

HAWASSA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE



**DETERMINANTS OF CREDIT DEFAULT OF MICRO FINANCE
INSTITUTION BORROWERS THE CASE OF HAWASSA CITY,
ETHIOPIA**

MSc THESIS

BY

MARKOS DUKAMO

JUNE 2025

HAWASSA, ETHIOPIA

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**A THESIS SUBMITTED TO THE DEPARTMENT OF ACCOUNTING
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SCHOOL OF GRADUATE STUDIES
HAWASSA UNIVERSITY
EXAMINERS' APPROVAL SHEET

We, the undersigned, members of the Board of Examiners of the final open defense by **Markos Dukamo** have read and evaluated his thesis entitled “*Determinants of credit default of micro finance institution borrowers in case of Hawassa city, Ethiopia.*” and examined the candidate. This is therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of *Master of Science in Accounting and Finance*.

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STATEMENT OF THE AUTHOR

The researcher, **Markos Dukamo** declare and affirm that this thesis entitled “*Determinants of credit default of micro finance institution borrowers in case of Hawassa city, Ethiopia.*” submitted in partial fulfillment of the requirements for the degree of *Master of Science in Accounting and Finance* is my own work. I have followed all ethical and technical principles of scholarship in the preparation, data collection, data analysis and compilation of this thesis. Any scholarly matter that is included in the thesis has been given recognition through citation.

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This is to certify that the thesis entitled “*Determinants of credit default of micro finance institution borrowers in case of Hawassa city, Ethiopia*” has been developed by **Markos Dukamo** is under my supervision. Therefore I recommend that the student’s thesis can be presented for review and open oral presentation.

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LIST OF ACRONYMS AND ABBREVIATIONS

Exp(B) - Exponentiation of B (odds ratio)

FGD – Focus Group Discussion

LMS - Logistic Model Selection

MFI - Microfinance Institution

M.Sc – Masters of Science

PhD – Doctor of Philosophy

R² - R-Squared

SGC - School of Graduate Committee

SGS - School of Graduate Studies

SNRS – Sidama National Regional State

SPSS - Statistical Package for the Social Sciences

SRS – Simple Random Sampling

Wald - Wald Test

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ABSTRACT

This study investigated the determinants of credit default among microfinance institution (MFI) borrowers in Hawassa City, Ethiopia. MFIs are essential in extending financial services to underserved populations, yet loan default remains a significant challenge. Using data from 296 MFI borrowers, the study examines borrower and loan characteristics to identify factors influencing loan default. The independent variables analyzed include demographic factors such as age, gender, education, and household size, along with financial and business-related factors like business experience, secondary income sources, and prior credit experience. Loan-specific factors such as credit size, repayment amount, and timing of credit release are also assessed. Descriptive statistics and correlation analysis reveal significant relationships between several variables and loan default. Notably, education level, household size, business experience, and gender emerged as key predictors. Higher education and more extensive business experience are associated with lower default rates, whereas larger household sizes and gender dynamics impact repayment behavior. On the other hand, factors such as income from other sources and the timeline of credit disbursement show weaker associations with default, though they are still relevant. Logistic regression results further underscore the predictive power of business experience and education, with borrowers possessing these traits showing a significantly reduced likelihood of defaulting. The model demonstrates strong explanatory power, with Cox & Snell R Square = 0.695 and Nagelkerke R Square = 0.929. The findings suggest that targeted support, such as business training and financial education, could enhance repayment performance. MFIs are encouraged to consider borrower profiles when designing loan conditions and to support clients' capacity to repay by aligning credit terms with their financial situations. The study recommends future research into social and technological influences on repayment, as well as longitudinal analyses to track borrower behavior over time. Overall, the study contributes valuable insights for improving MFI operations and reducing credit default in Ethiopia.

Key terms: Credit Default, Microfinance Institutions (MFIs), Loan Repayment, Business Experience, Loan Characteristics

CHAPTER ONE

INTRODUCTION

1.1. Study Background

Microfinance pertains to the delivery of financial services such as small loans, savings, insurance, and payment services to individuals and groups who do not have access to conventional banking services. The objective of these services is to foster entrepreneurship, reduce poverty, and enhance financial inclusion, especially in developing nations (Consultative Group to Assist the Poor [CGAP], 2016).

As per Robert and Jonathan (2017), microfinance institutions (MFI) have expanded more quickly above previous 20's year and have provided services towards significant number of low-income households. In addition to their social responsibility to society, this organization pledges to combat poverty and assist borrowers with lower incomes (Khan et al. in 2020).

Microfinance, as a formalized sector, gained prominence in the 1970s, notably through the efforts of Dr. Muhammad Yunus and the establishment of Grameen Bank in Bangladesh. This model emphasized small loans to the impoverished without requiring collateral, relying on group solidarity for repayment. While this approach achieved significant success in poverty alleviation, it also encountered challenges, including borrower over-indebtedness and defaults, particularly when loans were used for consumption rather than income-generating activities (Armendáriz & Morduch, 2010; Roodman, 2012).

In the year 1996 (decree 40/96), the Ethiopian administration introduced its initial microfinance legislation, aiming to extend microloan services to underprivileged individuals. As of the juncture of June 2022/23, Ethiopia counts a total of 46 Micro Finance Institutions (MFIs). These organizations have been pivotal in accumulating approximately Birr 24 billion in savings deposits, registering a yearly expansion rate of 16.9%. This steady growth rate indicates the escalating confidence and dependence of the Ethiopian public on MFIs for their financial requirements.

Microfinance institutions (MFIs) play a crucial role in enhancing financial inclusion by providing access to credit for low-income individuals and small-scale entrepreneurs who are often excluded from formal banking systems. In Ethiopia, MFIs have been instrumental in

supporting poverty reduction strategies by extending credit to the rural poor, women, and micro-enterprises (Alemayehu, 2020). Despite these efforts, the issue of credit default among borrowers remains a significant challenge threatening the sustainability and operational efficiency of MFIs.

As Microfinance institutions (MFIs) have emerged as critical mechanisms for addressing financial exclusion, particularly in low-income and developing countries. They provide small loans to individuals who lack access to conventional banking services, enabling them to invest in small-scale businesses or income-generating activities (Hassan & Iqbal, 2021). The role of microfinance in poverty alleviation is well recognized, as it helps individuals, particularly women, access capital that would otherwise be unavailable (Arif et al., 2021). However, a significant challenge facing MFIs globally, and particularly in Ethiopia, is the issue of credit default among borrowers. Credit default not only threatens the financial viability of MFIs but also undermines the potential benefits that microfinance can offer to vulnerable populations (Baltenweck et al., 2020).

Credit default, defined as the failure of a borrower to repay a loan according to the agreed terms, undermines the financial stability of MFIs and limits their ability to serve other potential borrowers (Asfaw, 2022). The growing rate of default not only affects the financial viability of these institutions but also diminishes the trust of stakeholders, including donors and regulators, in the microfinance sector (Mengesha & Zeru, 2019). Several factors are believed to influence credit default, including borrower characteristics (such as age, education, income level), loan-related factors (loan size, repayment period, interest rate) (Tsegaye, 2021).

The issue of loan defaulters lowers a financial institution's lending capacity and prevents new applicants from obtaining credit—in the event that cash shortage issues worsen, the default problem grows in direct proportion. Stated differently, it disrupts the regular flow of funds that lenders need to maintain a stable credit market that is sustainable. Examining the factors influencing clients' loan repayment is crucial to the sustainability and goals of microfinance institutions because, should borrowers fail to repay these loans in accordance with their agreements, there may not be enough money to maintain the microfinance institutions' liquidity position (Kebede et al. (2016).

In the Ethiopian context, regional disparities, economic shocks, and political instability have exacerbated credit default problem. For instance, in regions affected by conflict or drought,

borrowers may divert loan funds for immediate consumption or survival rather than income-generating activities, leading to repayment difficulties (World Bank, 2020). Moreover, inadequate borrower screening, poor follow-up, and lack of better educations are cited as contributing factors to loan default (Kassie & Ayele, 2018).

When examining the specific case of Hawassa City, Ethiopia, several unique local factors contribute to the issue of credit default. Studies by Tegegn and Mengistu (2020) and Tadesse et al. (2021) indicate that agricultural-based incomes are unstable, and as a result, borrowers in Hawassa are more likely to default on their loans during lean seasons or when faced with environmental challenges, such as droughts or floods. In Ethiopia, for example, the agricultural sector's dependence on seasonal income exacerbates vulnerability, as borrowers may face difficulty repaying loans during off-seasons or in times of crop failure (Wolday et al., 2023). Furthermore, the lack of diversified income sources in the city contributes to the financial vulnerability of borrowers, making them less resilient to shocks and more likely to fall into default.

Understanding the determinants of credit default is therefore critical for policy-makers, financial institutions and development partners. It can help in designing effective credit policies, improving risk assessment techniques, and implementing targeted interventions to minimize default rates. Many studies have looked at why borrowers in Ethiopia default on their loans, but not many have specifically researched this issue for borrowers in the study area. So, this study aims to identify and analyze the key determinants influencing credit default among MFI borrowers in Hawassa city, providing empirical evidence to support policy and operational improvements.

1.2. Statement of the Problem

Microfinance institutions (MFIs) have been pivotal in providing financial services to underserved populations in Ethiopia, aiming to alleviate poverty and promote economic development. However, the increasing rate of credit defaults among borrowers poses significant challenges to the sustainability and effectiveness of these institutions. Recent studies indicate that the average default rate in Ethiopian MFIs has escalated to approximately 27.1% (Setargie, 2023).

Microfinance institutions (MFIs) in Ethiopia have been pivotal in fostering financial inclusion and poverty alleviation. However, the sustainability of these institutions is increasingly threatened by high rates of loan defaults among borrowers. In Hawassa City, despite the availability of microfinance services, many borrowers struggle to repay their loans, leading to increased non-performing loans and financial instability for MFIs. Empirical studies have identified various factors contributing to credit default in Ethiopian MFIs. Setargie (2013) found that poor business performance, credit diversion, domestic issues, and high numbers of dependents significantly increase default rates. Similarly, Bekele (2021) highlighted that borrower education level, income from loan-financed activities, and training received are crucial determinants of loan repayment performance.

Microfinance institutions (MFIs) have played a pivotal role in promoting financial inclusion in many developing countries, providing access to credit for individuals and small businesses that would otherwise be excluded from traditional financial systems (Karlan & Zinman, 2018). However, despite the positive impact of microfinance, the high rate of loan defaults among borrowers continues to pose a significant challenge for the sustainability of these institutions. Credit default, defined as the failure of a borrower to meet the repayment schedule of a loan, undermines the financial stability of MFIs and their ability to serve future clients (Cull et al., 2020). As microfinance operations scale up, especially in regions with high poverty levels, understanding the factors that contribute to loan default has become critical for the long-term success of microfinance as a tool for poverty alleviation (Pereira et al., 2021).

The issue of credit default in microfinance has been widely studied, and researchers have identified various factors that contribute to borrowers' inability to repay loans. Borrowers with unstable or low incomes are more likely to default, particularly during off-seasons or due to

unexpected economic shocks (Kapur & Kaur, 2020). Furthermore, borrower-related factors such as education level, income, and the suitability of the repayment period significantly influence repayment performance. Conversely, factors like loan size and credit diversion have been found to increase the likelihood of default (Setargie, 2023).

Nevertheless, by concentrating on the elements influencing loan default from the perspective of the lending institution, this study differs from the empirical studies evaluated above. Furthermore, the current study's geographic scope differs from previous studies conducted outside of Ethiopia because loan recovery for microfinance institutions varies from nation to nation due to differences in MFI policy, economies position, politic, technological, besides sociocultural characteristics. Additionally, a research studied in Ethiopia cannot replicate that findings with similar studies conducted outside of Ethiopia.

In the case of Hawassa City the situation of credit defaults presents unique challenges. Hawassa is an urbanizing city with a significant proportion of its population involved in agriculture, small businesses, and informal trade (Tegegn & Mengistu, 2020). Many of the microfinance borrowers in the city rely on agricultural income, which is highly vulnerable to seasonal fluctuations and climate-related risks. This makes it difficult for them to maintain a consistent income flow, particularly during lean periods or when agricultural yields are poor due to weather conditions or other external factors (Wolday, 2023). As a result, these borrowers are more likely to experience difficulties in repaying loans, especially when economic or climatic shocks affect their livelihoods.

Despite the growing body of literature on credit default in microfinance institutions (MFIs), several critical gaps remain especially in localized, context-specific research that considers unique socio-economic, institutional, and geographic characteristics. In the context of Hawassa City, existing studies provide a general understanding of credit default determinants in Ethiopia but fall short of offering precise, actionable insights relevant to the city's distinct urban-rural economic mix and institutional practices.

