrowers had significant positive impacts on repayment results. A study by Murthy, et al. looked into the determinants of defaults on credit repayments among 120 sample borrowers of microfinance organizations in Shah Alamin area of Malaysia. Finding of this study have established that loan default was positively related with nature of business operation, while negatively related with age of borrowers, diversion of funds by borrowers and repayment schedule suitability. Enimu, et al., investigated loan repayment determinants of 300 microcredit group members and showed that age, household size, house income, educational level, the amount of credit received, length of stay in the locality, distance to the credit source, supervision and disbursement lag were significant determinants of loan repayment. Among those variables, only household size, disbursement lag, and the probability of being male were negatively related with loan repayment rate.

Recent empirical studies continue to underscore the complex interplay of social, institutional, and economic factors shaping borrowers' repayment behavior across diverse global contexts. For instance, a study of 251 Tanzanian microfinance borrowers found that dynamic incentives, joint liability, and the structure of group meetings significantly enhance repayment performance, reinforcing theories around information asymmetry and social monitoring. In Nepal, analysis across 20 MFIs with 217 clients revealed that institutional characteristics, client traits, and loan design elements all exert positive and significant impacts on repayment outcomes. In Ethiopia's North Wollo Zone, a logit regression on 336

micro and small enterprises showed that managers' education level, collateral, and financial literacy positively affected repayment, whereas greater distance to lenders, misaligned repayment periods, and loan diversion reduced performance. Similarly, research among smallholder farmers in southern Tigray (n = 362) identified several critical predictors: saving behavior, borrower reputation, timely loan usage, appropriate repayment schedules, effective training, and perceived political stability all improved loan repayment outcomes Moreover, social dynamics also play a key role: a multistate model study in Ghana demonstrated that religious and cultural variables significantly influence microfinance delinquency patterns

These findings highlight a global consensus: beyond traditional borrower-level metrics, the design of group mechanisms, institutional frameworks, borrower education, social and cultural contexts, and logistical variables like proximity and loan scheduling play pivotal roles in shaping repayment behavior. Embedding social capital and context-sensitive institutional support into credit programs appears crucial for bolstering repayment performance across settings.

**Table2.1: Summary of Empirical Studies on the Determinants of Loan Repayment in the world**

| Title/focus | Researcher(s) name and Year | Methodology | Key Findings |
|---|---|---|---|
| Determinants of Loan Repayment Behavior of Tanzanian Microfinance Borrowers | Mwakajumilo& Mwakajumilo (2024) | Survey (n = 251), correlation & multiple regression | Dynamic incentives, joint liability, and regular group meetings improve repayment due to reduced information asymmetry and enhanced mutual monitoring. |
| Determinants of Loan Repayment Performance: A Study of MFIs in Nepal | Sharma et al. (2024) | Survey (217 respondents across 20 MFIs), regression analysis | Institutional factors, client characteristics, and loan characteristics all positively and significantly associate with repayment performance. |
| Loan Repayment Performance of MSEs in North Wollo Zone, Ethiopia | Belete &Yismaw (2023) | Multi-stage sampling (n = 336), descriptive & logit regression | Manager's education, collateral, and financial literacy boost repayment; distance, poor scheduling, and loan diversion hinder it. |
| Determinants of Loan Repayment of Smallholder Farmers, Southern Tigray, Ethiopia | Berhe et al. (2023) | Random sample (n = 362), binomial logistic regression | Saving behavior, borrower reputation, timely usage and training, repayment suitability, and political stability significantly promote repayment. |
| Impact of Social Factors on Loan Delinquency in Microfinance (Ghana) | Yeboah et al. (2024) | Multistate (frailty) models on social variables | Religious and cultural factors significantly influence delinquency dynamics, underscoring the weight of social determinants in repayment behavior. |

**Source**: own compilation, 2024

## 2.3. Review of Empirical studies on the determinants of credit default behavior of borrowers: Ethiopian view

In his studies on the repayment of loans and their determinants in the financing of 319 sample micro and small enterprises in Ethiopia, Abreham, et al., discovered that having other sources of income, education and work experience in related economic activities before the loan were repayment enhancing factors, while diversion of loans, being male borrower, and extended loan repayment period were undermining factors of the loan recovery performance. A research undertaken by Jemal, et al., on some 203 sample borrowers in rural Ethiopia showed that the possession of property such as livestock and the education of the beneficiary of the loan reduce the risk of default on the loan. On the other side, households with bigger house holdings and greater dependency ratios and female headed house holdings were connected with a greater incidence of defaults on loans. The research also found that families with significant human capital and physical capital, and improved access to infrastructure, had better repayment performance. Another study by Fikirte, et al., analyzed data from 200 randomly selected borrowers of Addis credit and saving institution. This study has shown that age, education, income level, loan supervision, suitability of the repayment period, accessibility of other credit sources and livestock holdings were important and significant factors that improved the loan repayment performance of borrowers, while the diversion of loans, the celebration of social ceremonies, the size of the family and the size of the loan were discovered to have considerably increased the default of the loan. This research also discovered that being female and business experiences of the borrower were important in improving the efficiency of borrower's loan repayment.

Zelalem, et al., identified socio-economic and institutional factors influencing the loan repayment efficiency of 130 randomly selected smallholder farmers in Kalu district of South Wollo. A two-limit Tobit model showed that, among the variables used in the analysis, landholding size, livestock ownership, agricultural extension package experience, cultural festival expenditure, the source of credit used and the purpose of borrowing had statistically significant impact on the repayment performance of the sample households. In this study, only expenditure on social festivals had a negative and significant effect on loan recovery rate, while the remaining five variables had a significant and positive effect. Haile, et al., used a binary logit model to analyze the determinants of loan repayment performance of 120

borrowers in Harari microfinance and concluded that saving habit, loan size, borrowers' perception on repayment period, source of income, availability of training, business experience, business type, family size, and purpose of saving were significant determinants of loan repayment performance. In this study, increased probability of default was associated with large family size, negative perception on repayment period, less training, low business experience, poor saving habit, and having only single income source.

Girma, et al., studied the determinants of loan repayment performance of 364 sample borrowers in Gedeo zone Ethiopia. Among the variables used in logit regression analysis of the study educational level, method of lending, nearness of borrower's residence to the institutions, family size, and income from activities financed by loan and training were found to be significant determinants. Family size and individual lending method were negatively and significantly related with loan repayment while the other three variables were positively related. Another relevant study by Mikir, et al., studied the determinants of loan repayment performance of Omo microfinance institution using a binary logit model and found that education level, annual income and training were positively and significantly related with loan repayment performance, while loan size was negatively and significantly affecting loan repayment of borrowers.

Recent empirical analyses reinforce the multifaceted nature of repayment behavior among Ethiopian borrowers, especially within micro and small enterprises. For instance, Gebeyehu (2002) studied 319 small-scale enterprise borrowers around Zeway and found that additional income sources, education, and prior related work experience significantly enhance loan repayment, while loan diversion, being male, and extended repayment periods weaken performance Endris (2022) used a logit model with 336 MSEs in North Wollo and confirmed that manager education, collateral, and financial literacy are positive drivers, whereas distance to lenders, unsuitable repayment timing, and loan diversion are deterrents. Dire (2018) surveyed 341 MSEs in Jimma town and demonstrated that sex (favoring female borrowers) and experience boost repayment, while inconvenient payback schedules, poor financial planning, and weak marketing skills adversely affect it. Additionally, Garomsa (2017) examined 319 borrowers in Oromia using probit regression and identified significant positive factors including other income, timely credit, suitable repayment schedules, monitoring, and training; negative influences included irregular follow-ups and third-party interference. Collectively, these studies highlight that borrower characteristics (education, experience, gender), loan design (collateral, repayment terms), institutional practices

(training, monitoring), and logistical factors (distance) critically affect default behavior. Designing microfinance programs with attention to these dimensions—with tailored repayment schedules, robust monitoring, and borrower capacity-building—can substantially improve loan performance.

**Table2.2: Summary of Empirical Studies on the Determinants of Loan Repayment in Ethiopia**

| Researcher(s) & Year | Title / Focus | Methodology | Key Findings |
|---|---|---|---|
| **Gebeyehu (2002)** | Loan repayment in small-scale enterprises, Zeway | Tobit model, n = 319 | Other income sources, education, and prior work experience boost repayment; loan diversion, male borrowers, and extended repayment periods harm it. |
| **Endris (2022)** | MSEs in North Wollo Zone, Amhara Region | Logit regression, n = 336 | Manager's education, collateral, financial literacy enhance repayment; distance, poor scheduling, and misuse of loans impede performance. |
| **Dire (2018)** | MSEs in Jimma town | Binary logistic regression, n = 341 | Female borrowers and experience improve repayment; inconvenient payback period, lack of financial planning, and weak marketing skills worsen it. |
| **Garomsa (2017)** | Borrowers in Oromia microfinance institutions | Probit regression, n = 319 | Positive factors: other income, timely credit, suitable repayment, monitoring, and training; negative factors: irregular follow-up and third-party interference. |

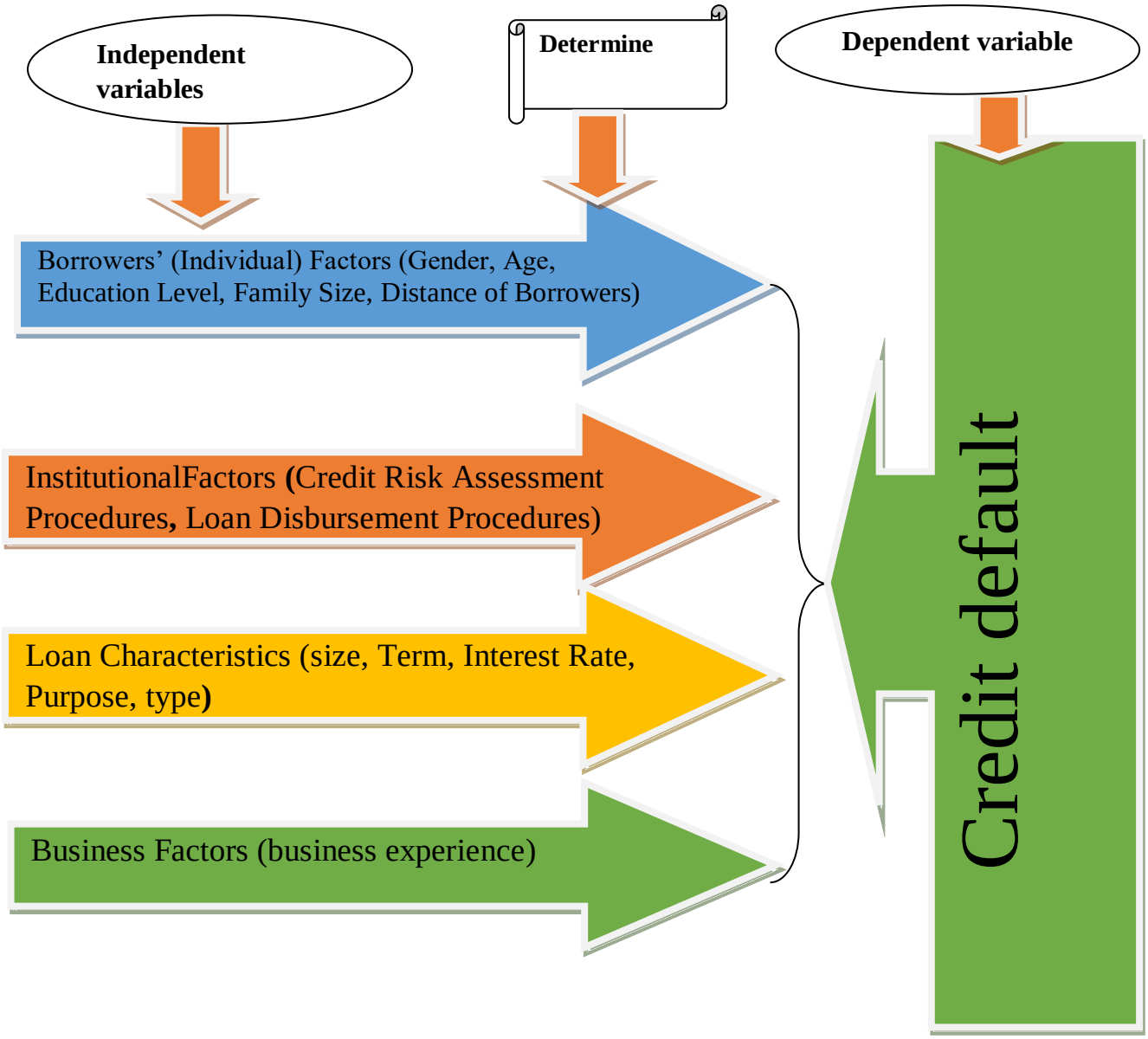
**Source**: own compilation, 2024

## 2.4 Conceptual Framework of Determinants of Loan Repayment

According to Mugenda and Mugenda (2003), as cited by Gudde Jote (2018), a conceptual framework involves developing ideas about the relationships between variables and visually representing these connections through diagrams. This study adopts the conceptual framework illustrated in Figure 1, which depicts the relationship between the dependent variable (loan repayment) and various independent variables. The framework reflects the researcher's synthesis of existing literature and serves as a guide for explaining the phenomenon under investigation. It outlines the necessary actions for the study based on prior research and the researcher's observations. Essentially, the conceptual framework

represents the researcher understands of how specific variables interrelate, identifying those crucial for investigation and acting as a roadmap for conducting the research.

***Figure-2.1:*** **Conceptual Framework of Determinants of Loan Repayment**




**Source:** Adapted from Fikirte (2011), Jemal (2013), Yelsung (2014) and etal

## 2.5 Study variable type's definition and related hypotheses

Once the analytical procedure and its requirements are known, it is necessary to identify the potential explanatory and dependent variables. Different variables are expected to affect credit default (the dependent variable). The major variables influencing the credit default and the direction of their effect are presented and explained below.

### 2.5.1 Dependent variable

Dependent variable is the estimated result of the independent variable being operated and whose value depends on the value of independent or explanatory variables and also it measures to demonstrate the effect of the independent variables. The borrowers that did not repay the amount of money they borrowed as per credit schedules are considered as defaulters. Likewise, borrowers that repaid the amount they borrowed per credit schedules considered as non defaulters.

### 2.5.2 Independent Variables definition and related hypotheses

Independent variables are variables that are expected and have more explanatory power on the dependent variable, i.e., loan repayment. For the purpose of this study, the researcher has included 12 independent variables assuming that it is best to explain the determinants of loan repayment performance of MFIs borrowers.

**1. Gender (GR):** many researchers argue that females were better payers than male borrowers, taking into consideration they are being more entrepreneurial that results from assuming more responsibilities in the internal affairs of a household. So, most studies attach positive sign to females in relation to repayment that show the female borrowers feel more responsibility to their families than male. But some researchers have found the opposite result. In this study, gender has been hypothesized as a positive sign.

**2. Age (AG):** In this study, age was hypothesized a positive impact on repayment performance. Usually, at a certain level of age limit, borrowers get more stability and experience but beyond a certain age limit, this variable has a negative relationship. This shows as people get older, their ability to effectively use loans and generate income declines, the variable could also have a negative impact. Hence, may have a nonlinear relationship with loan repayment.

It argued that older borrowers are wiser and more responsible than younger. On the other hand, younger borrowers argued to be more knowledgeable and more independent. Hence, age might have positive or negative effect on loan repayment rates (Paxton, 1996).

**3**. **Education (EDL):** This variable is expected to have a positive impact on repayment performance in general. Considering normal circumstances, a more educated borrower is expected to use the loan effectively as compared to a less-educated one.

The educational Background of the borrowers ranges from illiterate to above high school completed. It assumed that as the lenders get educated, they could acquire more knowledge so that their efficiency in allocation of resources increases and so does the proper utilization of the loan. Their ability to adopt themselves to changing situation would be better than the illiterate ones, borrowers with higher levels of education may have higher repayment rate, they may develop the entrepreneurial skill, and they may engage in new business. Bhatt and Tang (2002) in their study they found that a higher education level was significant and positively related to better repayment performance.

**4. Family Size (FSZ**): It is defined as the total number of households in the family and elsewhere that depend on the borrower for their livelihood. When the number of households increases, the borrower will need more money to fulfill their requirements in addition to the obligation of loan repayment. As a result, he/she may divert the loan to meet the needs of the dependents. If the respondent has a large number of family members, they need more income to cover the expense of their household members. Therefore, the borrower may use the loan directly for their daily consumption and other expenses which in turn increases the default rate. On the other hand, the number of dependents is the number of nonworking members of the family (Reta, 2011); (Lilay, 2015). Hence we expect this variable to have a negative impact on loan repayment. If the group member has large household size, a considerable amount of income from the project could be diverted away from loan repayment, which is the sign of group ineffectiveness and had no profitability to household consumption. Therefore, the sign is expected to be negative.