Kassahun (2021) conducted one of the few studies specific to the Hawassa area, identifying factors such as sex, education level, age, lack of business experience, extra income sources, weak financial planning ability, loan size variability, repayment period, involvement in trade, and credit monitoring as major determinants of loan default. While his research offered important

baseline findings, it had significant limitations. First, it omitted important household-level variables such as dependency ratio or household size, which can influence repayment behavior by affecting financial burden. Second, it failed to account for institutional delivery variables like the timeliness of loan disbursement and borrower sales performance, which are crucial to understanding cash flow management and repayment challenges.

Gebremedhin and Mebratu (2022) explored microfinance loan repayment performance in southern Ethiopia but took a broad regional approach that overlooked the specific socio-economic and institutional context of urbanizing cities like Hawassa. Their findings are thus less actionable for MFIs operating in urban centers with mixed economies, informal trading sectors, and seasonal income fluctuations. Moreover, their analysis did not disaggregate borrowers based on types of income (agricultural vs. informal trade), limiting the applicability of their recommendations.

Tadesse and Lemma (2020) focused on institutional factors influencing microloan repayment in Amhara Region. While they rightly emphasized the role of interest rates, loan monitoring, and repayment schedules, the study used a static cross-sectional design, which did not capture seasonal or economic fluctuations that affect repayment especially for agriculture-dependent borrowers. Also, their study lacked borrower-level qualitative perspectives, making it difficult to understand the behavioral or psychological aspects influencing repayment.

Yohannes and Asfaw (2023) investigated the influence of macroeconomic conditions on microfinance loan default in Addis Ababa. Though useful in showing that inflation and employment levels affect credit risk, their study was conducted in a capital city with very different dynamics compared to secondary cities like Hawassa. They did not explore how local economic shocks, such as climate-related disruptions in agriculture, intersect with institutional and household factors, which are particularly relevant in Hawassa where many borrowers depend on seasonal farming.

Therefore, the objective of this study is to examine the specific determinants of credit default among microfinance borrowers in Hawassa City, Ethiopia, focusing on borrower's related factors, business related, and loan related characteristics and conditions. By investigating these factors in the local context, the study aims to provide recommendations for microfinance institutions in Hawassa to reduce default rates, enhance borrower support systems, and improve

loan repayment rates. Understanding the local determinants of credit default in Hawassa allow policymakers, MFIs, and other stakeholders to design more effective interventions to promote sustainable microfinance practices in the region, contributing to the broader goal of financial inclusion and poverty reduction.

1.3. Objectives of the study

1.3.1. General Objective

The general objective of the study was to analyze factors that contribute to microfinance institution borrowers' credit default in the study area.

1.3.2. Specific Objectives

In line with the above general objective the specific objectives of the study are the followings

1. To analyze borrowers characteristics on loan defaults in the study area.
2. To analyze business related characteristics of borrowers on loan defaults in the study area
3. To analyze loan related characteristics of borrowers on loan defaults in the study area

1.4. Significance of the study

Particularly developing's nation alike Ethiopia, micro-finance institution's (MFIs) be situated vital for lowering poverty's and generating employment. Additionally, they will offer valuable insights into the reasons why borrowers default on their credits. It assists the institution's management in comprehending the contemporary concerns surrounding the risk of delinquent loans in small enterprises. This study is significant because it will serve as a resource for anyone wishing to carry out additional research on credit default in microfinance institutions. Additionally, it gives policymakers pertinent data regarding loan default to enhance the microfinance industry.

1.5. Scope of the study

This study is primarily focused on investigating the determinants of loan default among microfinance institution (MFI) borrowers in Hawassa City, Ethiopia. While microfinance institutions operate across both urban and rural areas, the scope of this research is deliberately limited to borrowers located within the urban boundaries of Hawassa City. This limitation was necessary due to constraints in time, financial resources, and logistical feasibility.

To ensure manageability and in-depth analysis, the study concentrated on three selected MFIs currently operating in the city. These institutions were purposively selected based on their client base size, availability of borrower data, and relevance to the research objectives. Consequently, MFI borrowers in rural areas outside Hawassa City were excluded from the study.

Furthermore, while the sustainability of microfinance institutions is influenced by multiple factors such as outreach, policy environment, technological adoption, and repayment performance this study specifically focuses on repayment-related factors. In particular, it examines the socio-economic, institutional, and behavioral causes of loan default among urban borrowers. Other aspects of sustainability, such as policy frameworks or technological innovations, fall outside the scope of this research and were not addressed in detail. Thus, the study aims to generate context-specific insights on loan default in Hawassa City and does not attempt to generalize findings to other cities or rural areas in Ethiopia.

1.6. Limitations of the Study

Despite its relevance and focus, this study is subject to several limitations that should be acknowledged. First, the research was geographically limited to borrowers within Hawassa City, thereby excluding borrowers from surrounding rural areas where credit dynamics and borrower behavior may differ significantly. As a result, the findings may not be generalizable to microfinance clients in rural parts of the other regions of Ethiopia. Additionally, the study only included three microfinance institutions due to constraints in time and resources, which may limit the diversity of institutional practices examined.

Second, the data collected relied heavily on self-reported information from borrowers, which can be subject to biases such as underreporting of income or overstatement of financial challenges. There may also have been reluctance from some respondents to disclose information related to their loan default, especially if they feared negative consequences. Furthermore, external economic factors such as inflation or regional market disruptions were not deeply analyzed, despite their potential influence on repayment behavior. These limitations suggest that while the findings offer valuable insights into credit default determinants in Hawassa, caution should be taken when applying the results to broader contexts.

1.7. Organization of the study

The thesis is composed of five chapters. Chapter one has already set out introduction to the study which consists: background to the study, statement of the problem, research questions, and objectives of the study, significance, scope, limitation of the study and organization of the paper. Chapter two presents review of theoretical and empirical evidences related to the study and the conceptual frame work of the study. Chapter three describes research methodology (description of the study area, research design and strategy, methods of data analysis, explanations of variables and research hypothesis) of the study. Chapter four which is the main body of the research contains the descriptive and econometric results and discussion of the study. Chapter five summarizes the main findings of the study and draws conclusion and recommendations.

CHAPTER TWO

RELATED LITERATURES REVIEWS

2.1. Concept of credit default

Credit default refers to a borrower's failure to fulfill debt obligations, typically by missing scheduled payments or entering insolvency. It represents a core component of credit risk and plays a crucial role in financial risk management and lending decisions. When a default occurs, it can activate contractual mechanisms such as credit default swaps (CDS), which are designed to transfer default risk from the lender to a third party. Defaults can occur across all types of borrowing from personal loans to sovereign bonds and are influenced by both individual and macroeconomic factors (Fitch Ratings, 2024). According to the Bank for International Settlements (2023), credit default is a principal risk category that influences regulatory capital, pricing, and asset classification frameworks, especially under Basel III standards. The International Monetary Fund (2022) notes that credit defaults, particularly in sovereign or systemically important corporate borrowers, can cause widespread financial disruption, leading to contagion effects in the global financial system. As economies worldwide contend with post-pandemic debt accumulation, the potential for increased default rates poses serious threats to global economic stability (World Bank, 2023).

In response to the rising complexity and frequency of credit defaults, financial institutions have embraced advanced technologies to monitor and mitigate default risks. Machine learning algorithms, real-time credit scoring and macroeconomic forecasting models are now used to assess default probabilities with improved precision (OECD, 2023). These innovations allow lenders to detect early warning signals and take preemptive actions. The Securities and Exchange Commission (2024) warns that elevated credit default levels often signal broader financial or economic distress, particularly during periods of tightening monetary policy. Regulatory frameworks such as those instituted by the European Banking Authority (2023) mandate stress testing and risk-based capital buffers to cushion against the systemic fallout from defaults. In investment contexts, credit defaults significantly affect credit spreads the yield difference between corporate and risk-free government securities which reflect market perceptions of creditworthiness (Moody's Analytics, 2024).

2.2. Credit Risk Micro Finance

Its Credit risk in microfinance refers to the potential for borrowers to fail to repay loans according to the agreed-upon terms, which poses a significant challenge to microfinance institutions (MFIs). This risk is particularly relevant in the context of microfinance because the borrowers typically come from low-income or economically vulnerable groups, often with limited financial literacy and unstable income sources (Sengupta & Aubuchon, 2021). Credit risk in microfinance can result from both external factors, such as economic downturns, natural disasters, or market volatility, and internal factors, such as poor loan screening, inadequate loan monitoring, and weak enforcement of repayment schedules (Ghosh et al., 2022). High levels of credit risk can undermine the sustainability of MFIs, as defaults increase operational costs and reduce profitability, making it harder for these institutions to continue offering financial services to underserved communities (Mersland et al., 2022).

Managing credit risk is one of the primary concerns for MFIs, as it affects not only their financial health but also their ability to fulfill their social mission of poverty alleviation. According to Karlan and Zinman (2021), MFIs typically adopt various strategies to mitigate credit risk, such as group lending models, where borrowers are held collectively responsible for each other's loans, and progressive lending, where the loan amount increases with successful repayment history. However, despite these strategies, managing credit risk remains challenging due to factors such as insufficient credit history, high borrower turnover, and social pressures in tight-knit communities (Hassan & Iqbal, 2020). Recent studies have also emphasized the importance of borrower selection, financial education, and effective monitoring systems in reducing credit risk, suggesting that a multi-faceted approach that includes both financial and non-financial services may help improve loan repayment rates and reduce defaults (Collins et al., 2020).

The management of credit risk in microfinance is highly dependent on the design of the microfinance product itself. Flexible loan products that account for seasonal income patterns, such as those offered to farmers or informal sector workers, can help mitigate credit risk by aligning repayment schedules with borrowers' cash flows (Sharma & Arya, 2021). Moreover, interest rates and loan amounts should be tailored to the borrower's ability to repay, based on their specific financial circumstances. The complexity of microfinance lending makes it essential for MFIs to use effective risk assessment tools, such as borrower profiling, credit scoring

models, and behavioral analytics. Such tools can provide valuable insights into a borrower's likelihood of default, improving the loan approval process and reducing the overall risk exposure for MFIs (Kapur & Kaur, 2020).

While strategies to reduce credit risk in microfinance have been increasingly discussed in literature, there is still an ongoing debate regarding the long-term impact of these strategies on loan repayment behavior. Some researchers argue that focusing too much on risk reduction may limit the potential of microfinance to reach marginalized populations, as stricter lending criteria could exclude those who need it most (Rhyne, 2020). This has led to calls for a more balanced approach that not only mitigates credit risk but also promotes financial inclusion and economic empowerment. Recent studies suggest that MFIs should consider providing additional support to borrowers, such as financial literacy training, business development services, and access to insurance, as these services can help borrowers manage their finances better and reduce the risk of default (Mersland et al., 2022). By focusing on both the financial and non-financial needs of borrowers, microfinance institutions may better manage credit risk while fostering more sustainable development for their clients.

2.3. Ethiopian Microfinance Institutions

Ethiopian Microfinance Institutions (MFIs) have played a critical role in the financial inclusion of the country's largely underserved rural population. The microfinance sector in Ethiopia was formally established in the early 1990s with the creation of the first microfinance institution, the Amhara Credit and Savings Institution (ACSI), which aimed to address the growing gap in financial services for low-income individuals (Yunus, 2020). Since then, the sector has experienced significant growth, with over 40 MFIs operating throughout the country, providing access to credit, savings, and insurance services. These institutions primarily focus on supporting the rural poor, small-scale farmers, women, and entrepreneurs, with the aim of alleviating poverty and promoting economic development in Ethiopia's less-developed regions (Wolday, 2021).

Despite the substantial progress made by Ethiopian MFIs, they face several challenges that hinder their ability to effectively mitigate credit risk and sustain their operations. One of the key issues is the high level of loan default among borrowers, particularly in rural areas where borrowers face significant economic vulnerabilities such as unpredictable agricultural yields,

limited access to markets, and exposure to climatic shocks (Gertler et al., 2020). Additionally, the lack of sufficient financial literacy among borrowers often leads to poor loan management and an increased likelihood of default (Tegegn & Mengistu, 2020). The absence of comprehensive credit history systems and the reliance on traditional, often informal, methods of assessing borrower creditworthiness further exacerbate the risks associated with lending in Ethiopia's microfinance sector. These challenges highlight the need for more robust risk management practices, borrower education programs, and innovative loan products that are better suited to the financial realities of rural Ethiopian borrowers.