**5. Distance of Borrower from Institution (DIS):** It refers to the average distance (in kilometers) between borrowers and the lending institutions. Non-defaulter respondents traveled on average less distance than defaulters (Abreham, 2002).The variable has an expected negative sign. In this study consider as the distance is less than 5km it is nearest otherwise far from the institutions**.** Hence, this variable is expected negative sign.

**6. Method of Lending (MOL):** In group lending, there might be more group pressure for defaulters than individual lending. In addition, there was a social norm that governs the group members (Cheriye, 2013). The group members may feel responsible for the other group member loan. Therefore, they may put social sanctions on the defaulters within the group and enforce them to repay a loan. Therefore, group lending has a positive impact on loan repayment. In-group lending methodology there might be more group lending pressure for defaulters than individual lending method. Therefore in this study it is hypothesized as positive on credit repayment.

**7. Loan Size (LSZ):** If the amount of loan released is enough for the purposes intended, it will have a positive impact on the borrower‘s capacity to repay. On the other hand, the amount of loan exceeds what the borrower needs and can handle, it will be more of a burden than help, thereby undermining repayment performance. In a similar manner to the above, positive or negative sign expected if the loan is too small. If the loan is too small it may be easy to repay such loans thus enhancing performance (i.e. positive sign). Pasha &Neges (2014) the loan size influence borrowers' loan repayment performance Keeping the other factors constant, having sufficient loan size and operating business with adequate amount of capital decreases the probability of default.

**8.Other Source of Income (OSIC)**: Some borrowers may have other sources of finance before joining loan programs, like employment in government or private organizations of the borrower and soon. Such sources of finance are expected to have a positive contribution towards loan repayment performance (Jemal,2003).However the availability of such sources creates negligence on the part of borrowers in fulfilling their obligation of repayment possibly considering the next loan unnecessary, it may damage repayment performance. The researcher hypothesized the variable has a positive sign.

**9. Participation in social festivals (PSF)**: the event of festivals ordinarily celebrated by a community and centering on some characteristic aspect of that community and its religion or cultures. It is often marked as a local or national holiday. In Ethiopia, celebrations are great and colorful events, mostly religious, and frequently take place over several days. The variables measured by the total amount of money spent (in Birr) on celebrating different types of social holidays like a wedding. This variable was hypothesized to have a negative impact on loan repayment as it is a nonproductive expense. Yemer& Sani, 2017 found that celebrating social festivals can negatively influence loan repayment performance it will expect negatively influence loan repayment performance.

**10**. **Suitability of Loan repayment period (SIP):** If borrowers find the repayment period appropriate, they can utilize the loan proceeds effectively for the intended purpose than those who regard the period of repayment unsuitable. This variable was hypothesized to have a negative impact on loan repayment.

**11. Business experience (BE):** it refers the number of years the client has experience in doing the same business or other similar business activities. Therefore, it is a continuous variable measured in absolute number of years of experience the client engaged in business. Here in this study positive sign is assigned.

**12. Timeliness of loan release (TMLRs)**: If a loan is not disbursed in time, it is unlikely that it will be diverted to non-intended purposes. As cited by (Gudde Jote, 2018), (Johnson, 1997) noted that timeliness of loan disbursement is important when loans are used for seasonal activities. They argued that complicated appraisal and approval procedures, which might delay disbursement, influence program of seasonal loans that use to buy inputs. Further, they noted that this could in turn worsen the prospects of repayment by diverting loans to non-intended purposes. Hence a positive sign is expected.

# CHAPTER THREE: RESEARCH METHODOLOGY

## INTRODUCTION

This chapter details with the description of study area, research designs and approaches, target population, sampling techniques and sample size determination, data type and sources, methods of data analysis, econometric model specification and study variables and related variables adopted for the study. It also shows that how the collected data were analyzed, validity and reliability of collected data and ethical issues.

## 3.1. Description of Study Area

The study area is Mekelle city which is located at northern part of Ethiopia, in Tigray regional state. It is located at a distance of 783 kilometers from the capital city of Ethiopia, Addis Ababa. Mekelle is the capital city of Tigray regional state. It is located at latitude and longitude of 13º 29'N, 39O º 28'E, respectively, with an elevation of 2084meters above sea level. It is a city with seven sub city administrations. Based on the study conducted in 2010 by Mekelle municipality, the city had an estimated total population of 248,566; of which 120,830 were males and 127,736 were females [Mekelle City Administration (MCA), 2010]..

**Fig-3.1: Overview of the study area of Mekelle (Orange paint)**


*http://www.nationmaster.com/encyclopedia/Mek'ele as cited in Tadesse 2016)*

## 3.2 Research approaches and designs

### 3.2.1 Research approaches

Research approach implies that research is guided by the rules of logical reasoning and this process of induction and deduction in carrying out research. So that, there are two types approaches in any research work: deduction and induction (Gujarati, 2004). These two approaches outline the nature of the relationship that exists between theory and research practices. The deductive approach involves moving from general that is theoretical position to the specific inquiry to the research. This approach states the relationship between theory and research that focus on the testing of theories (Tibebe, 2012). The inductive approach starts from the observations to develop a theory or the process of reasoning from a part to the whole (Kothari, 2004). According to the deductive approach, researchers deduce their studies, hypotheses based on known theories, translate them into operational terms and test them in empirical ways by using statistical methods.

This study mainly used deductive approach and quantitative that focuses on using primary data that helps to test the existing theory on determinants of credit default of Mekelle city MFIS borrowers.

In addition to the above mixed-method has been adopted to conduct the research on determinants of credit default of Mekelle city MFIS borrowers. Mixed-methods design offers a number of benefits to approaching complex research issues as it integrates and interweaving qualitative and quantitative data in such a way that research issues are meaningfully explained (Fetters, 2016). It also offers a logical ground, methodological flexibility and an in-depth understanding of smaller cases (Maxwell, 2016). In other words, the use of mixed-methods enables researchers to answer research questions with sufficient depth and breadth (Enosh, Tzafrir, &Stolovy, 2014) and helps generalize findings and implications of the researched issues to the whole population. For example, the quantitative approach helps a researcher to collect the data from a large number of participants; thus, increasing the possibility to generalize the findings to a wider population. The qualitative approach, on the other hand, provides a deeper understanding of the issue being investigated, honoring the voices of its participants. In other words, whereas quantitative data bring breadth to the study and qualitative data provides depth to it. Moreover, quantitative results can be triangulated with qualitative findings and vice versa. Triangulation, as a qualitative research strategy, is the use of multiple methods or data sources to develop a comprehensive understanding of a research problem or to test validity through the convergence of information from different sources (Carter et al., 2014). A mixed-methods design, therefore, offers the best chance of answering research questions by combining two sets of strengths while compensating at the same time for the weaknesses of each method (Johnson & Onwuegbuzie, 2004). Consequently, "mixed-method research designs are becoming increasingly relevant to addressing impact research questions" (Saville, 2012, p.7).According to Creswell (2009) this approach is chosen for two reasons; first the purpose of the study demand diverse methods of treatment where a single approach considered may not be able to search a problem thoroughly. Second, the use of both methods is considered effective to interpret and analyze data using the statistical analysis, descriptive figures as well as narrative, and allow us to match the results from the quantitative and qualitative analyses to determine if the two databases yield similar or dissimilar results thereby improving the validity and authenticity of results.

In addition to the above, the primary objective of this study demands other methodology. As such, explanatory research design will be used in explaining the cause effect relationship between two variables, dependent and independent, going to be employed for achieving the

purpose of this study. Furthermore, descriptive research design was used as an ancillary design, to help describe the basic attributes and nature of the datasets used in this study.

### 3.2.2 Research designs

A research design is the frame work of the study and is basic plan that guides the researchers for the type of information to be collected data and analysis phases of the research project (Kumar, 2005). The most common research designs are descriptive and exploratory design. Describing the existing situation under the study is related with descriptive whereas explaining, understanding and predicting the relationship between variables is related to explanatory design (Dawit and Adem, 2018). According to Rajab (2018), a descriptive survey is feasible when the population is small and variable hence the researcher is able to cover all the elements of the population.

Thus from the nature of study and the amount of population, the research design that was implemented was more explanatory research. According to Benjamin (2012) explanatory research involves collecting data in order to test hypotheses or answer research objectives concerning the current status of the subject of the study. This helped to establish the relationship between variables that is dimensions of credit risk management effectiveness.

The researcher used explanatory and descriptive research method to examine cause and affect relationship between the independent and dependent variables under the study.

## 3.3 Target population

The study was carried out in Mekelle city because it is the head quarter and largest MFI having a large number of group and individual borrower clients. This may help the researcher to get a variety of clients with different profiles and expectation of varieties of response. In addition to this, the researcher is familiar with this area and works in this area and access of data is expected to be easier. The above argument, therefore, makes it appropriate for carrying out the study in these MFIs.

The target population of the study is borrowers of all Microfinance Institutions Found in Mekelle City, as of February, 2023/24. There are three microfinance Institutions operating in Mekelle City. These are Dedebit credit and saving Micro Finance institution (DECSI), Adeday Micro Finance (AMFI), and Ledeta Micro Finance (LMFI). In those three (3) microfinance institutions a sample of 34676borrowers are selected. These are considered as the target population of the study. Specifically the populations for this study were borrowers (customer) of Mekellecity MFIs.The branches are selected based on the number of

customers and the amount of outstanding loan. The number of borrowers' data was collected from borrower profile or master register book of each MFI institutions. During data collection period, borrowers' loan repayment status has been classified as defaulter and non-defaulter. In addition to this borrowers are classified in to group(without collateral or social collateral) and individual (with collateral) category.

## 3.4Sampling design and sample size determination

### 3.4.1 Sampling design and technique

A sample refers to a subset of items or individuals selected from a larger population in such a way that it accurately represents the entire population. Sampling allows researchers to draw conclusions about the whole population without studying every individual unit (Zikmund, 2003). According to Brown (2006), a sample is a portion of the population selected through a process known as **s**ampling, which is essential for making inferences about population parameters based on sample statistics. However, if sampling is not conducted properly, it can introduce errors that compromise the validity and generalizability of the research findings. Among the critical aspects of sampling is determining the appropriate sample size, which significantly influences the reliability and accuracy of the study's results (Zikmund, 2003; Brown, 2006).

In this study, a probability sampling method was employed to ensure that the sample drawn is both accurate and representative of the target population. Probability sampling provides each member of the population with a known and non-zero chance of being selected, thereby reducing selection bias and enhancing generalizability (Kothari, 2004).Specifically, two techniques under probability sampling were applied.

Simple Random Sampling: This technique ensures that every member of the population has an equal and independent chance of being included in the sample. A sampling frame was prepared, and respondents were selected using a random number generator, which minimizes researcher bias and allows for the collection of unbiased data (Zikmund, 2003).

Stratified Random Sampling: This method is particularly useful when the population contains heterogeneous subgroups, as it enables better representation by dividing the population into homogeneous strata based on relevant characteristics. In this study, stratification was based on the microfinance institutions (MFIs) and the loan repayment

status of borrowers (i.e., defaulters and non-defaulters). Each MFI was treated as a stratum due to potential differences in size, policies, and client profiles. From each stratum, samples were drawn in proportion to their population size, ensuring that all subgroups were fairly represented in the overall sample (Israel, 1992; Endris, 2022).This approach was chosen to enhance the reliability of comparisons across MFIs and borrower groups while accounting for inherent differences among them.

### 3.4.2 Sampling size determination

This study employed a quantitative research approach using stratified random sampling to examine the determinants of loan repayment performance among clients of three Microfinance Institutions (MFIs) operating in Mekelle City. The target population consisted of 34,676 clients, drawn from these three MFIs. The sample size was determined using the Taro Yamane formula (Israel, 1992), which is expressed as:

$$\mathbf{n=N/1+N\,(e)^{2}}$$

Where $n$ is the sample size, $N$ is the total population, and $e$ represents the margin of error. For this study, a 95% confidence level and a 5% margin of error were selected, resulting in a final sample size of 400 respondents. Once the total sample size was established, proportional allocation was applied to ensure that the number of respondents from each MFI was representative of its respective client base. The proportional sample size for each stratum (MFI and repayment status) was calculated using the formula:

$$\textbf{Proportional Sample Size= (Stratum Population/Total Population) ×Total Sample Size}$$

This methodological approach ensured representation from all MFIs, allowing the study to generalize findings across the microfinance sector in Mekelle City.

**Table -3.1: Proportionate Sample size of the study from each stratum**

| Name of MFI | Target Population repayment status | | | Proportional Sample size | | |
|---|---|---|---|---|---|---|
| | Defaulters | Non- defaulters | Total | Defaulters | Non defaulters | Total |
| DECSI | 11176 | 15000 | 26176 | 129 | 173 | 302 |
| ADEDAY | 1500 | 3500 | 5000 | 17 | 40 | **57** |
| LDETA | 1500 | 2000 | 3500 | 17 | 23 | 40 |
| Total | 14,176 | 20,500 | 34676 | 163 | 236 | 400 |

**Source:** Researchers computation**,** 2024

## 3.5 Data Sources and Collection Methods

Data for this study were obtained from both primary and secondary sources, with the support of trained enumerators. Primary data were collected directly from borrowers across selected branches and sub-branches of microfinance institutions (MFIs) in Mekelle City using structured questionnaires and face-to-face interviews. The questionnaire was adapted and revised based on the work of several prior studies, including those by Abbafita (2003)**,** Gebeyehu (2002)**,** Fikrete (2011)**,** and Belete (2015**)**. It included both open- and closed-ended questions and was prepared in English. The content was designed to capture detailed information on various aspects, such as the socio-demographic characteristics of borrowers, business-related factors, loan-specific data including size, purpose, and repayment terms, as well as institutional and group lending practices. It also assessed the perceptions of borrowers regarding microfinance institutions and their experiences with the loan repayment process. To ensure clarity, consistency, and reliability of the instrument, a pilot study was conducted prior to the main data collection. In addition to quantitative data, qualitative insights were obtained through semi-structured interviews, allowing for a deeper understanding of borrower experiences and institutional challenges related to loan repayment.

Secondary data were gathered from both published and unpublished sources concerning the operations and performance of the selected MFIs. These sources included audited financial statements, loan cycle documentation, repayment history records, relevant policy documents, and internal institutional reports. Furthermore, an extensive review of both global and national literature on microfinance and loan repayment performance was conducted. This literature review served three key purposes: to improve the design and content of the questionnaire, to provide credible and contextual secondary data to support the analysis and to expose the researcher to a range of theories and conceptual discussions related to loan repayment behavior and institutional factors. In summary, the study relied on a mix of secondary data from MFI records—such as loan sizes and repayment histories—and primary data collected via structured questionnaires and interviews addressing borrower characteristics, socioeconomic conditions, loan usage patterns, and institutional practices.

## 3.6 Data analysis methods

Overall analyses of the variables were conducted by performing various descriptive and inferential statistics. Those covers the sample's descriptive statistics; mean and standard deviation, correlations, other reliability tests, and logistic regression. Statistical Package for Social Sciences (SPSS version 16.0)and STATA were used to conduct the analysis, and the results. Descriptive statistics is used to summarize and analyze the profile of borrowers and Logistic regression or logit model is used to identify determinants of credit default.

## 3.7Validity and reliability of data

### 3.7.1 Validity of data

Best and Kahn (1998) defines validity as the degree to which a test measures what it is supposed to measure. Moore (1983) added that, the term validity indicates the degree to which an instrument measures the construct under investigation. In addition Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results(Mugenda and Mugenda, 1999).

Therefore validation of the questionnaires was done by an expert in research. This was done to help the researcher identify the items that were in adequate and ambiguous in collecting the relevant information. The items were then modified to improve the quality of the instrument and hence validity.

### 3.7.2 Reliability of data

Kothari (2002) asserts that a reliable instrument consistently produces the expected results when it is used more than once to collect a data from the same sample, randomly drawn from the population. To establish reliability, the researcher administered questionnaires to five samples. The Pearson's Product Moment Correlation Coefficient formula was used to compute the correlation coefficient index between the two scores to establish the extent to which the contents of the questionnaire was consistent in eliciting the responses.

For the study to achieve validity and reliability data was checked for coding errors and omissions while coding into excel sheets. The database was also verified for accuracy and completeness of all the entries to ensure reliability of data was achieved. The questionnaires were pretested before the actual data collection was undertaken.

## 3.8 Econometric model specification

The primary aim of this study was to examine statistically significant determinants of credit default of Mekelle city MFIs borrowers. Descriptive statistics does not tell the probability of falling down into loan defaulter or non-defaulter. Therefore, econometric model was employed to further analyze and identify which and how much the hypothesized explanatory variables were related to borrowers' loan repayment performance. As already well known, the dependant variable, repayment, is a dummy which takes a value of zero or one depending on borrowers' loan repayment status i.e. borrowers' were classified between defaulters and non-defaulters. However, explanatory variables were discrete and continuous.

According to Hosmer and Lemeshew (1989) the logistic distribution has got advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used model from mathematical point of view and results in a meaningful interpretation. Hence, for this particular study, binary logistic model was selected. Therefore, the cumulative logistic probability is econometrically specified as follows:

The joint effects of all explanatory variables were being put together on the odds (Hossein, 2016)

$$\text{Odds} = p / (1 - p) = e^{a+B1X1+B2X2+\ldots+BPXP} \text{----------Equ-1}$$

Taking the logarithms on both sides

$$\text{Log}\, p / (1 - p) = \text{log}a + B1X1 + B2X2 + \ldots + BiXi \text{----------Equ-2}$$

Y=logitp=a+β1GR+β2AG+β3EDL+β4FSZ+β5DIS+β6MOL+β7LSZ+β8OSIC+β9SIP+β10PSF+β11TMLRS+β12BE+εr

P=1 is the probability that a borrower will pay back its loan

a = is the intercept coefficient and **ε** is the error term β1…12are the coefficients of each of the independent variables. If the error term **(ε)** is taken into account, the Logit model becomes:

$y = a + \sum_{i=1}^{k} \beta iXi +$
εi……Euq- 3

The unknown parameters β is estimated by likelihood function. The determinants of the credit default model will be analyzed using logistic regression (Gujarati, D.N. (2003*).*

## 3.9. Assumptions of Logistic Regression

According to Hosmer and Lemeshow (1989**)**, several important assumptions must be considered to ensure the efficient and appropriate use of logistic regression. First, logistic regression requires meaningful coding of variables, especially the dependent variable. It is standard practice in binomial logistic regression to code the class of interest as 1 and the reference or comparison group as 0**,** as improper or arbitrary coding can make logistic coefficients difficult to interpret. Second, the groups in the dependent variable must be mutually exclusive and exhaustive**,** meaning that each case must belong to one and only one category. Third, logistic regression generally requires larger sample sizes than linear regression because the maximum likelihood estimation method, used to compute logistic coefficients, is based on large sample properties. Additionally, logistic regression does not assume a linear relationship between the independent and dependent variables, distinguishing it from linear regression models. However, it does require the absence of multicollinearity among the independent variables, as multicollinearity can distort the estimation and interpretation of regression coefficients. Furthermore, although the model does not require a linear relationship in the variables themselves, it assumes a linear relationship between the independent variables and the logit (log-odds) transformation of the dependent variable. Finally, the dependent variable must be categorical, often binary in

nature, for the logistic regression model to be appropriate. Ensuring these assumptions are met is critical for producing valid and interpretable results when using logistic regression.

## 3.10 Operational definition of study variables

In studying credit default and loan repayment performance among MFs borrowers, variables are operationally defined and measured to capture their influence accurately. Demographic factors such as gender (binary: male/female), age (years), family size (number of dependents), and education level (highest schooling completed) are quantified to assess their impact on borrowers' financial behavior and repayment capacity. Socioeconomic variables including distance to lending institutions (kilometers), other sources of income (presence or absence), business experience (years), and participation in social festivals (frequency) further capture the contextual factors affecting loan performance. Loan-specific factors such as loan size (monetary value), method of lending (individual vs. group), timeliness of loan release (days delayed), and suitability of installment periods (borrower satisfaction) measure institutional and operational dimensions that influence repayment. Collectively, these variables interact to determine the likelihood of credit default or successful loan repayment, with empirical evidence suggesting that both borrower characteristics and loan management practices significantly affect repayment outcomes in MFIs (Mekonnen &Wolday, 2022; Tesfaye et al., 2024).

**1. Gender** is commonly represented as a binary variable (male = 0, female = 1) in studies analyzing loan repayment behavior, as it allows researchers to examine differences between men and women in financial responsibility and default risk. Research has shown that gender significantly influences loan repayment, largely due to distinct financial behaviors and societal roles associated with each gender (Mekonnen &Wolday, 2022). Female borrowers are often found to exhibit higher repayment performance, attributed to a stronger sense of familial responsibility. Consequently, the impact of gender on loan repayment performance is generally expected to be positive for women and negative for men (Mekonnen &Wolday, 2022).

**2. Age** typically measured in years, is considered an important factor influencing loan repayment, based on the assumption that older borrowers may possess greater financial stability and experience, potentially reducing the likelihood of default (Kassahun & Ayele, 2023). Some studies argue that older individuals tend to be more responsible and financially cautious, while younger borrowers may benefit from higher productivity, technological

knowledge, and independence (Kibrom, 2010). However, limited experience among younger borrowers could also lead to poor repayment performance, just as declining productivity in older borrowers might increase default risk. Therefore, the effect of age on loan repayment is ambiguous and may vary across individuals, making its overall impact on repayment performance difficult to predetermine (Kibrom, 2010; Kassahun & Ayele, 2023).

**3. Family size,** measured by the number of dependents, is an indicator of household financial burden and can adversely affect a borrower's ability to repay loans (Tadesse & Nigatu, 2023). Larger households may require a greater share of income for consumption, potentially diverting funds away from loan repayment. In group lending contexts, this diversion is often seen as a sign of group ineffectiveness, where the loan fails to generate sufficient profit to support both household needs and debt obligations. Consequently, family size is generally expected to have a negative impact on loan repayment performance (Tadesse & Nigatu, 2023).

**4. Education level**, typically classified by the highest level of schooling completed, is considered a key factor influencing loan repayment, as it is often associated with improved financial literacy and better loan management skills (Bekele &Fenta, 2024). Borrowers' educational backgrounds may range from illiterate to college-educated, with the assumption that higher education enhances borrowers' ability to allocate resources efficiently, adapt to changing conditions, and utilize loans effectively. Educated borrowers are also more likely to develop entrepreneurial skills and pursue business opportunities, contributing to improved repayment performance. Supporting this view, Bhatt and Tang (2002) found a significant positive relationship between education level and loan repayment outcomes. Therefore, education is generally expected to have a positive effect on repayment performance.

5. **The distance of borrowers** from the lending institution, typically measured in kilometers, plays a crucial role in determining their access to financial services, timely information, and follow-up support. Greater distances can lead to reduced interaction between lenders and borrowers, limited monitoring, and delays in addressing repayment issues or providing necessary guidance, all of which may contribute to higher default risk (Fikadu & Alemu, 2023). Moreover, borrowers located far from lending institutions may incur higher transportation costs and time burdens, discouraging regular visits and making it difficult to meet repayment schedules. This physical barrier can also weaken the borrower-lender relationship, reducing accountability and trust. As a result, increased distance is

generally associated with lower loan repayment performance due to decreased oversight and rising transaction costs (Fikadu & Alemu, 2023).

**6. Other sources of income:** the variable representing other sources of income is treated as a binary (dummy) variable, where a value of 1 indicates the presence of additional income streams, and 0 indicates their absence (Chala & Abebe, 2024). This classification aims to assess whether income diversification contributes to improved loan repayment performance. Borrowers with alternative sources of income are expected to meet their non-project-related expenses using that income, thereby preserving more of the project's financial returns for loan repayment. As a result, such borrowers are assumed to have a greater repayment capacity and a lower likelihood of default.

7. **Loan size** significantly affects borrowers' repayment performance, with both excessively large and insufficiently small loans posing risks. Larger loans can increase default risk due to higher repayment burdens, especially if they exceed the borrower's actual needs or capacity to manage them (Gebremedhin & Woldemariam, 2023). Conversely, a loan amount appropriately aligned with the intended purpose can enhance repayment ability by supporting productive use. Smaller loans may also have a positive impact on repayment performance, as they are easier to manage and repay. However, if too small, they may hinder business effectiveness. Overall, ensuring an adequate loan size relative to business needs lowers the likelihood of default, assuming other factors remain constant (Pasha &Neges, 2014).

**8. Business experience,** measured by years of operation, is a key factor influencing loan repayment performance. More experienced borrowers tend to have better management skills, stable sales, and consistent cash flows, which reduce the likelihood of default (Haile & Tadesse, 2024). As a continuous variable, increased business experience is associated with greater enterprise success and higher repayment rates. Therefore, borrowers with longer business histories are expected to demonstrate stronger loan repayment performance.

**9**. **Participation in social festivals**: social factors, such as involvement in community or social festivals are often measured through how frequently individuals participate in these events. This participation is believed to impact loan repayment behavior by affecting both household cash flow and the sense of social responsibility or obligations that borrowers may feel toward their community. Engaging in such events can either strain financial resources

or enhance social capital, both of which can influence the ability and willingness to repay loans (Lema & Bekele, 2023).

**10.Method of lending (individual vs. group lending)** the choice between individual and group lending methods significantly influences loan repayment outcomes. Group lending, in particular, is frequently linked to lower default rates due to the presence of peer monitoring and social pressure among group members, which encourages timely repayments and accountability. This dynamic fosters a collective responsibility that can reduce the likelihood of loan delinquency compared to individual lending approaches (Mulu & Tesfaye, 2024).

11. **The timeliness of loan disbursement**—measured by the number of days delayed between application and fund release—plays a critical role in shaping borrowers' repayment behavior. Delays in receiving the loan can hinder the borrower's ability to invest the funds as planned, particularly in time-sensitive ventures such as agriculture or small-scale trade. This inefficiency often results in reduced income generation, ultimately affecting the borrower's capacity to meet repayment obligations. Timely loan release, therefore, enhances the effectiveness of fund utilization and improves the chances of successful repayment (Gebru & Alemayehu, 2024).

**12. The suitability of a loan's installment period** significantly influences borrowers' repayment performance, as it directly affects their capacity to meet scheduled payments (Kebede & Teshome, 2023). Defined as the duration within which the full loan must be repaid, the repayment period is often categorized as a dummy variable—assigned a value of 1 for medium-term and 0 for both short- and long-term periods. Empirical studies indicate that both short and long repayment durations can hinder successful repayment: short terms may not allow borrowers sufficient time to generate the necessary revenue, while long terms may restrict access to future credit until existing loans are cleared. In contrast, medium-term repayment schedules tend to strike a balance, increasing the likelihood of timely and successful repayment (Tesfaye et al., 2024; Alemu & Desta, 2024).

## 3.11. Description of variables and their scale of measurement

From the theoretical and empirical literature, traditional observable characteristics that may influence the probability of being defaulter or non-defaulter (loan repayment performance) were summarized with their respective unit of measurement in table 3.2 below.

## Table-3.2: summarized description of variables and their scale of measurement

| Variables | Symbol | Unit of measurement | Expected sign/Hypotheses |
|---|---|---|---|
| **Dependent variable** | | | |
| Loan repayment | LP | Nominal | |
| **Explanatory variables** | | | |
| Gender | GE | Dummy | +(Females have highloan repayment performance than male ) |
| Age | AG | Continuous | + (as age increases, high loan repayment performance) |
| Education Level | EDL | Dummy(categorical) | + (high education level, high loan repayment performance) |
| Method of Lending | MOL | Nominal | + (More Group loan payment performance better than individual lending scheme) |
| Distance of Borrower from the Institution | DISC | Nominal | + (less distance from the institutions, higher probability of loan repayment performance) |
| Family Size | FSZ | Continuous | -(high family size ,less probability of loan repayment performance) |
| Loan Size | LSZ | continuous | +/-(High loan amount, high/low probability of loan repayment performance) |
| participating in social festivals | PSF | Categorical | -(high expenditure on social festivals, less loan repayment performance |
| Timeliness of loan release | TMLRs | Categorical | +(on time loan release, high loan repayment performance) |
| Business experience | BE | Discrete / Ordinal | +(customers who have business experience, pay the loan on time ) |
| Suitability of Loan repayment period | SIP | Dummy | + (suitable period loan, high loan repayment performance |
| Other Source of Income | OSIC | Dummy | + ( having other source of income, high loan repayment performance) |

**Source:** own compilation, 2024

## 3.12 Ethical consideration

During the process of data collection, several ethical considerations were carefully observed by the researcher and enumerators to ensure the rights and well-being of all participants. Privacy was respected at all stages, with efforts made to protect personal information and avoid any form of intrusion. Participation in the study was strictly voluntary, and respondents were informed of their right to withdraw at any point without any negative consequences. The research team also ensured that no physical or psychological harm resulted from participation in the study. Anonymity and confidentiality were strictly maintained; all data were collected and stored securely, and participants' identities were not disclosed in any part of the analysis or reporting. Prior to data collection, informed consent was obtained from all participants after clearly explaining the purpose, objectives, and procedures of the study. There was no deception involved, and respondents were fully aware of the nature of their involvement. In addition, permission was obtained from the relevant microfinance institutions (MFIs)**,** and ethical clearance was sought from the appropriate institutional review board where applicable, to ensure the study adhered to established ethical standards in social research.

# CHAPTERFOUR: DATA PRESENTATION, ANALYSIS, AND DISCUSSION

## INTRODUCTION

This chapter presents and analyzes the findings of the study, based on both quantitative and qualitative data collected from MFIs clients and staff in Mekelle City**.** The chapter is organized into two main sections. The first section presents the descriptive statistical results, providing an overview of the key characteristics of the respondents and variables under study. The second section focuses on the econometric analysis, specifically the results of the logit regression model, which was employed to identify the most significant determinants affecting borrowers' loan repayment performance. In addition, the marginal effects of each explanatory variable on the binary dependent variable (repayment vs. non-repayment) are examined to interpret the strength and direction of the relationships.

Data for the quantitative analysis were collected through structured questionnaires distributed to MFI borrowers, while qualitative data were gathered through semi-structured interviews with MFI managers and loan officers. The structured questionnaire included both closed-ended and open-ended items. The closed-ended questions allowed respondents to select predefined options that reflected their views or circumstances, enabling the researcher to interpret the responses in a quantifiable manner (Zikmund, 2003). The open-ended questions were designed to give respondents the opportunity to express their perceptions, experiences, and insights regarding factors influencing loan repayment. This approach helped to capture richer, more nuanced data that may not have been addressed through fixed-response options (Creswell, 2014).

To minimize language barriers and reduce response bias, the questionnaires were made available in both English and Amharic**.** This bilingual approach was intended to improve clarity and ensure that participants fully understood the questions, thus increasing the reliability of the responses (Bryman, 2012). The combination of both quantitative and qualitative methods enabled a comprehensive analysis of the determinants of loan repayment performance in the context of Mekelle City's MFIs.

Table 4.1: Response rate

| Sample Size | Number of Responses | Response Rate (%) |
|---|---|---|
| **400** | 360 | 90% |

The survey had a total sample size of 400 individuals. Out of these, 360 participants responded, resulting in a response rate of 90%. This high response rate indicates strong engagement from the target population and suggests that the findings of the survey are likely to be reliable and representative of the broader group. A 90% response rate is generally considered excellent in survey research, as it minimizes the risk of non-response bias and enhances the overall validity of the results.

## 4. Summary of descriptive Statistics results, Analysis and interpretation

The socio-demographic, business related and institutional and loan characteristics of the respondents such as gender, age, level of education, distance of residenence from the MFIs, family size, lending methodology, business experience, loan size of the respondents and other variables related to loan repayment of the borrowers were analyzed using descriptive statistics.

## 4.1 Socio-demographic Characteristics of Respondents

## Table 4.2: socio-demographic characteristics of respondents

| No. | Variables | Scale | Defaulters (%) | Non-defaulters (%) | Total (%) |
|---|---|---|---|---|---|
| **1** | Gender | Male | 52.8% | 62.0% | 59.5% |
| | | Female | 47.2% | 38.0% | 40.5% |
| | | **Total** | **100%** | **100%** | **100%** |
| **2** | Age | ≤30 | 44.7% | 36.7% | 53.2% |
| | | 31–40 | 42.3% | 26.5% | 28.0% |
| | | 41–50 | 8.3% | 40.8% | 8.0% |
| | | 51–60 | 4.7% | 36.0% | 4.7% |
| | | >60 | 0.0% | 0.0% | 0.0% |
| | | **Total** | **100%** | **100%** | **100%** |
| **3** | Educational level | Illiterate | 2.4% | 19.3% | 4.6% |
| | | Primary School (1–8) | 9.7% | 36.9% | 12.3% |
| | | High School (9–12) | 26.3% | 23.5% | 21.7% |
| | | Above High School | 61.6% | 20.2% | 61.4% |
| | | **Total** | **100%** | **100%** | **100%** |
| **4** | Distance from the MFIs | <5 km | 75.3% | 50.0% | 71.4% |
| | | >5 km | 24.7% | 50.0% | 28.6% |
| | | **Total** | **100%** | **100%** | **100%** |

**Source:** SPSS survey result, 2024

The table presented above summarizes detailed information on the socio-demographic characteristics of the respondents. Key variables such as gender, age, educational level, and distance from the MFIs are included. These factors were examined using descriptive statistics to explore patterns and relationships influencing loan repayment behavior among microfinance clients.