Recent studies have also suggested that Ethiopian MFIs should adopt more modern technologies to improve operational efficiency and reduce credit risk. Digital financial services, such as mobile money and mobile banking, are increasingly being integrated into the Ethiopian microfinance system, allowing MFIs to expand their reach and provide more flexible loan products (Kassaye et al., 2022). These technological innovations have the potential to enhance the monitoring and repayment processes, reduce transaction costs, and increase the accessibility of financial services to remote areas. Additionally, the government of Ethiopia has been making strides to strengthen the regulatory framework for microfinance institutions, aiming to improve transparency, ensure sustainability, and foster a more competitive and inclusive financial environment (Kedir, 2021). By addressing these operational and regulatory challenges, Ethiopian MFIs can better manage credit risk and enhance their contribution to poverty reduction and economic empowerment in the country.

2.4. Microfinance Institutions Functions

Microfinance institutions (MFIs) serve a vital role in providing financial services to underserved populations who are typically excluded from traditional banking systems. The primary function of MFIs is to offer small loans, commonly referred to as microloans, to low-income individuals or small-scale entrepreneurs. These loans are typically given with less stringent collateral requirements, which allow individuals who do not have access to formal financial resources to start or expand small businesses, increase household income, and improve their livelihoods (Hassan & Iqbal, 2020). In addition to providing loans, many MFIs offer savings products, enabling clients to save small amounts of money regularly, which can be used for emergencies, business investments, or future expenses. This dual service of credit and savings is essential in

fostering financial independence and resilience among economically vulnerable groups (Mersland et al., 2022).

Another key function of MFIs is promoting financial inclusion by providing financial services to those who are excluded from conventional banking systems, such as rural populations, women, and marginalized communities. In many developing countries, including Ethiopia, a significant portion of the population remains unbanked due to geographical isolation, lack of documentation, or insufficient financial literacy (Sharma & Arya, 2021). By offering accessible financial products, MFIs help bridge the gap between these underserved groups and the broader economy. Additionally, the focus of many MFIs on women's empowerment has further contributed to promoting gender equality, as women tend to be more financially excluded than men. The provision of microcredit allows women to engage in entrepreneurial activities, which enhances their economic independence and social status (Sengupta & Aubuchon, 2021).

Beyond lending and savings, MFIs also often provide a range of non-financial services, including financial literacy training, business development services, and mentorship programs. These non-financial services are crucial for helping borrowers effectively manage their finances, improve their business operations, and reduce the risk of loan defaults. By equipping borrowers with the necessary skills and knowledge, MFIs enhance the likelihood of business success, thereby fostering long-term economic development and reducing poverty. For instance, many MFIs offer group lending models that combine financial support with peer pressure and collective responsibility, which helps to reduce the risk of default and increases the chances of successful loan repayment (Karlan & Zinman, 2021).

Additionally, MFIs function as catalysts for local economic development. The loans provided by MFIs enable borrowers to invest in small-scale businesses, often within the informal sector, which can generate employment, improve local economies, and increase the flow of money within communities. Microfinance has been found to foster entrepreneurial activities in sectors such as agriculture, retail, and services, all of which are crucial for the development of rural areas and informal economies (Rhyne, 2020). By enabling small businesses to thrive, MFIs contribute to a more dynamic and resilient local economy, which ultimately helps lift families and communities out of poverty. However, as noted by Mersland et al. (2022), the sustainability

and impact of MFIs depend on their ability to balance financial performance with their social mission of poverty alleviation.

2.5. Context of Ethiopia in Microfinance

Ethiopia's microfinance sector has undergone significant growth and transformation in recent years, becoming one of the most prominent tools for financial inclusion in the country. With a large portion of Ethiopia's population living in rural areas, traditional banking services have remained largely inaccessible to many, especially those in poverty-stricken regions. Microfinance institutions (MFIs) have filled this gap by offering credit, savings, and insurance services to low-income groups, small-scale farmers, and micro-entrepreneurs who lack access to conventional financial institutions (Wolday, 2021). The Ethiopian government has recognized the importance of microfinance in poverty reduction and rural development, with the sector growing rapidly since the 1990s. As of recent years, over 40 MFIs operate in Ethiopia, serving millions of clients across the country, contributing significantly to the development of the agricultural sector, small businesses, and women's empowerment (Kedir, 2021).

Despite the growth of the microfinance sector in Ethiopia, several challenges continue to hinder the effective functioning of MFIs. One major issue is the high rate of loan default, particularly in rural areas where borrowers often face fluctuating incomes due to reliance on agriculture. Factors such as droughts, price volatility, and poor harvests can severely affect borrowers' ability to repay loans, creating financial instability for MFIs (Tegegn & Mengistu, 2020). Additionally, the lack of comprehensive and reliable credit history for many potential borrowers complicates the process of loan approval and increases the risk of lending. Microfinance institutions in Ethiopia, therefore, have to rely heavily on group lending and social collateral methods, which, while effective to some extent, are not foolproof (Sengupta & Aubuchon, 2021).

Another key challenge is the limited financial literacy among borrowers, which affects their ability to manage loans effectively. Many clients of MFIs in Ethiopia, particularly those in rural areas, have limited knowledge of basic financial principles, such as budgeting, interest rates, and debt management. This lack of financial literacy often leads to poor loan repayment rates and hinders the sustainability of the microfinance sector (Gertler et al., 2020). In response, some MFIs have implemented financial literacy programs and business training to help borrowers better manage their loans and improve their businesses. However, there remains a need for

more widespread financial education initiatives to ensure that borrowers can effectively navigate the financial systems and maximize the benefits of microfinance (Adeyemo, & Alhaji. 2020).

To address these challenges, there has been a concerted effort to modernize Ethiopia's microfinance sector through technological innovations and regulatory reforms. The introduction of mobile banking and mobile money platforms has significantly improved the accessibility of financial services, particularly in remote and underserved areas (Kassaye et al., 2022). These innovations allow for more efficient loan disbursement, repayment tracking, and financial management, which can help mitigate some of the risks associated with microfinance lending. Furthermore, the Ethiopian government has been working on strengthening the regulatory framework for MFIs, aiming to ensure the sustainability of these institutions while enhancing their capacity to reach more people. This includes improving the supervisory role of the National Bank of Ethiopia and creating an enabling environment for microfinance institutions to expand their operations (Kedir, 2021). By embracing technology and regulatory improvements, Ethiopia's microfinance sector can enhance its contribution to poverty alleviation and economic development in the country.

2.6. Empirical Literatures Reviews

2.6.1. Empirical Studies of Other Countries

Empirical studies across various countries have examined the issue of credit default within microfinance institutions (MFIs), revealing both structural causes and contextual challenges. In India, for instance, Ghosh et al. (2021) found that while microfinance improved income generation, loan default rates were significantly high due to factors such as over-indebtedness, lack of credit appraisal mechanisms, and inadequate borrower monitoring. Sengupta and Aubuchon (2021) emphasized that defaults often stemmed from external economic shocks like crop failure and market volatility, highlighting the vulnerability of rural borrowers.

In Latin America, Chacón et al. (2019) investigated credit default patterns among female micro-borrowers in Nicaragua. Their findings indicated that while women generally exhibited strong repayment discipline, defaults increased in rural areas with limited economic diversification. Rhyne (2020) argued that informality in business activities and irregular income streams contributed heavily to repayment challenges, suggesting a need for MFIs to design flexible repayment schedules and risk-sharing mechanisms.

Studies in Africa, particularly in Kenya and Uganda, have also addressed microfinance credit default extensively. Mersland et al. (2022) noted that loan default was a leading factor undermining MFI sustainability, with root causes including weak borrower screening, lack of financial education, and absence of formal credit histories. The study recommended adopting credit scoring models and borrower profiling techniques to minimize lending risk.

In Southeast Asia, particularly in Indonesia and the Philippines, credit default has been mitigated through innovative lending models like group lending with peer monitoring, as reported by Smith et al. (2020). However, despite these mechanisms, the study found that default risks persisted in areas with low economic activity and poor infrastructure, indicating that structural limitations play a critical role in repayment behavior. Mersland et al. (2022) further emphasized the need for support services such as financial training and business mentoring to complement credit access.

2.6.2. Empirical Studies Conducted in Ethiopia

Analyzing the determinants of loan defaults in Microfinance Institutions (MFIs) in Ethiopia involves examining borrowers' characteristics, business-related factors, and loan-related variables. Below is a summary of key findings from recent research:

According to Kiros (2023) investigated that the factors affecting loan repayment performance among micro and small enterprises (MSEs) in Dire Dawa. The research found that loan repayment period, grace period, and timeliness of loan release significantly influenced loan repayment performance. However, loan size had an insignificant effect. The study utilized binary logistic regression for analysis.

Tegene's (2021) study specifically addressed the determinants of credit default among MFI borrowers in Hawassa City. Using a quantitative approach, the research identified ten significant factors influencing credit default, including gender, education, age, business experience, income sources, financial planning skills, loan diversion, repayment period, business sector involvement, and loan follow-up. The study recommended that MFIs enhance borrower assessment processes and follow-up mechanisms to mitigate default risks.

In a study conducted by Mubarak (2020), it was revealed that factors such as education level, type of loan, additional incomes source, follow-up mechanisms, creating awareness's, purpose of

loan, and revenue generated from the credit activity have a positive impact on the repayment performance of borrowers. Furthermore, loan diversions, along with factors such as interest rates, market accessibility, and re-payment time, negatively impact a borrower's ability to re-pay the loan. Nevertheless, factors such as sex, age, marital status, dependent family sizes, credit sizes, and the microfinance institution did not show any significant impact in the model.

According to Zerihun (2020), several variables critically affect credit disbursement. These include being female, increasing age, having additional sources of income, mutual monitoring among borrowers, prior business experience, loan observation and supervision, receiving satisfactory training, promotional efforts, and the adoption of innovations. These factors significantly increase the likelihood of non-default. Conversely, rising costs and socio-cultural dynamics significantly reduce the likelihood of non-default, although their levels of statistical significance vary. Therefore, considering these factors is essential, as they provide insights that can support the development of effective strategies aimed at improving credit disbursement performance.

Boshe's (2019) research focused on Shashemene Town but provides insights applicable to Hawassa City. The study found that individual characteristics such as age, marital status, education level, and number of dependents significantly influenced loan repayment performance. Business characteristics like business type, length of operation, and group membership also played a role. The study recommended that MFIs consider these factors when assessing creditworthiness to reduce default rates.

Hareg (2017) found that various factors can influence the credit repayment performance of borrowers. Having additional sources of income, education, credit experiences, high sales volume, business experience, credit supervisions, and being a female borrower were identified as important and significant contributors to improved credit repayment. Conversely, factors such as high dependence ratio and big credit sizes were indicated as potential hindrances to the loan refund borrower performances.

Gelassa (2014) study examined the impact of credit provision by MFIs on job creation and poverty reduction in Hawassa City. While not directly focused on credit default, the study found that increased income, improved access to education and healthcare, and enhanced self-employment opportunities were outcomes of MFI credit provision. These factors indirectly

suggest that improving borrowers' economic conditions can reduce the likelihood of credit default.

In conclusion Alemayehu & Lemma (2014) noted that assessed factors affecting the performance of MFIs in Hawassa City. It identified client-related issues such as loan diversion to non-income-generating activities, business conditions, and repayment problems as significant contributors to credit default. The study recommended improving women's participation, adopting cost-effective technologies, and enhancing employee capacity to mitigate default risks.

2.6. Research Hypotheses

Based on the literature review there were hypothesis developed:-

H₁: There is a significant relationship between the age of the borrower and credit default.

H₂: The gender of the borrower significantly influences the likelihood of credit default.

H₃: The educational level of the borrower has a significant effect on credit default.

H₄: Borrowers with revenue from additional sources are less likely to default on microfinance loans.

H₅: The household size (dependency ratio) of the borrower significantly affects the likelihood of credit default.

H₆: Borrowers with greater business experience are less likely to default on loans.

H₇: The sales of the borrower's business have a significant relationship with credit default.

H₈: The borrower's experience with credit (prior borrowing history) significantly influences loan repayment behavior.

H₉: The size of the credit received by the borrower has a significant effect on credit default.

H₁₀: The timeline of credit release (timeliness or delay in disbursement) significantly affects the borrower's likelihood of default.

H₁₁: The size of the repayment amount significantly influences the likelihood of credit default.

2.7. Conclusions and Literature Gaps

Empirical studies on microfinance, different countries and within Ethiopia have increasingly emphasized the critical challenge of credit default within microfinance institutions (MFIs) and its implications for financial inclusion and institutional sustainability. These studies mainly were focused on understanding the factors that lead to credit defaults among all types of microfinance borrowers.

Above studies conclude that borrower-specific factors such as education level, income sources, business experience, financial literacy, and number of dependents significantly affect loan repayment performance (Endris, 2022; Chol, 2019; Tegene, 2021). Factors such as loan size, repayment period, interest rate, and grace period have been repeatedly found to influence default rates. For example, studies in Dire Dawa and Mekelle highlighted how inappropriate repayment schedules and large loan amounts increase the likelihood of default (Kiros, 2023; Teshale, 2024). Droughts, conflict, and regional instability also affect credit repayment, as borrowers may divert funds for survival rather than investment (Teshale, 2024; World Bank, 2020).

However, borrowers' ways of making a living and the organizations abilities may vary happening diverse situations. However, prior researchers didn't provide clear details about specific determinants those determine credit default among borrowers of organizations in the studies mentioned earlier.

It's important to look at more key factors that can affect whether borrowers in microfinance might not be able to pay back their loans. These factors include borrowers' characteristics, details about the loans, aspects of their businesses and income situations. Addressing these gaps will contribute to a more nuanced understanding of credit default as a pivotal factor influencing the success of microfinance in Ethiopia, thereby guiding policymakers and practitioners in designing interventions that promote both financial inclusion and institutional viability.

2.8. The Study's Conceptual Framework

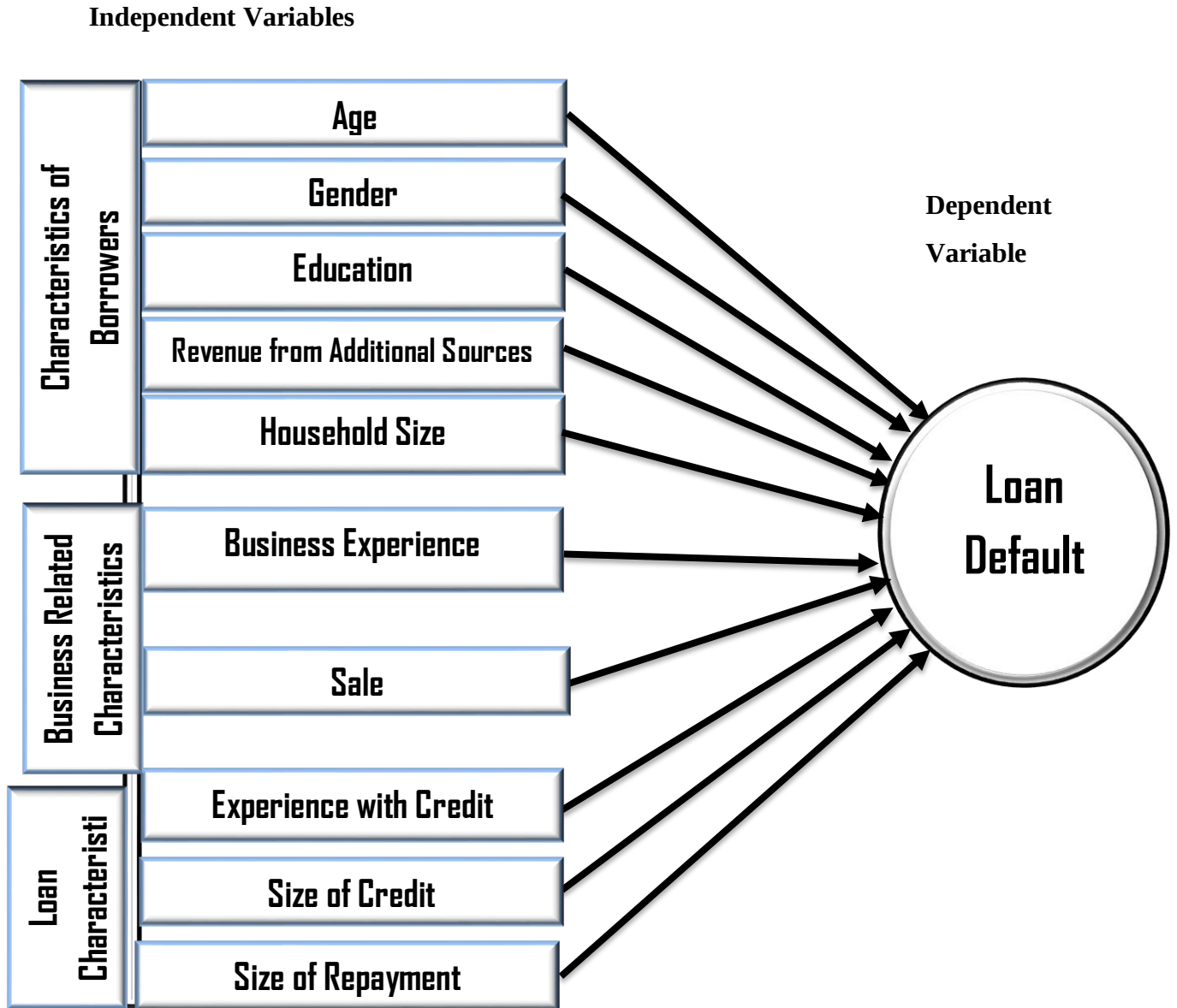
The factors that affect whether borrowers from microfinance institutions were paid back their loans include: Borrower Characteristics: Things like age, gender, and income. Loan Features: This includes the amount of the loan, how peers keep an eye on each other, how the loan is used, the time for credit, and whether the repayment schedule is suitable. Business Traits: These are

the experience one has in business, using technology, and keeping good records. All these aspects play a role in whether borrowers were default on their loans. These are actions that help keep the loan safe, like checking loan rules, studying the market in the area, and reviewing the business carefully. In the absence of well-established systems, individuals may struggle to repay their credits, posing challenges for microfinance institutions in recovering their funds.

The diagram in Figure 2.1 shows in what way explanatory and explained variable exist interconnected. Study suggests that factors affecting whether borrowers from microfinance institutions were default on their loans are the independent variables being examined.

It's important to look at different important factors that can affect whether borrowers from microfinance institutions were default on their loans. These factors include characteristics of the borrowers, the loans, their businesses, the support they receive, and their social and economic situations. This information can help microfinance practitioners understand what they need to improve in their lending strategies.

Figure 2.1: Conceptual Framework of the study



Source: -Based on a review of literatures, a custom-developed source was created in (2025)

CHAPTER THREE

RESEARCH METHODOLOGY

INTRODUCTION

This chapter outlines the research methodology employed to investigate the factors influencing loan default among borrowers of selected microfinance institutions. It presents the research design, approach, data types and sources, data collection methods, and sampling procedures used in the study. Additionally, it discusses the methods of data analysis and the model specification applied to examine the relationship between various explanatory variables and loan repayment performance. The chapter also defines key variables and describes how their reliability and validity were ensured, while highlighting the ethical considerations adhered to throughout the research process.

3.1. Research Design

Research designs are classified as descriptive, explanatory, analytical, analogical and experimental research designs. The researcher employed both explanatory and a descriptive method of research design, which helps to explain, and describe the major findings of the study by taking the research questionnaire and secondary data into consideration. Therefore, this study used both type of research designs in collecting and analyzing data in order to better understand the research problem.

Explanatory research designs determine causes of outcome credit default of borrowers of microfinance organizations. The quantitative aspect of the data were emphasis that the explanation of demographic variables, credit and businesses associated variables also examining the connection between explanatory and explained variables of Micro Finance Institutes. Data were gathered by using surveys and questionnaires' contains together open ended and closed ended.

3.2. Research Approach

For the study, both qualitative and quantitative research approach were used which means mixed methods were used. The quantitative research approach focuses only on numbers and has one clear answer, while the qualitative approach deals with opinions and feelings. So, each one

focuses to study to achieve a desired outcome. By taking into account and being persuaded by the academics, the researcher employed mixed approach that combines the quantitative and qualitative research methods. Researcher was utilized a cross-sectional research design through quantitative and qualitative approach as that one stays effective toward gather large quantity of data in small period of time.

3.3. Data Types and Sources

For the research purpose both primary and secondary data types were used. In the direction of evaluating determining factor of loan defaulting, primary data collected from the respondents. Secondary data source were included books, magazines, other materials about credit default risk in borrowers.

3.4. Methods of Data Collection

Primary's data collected from structured questionnaire, Key Informant Interview (KII) and Focus Group Discussion (FGD). Questionnaire was included together closed and open ended. Closed ended questionnaires were there speedier and simpler equally intended for responder's. This was included both those who have defaulted on loans and those who have not, from each chosen microfinance institution. In order to collect secondary data researcher was utilized as internet sources.

3.5. Target Population, Sample Size determinations and Sample Procedures

3.5.1. Target Populations

Research's target populations were three organizations borrowers (Vision Fund, Awacci and PEACE MFIs) they were classified as defaulters and non-defaulters. Using both defaulters and non-defaulters allows for a complete and accurate analysis of the factors that lead to credit default. It enhances prediction models, supports better decision-making, and contributes to the sustainability of microfinance operations. And also using both defaulters and non-defaulters data is essential in studying the determinants of credit default in microfinance institutions (MFIs) because it allows for a comparative and predictive analysis. Consequently, whole research targets' populations are 4,132 borrowers of organizations study area division creditors profile list.

3.5.2. Samples Size's Determinations

Samples size's decided through by means of scientific method (Yamane, Taro, 1967). Every organization borrowers takes equivalent chances to be sampled. Research examination portion depends on the responses was taken from the respondent's.

$$n = \frac{N}{1 + N(e)^2}$$

Where, ***n***: is sample size ***N*** is whole quantity organizations loan receivers' ***e***: Level of Confidence is 95 percent, usually selected since the helpful strategy diminished the probability of non-response definitely.

$$n = \frac{4,132}{1 + 4,132 (0.05)^2}$$

$$n = 364$$

The total sample size of respondents based on the above sample size determination formula is 364.

Table: 3.1 shows sample size were proportionally distributed among the MFI's selected for the study

Number	MFIs Name	Total Population	Percentages	Number of Samples
1	Vision MFIs	1,365	33%	120
2	PEACE MFIs	1,245	30%	110
3	Awacci MFIs	1,522	37%	134
	Total	4,132	100%	364

Source: Own computation (2025)

3.5.3. Sample Procedures

Subsequently deciding sampled sizes, respondents were a selection by means of judgmental sample techniques to select a sample composed of defaulters and no defaulters who have both took loan from the microfinance organizations. Defaulters were those who finished their payback period but held in debt trap. Non defaulters were those who fulfilled the commitment in their within their payback period. The justification for using judgmental sampling technique is the

three MFIs which were selected based on the numbers of employees, numbers of branches and numbers of customers.

3.6. Method of Data Analysis

After collected data, researcher was used a program called statistical package for social science in order to examine the collected data from primary source. The researcher was used both descriptive statistics and inferential statistics. Descriptive statistics like percentages, mean, standard deviation and Variance were used for analysis. For inferential statistics part, a Logit model was used to study what factors affect whether borrowers from microfinance institutions in the study area default on their loans.

3.7. Model Specification

Explained variables of research were credit default, whereas different socio economic features of creditors, organizational associated, credit interrelated, projects (businesses category associated) politically as well as culturally aspects were elements of the explanatory variables.

The variables include genders, ages; educational levels, family's sizes, numbers of explained interrelated with occupational, category of businesses, and dependence ratios.

Among listed explanatory variables, ages and businesses' experiences are considered continuous variable, being measured in year. Additionally, family size, dependence ratio and dependent numbers in the home are similarly continuous variables measured in numbers. Later, model estimates, the marginal effects of the continuous explanatory's variable were computed to determine the likelihood of credit reimbursement.

In the research, the variables under consideration were labeled Dummy and takes on values of either 0 or 1. Specifically, it is assigned a value of 0 when the borrower is classified as a defaulter, and a value of 1 when the borrower is classified as a non-defaulter. Hence, loan defaulters are treated as a dichotomous explained variables and a not continuousness' who doesn't meets vital assumption within linear regression analyze.

Explanatory variables refers to creditors have postponed credit repayment to microfinance institutions or not. Therefore, explained variables were established to 1 if the borrower did not have any delayed repayments, and 0 if there were any delays Shaik and Tolosa : Ume et al., 2018: Girma also employed a binary's logit model in order to examining factors credit

repayment by diverse study's area. Consequently, the researcher decided to use the same model, integrating 10 independents variable, as described in studies by Ayele Sh (2016) and Shaik A (2014).