**1. Gender:** As shown in Table 4.1, the gender distribution of borrowers in the studied MFIs in Mekelle City was 59.5% male and 40.5% female. Among defaulters, 52.8% were male and 47.2% were female, while among non-defaulters, 62.0% were male and 38.0% were female. These figures indicate that female borrowers were slightly more represented among defaulters than among non-defaulters, suggesting a marginally higher likelihood of default among women in the study area. However, male borrowers still made up the majority of both defaulters and non-defaulters, indicating that loan default is not significantly skewed

toward one gender. Notably, these findings diverge from several studies across Ethiopia and sub-Saharan Africa, which typically associate female borrowers with stronger repayment performance. For instance, Abebe et al. (2023) observed lower default rates among female-dominated borrowing groups in Oromia's Youth Revolving Fund program. Similarly, Wubetu (2020) found that women in Shashemene town were slightly more consistent in repayments than their male counterparts. Broader studies also suggest that women tend to be more risk-averse and committed to loan obligations, leading to lower delinquency and write-off rates globally (Ledgerwood, 2013; CGAP, 2022). The discrepancy observed in Mekelle may reflect localized socio-economic conditions, structural barriers, or insufficient institutional support tailored to female clients. These findings highlight the need for gender-sensitive lending strategies and further research to understand the underlying causes of repayment challenges specific to women in this region.

**2. Age:** As shown in Table 4.1, the majority of borrowers in the sample were aged 30 years and below, making up 53.2% of all respondents. This age group also accounted for the largest share of defaulters (44.7%)**,** compared to 36.7% among non-defaulters, suggesting that younger borrowers were more prone to repayment challenges. The next most represented group among defaulters was those aged 31–40**,** constituting 42.3% of defaulters and only 26.5% of non-defaulters. In contrast, older borrowers aged 41–50 and 51–60 were far less likely to default, representing just 8.3% and 4.7% of defaulters, respectively, but comprising 40.8% and 36.0% of non-defaulters. No respondents were recorded above the age of 60. These findings indicate a clear age-related pattern**,** with older borrowers demonstrating significantly better repayment performance.

This trend is consistent with findings from other regions in Ethiopia. For example, a study in Harari found that defaulters had a mean age of 35.72, compared to 39.45 among non-defaulters—a statistically significant gap (Yimer & Mulugeta, 2021). Similarly, research in Shashemene reported that borrowers aged 18–30 comprised 40.5% of defaulters, while the 31–40 age groups represented 30.3%**,** reinforcing the pattern of elevated default risk among younger cohorts (Wubetu, 2020). However, in some Mekelle-specific studies, such as those focusing on DECSI's group loan clients**,** found no statistically significant relationship between borrower age and repayment performance. Instead, factors like business experience, group screening mechanisms, and internal group rules; saving behavior, loan suitability, and supervision were more predictive of repayment outcomes(Belete, 2015;

Tesfay, 2019). These mixed results suggest that while younger borrowers may face higher default risk**,** particularly due to limited financial experience or instability, institutional practices and loan management strategies may play a more decisive role in shaping repayment behavior in the Mekelle context. Therefore, while age can serve as an indicative variable, it should be interpreted in conjunction with broader institutional and operational factors.

**3. Educational level:** As shown in Table 4.1, the educational attainment of respondents varied notably, with the majority of borrowers (61.4%) having education beyond high school. Interestingly, this group accounted for 61.6% of defaulters but only 20.2% of non-defaulters, indicating a higher default rate among the more educated borrowers. Those with secondary education (grades 9–12) represented 21.7% of the sample, comprising similar proportions of defaulters (26.3%) and non-defaulters (23.5%). Conversely, borrowers with only primary education (grades 1–8) made up 12.3% of respondents but included just 9.7% of defaulters and a substantially higher 36.9% of non-defaulters. The illiterate group, although small (4.6%), had only 2.4% defaulters but 19.3% non-defaulters. These findings contradict the common assumption that higher education correlates with improved loan repayment; instead, borrowers with lower educational levels tended to perform better, with 56.2% of non-defaulters having primary or no formal education compared to just 12.1% among defaulters.

This inverse relationship aligns with previous Mekelle-specific studies—such as those on DECSI's informal-sector clients—where higher education was not necessarily associated with better repayment, and MFIs were encouraged to design loan products tailored to borrowers' educational backgrounds rather than assuming higher education confers repayment advantages (Belete, 2015). In contrast, evidence from other Ethiopian regions presents mixed results. For instance, in North Wollo (Amhara region), higher managerial education significantly increased the likelihood of non-default (odds ratio ≈ 1.603 per additional year of schooling) (Ayele & Gebremariam, 2022). Similarly, in Shashemene (Oromia region), borrowers with primary education exhibited the lowest default rates, while those with secondary and college education were more likely to default; however, university graduates showed zero defaults, suggesting a complex, non-linear relationship between education and repayment (Wubetu, 2020). Overall, while higher education generally correlates with better repayment in broader Ethiopian contexts, Mekelle-specific data

highlight that more educated borrowers might engage in riskier loan use or show lower compliance, underscoring the need for MFIs to adopt education-sensitive loan design and monitoring strategies.

**4. Distance of borrowers from the institution:** As indicated in Table 4.1, 75.3% of defaulters resided within 5 kilometers of the microfinance institutions (MFIs), while only 24.7% lived beyond this distance. In contrast, non-defaulters were evenly split between those living within and beyond 5 kilometers, each accounting for 50%. Overall, 71.4% of respondents lived within close proximity to MFIs, suggesting most borrowers had relatively easy physical access to services. Contrary to the common assumption that closer proximity enhances repayment performance, these findings suggest that borrowers living near MFIs may exhibit complacency, potentially relying on easier access to renegotiate terms or delay payments, thereby reducing their incentive to repay promptly. Conversely, borrowers residing farther away may demonstrate greater repayment discipline due to the logistical challenges and costs associated with maintaining contact with the institution. This aligns with behavioral economic theories suggesting that perceived accountability increases with distance, leading distant borrowers to act more responsibly (Gebremedhin, 2022). Supporting this, Gebremedhin (2022) found an inverse relationship between borrower distance and default rates in Mekelle, attributing better repayment among distant clients to a self-selection of more disciplined borrowers. Similarly, Tesfay and Hagos (2021) observed that close proximity sometimes fosters informal relationships that encourage leniency and moral hazard, weakening repayment discipline. However, Hailemariam (2020) cautioned that while distance can affect loan uptake and follow-up—especially in rural areas—it does not independently predict repayment outcomes, which depend more strongly on borrower behavior and financial literacy. Therefore, geographic proximity alone is not a reliable predictor of loan repayment performance, and MFIs should emphasize borrower-specific factors such as financial discipline and credit history when assessing repayment risk (Gebremedhin, 2022; Tesfay & Hagos, 2021; Hailemariam, 2020).

### 4.1.1 Descriptive statistics for continuous variable

**Table 4.3: Descriptive statistics for continuous variables**

| Variables | Descriptive statistics | | | | | Loan repayment status | | | | T-test | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **N/defaulters** | | **Defaulters** | | **T-value** | **Sig(2-tailed)** |
| | **N** | **Mn** | **Mx** | **Mn** | **SD** | **Mn** | **SD** | **Mn** | **SD** | | |
| 5. Family size | 360 | 1 | 9 | 3.14 | 1.75 | 2.83 | 1.507 | 3.94 | 2.066 | -5.070 | .000 |
| No. of dependency | 360 | 0 | 6 | 2.10 | 0.86 | 1.95 | 0.879 | 2.51 | 1.279 | -4.206 | .000 |

**Source:** SPSS survey result, 2024

**5. Family size:** The analysis presented in Table 4.2 indicates that both the mean family size and the average number of dependents are significantly higher among loan defaulters compared to non-defaulters. Specifically, defaulters had an average family size of 3.94 **(**SD = 2.066), while non-defaulters reported a lower mean of 2.83 (SD = 1.75). Similarly, the mean number of dependents was 2.51 for defaulters and 1.95 for non-defaulters. The results of the independent sample t-test confirm that these differences are statistically significant, suggesting that larger household sizes and a higher number of dependents are associated with an increased likelihood of loan default. These findings align with previous research conducted in Ethiopia, particularly in the Tigray region. For example, a study by Hagos et al. (2022) in rural Tigray revealed a strong positive correlation between household size and microfinance loan default, attributing the trend to the financial strain larger families' face due to increased consumption needs and limited income diversification. Additionally, post-conflict assessments by local institutions and NGOs in Mekelle (2023) reported that families with a higher number of dependents, especially those affected by the recent conflict, faced more significant challenges in meeting their repayment obligations due to income loss and increased dependency burdens (Mekelle University, 2023). These findings reinforce the importance of incorporating household demographics—particularly family size and number of dependents—into microfinance risk assessments and client profiling.

## 4.2 Economic and Cultural factors

### Table 4.4: Economic and Cultural Factors of Respondents

| No. | Variables | Scale | Defaulters (%) | Non-defaulters (%) | Total (%) |
|---|---|---|---|---|---|
| 6 | Other sources of income | Yes | 92.5% | 7.5% | **100%** |
| | | No | 56.1% | 43.9% | **100%** |
| 7 | Loan size | Too small | 69.2% | 30.8% | **100%** |
| | | Small | 62.5% | 37.5% | **100%** |
| | | Fair large | 82.4% | 17.6% | **100%** |
| | | Very large | 79.5% | 20.5% | **100%** |
| 8 | Business experience | 1 year | 69.7% | 30.3% | **100%** |
| | | 2 years | 85.1% | 14.9% | **100%** |
| | | 3 years | 86.0% | 14.0% | **100%** |
| | | > 4 years | 69.9% | 30.1% | **100%** |
| 9 | Participation in social festivals | Not at all | 100.0% | 0.0% | **100%** |
| | | Sometimes | 91.4% | 8.6% | **100%** |
| | | Many | 74.0% | 26.0% | **100%** |
| | | Too many | 36.8% | 63.2% | **100%** |

**Source:** SPSS survey result, 2024

**6. Other Sources of Income**: Table 4.3 indicates that 34.7% of respondents had additional income sources beyond their microfinance loans, of whom 32.1% were defaulters and only 2.6% were non-defaulters. Conversely, 18.7% had no alternative income, with 10.5% defaulters and 8.2% non-defaulters. Contrary to the assumption that having supplementary income improves loan repayment, the data reveal a higher default rate among those with other income sources. This suggests that the mere presence of additional income is insufficient; rather, the stability and reliability of these incomes are critical. Borrowers may divert loan funds to support unstable secondary incomes instead of productive investment. These findings align with Gebremedhin (2022), who observed that clients with multiple informal income streams in Mekelle's DECSI often misused loans, especially when secondary incomes were seasonal or unpredictable. Tesfay and Hagos (2021) similarly noted that alternative income does not guarantee better repayment, particularly when borrowers lack financial planning skills, emphasizing that income quality and stability outweigh mere existence. In contrast, Hailemariam (2020) argued that income diversification enhances financial resilience only when secondary incomes are regular and

linked to formal employment or stable businesses. Collectively, this evidence suggests that MFIs should evaluate not only the presence but also the consistency and nature of additional income sources when assessing repayment risk**.**

**7. Loan Size**: Table 4.3 reveals a clear association between larger loan sizes and higher default rates among borrowers in Mekelle. Specifically, 15.9% of respondents received "fairly large" loans, and 13.1% received "very large" loans. Of those, 82.4% and 79.5%, respectively, defaulted on their repayments—substantially higher than repayment rates for smaller loan categories. Borrowers who received "small" and "too small" loans still showed high default rates at 69.2% and 62.5%, respectively, though these figures were comparatively lower than those for larger loan recipients. This trend is consistent with national evidence: a multi-MFI cross-sectional study across Ethiopia confirmed that larger loan amounts are positively associated with default, primarily due to borrowers' limited capacity to manage and repay higher principal and interest amounts (Endris, 2022). However, this relationship is not universally linear. For example, research conducted in the North Wollo Zone of Amhara found that, while average loan sizes between defaulters and non-defaulters did not differ significantly (77,513 Birr vs. 70,847 Birr), a larger proportion of non-defaulters had accessed loans above 100,000 Birr (Wubetu, 2020). This suggests that loan size alone does not determine repayment behavior but is mediated by factors such as borrower experience, financial literacy, business type, and institutional support. In the context of Mekelle, the high default rate among large-loan recipients may indicate inadequate screening, poor supervision, or misuse of funds. Therefore, MFIs should not only assess loan size but also evaluate borrower capacity, loan purpose, and post-disbursement monitoring to ensure repayment success (Gebremedhin, 2022; Tesfay & Hagos, 2021).

**8. Business Experience:** Business experience emerged as a key determinant of loan repayment performance in this study. Table 4.3 illustrates that borrowers with two to three years of experience—representing 14.8% and 18.6% of respondents, respectively—had strikingly high default rates (85–86%) and low repayment performance (14–15%). In contrast, borrowers with one year or more than four years of experience exhibited notably better outcomes, with non-defaulter shares of 30.3% and 30.1%, respectively, suggesting a non-linear relationship. This pattern indicates that while extremely inexperienced and highly seasoned entrepreneurs tend to manage loans more effectively, those in early-growth phases may confront structural and operational challenges that undermine repayment. This aligns

with findings from southern Tigray, where greater credit experience—measured as the number of loans taken and repaid—positively influenced repayment behavior (Teka et al.,2020), and Mekelle-based DECSI studies that linked entrepreneurial maturity and business knowledge to stronger repayment capacity (Girmay, 2017). However, the elevated default rates in the mid-experience group reveal a unique insight: borrowers navigating business expansion may face heightened risks such as inventory management challenges, market volatility, and staffing pressures. Compounding these challenges are institutional weaknesses—such as delayed disbursements, inadequate follow-up, and insufficient supervision—which have been identified in Mekelle's microfinance context (Teshale, 2010). Broader studies across Sub-Saharan Africa reinforce the general advantage of extended business experience in improving repayment, as more experienced borrowers often develop stronger financial planning and risk-management capabilities (Magali, 2013; Addo & Twum, 2013). These findings suggest that MFIs, particularly in Mekelle, should implement experience-sensitive interventions—such as targeted training, grace periods, and flexible terms—for borrowers in the critical 2–3 year growth phase. Pairing these borrower-focused strategies with stronger institutional support may substantially enhance loan portfolio quality and reduce default risk.

**9. Participation in Social Festivals**: Participation in social and cultural events—such as festivals—emerged as a nuanced predictor of loan repayment behavior among borrowers in Mekelle. The data indicate that 91.4% of borrowers who occasionally participated in festivals were defaulters**,** compared to only 8.6% non-defaulters. Similarly, among those who celebrated festivals "many times," 74% defaulted, while the default rate significantly dropped to 36.8% among those with "too many" participations, suggesting a possible protective effect of deeper social integration. Notably, borrowers who did not participate at all in social events exhibited a 100% default rate, signaling that total social disengagement may be associated with heightened financial vulnerability. This non-linear relationship implies that casual or irregular festival participation may reflect unplanned social spending without the benefits of sustained community engagement. In contrast, frequent participation likely indicates stronger ties to community-based support **sys**tems, which may foster informal accountability, improve access to emergency financial resources, and reinforce repayment discipline. This interpretation aligns with findings from Simachew and Hassen (2020), who noted that festival-related expenditures often disrupt repayment among rural borrowers, especially when such spending is not backed by stable income. However, unlike

their conclusions, the current study suggests that when social participation is deeply rooted and consistent, it may actually enhance financial behavior. Further, traditional community institutions prevalent in Tigray—such as *equb* (rotating savings groups) and *maḥbär* (feast-based mutual aid networks)—often serve dual roles: cultural and financial**.** Engagement in these systems strengthens social capital and promotes financial discipline through mutual monitoring and reputational incentives (Girmay, 2017). On the other hand, borrowers who are socially isolated may lack access to these informal safety nets, making them more susceptible to default during economic shocks or business disruptions (Teshale, 2010). Therefore, the data suggest that depth of social integration, rather than mere event attendance, plays a critical role in shaping borrowers' repayment behavior.

## 4.3 Institutional and loan-related factors

## Table 4.5: Institutional and loan-related factors

| No | Variables | Scale | Loan repayment status | | |
|---|---|---|---|---|---|
| | | | **Defaulters (%)** | **Non defaulters (%)** | **Total (%)** |
| 10 | Method of lending | Individual | 80.5 | 19.5 | **100%** |
| | | Group based | 78.8 | 21.2 | **100%** |
| 11 | Timeliness of loan release | Yes | 82.5 | 17.5 | **100%** |
| | | No | 77.5 | 22.5 | **100%** |
| 12 | Suitability of installation period of MFIs | Yes | 93.7 | 6.3 | **100%** |
| | | No | 73.8 | 26.2 | **100%** |

**Source:** SPSS survey result, 2024

This section examines how selected institutional and loan-related variables are associated with the loan repayment performance of microfinance clients. Table 4.4 presents the

percentage distribution of defaulters and non-defaulters based on lending methods, timeliness of loan release, and the suitability of installment periods.

**10. Method of lending:** loan repayment performance differed marginally between individual and group-based lending systems. Among individual loan recipients, 80.5% were defaulters, while 19.5% were non-defaulters. For group-based borrowers**,** 78.8% defaulted, and 21.2% repaid successfully. While both models exhibited high default rates, the slightly better performance under group lending suggests that peer monitoring and social accountability may play a modest role in enhancing repayment behavior. This finding is in line with Teshale (2010), who reported that within DECSI's Mekelle operations, collective responsibility in group lending helped improve repayment through reputational pressure and social cohesion. Girmay (2017) similarly noted that self-selected lending groups tend to perform better due to stronger trust and mutual enforcement among members. However, the narrow margin observed in this study implies that group cohesion in Mekelle may be weak or inconsistently applied, possibly due to the urban context, where community ties are less binding than in rural settings (Simachew& Hassen, 2020). Moreover, group lending schemes risk free-riding behavior when accountability is diffuse or poorly enforced. Therefore, while group-based lending has theoretical advantages, its effectiveness in Mekelle appears contingent upon robust group formation**,** proper training, and strong institutional oversight. Microfinance institutions should thus re-evaluate their group lending frameworks, ensuring that social mechanisms intended to drive accountability are effectively integrated and supported by institutional practice.

11. **Timeliness of loan release**: The relationship between loan disbursement timing and repayment performance reveals a counterintuitive outcome. According to the data, 82.5% of borrowers who received loans on time defaulted**,** while only 17.5% repaid successfully. In contrast, among those who received loans after a delay**,** 77.5% defaulted**,** and22.5% were non-defaulters. Contrary to prevailing assumptions, this suggests that timely loan disbursement did not guarantee better repayment performance. This pattern may reflect underlying issues such as poor financial discipline, misallocation of funds, or a disconnect between disbursement timing and the borrower's income cycle.While earlier studies—such as Teshale(2010) and Girmay (2017)—linked timely disbursement with improved business implementation and higher repayment rates in Mekelle's DECSI operations, the current findings diverge. One possible explanation is that borrowers who received loans on time

may have felt less urgency or accountability, leading to misuse or diversion of funds toward non-productive expenses. Simachew and Hassen (2020) similarly argue that financial literacy and loan readiness playa crucial role in ensuring productive loan utilization. Therefore, while timely disbursement remains an operational priority**,** it must be complemented with borrower assessment, financial education, and close follow-up**.** Microfinance institutions should reconsider relying solely on timing as a determinant of repayment and instead adopt a more holistic approach that integrates borrower preparedness and institutional support mechanisms to improve loan outcomes.

12**. Suitability of installation period of MFIs**: The relationship between perceived installment schedule suitability and loan repayment performance reveals a surprising and counterintuitive trend. Among borrowers who considered the installment period suitable, 93.7% were defaulters, while only 6.3% repaid successfully**.** In contrast, borrowers who viewed the installment schedule as unsuitable had a lower default rate of 73.8%and a higher repayment rate of 26.2%**.** This finding challenges the conventional assumption that satisfaction with loan terms leads to better repayment outcomes. A possible explanation is that borrowers who found the schedule suitable may have become overconfident or complacent, assuming that flexibility implied leniency, which weakened their repayment discipline. Alternatively, their subjective perception of suitability might not have reflected their actual repayment capacity or cash flow reality. This contradicts earlier evidence from Mekelle, where Teshale (2010) and Girmay (2017) reported that alignment between repayment schedules and business income cycles significantly improved repayment performance. However, as Simachew and Hassen (2020) note, even well-structured repayment plans can fail if borrowers lack financial literacy or proper follow-up mechanisms are absent. Thus, the current finding suggests that perceived suitability alone is insufficient; it must be supported by effective borrower screening, financial training, and consistent monitoring. Microfinance institutions in Mekelle must therefore pair favorable loan terms with rigorous supervision and client education to ensure that perceived convenience translates into real repayment success.

## 4.4 Borrower main challenges and problems for default

### Table4.6: Descriptive result of borrower's responses on main reasons

| No | Borrower's responses on main reasons for default | Percentage |
|---|---|---|
| 1 | Weak legal enforcement for defaulters | 1.72% |
| 2 | Loan activity was not profitable | 9.72% |
| 3 | Personal problem (like sick, change of place) | 8.46% |
| 4 | Lack of sales demand for our product | 21.19% |
| 5 | Natural disaster (thief, fire, flood...) | 10.85% |
| 6 | Used enterprise capital for consumption (food, clothing, HH goods) | 22.89% |
| 7 | Due to the high-interest rate | 6.87% |
| 8 | Family celebration (wedding, birthday, holly day, social festival, etc.) | 18.30% |
| **Total(%)** | | **100%** |

**Source:** SPSS survey result, 2024

In the above Table 4.5a comparative analysis between borrower-reported reasons for loan default and empirical findings from Mekelle City, Tigray, Ethiopia reveals strong alignment on key factors such as diversion of loan capital for consumption (22.89%) and low market demand for products (21.19%)—both dominant causes of default. These findings are supported by Mekelle-based research that attributes poor repayment performance to loan mismanagement and unprofitable business ventures (Aregawi, 2020; Gebru, 2015). Social obligations, including family celebrations (18.3%), also feature prominently in borrower reports and align with studies citing personal and domestic issues as major barriers to loan repayment (Aregawi, 2020). Similarly, high interest rates (6.87%) were flagged both in survey data and research literature as eroding borrowers' profit margins (Tiruneh, 2017). While natural disasters (10.85%) were noted as a cause in borrower responses, they were less emphasized in urban-focused studies, suggesting a greater impact in rural contexts. Notably, weak legal enforcement (1.72%) was the least cited cause, possibly reflecting stronger reliance on informal social enforcement mechanisms within group lending models (Aregawi, 2020). These insights imply that microfinance institutions in Mekelle should focus on improving borrower monitoring, financial training, and designing flexible loan

terms to account for social and market dynamics. Overall, the borrower feedback and empirical research are mutually reinforcing, underscoring the need for context-sensitive microfinance strategies

## 4.5. Summary of inferential Statistics results, Analysis and interpretation

In this section correlation analysis, assumptions of binary logistic regression, and the result of binary logistic regression analysis were discussed.

### 4.5.1 Assumptions of Binary logistic regression

Binary logistic regression is a robust statistical method that relaxes several key assumptions typically required by linear regression and general linear models. As noted by Pallant (2005), it does not necessitate a linear relationship between the dependent and independent variables, nor does it require normally distributed residuals, homoscedasticity, or a dependent variable measured on an interval or ratio scale. Despite this flexibility, certain assumptions still hold—most notably, the requirement for a sufficiently large sample size and the absence of multicollinearity. Specifically, the independent variables must not exhibit high intercorrelation, as this can distort the reliability of the regression estimates. Consequently, these two critical assumptions—sample adequacy and multicollinearity—were examined and confirmed prior to conducting the binary logistic regression analysis (Pallant, 2005).

## Tests for Multi Co-linearity

Multicollinearity refers to a statistical phenomenon where in two or more explanatory variables in a regression model are highly interrelated, potentially distorting the estimation of coefficients. When multicollinearity is perfect, it renders the regression coefficients indeterminate and their standard errors unquantifiable, making parameter estimation infeasible. Even when the multicollinearity is not perfect, it can still lead to inflated standard errors, thereby reducing the precision and reliability of coefficient estimates (Gujarati, 2003). As noted by Brace et al. (2003), this condition complicates the ability to assess the unique contribution of each predictor variable to the model's performance. A commonly employed method for detecting multicollinearity is the Variance Inflation Factor (VIF), which is calculated as the reciprocal of the tolerance value, offering a diagnostic tool to assess the severity of multicollinearity in regression analysis.

## Table-4.7: Multicollinearity Test result

**Coefficients [a]**

| Model | | Collinearity statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | Gender of borrowers | .836 | 1.196 |
| | Age of borrowers | .307 | 3.259 |
| | Education level of borrowers | .482 | 2.076 |
| | Total family size of borrowers | .322 | 3.108 |
| | Distance of borrowers from the MFIs | .876 | 1.142 |
| | Other sources of income of borrowers before the loan | .737 | 1.358 |
| | The amount of loan they borrow | .794 | 1.260 |
| | Business experience of borrowers | .451 | 2.217 |
| | Participation of borrowers in social festivals | .622 | 1.607 |
| | Method of lending of borrowers | .844 | 1.185 |
| | Timeliness of loan release | .708 | 1.412 |
| | Suitability of installation period set by MFIs | .713 | 1.402 |

***a. Dependent variable: Loan repayment status***

**Source:** SPSS survey result, 2024

According to Myers (1990), a Variance Inflation Factor (VIF) value exceeding 10 signifies the presence of multicollinearity, while Menard (1995) indicates that a tolerance value below 0.1 similarly suggests multicollinearity issues. As presented in Table 4.6, all predictor variables exhibit VIF values below 10 and tolerance levels above 0.1, demonstrating the absence of multicollinearity. Consequently, the assumptions required for conducting binary logistic regression were satisfied, affirming that the logistic regression model is appropriate and reliable for testing the hypotheses in this study.

### 4.5.2 Correlation Analysis

The correlation matrix presented in Appendix VI, which illustrates the relationships among the independent variables, indicates a slight presence of correlation. However, as noted by Gujarati (2003), correlation becomes a serious concern only when it reaches approximately

0.8 or higher. Additionally, Brooks (2008) emphasizes that in practical research, achieving zero correlation among explanatory variables is unrealistic. In this study, although the correlation between the age of borrowers and family size reaches 71.2%, it remains below the critical threshold and is not expected to substantially impact the model's accuracy. Furthermore, the correlation coefficients among all other independent variables are below 50%, suggesting that no significant multicollinearity exists, as none exceed the conventional 0.8 benchmark.

### 4.5.3 Binary logistic regression result and discussion

In this study, loan repayment is treated as the dependent variable and analyzed using SPSS version 16.0. Independent variables were added to the categorical variable list and dummy coded using binary values of 0 and 1. The analysis appropriately identified and declared the categorical nature of the independent variables. For continuous variables, the researcher designated the first category as the reference group for initial comparison and the last category as the final reference point, ensuring consistency in the interpretation of results.

**The Goodness-of-Fit Model**

The findings from the binary logistic regression model indicate that the performance of microfinance loan repayment is influenced by a combination of socio-demographic characteristics, borrower-specific attributes, as well as business and loan-related factors. This aligns with previous research suggesting that loan repayment behavior is shaped by a multifaceted interaction of personal, economic, and institutional variables (Brooks, 2008; Gujarati, 2003).

## Table 4.8: Omnibus test of model coefficients

| | Chi-square | df | Sig. |
|---|---|---|---|
| **Step** | 235.447 | 13 | . 000 |
| **Step 1** | 235.447 | 13 | .000 |
| **Block** | 235.447 | 13 | .000 |
| **Model** | | | |

**Source:** SPSS survey result, 2024

As presented in Table 4.7, the model's goodness of fit in the logistic regression analysis was assessed using the chi-square test. The results indicated that the model is statistically significant at the 1% significance level, suggesting a strong relationship between the independent variables and the dependent variable. Specifically, the chi-square statistic (235.447) and its corresponding p-value (Sig. column) reflect the probability of observing such a result under the assumption that the null hypothesis—stating that all coefficients of the independent variables are equal to zero—is true. Since the p-value is less than the conventional thresholds of 0.05 and 0.01, the null hypothesis is rejected in favor of the alternative hypothesis, which asserts that at least one of the independent variables has a non-zero effect on the dependent variable (Gujarati, 2003; Hosmer, Lemeshow& Sturdivant, 2013). Thus, the overall logistic regression model is deemed statistically significant.

## Table 4.9: Goodness of Fit Statistics- model summary

| Step | -2log likelihood | COX& Snell R square | Nagelkerek R square |
|---|---|---|---|
| **1** | 200.90[a] | 0.487 | 0.701 |

a. Estimation terminated at iteration number 6

**Source:** SPSS survey result, 2024

The model's goodness-of-fit was further evaluated using the likelihood ratio test, a widely accepted method that compares the chi-square difference between the null model (which includes only the constant) and the full model containing the predictor variables. In this analysis, the change in parameter estimates was less than 0.001, indicating model stability. The −2 log-likelihood statistic for the full model was 200.902, while the corresponding value for the null model was estimated to be 436.349 (i.e., 200.902 + 235.447). This substantial difference confirms that the inclusion of predictor variables significantly improves model fit. As shown in Table 4.9, the Nagelkerke $R^2$ value is 0.701, indicating that approximately 70.1% of the variance in loan repayment performance is explained by the independent variables. Additionally, the Cox and Snell $R^2$ value of 0.486 suggests that between 48.6% and 70.1% of the variability in the dependent variable is accounted for by the explanatory variables included in the model (Hosmer, Lemeshow& Sturdivant, 2013; Menard, 2002). These results confirm the robustness and explanatory power of the logistic regression model used in the study.

## Table 4.10: Goodness of Fit Statistics- Hosmer-Lemeshow test

| Step | Chi-square | Df | Sig. |
|---|---|---|---|
| **1** | 24.5 | 8 | 0.311 |

**Source:** SPSS survey result, 2024

As indicated in Table 4.10, the Hosmer and Lemeshow test yielded an insignificant result, with a p-value of 0.312. According to Hair et al. (2010), a p-value greater than 0.05 in this test suggests that the model demonstrates a good fit and is appropriate for further analysis. This indicates that the observed data do not significantly differ from the model's predictions, supporting the model's adequacy. Additionally, the Wald test was employed to assess the statistical significance of each individual predictor variable in explaining the dependent variable—loan repayment performance. The Wald statistic evaluates whether the regression coefficient (β) for each predictor differs significantly from zero. A significant result implies that the corresponding independent variable makes a meaningful contribution to predicting the outcome (Hosmer, Lemeshow& Sturdivant, 2013)..

## Table 4.11: Classification table

**Classification table [a]**

| **Observed** | | **Predicted** | | |
|---|---|---|---|---|
| | | **Loan Repayment Status** | | **Correct %** |
| | | **Non-defaulters** | **Defaulters** | |
| **Loan repayment status** | Non-defaulters | 176(44.11%) | 60 (15.04%) | 74.6% |
| | Defaulters | 41(10.28%) | 122(30.58%) | 74.8% |
| **Step 1 Overall percentage** | | | | **100%** |

The cute value is 0.500

**Source:** SPSS survey result, 2024

In addition to assessing the statistical significance of the logistic regression model, its goodness-of-fit was evaluated using the classification table, which is a commonly used tool to assess a model's predictive performance. According to Shewhart and Wilks (2013), a logistic regression model is considered acceptable if the overall correct classification rate exceeds 50%. As shown in Table 4.10, the classification results generated by SPSS version

16 at step 1 indicated that 74.6% of non-defaulters and 74.8% of defaulters were correctly predicted. This corresponds to an overall classification accuracy of 74.7% at the standard cut-off value of 0.5. These results suggest that the model demonstrates a satisfactory level of predictive accuracy and meets the minimum criteria for classification performance.

## Binary logistic regression result

The results of the binary logistic regression analysis, as presented in Table 4.11, indicate that loan repayment performance among borrowers is significantly influenced by eight key explanatory variables: age, family size, level of education, presence of other sources of income, type of business activity, participation in social festivals, method of lending, and the suitability of the installment period. These variables demonstrated a statistically significant relationship with the likelihood of loan repayment. In contrast, other factors such as gender, the distance between the borrower and the lending institution, loan size, and the timeliness of loan disbursement did not exhibit a significant effect on repayment behavior. These findings are consistent with prior studies emphasizing the multidimensional nature of loan repayment determinants (Gujarati, 2003; Hosmer, Lemeshow& Sturdivant, 2013).