Interests in the binary response model primarily centers on the possibility of the response, which is resulted as follows:

$$\log(\text{Odds ratio}) = \log\left(\frac{\text{Success}}{\text{Failure}}\right) = \log\left(\frac{y_i=1}{y_i=0}\right) = \beta_0 + x_i'\beta \dots\dots\dots (3.1)$$

Where, $y_i = 1$ represents an individual "i" is being defaulter (success), and $y_i = 0$ represents an individual "i" is being non-defaulter (failure), x_i is column vector of independent variables, β is Column vector of parameters (Coefficients) to be estimated (i.e. $\beta_1, \beta_2, \beta_3, \dots \beta_{11}$) and β_0 is the intercept term, Constant. Equation (3.1) shows that natural logarithmic form of odds ratio depends on observed explanatory variables.

Equation (3.1) can also be expressed in terms of probability:

$$\log\left(\frac{P(y_i=1)}{P(y_i=0)}\right) = \log\left(\frac{P(y_i=1)}{1-P(y_i=1)}\right) = \beta_0 + x_i'\beta \dots\dots\dots (3.2)$$

Where, $P(y_i = 1)$ is the probability of being defaulter and $1 - P(y_i = 1)$ is the probability of non-defaulter. The stochastic version of equation (3.2) can be formulated by adding disturbance error term:

$$\log\left(\frac{P(y_i=1)}{1-P(y_i=1)}\right) = \beta_0 + x_i'\beta + e_i \dots\dots\dots (3.3)$$

Where, e_i is stochastic error term which represents all unobservable factors of defaulter, and this model shows that odds ratio is not only depends on variables incorporated in the model but also other factors which are not included in the equation. By taking exponential (antilogarithm) both side of equation (3.3) and rearranging it we have logistic function as follows:

$$\begin{aligned} \frac{P(y_i = 1)}{1 - P(y_i = 1)} &= \exp(\beta_0 + x_i'\beta + e_i) \\ P(y_i = 1) &= (1 - P(y_i = 1))\exp(\beta_0 + x_i'\beta + e_i) \\ P(y_i = 1) &= \frac{\exp(\beta_0 + x_i'\beta + e_i)}{1 + \exp(\beta_0 + x_i'\beta + e_i)} \dots\dots\dots (3.4) \end{aligned}$$

Equation (3.4) describes that the probability of being defaulter depends on observed exogenous variables. This probability is positive and limited between 0 and 1 since the underlying model follows logistic distribution. The predicted probability of being defaulter therefore can be expressed as:

$$\hat{P}(y_i = 1) = \frac{\exp(\hat{\beta}_0 + x_i' \hat{\beta})}{1 + \exp(\hat{\beta}_0 + x_i' \hat{\beta})} \dots \dots \dots (3.5)$$

The current model justification is different from that of Ayevbomwan et al. (2016) and Julia (2010) for the reason that they explain it as linear regression model function even if their models were binary logistic regression.

3.8. Variables Operational Definition and their Measurements

Factors of loan default of micro finance organization debtors exists assumed created taking place pragmatic confirmations. Consequently, debtors “ Characteristics of borrowers, credit and creditor features, then extra commerce and economic situations be situated assumed toward clarify credit repayment performance of debtors. It guarantees that the assessed reaction possibilities are entirely among 0 and 1. We type in $X\beta = \beta_1 X_1 + \dots + \beta_k X_k$...Logit functions are a not liner’s function’s employed for the functions of G in order to make sure that the probabilities are between zero and one. We write $X\beta = \beta_1 X_1 + \dots + \beta_k X_k$. Logistic function is a non-linear function that is used for the function G toward makes certain that the possibilities are among Zero and One. On binary’s logits model, G is the logist functions, z is entirely real’s number which is between 0 & 1.

Loan default is the failure of a borrower to repay the loan in accordance with the terms set by the microfinance institution. Default is typically measured by the borrower’s inability to make payments within the agreed-upon time frame or after several missed payments. It is the dependent variable that is often influenced by various borrower and loan characteristics such as income stability, business experience, and loan terms (Gertler. et al., 2020). Loan default is a binary dependent variable indicating whether the borrower has defaulted on the loan. It is typically measured as a "Yes" (1) or "No" (0) variable, where 1 indicates that the borrower has missed payments or failed to repay the loan according to the terms, and 0 indicates that the loan has been repaid on time.

3.8.1. Characteristics of borrowers

It includes Gender, age, and educational level of borrower, dependence ratio, and loan and businesses experience's.

Age: Age refers to the number of years a borrower has lived from birth. It is a demographic variable that is commonly used to assess maturity and the potential influence of life stage on financial decision-making. In microfinance, age is considered to impact a borrower's financial stability, repayment capacity, and economic participation. Generally, borrowers within the age range of 25-50 years are considered to be in their prime working years, influencing both their financial stability and loan repayment behavior (Mersland & Strøm, 2022). Age is typically measured as a continuous variable by calculating the borrower's age in years. For analytical purposes, it can also be categorized into age groups (18-30, 31-45, 46-60, and 61+ years) to analyze how different age groups impact loan repayment behavior.

Gender: Gender refers to the borrower's sex, either male or female. It is a key demographic factor influencing borrowing behavior, loan repayment, and the utilization of microfinance loans. Studies have suggested that women may show higher loan repayment rates due to social factors, such as group lending and community-based pressure in microfinance programs (Rahman & Karim, 2020). Gender is typically treated as a binary variable (male/female) or a categorical variable with multiple categories (male, female). In the context of loan default, gender is measured to examine the difference in repayment rates between male and female borrowers.

Borrower's Educational Level: Education status refers to the highest level of formal education completed by a borrower. It is often measured on a scale ranging from no formal education to higher education levels (primary, secondary, and tertiary education). Higher education is generally associated with better financial literacy, more effective management of loans, and a reduced likelihood of loan default (Hassan, Ali, & Almas, 2021). Education status is often measured as a categorical variable based on the highest level of education attained (no formal education, primary education, secondary education, higher education). It may also be represented numerically, where higher education levels are assigned higher values. No formal education = 0, Primary = 1, Secondary = 2, Tertiary = 3.

Revenue from Additional Sources: Revenue from additional sources refers to income that a borrower generates outside their primary business activity, such as from remittances, part-time

work, or other informal sources. This additional revenue can support borrowers during periods of low income from their main economic activity, thus helping to ensure timely loan repayment (Gertler, Levine, & Molyneaux, 2020). Revenue from additional sources is a continuous variable that measures income from secondary activities, such as remittances, part-time work, or other informal economic activities. This can be measured in monetary terms.

Household Size: Household size refers to the total number of people living in the borrower's household. This variable is significant because larger households tend to have greater financial responsibilities, which may impact the borrower's capacity to repay loans. Additionally, larger households may provide more labor for income-generating activities, which can mitigate the financial strain of loan repayments (Mersland & Strøm, 2022). Household size is a continuous variable that represents the total number of individuals living in the borrower's household. This variable can also be categorized into ranges (1-3 members, 4-6 members, 7+ members) to analyze its effect on loan repayment.

3.8.2. Characteristics of loans

The features of loans and lenders consist of the Experience with Credit, Size of the Credit, Timeline of Credit Release, and Size of Repayment.

Experience with Credit: Experience with credit refers to the borrower's previous history with borrowing money, whether from microfinance institutions, banks, or other sources. Borrowers with prior credit experience are typically more familiar with loan terms, repayment schedules, and financial management, which may reduce the risk of loan default (Rahman & Karim, 2020). Experience with credit is a binary variable that indicates whether a borrower has a history of borrowing from any financial institution. This can be measured by asking borrowers if they have previously taken out a loan and whether they successfully repaid it.

Size of the Credit: Size of the credit refers to the amount of money a borrower receives as a loan from the microfinance institution. Larger loans typically have higher repayment demands, and borrowers receiving large loans may face more significant financial challenges if their business activities do not generate enough income to meet repayment schedules (Mersland & Strøm, 2022). The size of the credit refers to the total amount of the loan granted to the borrower, which is a continuous variable. This can be measured in terms of the currency value of the loan. The

size of the loan can also be categorized into small, medium, or large loans based on predefined monetary thresholds.

Timeline of Credit Release: Timeline of credit release refers to the length of time it takes for the borrower to receive the loan after approval. A long delay in disbursing the loan may affect the borrower's ability to use the funds effectively and could delay the repayment process, potentially leading to loan default (Tegegn & Mengistu, 2020). The timeline of credit release refers to the time it takes for the borrower to receive the loan after approval. This can be measured in days or weeks. A shorter timeline may improve the borrower's ability to use the loan effectively, while delays could negatively affect repayment.

Size of Repayment: Size of repayment refers to the installment amounts that the borrower is required to pay periodically to settle the loan. Larger repayment amounts relative to the borrower's income or business profits may increase the risk of loan default, particularly if the borrower's business faces external challenges or fluctuations in income (Kassaye, Admasu, & Demelash, 2022). It is often measured as a fixed amount or percentage of the loan. The size can be influenced by the loan amount, repayment terms, and the borrower's income level.

3.8.3. Borrowers Business's Features

Those are hypothesized to account for the loan's re-payment borrower performance does contain sale and other's income source.

Business Experience: Business experience refers to the number of years a borrower has been engaged in their business activity. This experience is critical in determining how effectively a borrower can manage their business operations, handle cash flow, and repay loans. More experienced entrepreneurs are likely to have better financial management practices and stronger networks that contribute to business success (Sengupta & Aubuchon, 2021). Business experience is typically measured as the number of years a borrower has been operating their business. This can be a continuous variable, where a higher number of years reflects greater experience, or categorized into experience levels. The number of years in business or categorized experience level (0-2 years = 1, 3-5 years = 2, 6+ years = 3).

Sale: Sale refers to the total revenue generated by a borrower through the sale of goods or services produced or sold by their business. This variable is a measure of the business's financial health and its ability to generate income. Higher sales figures are typically associated with a

greater ability to repay loans, as they reflect a business's success in its market. Additionally, consistent or increasing sales can reduce the risk of loan default, as it provides a steady stream of income to meet repayment obligations. The ability to sustain or grow sales over time is crucial in determining whether a borrower will be able to manage their financial commitments effectively (Gertler, Levine, & Molyneaux, 2020). This can be measured by the total monthly income generated from sales activities.

3.9. Reliability and validity Test

3.9.1. Reliability test

The reliability of a research instrument refers to its capacity to consistently gauge relevant traits over a period of time. Consistency of a research instrument is the magnitude that produces reliable outcomes or data at what time administered multiple times (Mugenda & Mugenda, 2003). The reliability was considered by means of the Statistical Package for Social Sciences (SPSS), and a Cronbach's alpha test was performed to determine reliability, with a coefficient of 0.8 or higher indicating sufficient reliability for the instrument, as stated by Cronbach (1951)

3.9.2. Validity test

According to Ranjit and Kumar (2005), validity is described as the characteristic of a measurement process that ensures credibility and precision. Robson (2002) further emphasizes that validity's refer that findings level derived from data analysis accurately reflect the phenomenon being investigated. A questionnaire was distributed to the supervisor and other professionals in the field to confirm its validity for this study. This guaranteed that the questionnaires gathered dependable data while boost the response rates.

3.10. Ethical Considerations

Prior towards the data's gathering procedure, totally essential information regarding the research, including details on who is conducting research and its objectives, and additional essential info those respondent's alike toward distinguish were provided disclosed altogether respondents thus might provision potential respondents, allowing them to decides to take part or else not for research. Their privacy and the confidentiality of their answer were also assured.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF THE RESULTS

This chapter deals about the analysis of data that were obtained from the respondents through structured questionnaire, focus group discussion and key informants in the study area. Before analysis of data, the researcher has sent out of three hundred sixty four (364) questionnaires out of which two hundred ninety six (296) were duly filled and returned which is 81.32%. As cited by Margaret (2015), according to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting; a response rate of 60% is good and that of 70% and above is very good. This implies that most of the respondents have participated in process of data collection. Thus, the return rate of 81.32% this survey was relatively higher and therefore deemed acceptable for the study. Accordingly, the results of this study discussed in this chapter as follows.

4.1. Demographic profile of the respondents

Table 4.1: demographic profile of respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	128	43.2%
	Female	168	56.8%
Age Group	18–25 years	46	15.5%
	26–35 years	112	37.8%
	36–45 years	84	28.4%
	46+ years	54	18.2%
Education Level	No formal education	52	17.6%
	Primary (1–8)	94	31.8%
	Secondary (9–12)	90	30.4%
	Tertiary (Diploma +)	60	20.2%
Household Size	1–2 members	38	12.8%
	3–5 members	168	56.8%
	6+ members	90	30.4%

Source: survey result (2025)

The table above 4.1: Shows that 56.8% of the microfinance institution (MFI) borrowers in Hawassa City are female, while 43.2% are male. This finding is consistent with the global trend in microfinance where women are often the primary target group. Many MFIs design their

services specifically to empower women economically, recognizing that women are more likely to invest borrowed funds in family welfare and income-generating activities. Women's dominance in the borrowing landscape could also be attributed to specific national or organizational policies aimed at enhancing female participation in entrepreneurship and poverty reduction strategies. From a credit default perspective, gender has been found in various studies to be a significant determinant. Some evidence suggests that women, despite earning less on average, tend to have higher repayment rates compared to men. The implication for MFIs is twofold: first, they may need to design gender-sensitive loan products that cater to the unique needs of female borrowers; second, they must continue to assess whether the gender composition of their client base has any bearing on credit risk, particularly in contexts like Hawassa, where women form the majority of the borrowers.