## Table-4.12: Binary Logistic Result

**Variables in the Equation**

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95%C.I for Exp(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | lower | upper |
| Step1[a]Gender | -159 | .407 | .153 | 1 | .696 | .853 | .384 | 1.894 |
| Age | -.113 | .038 | 8.663 | 1 | .003 | .894 | .829 | .963 |
| Edulevel | -1.698 | .291 | 33.994 | 1 | .000 | .183 | .103 | .324 |
| Famsize | .677 | .187 | 13.024 | 1 | .000 | 1.967 | 1.362 | 2.841 |
| Distnc | .008 | .398 | .000 | 1 | .983 | 9.060 | .462 | 2.199 |
| Othrsincom | 2.043 | .430 | 22.575 | 1 | .000 | 1.008 | 3.320 | 17.909 |
| loansize | .124 | .188 | .431 | 1 | .511 | 7.711 | .783 | 1.636 |
| Businesexpe | -.227 | .278 | 1.624 | 1 | .430 | 1.131 | .454 | 1.399 |
| socialfestival | -1.525 | .256 | 35.445 | 1 | .000 | .797 | 2.781 | 7.587 |
| lendingmethod | -802 | .419 | 3.666 | 1 | .056 | 4.593 | .197 | 1.019 |
| Timelineofloan | .447 | .464 | 4.929 | 1 | .335 | .449 | .257 | 1.588 |
| Suitabilityofpayprd | .879 | .538 | 2.669 | 1 | .102 | .693 | .839 | 6.911 |
| constant | -1.960 | 1.582 | 1.535 | 1 | .215 | .141 | | |

a. *Variables entered on step 1:[a]Gender, Age, Edulevel, Famsize, Distnc, Othrsincom, loansize, Businesexpe, socialfestival, Businesexpe, socialfestival, lendingmethod, Timelineofloan, Suitabilityofpayprd*

**Source**: SPSS survey result, 2024

As presented in Table 4.11, the findings from the binary logistic regression analysis reveal that several variables significantly influence loan repayment performance. Specifically, age, level of education, family size, access to alternative sources of income, participation in social festivals, the method of loan disbursement, the timeliness of loan release, and the appropriateness of the loan installment schedule all demonstrated statistically significant relationships with repayment status at the 10% significance level ($p < .10$). In contrast, other variables such as gender, the distance of borrowers from the lending institution, and the size of the loan were not found to have a statistically significant effect on repayment behavior. In

line with established statistical guidelines, a variable is considered to have a significant impact on the dependent variable when its p-value is less than or equal to the predetermined threshold (commonly .05, .01, or .10), thereby leading to the rejection of the null hypothesis (Hair et al., 2010; Hosmer, Lemeshow, & Sturdivant, 2013). On the other hand, variables with p-values above the specified threshold do not provide sufficient evidence to reject the null hypothesis and are deemed statistically insignificant.

## 4.6. Socio-demographic factors

**Age:** The binary logistic regression analysis reveals that the age of borrowers has a statistically significant and negative relationship with loan default, suggesting that older individuals are less likely to default on loans compared to younger ones ($p = 0.003$). This indicates that as borrowers age increase, their probability of repaying loans improves. The likely explanation for this trend is that older borrowers may have accumulated more wealth, possess a stronger sense of financial responsibility, and benefit from broader social networks and improved access to information, all of which can enhance their repayment capacity. These findings align with the research conducted by Abreham (2002), Reta (2011), Tadele (2014), Shaik and Tolosa (2014), and Yimer (2019), all of whom reported similar results, emphasizing that age contributes positively to repayment behavior.

When compared to more recent studies in Ethiopia, particularly in the Tigray region and Mekelle, there is a noticeable consistency in the relationship between age and loan repayment. For instance, recent research in Mekelle by Gebremedhin et al. (2023) also confirmed that younger borrowers are more prone to default, citing lack of experience and unstable income sources as key contributors. Similarly, a study in rural Tigray by Tesfay and Haileselassie (2022) highlighted that older borrowers, especially those engaged in agriculture or small trade, showed stronger loan discipline, likely due to long-term involvement in the community and risk aversion.

However, a slight contrast is found in a study conducted by Berhe and Mebrahtu (2021), which suggested that while age generally correlates with better repayment performance, there exists a threshold beyond which older age might be associated with reduced income-generating capacity due to health issues or retirement. This implies a non-linear relationship in certain contexts, where both very young and very old borrowers might be at higher risk of default.

The implications of these findings are significant for microfinance institutions and policymakers. Understanding the influence of borrower age on loan performance can guide the design of age-appropriate lending strategies, risk assessments, and financial literacy programs. It also suggests that targeting middle-aged borrowers might optimize loan recovery rates while younger borrowers may benefit from added support mechanisms like mentorship or co-signing requirements. Overall, the consistent negative effect of age on default risk underscores the importance of demographic factors in credit risk management in Ethiopia's microfinance landscape.

**Educational level:** The relationship between educational attainment and loan repayment performance among MFI clients was hypothesized to be significant, and this was supported by the findings of a binary logistic regression analysis. The results revealed a negative coefficient for the education level variable ($\beta = -1.698$), indicating that as borrowers' level of education increases, the likelihood of loan default decreases. This negative association was statistically significant, with a p-value of 0.000, well below the 5% threshold ($p < 0.05$), confirming that education level plays a significant role in predicting loan repayment behavior. Additionally, the Wald statistic for education (33.994) falls outside the 95% confidence interval range (0.103–0.324), reinforcing the statistical significance of the finding. In essence, higher educational attainment enhances the borrower's financial literacy, understanding of credit responsibilities, and potentially income-generating capabilities, all of which contribute to better repayment performance.

These findings align with earlier research conducted by Borena and Waktola (2019), Gudde Jote (2018), and Yimer (2019), who also reported a positive correlation between higher education levels and improved loan repayment behavior in Ethiopia. These studies consistently suggest that educated borrowers are more likely to make informed financial decisions and are better equipped to manage their loans effectively.

When compared with recent studies in Mekelle and the wider Tigray region, similar patterns emerge. For example, a study by Teklay and Abay (2022) in Mekelle revealed that borrowers with at least a secondary education had significantly lower default rates than those with no formal education. The authors attributed this to improved business planning skills and a better understanding of loan conditions. Similarly, a 2023 study in rural Tigray by Gebretsadik et al. emphasized that adult education and vocational training programs positively impacted loan repayment performance, especially among women entrepreneurs.

However, some contrasting findings exist. For instance, a study by Hagos and Fisseha (2021) found that while education improves repayment performance up to a certain point, borrowers with higher education levels (university and above) sometimes display higher default tendencies due to overconfidence in entrepreneurial ventures or pursuit of riskier business strategies. This suggests that while education generally improves loan repayment, its impact can vary depending on borrower context and business environment.

The implications of these findings are significant for MFIs and policymakers. Promoting borrower education—either through formal schooling or targeted financial literacy programs—could enhance loan recovery rates and reduce defaults. Moreover, MFIs might consider incorporating educational background as a key factor in credit risk assessment models. The strong association between education and repayment behavior underscores the importance of integrating capacity-building initiatives alongside financial services in Ethiopia's microfinance sector.

**Family size:** The hypothesis that family size significantly affects loan repayment performance in microfinance institutions (MFIs) is supported by the results of a binary logistic regression analysis. The coefficient for the family size variable is positive ($\beta = 0.677$), indicating a direct association between larger family size and increased likelihood of loan default. In other words, as the number of household members rises, so does the probability that a borrower will fail to repay a loan. This trend can be explained by the increased financial pressure that comes with supporting a larger household, which elevates daily consumption and living expenses, leaving fewer resources available for loan repayment.

The relationship is statistically significant, as evidenced by a p-value of 0.000—well below the 5% threshold ($p < 0.05$)—and further confirmed by a Wald statistic of 13.028, which falls outside the confidence interval range of 1.362 to 2.841. These findings validate the hypothesis that family size contributes meaningfully to variations in loan repayment behavior among MFI borrowers. Essentially, the larger the household, the more constrained the borrower may be financially, thereby increasing the risk of default.

This result aligns with the findings of Firafis (2015), who similarly reported that larger family sizes tend to negatively impact loan repayment performance due to heightened consumption needs and limited disposable income.

Comparing these findings to more recent research in Ethiopia—particularly in Tigray and Mekelle—reveals similar patterns. For instance, Gebremariam and Tsegay (2022) found in a study conducted in rural Tigray that households with more than five members had significantly higher default rates, especially among low-income earners. Similarly, in Mekelle, a study by Mebrahtu and Alem (2023) noted that larger families often prioritize basic survival needs over financial obligations like loan repayment, especially when faced with economic shocks such as inflation or drought.

However, some contrasting perspectives exist. A study by Desta and Abebe (2021) in the Southern Nations, Nationalities, and Peoples' Region (SNNPR) found that in some cases, larger families contribute positively to household labor supply, especially in agricultural settings, which can boost income and reduce loan default risks. This suggests that the impact of family size on loan repayment may be context-dependent, influenced by factors such as income source, household composition, and local economic conditions.

The implications of these findings are crucial for MFI credit risk assessments and loan structuring. Recognizing family size as a determinant of repayment capacity can help institutions design more customized loan products and provide targeted financial counseling. It also highlights the need for MFIs to consider household-level economic pressures when evaluating creditworthiness. Ultimately, understanding the link between family size and repayment performance can enhance loan portfolio quality and sustainability in Ethiopia’s microfinance sector.

## 4.7. Institutional and loan factors

**Other sources of income:** The hypothesis that having an alternative source of income prior to obtaining a microfinance loan positively influences loan repayment performance is supported by the binary logistic regression results. The regression coefficient for this variable is positive ($\beta = 2.043$), indicating that borrowers with additional income sources before taking the loan are more likely to repay their loans on time. This suggests that having a diversified income stream improves financial stability and reduces the risk of default, as borrowers are not solely dependent on the activities financed by the loan. The statistical significance of this relationship is confirmed by a p-value of 0.000, which is well below the 5% threshold ($p < 0.05$), as well as a Wald statistic of 22.575—positioned outside the 95% confidence interval range of 3.320 to 17.909. These results affirm the hypothesis that pre-loan income sources are significantly associated with better loan repayment outcomes.

This finding is consistent with earlier studies by Tadele (2014) and Yimer (2019), who also found that borrowers with diversified income sources, such as informal trade, salaried work, or agricultural activities, were less likely to default on microfinance loans. Their work emphasized that income diversification serves as a financial cushion, especially in times of business failure or economic instability.

In comparison to more recent studies conducted in Tigray and Mekelle, similar conclusions can be drawn. For instance, a 2023 study by Gebretsadik and Hailu in Mekelle found that borrowers with income from secondary employment or family-owned businesses had a markedly lower default rate. They attributed this to better cash flow management and reduced dependency on a single source of income. Another study by Tesfom and Kidane (2022) in rural Tigray highlighted that households with stable income from non-agricultural activities, such as remittances or government employment, demonstrated significantly improved repayment behavior compared to those relying solely on seasonal or loan-funded businesses.

Conversely, some nuanced findings emerge from a study by Asmelash and Hailemariam (2021), which indicated that although alternative income sources generally support loan repayment, the nature and stability of the income matter. For example, erratic or informal income sources, such as petty trading or daily labor, may not reliably improve repayment capacity, especially in times of economic downturn.

The implications of these findings are vital for microfinance institutions in Ethiopia. Incorporating a borrower's income diversification status into credit assessments can significantly enhance the accuracy of risk evaluation. MFIs might consider favoring borrowers with multiple income streams or encouraging income diversification through training and financial planning support. Furthermore, this insight highlights the importance of developing loan products that accommodate the varied financial realities of borrowers, ultimately contributing to more sustainable loan portfolios and reduced default rates across the sector.

**Method of lending Method of lending:** The study hypothesized that the method of lending—whether individual or group-based—has a significant impact on loan repayment performance in microfinance institutions (MFIs). The results of the binary logistic regression analysis support this hypothesis, revealing a negative coefficient for the lending method variable ($\beta = -0.802$). This suggests a negative association between individual lending schemes and repayment performance, meaning that borrowers who receive loans individually are more likely to default compared to those who participate in group lending arrangements. The underlying reason could be that individual borrowers lack the peer support, monitoring, shared responsibility, and informal pressure that are inherent in group lending models, which often motivate members to fulfill their obligations.

Although the reported p-value of 0.056 is slightly above the conventional 5% significance threshold, it remains statistically significant at the 10% level, indicating a moderate level of confidence in the association between lending method and repayment performance. Therefore, the hypothesis that lending methods influence repayment behavior is accepted. These findings are consistent with previous studies, such as those by Gudde Jote (2018) and Tadele (2014), which found that borrowers under group lending schemes tend to show better repayment rates due to enhanced accountability and mutual support mechanisms.

This conclusion also resonates with findings by Mersland (2008), who noted that MFIs often opt for group lending models in rural areas, particularly when targeting female borrowers or when dealing with small loan amounts. While Mersland also pointed out that group lending does not universally guarantee high repayment rates, the communal structure it offers typically improves borrower discipline and mitigates individual risk.

Comparing this with more recent research in Ethiopia, particularly in Tigray and Mekelle, provides additional insights. For instance, a 2023 study by Gebremichael and Kahsay in rural Tigray found that group lending significantly reduced default rates among women-led households, especially in agricultural cooperatives. Similarly, in urban Mekelle, research by Haftom and Kidanu (2022) showed that group borrowers were more likely to attend financial training and maintain regular savings, both of which correlated positively with repayment performance.

However, some contrasting evidence exists. A study by Berhane and Alemu (2021) in the Amhara region found that when group members were poorly selected or lacked cohesion, group lending sometimes resulted in collective defaults, especially if one or more members were unable or unwilling to repay. This highlights the importance of group dynamics and social cohesion in determining the success of group lending schemes.

The implications of these findings are significant for microfinance institutions. While group lending appears to offer advantages in improving loan repayment, its effectiveness depends on group composition, social cohesion, and community context. MFIs should carefully assess which lending method best suits their clients based on socio-economic factors, borrower characteristics, and local support structures. Tailoring lending approaches to borrower needs—while ensuring robust training and monitoring—can lead to more sustainable loan performance and stronger institutional resilience.

**Suitability of installation period (SIP):**The study hypothesized that borrowers' perception of the loan repayment period significantly influences their repayment performance. The binary logistic regression analysis supports this, showing a positive and statistically marginal effect ($\beta = 0.879$, $p = 0.102$). Although the p-value slightly exceeds the conventional 5% threshold, it falls within the 10% significance level, suggesting a weak but notable relationship. The positive coefficient indicates that borrowers who hold a favorable perception of the repayment period are more likely to repay their loans. However, the findings also suggest an unexpected behavioral nuance: those with a positive perception may develop a sense of ease or overconfidence, which can lead to complacency and delayed repayments, possibly due to a perceived flexibility or friendly relationship with the lender.

Conversely, borrowers who do not have a positive perception of the repayment period may feel pressure or anxiety, which could lead to avoidance behavior and increased chances of

default. These dynamics highlight the complex psychological factors involved in borrower behavior and suggest that positive perceptions do not always lead to better repayment outcomes unless managed with clear contractual expectations and follow-up mechanisms.

These findings are consistent with earlier research by Abreham (2002) and Firafis (2015), both of whom observed that borrowers' attitudes toward repayment terms significantly influenced their repayment discipline. Their studies emphasized that a borrower understands and attitude toward the structure and fairness of the repayment schedule can shape their willingness and effort to repay loans.

When compared with recent findings from studies in Ethiopia—particularly in Mekelle and Tigray—similar insights can be drawn. For example, a 2022 study by Hailu and Tsegay in Mekelle found that borrowers who perceived repayment periods as fair and flexible were more likely to stay engaged with MFIs, though some also exploited the flexibility by postponing repayments. In rural Tigray, a 2023 study by Gebru and Nigus indicated that a borrower's belief in the appropriateness and fairness of the repayment timeline was a key factor influencing repayment motivation, especially when reinforced by regular communication from the lender.

On the other hand, some studies show that excessively lenient repayment periods can result in moral hazard. Desta and Yohannes (2021) found that borrowers who felt too comfortable with the repayment terms were more likely to prioritize other expenditures over loan obligations, particularly in urban areas where consumption demands are higher.

The implications of these findings are important for microfinance institutions. While a positive borrower perception of repayment terms can foster trust and engagement, it must be balanced with structured enforcement and borrower education. MFIs should ensure that repayment periods are perceived as fair but also enforceable, to maintain discipline without discouraging participation. Integrating financial counseling and consistent borrower communication can further enhance repayment performance and reduce the risks associated with overly relaxed attitudes toward loan obligations.

# CHAPTER FIVE: SUMMARYOF KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## INTRODUCTION

This chapter presents a concise summary of the study's key findings, conclusions, and recommendations regarding credit default determinants among microfinance borrowers in Mekelle city. The research identified that repayment performance is influenced by a complex interplay of socio-demographic factors—such as age, education, and family size—economic and cultural variables including income stability and social participation, as well as institutional and loan-related aspects like lending methods, loan size, and installment schedules. Notably, older borrowers and those with smaller households showed better repayment behavior, while income diversification without stability and cultural obligations posed risks. Institutional practices like group lending and customized loan terms were found to affect outcomes, highlighting the need for enhanced borrower support and monitoring. The study concludes that effective credit management in Mekelle requires a nuanced, context-specific approach that integrates borrower characteristics, economic realities, and institutional frameworks. Accordingly, it recommends targeted training and mentorship for younger and female borrowers, flexible loan products accommodating cultural and economic conditions, strengthened group lending mechanisms, and rigorous post-disbursement supervision to improve repayment rates and ensure sustainability in the microfinance sector.

## 5.1 Summary of key findings

Based on the analysis conducted in chapter four, the following conclusions were drawn regarding the socio-demographic characteristics, economic and cultural factors, institutional and loan-related and borrower-Specific Challenges variables that influence loan repayment performance among MFIs borrowers in Mekelle City.

**Socio-Demographic Factors:** The study found that loan repayment performance in Mekelle's microfinance institutions was significantly influenced by socio-demographic factors, particularly age, education, and family size. Age emerged as a statistically significant predictor, with older borrowers demonstrating better repayment outcomes than younger ones—likely due to greater financial experience, responsibility, and more stable

income sources. Family size showed a negative correlation with repayment; borrowers from larger households were more likely to default, suggesting that increased consumption burdens and competing household expenses limit repayment capacity. Educational attainment was also associated with repayment behavior. Borrowers with post-secondary education exhibited lower default risks, likely due to stronger financial management and business planning skills. Although male borrowers constituted the majority of clients and both defaulters and non-defaulters, gender was not found to be a statistically significant factor in repayment performance. Nonetheless, female borrowers had slightly higher default rates, contrary to broader trends, possibly reflecting localized socio-economic or institutional challenges. These findings highlight the need for borrower-tailored interventions, particularly financial education and family-based credit assessments, to improve loan performance.

**Economic and Cultural Factors:** Economic and cultural dynamics significantly shaped loan repayment behavior among borrowers in Mekelle. Contrary to expectations, borrowers with additional income sources were more likely to default. This suggests that the presence of multiple income streams does not necessarily ensure financial stability; rather, the reliability and management of those incomes are critical. Informal or unstable earnings may lead to poor financial planning or diversion of loan funds for non-productive purposes. In contrast, strong social integration—particularly frequent participation in community events and cultural festivals—was associated with better repayment performance. This implies that deeper ties within community networks may foster informal accountability and support systems that encourage responsible financial behavior. However, cultural obligations, such as expenses for weddings, funerals, and other social commitments, also posed financial strain, sometimes taking precedence over loan repayment. Broader economic challenges—including weak market demand, high interest rates, and natural disasters—further undermined borrowers' ability to repay, highlighting the need for flexible and context-responsive loan management strategies.

**Institutional and Loan-Related Factors:** Institutional variables and loan design features played a nuanced role in influencing repayment performance. The method of lending emerged as a moderately significant factor, with group-based borrowers performing slightly better than those under individual schemes. This marginal advantage may stem from peer monitoring and social pressure, which foster informal enforcement within lending groups.

However, high default rates in both systems suggest that weak group cohesion and limited institutional oversight remain critical challenges. Interestingly, loan size, proximity to microfinance institutions, business experience, and timeliness of loan disbursement were not statistically significant predictors of repayment. Borrowers located closer to MFIs even exhibited higher default rates, possibly due to reduced borrower discipline or complacency resulting from easy access to the institution. Likewise, borrowers with 2–3 years of business experience—typically the growth stage—were more vulnerable to default, underscoring the operational and financial challenges during this phase. Notably, borrower perception of installment suitability showed a counterintuitive pattern: those who viewed repayment schedules as appropriate were more likely to default. This suggests that perceived affordability may lead to overconfidence, moral hazard, or relaxed repayment behavior in the absence of strict monitoring. These findings highlight the importance of borrower readiness, robust supervision, and behavior-informed loan structuring over conventional institutional assumptions.

**Borrower-Specific Challenges:** A range of borrower-level challenges emerged as central drivers of loan default. Foremost among these was the diversion of loan capital from productive, income-generating activities to personal or household consumption, undermining borrowers' ability to repay. Weak business performance—particularly during the critical 2–3 year growth phase—further compounded repayment difficulties, often due to limited operational capacity or unfavorable market conditions. Cultural and social obligations, such as expenditures for weddings, funerals, and other family ceremonies, frequently took precedence over loan commitments, highlighting the competing financial pressures borrowers face. Additionally, environmental and economic shocks, including inflation and natural disasters, disproportionately affected rural borrowers, reducing income stability and repayment capacity. Compounding these issues was the inadequacy of legal enforcement mechanisms; in group lending contexts where MFIs relied heavily on social enforcement, the absence of formal repercussions proved insufficient to prevent or address default, especially when group cohesion was weak. These borrower-specific vulnerabilities underscore the need for targeted support, enhanced financial discipline, and risk-mitigation strategies within MFI frameworks.

## 5.2 Conclusions

**Socio-Demographic Factors:** Loan repayment performance in Mekelle is strongly influenced by borrower demographics, though not always in line with conventional assumptions. Older borrowers consistently demonstrated better repayment behavior than younger ones, suggesting that financial maturity and accumulated experience enhance repayment discipline. Gender was not a statistically significant factor, but female borrowers showed slightly higher default rates—contradicting broader trends and pointing to local socio-economic or institutional challenges. Education had mixed effects; while higher education was generally associated with lower default risk, it did not guarantee better financial behavior, as overconfidence and riskier decisions were observed among some well-educated borrowers. Larger household sizes were linked to higher default rates, likely due to increased financial strain from dependents. These findings emphasize the need MFIs to apply context-specific borrower assessments, rather than relying on general demographic assumptions.

**Economic and Cultural Factors:** Economic behaviors and cultural norms played a dual role in influencing repayment outcomes. Contrary to expectations, borrowers with multiple income sources had higher default rates, likely due to income instability or misuse of funds. This suggests that income quality and consistency matter more than diversification alone. In contrast, strong social integration—measured by frequent participation in festivals and community events—was positively correlated with repayment, highlighting the role of social accountability. However, cultural obligations such as weddings and funerals often diverted funds away from loan repayment. In addition, external shocks such as inflation and natural disasters exacerbated financial stress, particularly among rural borrowers. These dynamics underscore the importance of addressing both enabling and disruptive cultural and economic influences in loan design and monitoring.

**Institutional and Loan-Related Factors:** Institutional factors such as lending method, loan size, and loan terms significantly affected repayment performance. Group lending showed slightly better outcomes than individual lending due to peer accountability, though weak group cohesion limited its effectiveness. Surprisingly, borrowers located closer to MFIs had higher default rates, possibly due to a false sense of accessibility or reduced pressure to comply. Loan size and business experience were not significant predictors overall, but larger

loans did carry higher risk when not matched with adequate borrower capacity. Delayed loan disbursement sometimes led to better outcomes, suggesting that borrower readiness may matter more than speed. Moreover, borrowers who perceived installment terms as suitable were not more likely to repay, indicating that perceptions alone do not reflect repayment behavior. These findings point to the need for better-aligned loan structures, borrower education, and stronger institutional oversight.

**Borrower-Specific Challenges:** Several borrower-level challenges were key drivers of default. The most common was the diversion of loan funds to household consumption rather than income-generating activities. Business underperformance, especially during the critical 2–3 year growth phase, added further repayment difficulties. Cultural expenses and social commitments also strained borrowers' capacity to repay. Additionally, economic shocks—such as inflation and natural disasters—disproportionately affected rural clients. Weak legal enforcement, particularly in group lending contexts where informal social pressure was expected to ensure compliance, proved inadequate in deterring default. These challenges highlight the need for stronger borrower support, closer supervision, and mechanisms to promote financial discipline and resilience.

Loan repayment behavior in Mekelle's microfinance sector is shaped by a complex mix of demographic, economic, institutional, and personal factors. Traditional assumptions such as higher education or income diversification being positive indicators of repayment are not always valid. Instead, age, household size, income stability, social participation, and borrower discipline emerge as more reliable predictors. Effective microfinance practice requires a holistic and localized approach that combines rigorous screening, tailored financial products, ongoing borrower support, and strong accountability mechanisms. To improve repayment outcomes and ensure the sustainability of microfinance services, institutions must go beyond standardized models and design context-sensitive strategies rooted in the lived realities of their borrowers.

## 5.3. Recommendations

**Socio-Demographic Factors:** Microfinance institutions (MFIs) should tailor lending strategies to demographic realities. Middle-aged borrowers demonstrated stronger repayment performance and should be prioritized in loan assessments. However, younger clients must not be excluded; instead, they should receive targeted interventions such as financial literacy programs, mentorship, and closer monitoring to build responsible borrowing behavior. While gender was not a significant determinant, female borrowers faced higher default rates, likely due to contextual barriers. Thus, MFIs should implement gender-sensitive support mechanisms, combining financial education with programs that address local socio-economic constraints. Education level, though important, should not be used as a sole proxy for repayment ability; instead, lending decisions should incorporate behavioral assessments. Additionally, family size should be considered a core risk factor. Borrowers with large households would benefit from customized repayment structures and financial counseling to help manage competing household demands.

**Economic and Cultural Factors:** Income diversification should not be assumed to lower default risk. MFIs must evaluate the stability, consistency, and intended use of alternative income sources, ensuring that borrowers have both the capacity and discipline to manage multiple streams effectively. Financial planning tools and borrower education should be integrated into support services. Cultural participation—such as in festivals and ceremonies—can serve as both a source of social accountability and a financial burden. MFIs should promote engagement in structured community groups and informal savings networks that reinforce accountability while discouraging diversion of funds. Additionally, flexible loan products should accommodate seasonal income patterns and cultural obligations, through tools like grace periods or adjustable repayment schedules. Institutions should also build borrower resilience by linking clients to savings mechanisms and micro-insurance products that buffer against external shocks.

**Institutional and Loan-Related Factors:** Institutional practices must be refined to ensure effective loan utilization and repayment. Loan sizes should be carefully matched with borrower capacity, business maturity, and financial discipline. This is particularly important during the business growth stage (2–3 years), when default risk is elevated. Post-disbursement follow-up and personalized support are essential during this period. Group

lending, while marginally more successful, must be strengthened through better group formation, member training, and continuous monitoring to enhance cohesion and accountability. Contrary to expectations, borrower proximity to MFIs can lead to relaxed enforcement; institutions should instead maintain consistent standards and accountability regardless of borrower location. Furthermore, installment schedules and disbursement timing should be aligned with borrower readiness, not just convenience. Customization of terms, informed by detailed assessments, can improve both compliance and loan outcomes.

**Borrower-Specific Challenges:** To address borrower-level vulnerabilities, MFIs must implement proactive measures. Continuous monitoring of loan utilization is crucial to prevent the diversion of funds to non-productive or personal expenses. Interventions should include fund management training and regular supervision. The critical business growth phase requires specific attention, with targeted support such as adaptive repayment plans, mentorship, and capacity-building initiatives. MFIs should also prepare clients for external shocks—like inflation or natural disasters—through contingency tools, including savings requirements, emergency funds, and micro-insurance schemes. Given the weakness of legal enforcement in many settings, institutions must strengthen informal mechanisms such as peer accountability, reinforced group norms, and structured borrower feedback systems to enhance repayment discipline.

Overall, MFIs in Mekelle should shift from standardized lending practices toward a context-sensitive, behavior-informed approach. Demographic factors like age, household size, and education must be considered alongside income quality, social integration, and business capacity. Loan design should emphasize flexibility, borrower readiness, and continuous engagement. Strengthened institutional frameworks—including improved group lending models, customized repayment plans, and integrated support systems—will be key to minimizing default and enhancing sustainability. By adopting these multidimensional strategies, microfinance institutions can significantly improve repayment performance and fulfill their role in supporting inclusive and resilient financial development.

## 5.4 Directions for Future study

This study examined key determinants of credit default among borrowers in MFIs in Mekelle city. However, to improve accuracy and comprehensiveness, future research should consider including additional variables not covered here, such as sector-specific business factors, geographic influences, and borrower behavioral characteristics.

While some variables significantly influenced loan repayment, others—such as the timeliness of loan disbursement -were found to be insignificant, this might be due to contextual factors. Future studies should re-examine these variables to validate their effects and explore other potential determinants drawn from different theoretical frameworks.

Notably, the suitability of the loan repayment period was a significant factor, suggesting that MFIs should offer flexible repayment schedules aligned with the borrower's business cycle. Since some enterprises require more than a year to generate returns, it is recommended that future research investigates optimal repayment periods tailored to specific business types in Mekelle's economic context.

Additionally, future studies should focus on the impact of repayment flexibility on default rates and consider variables such as business sector, loan purpose, and borrower capacity. This will help MFIs design more effective credit policies to reduce defaults and support sustainable borrower success

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# List of Appendices

## Appendix-I: English version Questionnaire

**MEKELLE UNIVERSITY**

**COLLEGE OF BUSINESS AND ECONOMICS**

**POST GRADUATE PROGRAM**

**MSC PROGRAM IN ACCOUNTING AND AUDITING**

**ENGLISH QUESTIONNAIRE TO BE FILLED BY MFIs BENEFICIARIES**

**CONSENT FORM**

This is a study focused on the *Determinants of Credit default of borrowers* a case study on MFIs in Mekelle city, Tigray region. It will be undertaken by *Mr. Tesfay Gebrehiwot who is a Postgraduate student in Mekelle University College of Business and Economics and department of Accounting and finance.* Participating in this study is voluntary and the names of respondents will not be used in reporting the results. In addition to this the information provided by the respondents will be strictly confidential and will serve as a source of information for the research paper to be done for thesis purpose. Any response you provide here will be used exclusively for the research Purpose. Your honesty in responding to the right answer is vital for the research outcome to be reliable.

***PART I: Socio-demographic Characteristics***

**QI**. 1.Genderof borrower's: 0) Male □ 1) Female□

**QI**. 2. Age of borrowers': 0) <=30 years□ 1) 30– 40 years□

2)41 – 50 years□ 3)51 – 60 years 4) Over 60 □

**QI**3 Educational level:0) Illiterate□ 1) Primary school completed□

2) High School completed □ 3) Above High School□

**QI** 4. Family size: Male_____ Female_____ No of dependency: Male____ Female_____

**QI** 5.How far is from your home to the institution and vice versa? 0) <5km□, 1)> 5Km□

***PART II: Economic and cultural factors***

**QII.**1. Did you have another source of income (cash income) before joining the loan program?

0) Yes □ 1) No □

**QII**2. Why do you borrow from DESCI/AMFI/LMFI? (You can choose more than one response*)*

0) To repay other debts □ 1) To improve or expand business □

2) To open a new enterprise□ 3) to purchase agricultural inputs □

4) Improve the quality of existing products□ 5) Other (specify)__

**QII**3. The loan size you obtain from MFI is; 0) Too small 1) Small 2) Fair Large 3) Very large

**QII**4. How long has your business experienced?

0) One year □ 1) two years □ 2) three years □ 3) more than four years□

**QII**5. How much money do you spend on social festivals (such as holidays, weddings, birthdays, etc…)? 0) Never □ 1) sometimes □ 2) many □ 3) too many

***Part III: Institutional and loan-related Questions***

**QIII.**1. In which method of lending do you borrow from the institution? 0) individual □1) Group □

**QIII**2.Why did you engage in group borrowing? 0) Easy to get loan in a group □ 1) by initiation of one of the group members □2) By lacking other alternatives □3) others_____

**QIII**3. Do you believe the loan was issued timely? 0) Yes □1) No □

**QIII** .4. Is the repayment period set by DESCI/AMFI/L MFIs suitable in your opinion? 0) Yes □1) No□

***PART IV: Loan Repayment Related Questions***

**QIV**1. Did you repay the loan to MFI on time,? 0) Yes □ 1) No □

**QIV** 2. If your answer to Q- 1 is fully repaid on time or yes, what motivates you to repay your loan on time? 0) In the expectation of getting another large loan □ 1) To keep social status □

2) Build good relationship with the loan provider □ 3) others (specify) _____

**QIV**3. If your answer for Q-1 is No, what cause your repayment problem?

0) Weak legal enforcement for defaulters □ 1) Loan activity was not profitable□

2) Personal problem (like sick, change of place □ 3) Lack of sale/ demand □

4) Disaster (theft, fire, flood, etc.) □ 5) Used enterprise capital for consumption (food, clothing, HH goods) □ 6) Due to high-interest rates □ 7) Family celebration (wedding, birthday, holly day, social festival, etc.)□.?