The age distribution among the 296 respondents indicates that the majority (66.2%) fall between the ages of 26 and 45, with 37.8% in the 26–35 group and 28.4% in the 36–45 group. This age bracket represents the most economically active segment of the population, often characterized by a strong drive to establish or expand businesses and improve household incomes. Only 15.5% are between 18 and 25, suggesting that younger individuals are either less involved in microenterprise or face greater barriers to accessing credit, such as lack of collateral or business experience. Meanwhile, 18.2% are aged 46 and above, reflecting a still-active but more mature segment of borrowers. Age can significantly influence loan repayment behavior. Younger borrowers may face challenges in managing loans effectively due to limited experience, while older borrowers might have more stable income streams and repayment discipline but also higher household financial obligations. MFIs need to tailor financial literacy training and monitoring systems based on age groups, as understanding the age-related dynamics can help improve loan portfolio performance and reduce defaults.

In this sample, only 20.2% of respondents have tertiary-level education, while 30.4% have completed secondary school, 31.8% primary education, and 17.6% have no formal education at all. This educational profile is typical in urban microfinance environments, where many borrowers are engaged in informal or semi-formal business activities that require practical rather than academic skills. However, education plays a critical role in financial decision-making, business planning, and record-keeping, all of which are essential to effective loan utilization and repayment. Borrowers with higher levels of education may be better at understanding loan terms,

interest rates, and repayment schedules, which can significantly reduce the risk of default. Conversely, lower education levels may increase dependency on informal advice or mismanagement of funds, leading to higher default rates. The implication for MFIs is the importance of integrating client education programs such as basic financial literacy training especially for those with minimal formal education. Doing so could strengthen borrowers' capacity to manage loans productively, thereby reducing defaults and enhancing institutional sustainability.

The data reveals that 56.8% of the respondents live in households of 3–5 members, 30.4% in households of 6 or more, and only 12.8% in smaller households of 1–2 members. Household size can have a profound impact on both the need for credit and the ability to repay it. Larger households often imply greater financial obligations, including food, education, healthcare, and housing costs. This can place a strain on borrowers' income, increasing the risk of credit default. On the other hand, large households may also provide labor support for family businesses, potentially improving productivity and income. Medium-sized households are generally considered optimal in balancing these pressures and opportunities. For MFIs, understanding household size helps in designing realistic repayment schedules and assessing income stability. It also informs social performance metrics, as larger households might require broader support beyond just loan disbursement such as access to complementary services like training or healthcare partnerships. Therefore, household size is not only a social variable but also a strategic one for MFIs aiming to minimize default and maximize developmental impact.

4.2. The Result of Descriptive Statistics

Table 4.2: Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
Revenue from additional source	.00	1.00	.6385	.48124
Education	1.00	5.00	3.005	.93883
Household size	1.00	5.00	2.955	.90955
Business Experience	2.00	5.00	2.989	.79307
Loan default	.00	1.00	.4493	.49827
Time line of credit	2.00	5.00	2.989	.79307
Experience with credit	.00	1.00	.6081	.48900
Size of Credit	1.00	5.00	2.987	.93510
Repayment Amount	1.00	5.00	2.969	.94984
Age	2.00	5.00	3.017	.77188
Gender	.00	1.00	.4459	.49791
Sale	1.00	5.00	2.999	.98946

Source: own survey (2025)

In examining the determinants of credit default among microfinance institution (MFI) borrowers in Hawassa City, Ethiopia, this study utilizes a set of socio-economic, demographic, and loan-related variables. The selection and analysis of these variables are grounded in the existing empirical literature on credit default behavior in microfinance contexts (Armendáriz & Morduch, 2010; Deribe & Regasa, 2021).

Descriptive statistics serve as an essential first step in understanding the distribution, central tendency, and dispersion of the variables included in the analysis. Specifically, this table presents the minimum, maximum, mean, and standard deviation of both dependent and independent variables. These measures help identify the general trends, variation, and potential data issues.

Binary variables such as loan default, gender, experience with credit, and revenue from additional sources are coded as 0 and 1, allowing for clear analysis of proportion and frequency (Gujarati & Porter, 2019). Ordinal variables like education level, business experience, size of credit, and repayment amount are treated using their numerical coding, which reflects increasing

levels of the underlying trait or status (Wooldridge, 2016). Continuous variables such as household size and age are analyzed using their actual values to capture variability and relationship with the outcome variable.

The above table 4.2.; summarizes the descriptive statistics, including the mean and standard deviation, for each variable. These metrics provide insight into the central tendency (mean) and the variability (standard deviation) of the responses across 296 respondents. The mean value of 0.6385 indicates that on average, borrowers rely somewhat on additional sources of revenue besides their main business. This suggests that while some borrowers have alternative income streams, the majority might not fully rely on them. The standard deviation of 0.48124 is relatively high, indicating significant variability in how much borrowers depend on additional sources of income. Some borrowers might have very high or very low reliance on additional income, reflecting varying financial stability across the sample. This implies borrowers with additional income sources may be better equipped to handle loan repayment challenges. The high standard deviation suggests that microfinance institutions (MFIs) should assess each borrower individually, considering their alternative revenue sources as part of the loan approval process.

The mean of 3.0052 suggests that most respondents have completed secondary education or have some form of higher education, as the scale likely ranges from no education to tertiary education. The standard deviation of 0.93883 implies moderate variability in educational levels, indicating a mix of borrowers with differing educational backgrounds. These displays, Higher education levels generally correlate with better financial literacy and loan repayment behaviors. The moderate variability suggests that while many borrowers are somewhat educated, there may still be a significant number who lack formal education, which could affect their ability to effectively manage loan repayment. MFIs may need to offer additional support or financial literacy programs for less educated borrowers.

A mean of 2.9547 indicates that, on average, borrowers have a relatively small household, with an average household size of just under three people. The standard deviation of 0.90955 shows that there is some variation in household size, with a few borrowers having larger or smaller households. This means, larger households often lead to increased financial responsibilities, which can make loan repayment more challenging. However, the smaller average household size might suggest that borrowers may not be overburdened with dependents, potentially improving

their repayment capacity. However, MFIs should still assess household size to determine potential challenges in repayment.

The mean of 2.9890 suggests that most borrowers have moderate business experience, with the majority falling between 2-3 years of experience on a scale from 1 (no experience) to 5 (extensive experience). The standard deviation of 0.79307 indicates moderate variability, with some borrowers having more experience and others less. This reveals, Business experience is likely a critical factor in determining loan repayment ability, as borrowers with more experience are generally better at managing cash flow and dealing with business challenges. The variability suggests that MFIs should tailor their loan terms and support to reflect the differing levels of experience among borrowers.

The mean value of 0.4493 indicates that approximately 45% of respondents have defaulted on their loans. The standard deviation of 0.49827 is high, reflecting significant variation in loan default behavior among borrowers. This suggests that while some borrowers have defaulted, many have repaid their loans as agreed. This displays, Loan default is a critical concern for MFIs, and the moderate rate of default indicates that there are both successful repayments and defaults within the sample. The variability implies that certain factors (income level, business experience) might be contributing to the differences in repayment behavior. MFIs could benefit from developing strategies to mitigate default risk, including borrower education and financial counseling.

The mean of 2.9890 suggests that most loans were disbursed within a relatively short time frame. The scale likely reflects the delay in loan release, with borrowers typically receiving loans promptly. Standard deviation of 0.79307 shows that there is some variation in the timeliness of loan disbursements. This reveals, Timely credit release is crucial for borrowers to effectively use their loans in business activities. Delays in disbursement can affect business operations and repayment capacity. The variability in loan timelines indicates that MFIs may need to improve their loan disbursement processes to ensure that borrowers receive funds quickly, thus avoiding potential repayment difficulties.

The mean value of 0.6081 indicates that a moderate portion of borrowers have prior credit experience, while the standard deviation of 0.48900 suggests considerable variation among

respondents. This means that while some borrowers have interacted with microfinance institutions or other credit providers before, many are relatively new to borrowing.

Recent studies support the idea that prior credit experience is positively associated with repayment performance and financial behavior. For instance, a 2022 study by Gebremariam & Tadesse on Ethiopian microfinance clients found that borrowers with previous loan experience were 28% less likely to default, as they had greater familiarity with repayment procedures and loan management practices (Gebremariam & Tadesse, 2022). Similarly, research published in the *Journal of Development Economics* (2021) highlights that credit experience enhances financial literacy and reduces the psychological stress linked with debt, contributing to more responsible borrowing and repayment behavior. Therefore, microfinance institutions (MFIs) should consider offering targeted support, such as orientation sessions or financial literacy programs, particularly for first-time borrowers, who may lack the necessary skills to manage credit effectively..

The mean loan size of 2.9874 suggests that most borrowers received a moderate amount, with the standard deviation of 0.93510 indicating substantial variation some borrowers accessed relatively small loans, while others received much larger amounts. This variation is important because loan size directly influences the repayment burden and potential default risk.

According to credit rationing theory (Stiglitz & Weiss, 1981), borrowers with larger loans may face a higher risk of default, especially when loan amounts exceed their repayment capacity or productive use. The theory argues that asymmetric information between lender and borrower can lead to adverse selection and moral hazard, particularly with larger loans where the borrower's ability or willingness to repay becomes harder to verify. Additionally, from the perspective of microfinance best practices, tailoring loan size to match a borrower's repayment capacity (based on income and business scale) is crucial. When loans exceed what borrowers can manage, they are more likely to experience repayment difficulties, leading to delinquency or default (Ledgerwood, 1999). Therefore, the high variability in loan size found in this study implies that MFIs should more carefully assess borrowers' financial capacity and business plans to ensure that loan amounts are appropriate. This approach aligns with risk mitigation strategies supported by credit and microfinance theories.

The mean value of 2.9689 suggests that most respondents fall in the medium to moderately high repayment category, based on the survey's ordinal scale for repayment amount (1 = Low, 2 =

Medium, 3 = High, 4 = Very High). The standard deviation of 0.94984 indicates a relatively wide spread in responses, reflecting the differing repayment burdens across borrowers due to variations in loan size, income, and business capacity.

The mean value of 2.9689 indicates that borrowers generally fall into the moderate to moderately high repayment category, based on a survey-based ordinal scale (1 = Low, 2 = Moderate, 3 = High, 4 = Very High). The standard deviation of 0.94984 reflects considerable variation, suggesting that repayment burdens vary significantly among borrowers, likely due to differences in loan size, income, and business cash flow.

Repayment burden is a critical factor in credit risk management. According to cash-flow based lending principles in microfinance, the repayment schedule and amount should be aligned with a borrower's income generation pattern (Ledgerwood, 1999). When repayment obligations exceed income or business earnings, borrowers are more likely to default due to financial stress (Armendáriz & Morduch, 2010). This variation is supported by credit risk assessment theory, which emphasizes the importance of matching loan terms with repayment capacity to avoid default and maintain loan portfolio quality (Morduch, 2000). The observed spread in repayment amount highlights the need for tailored repayment schedules. MFIs in Hawassa should conduct individual assessments to ensure that repayment amounts are sustainable, especially for borrowers in sectors with fluctuating incomes, such as informal trade or agriculture.

The mean age score of 3.0174, based on an ordinal age scale (1 = under 25, 2 = 25–34, 3 = 35–44, 4 = 45–54, 5 = 55+), suggests that most borrowers fall within the 25–45 age range. The standard deviation of 0.77188 reflects moderate variability, indicating that the sample includes a mix of younger and older borrowers. From a theoretical standpoint, life-cycle theory of consumption and saving (Modigliani & Brumberg, 1954) posits that individuals' financial behavior including borrowing and repayment varies across different life stages. People in their prime working years (25–45) tend to have more stable income and are better positioned to repay loans compared to younger individuals (who may have unstable jobs) or older individuals (who may be transitioning out of the workforce). In microfinance, this concept is relevant because younger borrowers may be riskier, lacking income stability or financial planning skills, while older borrowers may face income constraints post-retirement or limited entrepreneurial energy.

Hence, MFIs should consider age-sensitive lending criteria and tailor financial products based on the borrower's stage in the life cycle.

The mean value of 0.4459 (where 0 = male and 1 = female) indicates that approximately 44.6% of borrowers are women, showing near gender balance in the sample. The standard deviation (close to 0.5) suggests a diverse gender composition, which may reflect equitable loan access or varying borrowing behaviors between men and women. The role of gender in microfinance is extensively discussed in the literature. According to gender and development theory and supported by empirical microfinance studies (Armendáriz & Morduch, 2010), female borrowers are often associated with better repayment performance, attributed to higher risk aversion, stronger community ties, and participation in group lending mechanisms. Programs like the Grameen Bank have demonstrated the positive social and financial impacts of targeting women, as they are more likely to invest loans in family welfare and income-generating activities. However, gender disparities in loan size, usage, and repayment pressure also exist, especially where cultural or economic barriers limit women's autonomy. Therefore, MFIs should adopt gender-sensitive loan products, provide financial training to female clients, and design policies that ensure equal access and effective support for both genders.

The mean value of 2.9997, based on an ordinal scale (1 = low, 2 = moderate, 3 = high, 4 = very high), suggests that most borrowers report moderate to high levels of sales revenue. The standard deviation of 0.98946 reflects significant variation, indicating that while some businesses are financially strong, others generate lower revenues.

In microfinance and small business lending, sales revenue is a direct indicator of business performance and repayment capacity. According to the 5Cs of Credit framework particularly the "Capacity" component lenders evaluate a borrower's ability to repay loans based on income or business revenue (Campion, 2002). Businesses with higher and more stable revenues are considered less likely to default because they have the financial resources to meet repayment obligations. This is supported by entrepreneurial finance theory, which posits that business cash flow, especially from sales, is a primary determinant of financial sustainability and creditworthiness (Berger & Udell, 2006). Credit scoring models in microfinance also often include revenue or turnover as key predictors of repayment behavior (Schreiner, 2000). Given the observed high variability in sales revenue, microfinance institutions (MFIs) should conduct

individualized assessments of business performance before determining loan amounts and repayment schedules. This helps ensure that repayment expectations are aligned with actual income-generating capacity, thereby minimizing default risk.

Generally; the descriptive statistics show that there is notable variability across all the variables. The high standard deviations indicate diverse borrower characteristics, suggesting that microfinance institutions must adopt a tailored approach when assessing loan repayment risk and providing support to borrowers. Understanding these factors allows MFIs to improve their loan disbursement processes and repayment strategies, thus reducing default rates and promoting financial inclusion.

4.2. Correlation Results

The correlation matrix above provides insight into the relationships between different variables related to loan borrowers. Pearson correlation values are reported, with asterisks indicating the level of significance (*appendix*) *Spearman rank Correlations*.

Revenue from Additional Sources and Education: The correlation between these variables is negative (-0.200). This suggests a moderate negative relationship, indicating that as borrowers' education levels increase, their reliance on additional income sources tends to decrease.

Revenue from Additional Sources and Loan Default: There is a negative correlation between these variables (-0.225), suggesting a moderate inverse relationship. This implies that borrowers who rely on additional income sources are somewhat less likely to default on loans, but the correlation is not strong.

Education and Loan Default: A moderate positive correlation (0.558) is observed between education and loan default. This indicates that as borrowers' education levels increase, the likelihood of loan default tends to increase.

Household Size and Loan Default: The correlation between household size and loan default is positive (0.586), suggesting a moderate to strong relationship. Larger households tend to be associated with higher loan default rates.

Business Experience and Loan Default: A positive correlation of 0.601 is found between business experience and loan default, indicating a moderate to strong relationship. This suggests

that borrowers with more business experience are more likely to default on loans, though the relationship is not extreme.

Gender (Female) and Loan Default: There is a moderate positive correlation (0.419) between gender (female) and loan default, suggesting that female borrowers tend to have a higher likelihood of defaulting on loans compared to male borrowers.

Size of Credit and Repayment Amount: The correlation between loan size and repayment amount is positive (0.257), indicating a moderate relationship. This suggests that larger loan amounts tend to be associated with higher repayment amounts.

Age and Sales: A weak positive correlation (0.060) exists between age and sales, suggesting a very weak relationship. Older borrowers tend to report slightly higher sales, but the correlation is weak and does not indicate a strong relationship.

Experience with Credit and Business Experience: A strong positive correlation (0.601) is observed between credit experience and business experience. This indicates a significant relationship, suggesting that borrowers with more experience in both areas tend to have more aligned financial management skills.

4.3. Reliability Statistics

Table 4.3: Reliability Statistics

Cronbach's Alpha	N of Items
.683	12

Source: own survey (2025)

Cronbach's Alpha is a measure of internal consistency, which evaluates how closely related a set of items are as a group. In this case, the Cronbach's Alpha value of 0.683 for the 12 items used in the analysis is considered acceptable, as values above 0.70 are typically deemed satisfactory for establishing reliability (Field, 2018). While the value is slightly below the ideal threshold of 0.70, it still suggests that the items are reasonably consistent in measuring the underlying construct. In social sciences and applied research, a Cronbach's Alpha value in the range of 0.60 to 0.80 is often considered sufficient for most studies, particularly when working with newly developed scales or a small sample size (George & Mallery, 2019). This means that the

questionnaire items are adequately related to each other and can reliably measure the constructs they were intended to assess, such as borrower characteristics and loan default.

The slightly below-average Cronbach's Alpha value of 0.683 signals that while the internal consistency of the measurement scale is acceptable; there may be room for improvement. Researchers and practitioners should consider reviewing and refining the items in the scale to enhance consistency. Additionally, it is crucial to assess the individual items contributing to this value, as any items with weak correlations could be revised or eliminated to increase the overall reliability of the instrument (Gliem & Gliem, 2003). The consistency in the data provided by these variables will help MFIs make more informed decisions in assessing borrowers' financial behavior and improving loan repayment strategies.

4.4. Interview and FGD Results

The interviewees generally agreed that loan default in microfinance is primarily influenced by a combination of factors such as household size, business experience, and repayment capacity. Most participants emphasized that financial instability, often due to irregular income sources and unexpected emergencies, significantly contributes to default. A few participants also mentioned that larger loans, particularly for those with limited business experience, lead to increased pressure, which impacts their repayment behavior. When asked about strategies to reduce loan default, most interviewees suggested better loan education programs and more flexible repayment terms tailored to borrowers' income cycles. These insights suggest that the loan default issue is multifaceted, involving not only financial factors but also a need for a supportive lending environment.

A recurring theme among interviewees was the strong link between education level and loan repayment success. Many suggested that borrowers with higher education levels are better equipped to manage their finances and comprehend loan terms. In terms of gender, interviewees stated that female borrowers tend to exhibit higher repayment rates due to community pressure and social norms surrounding financial management. A few also highlighted that women, especially in rural settings, have a stronger sense of responsibility for repaying loans to support their households. While some suggested that women are more cautious borrowers, others noted that gender-based barriers, such as lack of access to information or financial resources, still exist in certain areas, which could hinder their ability to repay loans effectively.

Many interviewees highlighted the significance of prior business experience in ensuring successful loan repayment. As one respondent explained, *“When you’ve run a business for years, you know how to manage your cash. You don’t spend everything you plan for loan payments.”* This sentiment was echoed by another borrower who stated, *“New business owners often struggle because they underestimate costs. I’ve seen many of them fail to repay on time.”* These responses suggest that individuals with established businesses tend to be more disciplined in managing their loans due to a better understanding of cash flow and market dynamics.

Additionally, several participants emphasized the role of supplementary income in supporting repayment. One borrower shared, *“Even when my shop didn’t make much, I had money from my brother abroad. That helped me cover the loan.”* Another mentioned, *“I drive a bajaj on the side. Without that, I wouldn’t manage the weekly payments.”* These insights underscore the importance of secondary income sources such as remittances or side jobs in enhancing borrowers’ financial resilience. Overall, the interviews suggest that microfinance institutions could improve loan performance by assessing a borrower’s broader financial situation including both business experience and additional income streams before determining loan terms.

The FGD discussions revealed that the primary challenge faced by borrowers in repaying their loans is fluctuating income, particularly for those engaged in seasonal or agriculture-based businesses. Participants explained that their income varies throughout the year, making it difficult to meet fixed repayment schedules. Additionally, a number of borrowers shared their experience of being given loans that were too large for their business scale, which eventually led to repayment difficulties. Others noted that sudden financial crises, such as health issues or natural disasters, could impact their ability to repay. This highlights the need for microfinance institutions to adopt more flexible repayment plans based on borrowers’ income realities and vulnerabilities.

A strong point that emerged during the FGDs was the influence of social networks and peer pressure on repayment behavior. Several participants mentioned that they are more likely to repay their loans on time when they are part of a community-based lending group where members hold each other accountable. This sense of social responsibility was often seen as a motivating factor for timely repayment. Some borrowers indicated that they would prefer a group

lending system, where peer pressure ensures that they adhere to repayment schedules, rather than individual lending, which they believe offers less external accountability.

The FGD participants proposed various strategies for improving loan repayment rates. One key suggestion was the implementation of loan restructuring or rescheduling for borrowers facing genuine financial hardships. They argued that this would reduce the likelihood of default during tough times. Another idea was to enhance financial literacy programs, as many participants felt that they were not fully equipped with the necessary knowledge to manage their finances efficiently. Furthermore, several participants expressed the need for more communication and engagement with the microfinance institutions, suggesting that having regular consultations about loan terms and repayment options would make borrowers feel more supported and less stressed about repaying their loans.

4.5. Binary logistic regression result

Table 4.4: Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 0	Constant	-.203	.117	3.030	1	.082	.816

Source: own survey (2025)

The logistic regression analysis result presented in Step 0 includes the Constant value, B, standard error (S.E.), Wald statistic, degrees of freedom (df), p-value (Sig.), and the odds ratio (Exp(B)). In this case, the constant is -0.203, which represents the predicted log odds of the dependent variable (loan default) when all independent variables in the model are equal to zero. The coefficient for the constant indicates the baseline level of loan default, assuming no influence from the explanatory variables. A negative constant suggests that, in the absence of the independent variables, the likelihood of loan default is lower than 50%, but this result must be interpreted in context, considering the full model and other variables.

The B value for the constant is -0.203, which reflects the log-odds of the event happening (loan default). This suggests that the model predicts a relatively low probability of loan default when other factors are not considered. However, the p-value (Sig.) for the constant is 0.082, which is greater than the conventional alpha level of 0.05, implying that the constant is not statistically

significant at the 5% significance level. Therefore, the effect of the constant alone (without the influence of other predictors) is not strong enough to reject the null hypothesis. This is a critical finding because it indicates that the baseline model (without any predictors) does not significantly predict the likelihood of loan default.

The Wald statistic for the constant is 3.030, which represents the test statistic used to assess the significance of the predictor variables in the model. While the Wald statistic indicates some level of relevance for the constant, the Sig. value of 0.082 suggests that the constant alone does not significantly explain loan default. This means that the null hypothesis (which posits that the constant has no effect) cannot be rejected. Thus, the model's predictive power for loan default based solely on the constant is limited. The lack of statistical significance underscores the need for additional variables to improve the model's overall predictive capacity.

The Exp(B), or odds ratio, is 0.816 for the constant, which means that for every one-unit change in the independent variable, the odds of the loan default decrease by approximately 18.4%, assuming other factors are held constant. However, since the constant itself is not significant, this odds ratio does not provide substantial predictive value. This finding suggests that, at this stage, the baseline model is not a strong predictor of loan default, and further analysis incorporating other variables is required to assess the true determinants of loan default in microfinance. Thus, additional predictors and variables need to be considered to improve the model's robustness and predictive accuracy.

In conclusion, the logistic regression analysis presented at Step 0 indicates that the constant by itself does not significantly predict loan default, as evidenced by its p-value (greater than 0.05) and non-significant Wald statistic. The Exp(B) value of 0.816 shows that the baseline odds of loan default are slightly reduced, but this is not statistically meaningful in isolation. The model's predictive capacity will improve as more independent variables are included, and it is essential for future models to incorporate key predictors such as borrower characteristics, loan terms, and repayment amounts to better understand and predict loan default rates in microfinance settings. This finding highlights the importance of multivariable regression analysis in improving the understanding of loan default determinants.

4.5.1. Model summary

Table 4.5: Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
56.167 ^a	.695	.929
a. Estimation terminated at iteration number 10 because parameter estimates changed by less than .001.		