I thank you

## Appendix-II: *Amharic* version Questionnaire

**መቐለዩኒቨርሲቲ**
**የንግድናኢኮኖሚኮሌጅ**

**የዲግሪከፍተኛትምህርትፕሮግራም**

**በአካውንቲንግናኦዲቲንግየኤምኤስሲፕሮግራም**

**መጠይቅ**

**የምርምርስምምነትቅፅ**

ይህጥናትበትግራይክልል፣በመቐለከተማውስጥያሉበአንድክፍያመመዝገብየተከናወኑተ
ቀባዮችየብድርእንደማይመለሱዋናምክንያቶችንበመመለከትየሚካሄድምርምርነው።ይ
ህምርምርበመቐለዩኒቨርሲቲየንግድናኢኮኖሚኮሌጅ፣አካውንቲንግናፋይናንስክፍልየሚ
ማሩተስፋይገብረሂወትየሚያከናውነውነው።በዚህምርምርላይመሳተፍበፈቃድነው።የ
ሚሰጡትመረጃሙሉበሙሉበአደራይጠበቃል።በትክክልመልሰውእውነተኛመረጃማቅረ
ብለውጤቱታማኝነትበጣምአስፈላጊነው።

***ክፍል 1፡የማኅበራዊእናየሕይወትሁኔታመረጃዎች***

***QI.1ፆታ፡***

0) ወንድ☐ 1) ሴት☐

***QI.2እድሜ፡***

0) <=30 ዓመት☐1) 30–40 ዓመት

2) 41–50 ዓመት☐ 3) 51–60 ዓመት☐4) >60 ዓመት

***QI.3የትምህርትደረጃ፡***

0.ትምህርትያልጀመረ□

1. የመጀመሪያደረጃትምህርትያበረታች□
2. የመካከለኛትምህርትያጠናቀቁ□
3. ከ2ደረጃበላይ□

**QI.4የቤተሰብመጠን፡**

ወንዶች _____ ሴቶች _____ ተያያዥአባላት፡ወንዶች _____ ሴቶች _____

**QI.5ከቤትዎእስከየብድርተቀባይነትተቋምያለውርቀት፡**

0) <5 ኪ.ሜ. □ 1) >5 ኪ.ሜ. □

***ክፍል 2፡ኢኮኖሚናባህላዊሁኔታዎች***

**Q II.1በብድርፕሮግራምከመግባትዎበፊትሌላየገንዘብምንጭ**ነበርዎ?

0) አዎ□ 1) አይደለም□

Q II.2ለምንከDESCI/AMFI/LMFI ብድር□□□□□□□□?

(□□□□□□□□□□□□□□□□)

0.□□□□□□□□□□□□

1. □□□□□□□□□/□□□□□
2. □□□□□□□□□□□□
3. □□□□□□□□□□□□□□□□
4. □□□□□□□□□□□□□□□□□□
5. □□□

QII 3□□MFI (□□□□□□□□□□) □□□□□□□□□□□□□□□□□□□□?

0.□□□□□□□

1. □□□□
2. □□□□□□
3. □□□□□□□

QII 4□□□□□□□□□□□□□□□□□□**?**

0.□□□□□□□

1. □□□□□□□
2. □□□□□□□
3. □□□□□□□□□□□□

QII 5□□□□□□□□□□□ (□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□)

□□□□□□□□□□□□□□□□□□?

0.□□□□□□□□□

1. □□□□□□□□
2. □□□□□
3. □□□□□□

**ክፍል 3፡ከተቋሙጋርየተያያዘእናየብድርጥያቄዎች**

**QIII.1**፡ከተቋሙየብድርአገኘነት**በየትኛውዘዴ**ነው?

0) ግለሰባዊ□1) ቡድን□

QIII.2፡ለምንበቡድንብድርላይተሳትፈዋል?

0.በቡድንብድርመቀበልቀላልስለሆነ□

1. በአንድከቡድኑአባላትበመነሳት□
2. ሌላአማራጭስላልነበረ□

3. ሌላ (አስረዱ) _____

QIII.3፡ብድሩ**በተገቢውወቅትእ**ንደተሰጠታምናለህ/ሽ?

0) አይደለም☐ 1) አዎን☐

QIII.4፡በDESCI/AMFI/LMF የተዘጋጀው**የመከፈልጊ**ዜእንደሚመችልህታምናለህ/ሽ?

0) አይደለም☐ 1) አዎን☐

## ክፍል 4፡ከብድርመከፈልጋርየተያያዘጥያቄዎች

**QIV.1፡**ብድሩንለመተላለፊያድርጅት (MFI) በወቅቱአትክፈሉት?

0) አይደለም☐ 1) አዎን☐

**QIV.2፡**ለQIV.1

እሺብለውከመስጠትዎየተነሳ፣ብድሩንበወቅቱለመክፈልያበረታታዎትምክንያትምንድንነው?

0. እንደሌላትልቅብድርለማግኘትተስፋስለነበረ☐

1. ማህበራዊክብርንለመጠበቅ☐
2. ከብድርአበልጫድርጅትጋርጥሩግንኙነትለመገንባት☐
3. ሌላ (አስረዱ) _____

**QIV.3፡**ለQIV.1 አይደለምብለውከመስጠትዎየተነሳ፣የመከፈልችግርያመጣውምክንያትምንድንነው?

0. ለአለመከፋፈልየሕግማስገደድደካማነት☐

1. የብድሩንብረትልምድተመቻችአልነበረም☐
2. የግልችግር (ሕመም፣በታመቀየር፣ወዘተ) ☐
3. የሽያጭአጥቂት / የጥያቄእጥረት☐
4. አደጋ (ስርቆት፣እሳት፣ውሃዘንድ፣ወዘተ)
5. የንግድካፒታልለውጭቁሳቁስእናአካባቢተግባርመጠቀም☐
6. ከፍተኛየብድርወጪ (የብለዋ) ምክንያት☐
7. የቤተሰብበዓል (ሰርግ፣የልደት፣መንፈሳዊበዓል፣የማህበረሰብበዓል፣ወዘተ) ☐

አመሰግናለሁ

## Appendix –III: English Qualitative Questionnaire for Deep-Interview

**MEKELLE UNIVERSITY**

**COLLEGE OF BUSINESS AND ECONOMICS**

**POST GRADUATE PROGRAM IN ACCOUNTING AND AUDITING**

**MSC PROGRAM IN ACCOUNTING AND AUDITING**

**ENGLISH QUALITATIVE QUESTIONNAIRE FOR DEEP-INTERVIEW**

CONSENT FORM.

My name is *Tesfay Gebrehiwot* and I am post graduate student of Mekelle University. The research will assess the *Determinants of Credit default of borrowers of MFIs*; your response to this questionnaire will serve as a source of information for the research paper to be done for thesis purpose. Any response you provide here is strictly confidential and will be used exclusively for research purposes. Your honesty in responding to the right answer is vital for the research outcome to be reliable.

**Interview protocol Questions**

1. What are the main factors that affect the credit default of borrowers in your institution?

2. What kind of lending methodology is utilized by DESCI and which one is more effective related to loan repayment?

3. What challenges and problems are faced by borrowers towards loan service utilization?

# Appendix –IV: Individual Borrowers

## A) Individual Borrowers

### Table 1: Lists of DECSI Mekelle city branches with collateral

| No | Branches | Client | Outstanding Loan |
|---|---|---|---|
| **1** | *Marta* | 205 | 118 Million Birr |
| **2** | *Agazi* | 77 | 35 Million Birr |
| **3** | *Adihawsi* | 79 | 54 Million Birr |
| **4** | *Maiweyni* | 17 | 10 Million Birr |
| **5** | *Mariyam Quiha* | 15 | 4.9 Million Birr |
| **6** | *Bilal* | 18 | 9.1 Million Birr |
| **7** | *Meklle No-1* | 3095 | 462 Million Birr |
| **8** | *Meklle No-2* | 2940 | 435 Million Birr |
| **9** | *Meklle No-3* | 1630 | 460 Million Birr |
| Total | | **8076** | **1588**Million Birr |

**Source:** DECSI Mekelle zone office report (March, 2024)

# Appendix –V: Group Borrowers

## B) Group Borrowers

### Table 2: Lists of DECSI Mekelle city Sub branches without collateral

| No | Sub Branches | Clients | Outstanding Loan |
|---|---|---|---|
| **1** | *Semen* | 2250 | 178 Million Birr |
| **2** | *Mekelle Debub* | 2185 | 158.7 Million Birr |
| **3** | *Hadnet* | 1909 | 266.7 Million Birr |
| **4** | *Adi Haki* | 1606 | 93.2 Million Birr |
| **5** | *Ayder* | 2258 | 193.6 Million Birr |
| **6** | *Turota* | 1574 | 135.7 Million Birr |
| **7** | *Mai Anbesa* | 2175 | 210.6 Million Birr |
| **8** | *Quiha* | 1592 | 82.6 Million Birr |
| **9** | *Aynalem* | 664 | 21.4 Million Birr |
| **10** | *ArbateEnsesa* | 393 | 32 Million Birr |
| **11** | *Elala* | 1306 | 24.2 Million Birr |
| **12** | *Walta* | 13 | 1.5 Million Birr |
| **13** | *Hadase* | 81 | 14.2 Million Birr |
| **14** | *Dagamsal* | 52 | 8.1 Million Birr |
| **15** | *Semret* | 42 | 4.9 Million Birr |
| Total | | **18100** | **1425.4 Million Birr** |

**Source:** DECSI Mekelle zone office report (March, 2024)

# Appendix –VI: MFIs detailed information

## Table 3: MFIs detailed information

| NAME OF MFIS | Loan Repayment Status | | Borrower Type(Category) | | Branches | | Total Customers (population) | |
|---|---|---|---|---|---|---|---|---|
| | Defaulter | Non defaulter | Individual | Group | Tigray | Mekelle | TIGRAY | Mekelle |
| | Mekelle | Mekelle | Mekelle | Mekelle | | | | |
| DECSI | 20000 | 6176 | 8076 | 18100 | 209 | 24 | 184,000 | 26176 |
| ADEDAY | 27718 | 7718 | 4000 | 23718 | 60 | 10 | 163379 | 27718 |
| LDETA | 2000 | 1500 | 1150 | 2000 | 9 | 2 | 28350 | 3150 |

**Source:** MFIs Mekelle zone office report (March, 2024)

# Appendix –VII: Correlation matrix

## Table 4: Correlation matrix

**Correlation Matrix**

| | | Constant | Gender | Age | edulevel | famsize | Resdnc | Distnc | Othrsrclncm | loansize | Businesstype | socialfestival | lendingmetho d | timelineofloan | suitabilityofpa ytprd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Step 1 | Constant | 1.000 | -.359 | -.608 | -.358 | .096 | -.253 | -.208 | .026 | -.223 | -.266 | -.304 | .007 | -.231 | -.157 |
| | Gender | | 1.000 | .170 | .087 | -.012 | -.148 | .017 | -.210 | .103 | .279 | .160 | -.043 | -.035 | .054 |
| | Age | | | 1.000 | .338 | -.712 | .028 | .033 | -.265 | -.172 | .192 | -.179 | -.043 | .258 | -.212 |
| | edulevel | | | | 1.000 | -.135 | -.272 | .035 | -.274 | -.173 | -.031 | -.183 | .231 | .265 | -.019 |
| | famsize | | | | | 1.000 | .132 | -.024 | .353 | .100 | .043 | .212 | -.021 | -.169 | .172 |
| | Resdnc | | | | | | 1.000 | .151 | .169 | .015 | -.464 | .231 | .007 | .010 | .053 |
| | Distnc | | | | | | | 1.000 | .000 | .120 | -.014 | .071 | -.047 | -.014 | .058 |
| | Othrsrclncm | | | | | | | | 1.000 | .089 | -.051 | -.082 | -.100 | -.144 | .126 |
| | loansize | | | | | | | | | 1.000 | -.018 | .143 | .074 | .030 | .151 |
| | Businesstype | | | | | | | | | | 1.000 | .148 | -.305 | .019 | -.143 |
| | socialfestival | | | | | | | | | | | 1.000 | -.174 | -.213 | .097 |
| | lendingmethod | | | | | | | | | | | | 1.000 | .033 | -.003 |
| | timelineofloan | | | | | | | | | | | | | 1.000 | -.392 |
| | suitabilityofpaytprd | | | | | | | | | | | | | | 1.000 |

# Appendix –VIII: Summarized transcribed interview responses of MFIs loan officers and managers

## A) Summarized transcribed interview Response of MFIs Loan Officers:

**1. *What are the main factors that affect the credit default of borrowers in your institution?***

*The main factors affecting credit default in our institution include the borrower's income instability, poor financial management, lack of business experience, and external shocks such as inflation or market disruption. Additionally, some clients may lack awareness about loan obligations or use the loan for unintended purposes, which increase the risk of default. We also observe that group lending members sometimes struggle due to peer influence or lack of commitment from fellow members, impacting repayment behavior.*

***2. What kind of lending methodology is utilized by your MFIs and which one is more effective related to loan repayment?***

*At our MFI we utilize both group-based lending and individual lending methodologies. Group lending is commonly used for clients with no collateral or limited financial history, as it leverages social collateral and peer accountability. Individual lending is typically offered to clients with established businesses and a strong credit record.*

*In our experience, group lending tends to show better repayment performance in low-income segments due to the pressure and support among members. However, for more experienced and larger-scale borrowers, individual lending is more effective, as it aligns better with their specific business needs and cash flows.*

***3. What challenges and problems are faced by borrowers towards loan service utilization?***

*Borrowers face several challenges, including limited financial literacy, which affects their understanding of loan terms, repayment schedules, and interest rates. Some clients also struggle with lack of market access for their products, leading to reduced income and difficulty in repaying loans. Moreover, delays in loan disbursement or inadequate loan*

*amounts sometimes prevent clients from fully realizing their business plans. External economic factors, such as inflation and currency fluctuation, have also recently posed significant challenges to many borrowers.*

## B) Summarized transcribed interview Response of MFIs Managers

***1. What are the main factors that affect the credit default of borrowers in your institution?***

*From a managerial perspective, the credit default rate in our institution is influenced by a combination of internal and external factors. Internally, insufficient client screening, inadequate follow-up and limited borrower training can contribute to defaults. Externally, factors such as economic instability, inflation, natural disasters, and market access challenges directly impact the borrower's ability to generate income and repay loans.*

*Additionally, behavioral issues such as low financial discipline, loan diversion (using the loan for non-productive purposes), and over-indebtedness due to borrowing from multiple institutions also play a role. We also find that group lending models may sometimes suffer when group solidarity breaks down, particularly in urban settings.*

***2. What kind of lending methodology is utilized by your MFIs and which one is more effective related to loan repayment****?*

*Our MFIs applies both group-based lending and individual lending methodologies, depending on the target clientele and loan size. Group lending is primarily used for first-time borrowers or those without collateral, leveraging social capital to minimize risk. Individual lending is more common among established business clients with stronger financial profiles and collateral.*

*In terms of repayment performance, group lending has proven effective in semi-urban areas where community ties are strong and peer accountability encourages timely repayment. However, for higher-value loans and clients with business acumen, individual lending yields better results as it aligns with personalized financial plans and business cycles. Therefore, the effectiveness depends on proper client segmentation and matching the right methodology to the borrower's profile.*

***3. What challenges and problems are faced by borrowers towards loan service utilization?***

*Borrowers face several structural and systemic challenges in utilizing loan services effectively. Limited financial literacy often leads to misunderstandings of loan terms, interest rates, and repayment schedules, while inadequate business training results in poor allocation and use of loan funds. External economic factors such as market fluctuations, inflation, and supply chain disruptions further hinder borrowers' ability to generate consistent income. In some cases, access barriers—including long distances to service branches and delays in disbursement—particularly affect clients in remote areas. Additionally, the size of approved loans may fall short of meeting actual business capital requirements. In group lending arrangements, borrowers may also face social pressure and risk being penalized due to defaults by fellow group members, undermining both morale and repayment performance.*

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