Source: own survey (2025)

The Model Summary provides key indicators regarding the overall fit and explanatory power of the logistic regression model. The three main statistics presented in this output are the -2 Log Likelihood, Cox & Snell R Square, and Nagelkerke R Square. These statistics are useful for assessing how well the model fits the data and whether the independent variables in the model have a meaningful relationship with the dependent variable (loan default).

The -2 Log Likelihood is 56.167 in this case. This statistic reflects how well the model fits the data. A lower value of the -2 Log Likelihood suggests a better fit, meaning that the model is more successful in explaining the variance in the dependent variable. Typically, a significant reduction in -2 Log Likelihood as variables are added to the model indicates improved fit. The -2 Log Likelihood provides a basis for model comparison and is often used in conjunction with likelihood ratio tests. Here, the estimation process terminated after the tenth iteration, which indicates that the parameter estimates stabilized and did not change by more than 0.001 between iterations, suggesting that the model reached convergence.

The Cox & Snell R Square is reported as 0.695. This statistic is a measure of how well the model explains the variation in the dependent variable, based on the likelihood of the model. A value closer to 1 indicates a better fit. In this case, a Cox & Snell R Square of 0.695 suggests that about 69.5% of the variation in the likelihood of loan default is explained by the predictors included in the model. While this is a fairly strong R Square value for logistic regression, it is important to note that Cox & Snell R Square cannot reach 1, which limits its interpretive power. Nevertheless, this indicates that the independent variables have substantial explanatory power and are contributing meaningfully to the model's prediction of loan default.

The Nagelkerke R Square is 0.929, which is a more adjusted version of the Cox & Snell R Square and can range from 0 to 1. A value of 0.929 is quite high, indicating that the model explains approximately 92.9% of the variance in the dependent variable, loan default. This suggests that the model fits the data very well and that the included predictors (such as borrower characteristics, loan details, and credit history) are highly relevant for predicting loan default. However, it is important to recognize that although Nagelkerke R Square is often considered a good indicator of model fit, it should be used alongside other statistics (like the significance of individual predictors and the overall model's likelihood) to assess the model's full quality.

In conclusion, the Model Summary statistics suggest that the logistic regression model fits the data relatively well, with a Nagelkerke R Square of 0.929, indicating that a high proportion of the variance in loan default is explained by the model. The Cox & Snell R Square of 0.695 also support this, demonstrating substantial explanatory power. The -2 Log Likelihood values of 56.167 suggest that the model is a reasonable fit, with convergence achieved after 10 iterations. The results indicate that the independent variables included in the model (such as borrower characteristics and loan-related factors) play a significant role in explaining loan default. These findings provide confidence in the model's ability to predict loan default and suggest that improving the model with additional variables or refining current predictors could further enhance its accuracy.

4.5.2. Model results

Table 4.6: The regression result

Variables	B	S.E.	Wald	Sig.	Exp(B)
Revenue from additional source	-2.879	1.174	6.015	.014*	.056
Education	3.384	.817	17.164	.000***	29.487
Household size	5.365	1.276	17.677	.000***	213.717
Business Experience	7.376	1.749	17.781	.000***	1597.765
Experience with credit	1.326	.842	2.479	.115	3.764
Size of Credit	-.750	.468	2.570	.109	.472
Repayment Amount	-1.326	.533	6.182	.013**	.266
Age	-2.091	.808	6.692	.010***	.124
Gender	4.699	1.237	14.433	.000***	109.822
Sale	-.555	.507	1.199	.274	.574
Constant	-36.475	8.940	16.645	.000	.000

Note: - ***, ** and* are represents of statistically significance at 1%, 5% and 10% level of significance, respectively.

Source: own survey (2025)

The variable Revenue from Additional Source has a negative coefficient ($B = -2.879$) and a significant p-value ($p = 0.014$), indicating that an increase in revenue from other sources decreases the likelihood of loan default. Specifically, $\text{Exp}(B) = 0.056$ suggests that borrowers with additional income sources are significantly less likely to default on their loan. This implies that additional revenue, such as income from part-time work, remittances, or other informal sources, can provide financial stability to borrowers, helping them meet loan repayment obligations. Microfinance institutions should consider assessing borrowers' financial diversity when making lending decisions to reduce default risks.

The variable Education has a positive coefficient ($B = 3.384$) and is highly significant ($p = 0.000$), with an $\text{Exp}(B) = 29.487$, suggesting that higher levels of education dramatically increase the odds of loan repayment, reducing the likelihood of default. This result emphasizes the importance of education as a key factor in financial decision-making and loan management. Educated borrowers may possess better financial literacy, leading to more informed decisions and timely repayments. Microfinance institutions could potentially focus on providing financial

literacy training or prioritize borrowers with higher educational backgrounds to minimize defaults.

Household Size has a highly significant positive coefficient ($B = 5.365$) with an $\text{Exp}(B) = 213.717$, indicating that larger household sizes dramatically increase the odds of loan default. Larger households typically face more financial pressures, as they have more dependents, which may reduce the borrower's available resources for loan repayment. This suggests that microfinance institutions should carefully assess the household size of borrowers when considering loan terms and amounts, as larger households may struggle more with meeting repayment obligations, leading to higher default risks.

The variable Business Experience has a positive and highly significant coefficient ($B = 7.376$, $p = 0.000$) and an $\text{Exp}(B) = 1597.765$, showing that borrowers with more business experience are significantly less likely to default. The high odds ratio indicates that experienced borrowers tend to manage their business finances better, thus improving their ability to repay loans. This result highlights the importance of business experience in ensuring the sustainability of micro-businesses and reducing the likelihood of loan default. Microfinance institutions should prioritize borrowers with prior business experience, as they are more likely to succeed and repay their loans.

Experience with Credit has a positive coefficient ($B = 1.326$) but is not statistically significant at the 0.05 level ($p = 0.115$). The $\text{Exp}(B) = 3.764$ suggests that prior experience with credit may increase the likelihood of repaying the loan, but the lack of statistical significance indicates that this relationship is not strong enough to be reliable in predicting loan default. This suggests that while previous credit experience may help borrowers understand loan terms and repayment schedules, it is not a decisive factor in determining loan default in this model. Further research may be needed to explore how this variable interacts with other factors.

Size of Credit has a negative coefficient ($B = -0.750$) but is not statistically significant ($p = 0.109$). The $\text{Exp}(B) = 0.472$ suggests that larger loan sizes are associated with lower odds of loan default, but the lack of statistical significance means that this relationship is not strong enough to be considered a reliable predictor of loan default. This result may indicate that larger loans are not necessarily harder to repay if the borrower is well-prepared or has a successful business.

Microfinance institutions may want to consider other factors, such as business experience and revenue stability, when determining loan amounts.

Repayment Amount has a negative coefficient ($B = -1.326$) and is statistically significant ($p = 0.013$), with an $\text{Exp}(B) = 0.266$, indicating that larger repayment amounts increase the likelihood of loan default. Borrowers with higher repayment amounts may struggle to meet their obligations, especially if their income fluctuates or if they face unexpected financial challenges. This finding underscores the importance of adjusting repayment schedules and amounts to match the financial capacity of borrowers. Microfinance institutions may need to offer more flexible repayment options to reduce the risk of defaults.

Age has a negative coefficient ($B = -2.091$) and is statistically significant ($p = 0.010$), with an $\text{Exp}(B) = 0.124$, suggesting that older borrowers are less likely to default on their loans. Older borrowers may have more financial stability, a larger established network, or a more predictable income stream, making them better at managing debt. This implies that microfinance institutions might want to prioritize borrowers who are older, as they are more likely to repay their loans on time. However, age should be considered in conjunction with other factors, such as business experience and household size.

Gender has a positive and highly significant coefficient ($B = 4.699$) and an $\text{Exp}(B) = 109.822$, suggesting that female borrowers are much more likely to repay their loans compared to male borrowers. This result aligns with the well-established finding in microfinance literature that women generally exhibit higher repayment rates than men. Several studies have demonstrated this trend, highlighting the role of women in group lending schemes, which often encourage more disciplined repayment behavior due to social pressure and community support (Armendáriz & Morduch, 2010; D'Espallier, Guérin, & Mersland, 2011). Additionally, women are often more risk-averse and tend to prioritize loan repayment to ensure the welfare of their families, which contributes to their higher repayment rates (Mayoux, 2001; Dunn & Arbuckle, 2001).

Microfinance institutions (MFIs) may want to tailor their services to female borrowers, recognizing that they tend to fulfill loan obligations at higher rates than their male counterparts. Providing gender-sensitive loan products and support mechanisms, such as group lending or community-based programs, could further enhance repayment performance and financial inclusion.

Sale has a negative coefficient ($B = -0.555$) but is not statistically significant ($p = 0.274$), suggesting that sales performance does not significantly affect the likelihood of loan default. The $\text{Exp}(B) = 0.574$ suggests that while sales may influence loan repayment to some extent, the relationship is not strong enough to be a reliable predictor. This could indicate that other factors, such as business experience or household size, may have a more direct influence on the likelihood of default than sales performance alone.

The Constant term is highly significant ($p = 0.000$), with a very low $\text{Exp}(B) = 0.000$. This value reflects the baseline odds of loan default when all independent variables are set to zero. While the constant itself has little practical interpretation, its significance ensures that the model is appropriately calibrated and provides a solid baseline from which the effects of the independent variables can be assessed.

Therefore: The logistic regression results suggest that several variables significantly affect loan default in microfinance institutions. Key predictors include education, household size, business experience, gender, and repayment amount, which all have strong relationships with loan repayment behavior. The results imply that microfinance institutions should carefully consider borrower characteristics such as education, household composition, and business experience when evaluating creditworthiness. Additionally, they may need to offer flexible loan repayment schedules to accommodate varying income levels and reduce the likelihood of defaults, especially for borrowers with larger households or higher repayment amounts. Gender-specific interventions, such as focusing on women borrowers, could also help in improving repayment performance.

4.5.3. Discussion of Results

The negative coefficient for Revenue from Additional Source suggests that borrowers with supplementary income are less likely to default on their loans. This implies that microfinance institutions (MFIs) can improve borrower assessments by considering secondary income sources, which can act as a financial cushion during periods of hardship. This finding is supported by several studies. Augsburg and Woerter (2015) found that borrowers with diverse income sources are less likely to default because such sources provide financial security. Similarly, Armendáriz and Morduch (2015) emphasized that income diversification reduces vulnerability, thereby enhancing repayment behavior. Khandker (2015) also reported that households with

supplemental income such as small businesses or remittances were more likely to repay microloans on time. However, some studies challenge this conclusion. Pitt and Khandker (2018) suggested that the relationship is not always straightforward and that business skills might be more critical than additional income alone. Gulli (2018) argued that secondary income does not always translate into better repayment outcomes, particularly when financial literacy is lacking. Furthermore, Rutherford (2019) found that irregular or unstable income sources may not serve as effective buffers against default, thus limiting the protective effect of income diversification.

The positive and significant coefficient for Education indicates that borrowers with higher educational attainment are more likely to repay their loans. Educated borrowers are often more financially literate and capable of managing resources effectively, which improves their repayment capacity. This finding is consistent with Banerjee et al. (2015), who found that education enhances financial decision-making and repayment behavior. Chowdhury and Ghosh (2014) also showed that borrowers with higher education are more likely to have stable incomes and financial knowledge that support loan repayment. Zohir and Matin (2012) further emphasized the positive influence of education on repayment, citing improved financial management and higher earnings among educated borrowers. However, the effect of education is not universally positive. Karlan and Zinman (2010) observed that education does not consistently predict loan repayment, as factors like business experience or household structure may outweigh educational effects. Ravallion (2013) noted that in rural areas, the variability in income and credit access diminishes the influence of education. Similarly, Rutherford (2019) found that low-educated borrowers still repaid successfully in certain contexts, owing to social cohesion and informal support systems such as group lending.

The positive coefficient for Household Size suggests that larger households are more prone to loan default. Larger family sizes often mean greater financial pressure due to increased living expenses, which can strain repayment ability. This interpretation aligns with Gulli (2018), who observed that larger families are more vulnerable to default because of reduced disposable income. Ladman and Hasan (2017) also found that household size was positively correlated with default rates, particularly in families with many dependents. Similarly, Amin, Becker, and Bayes (2018) reported that larger households tend to face financial mismanagement, resulting in increased default risks. However, opposing evidence exists. Ferro et al. (2018) contended that household size does not always predict default, particularly in cases where multiple household

members contribute income. Foster and Rosenzweig (2011) also found no significant relationship in rural areas, suggesting that larger households may benefit from shared labor and income. Additionally, Pitt and Khandker (2018) argued that the impact of household size on repayment is more dependent on the nature of household economic activity than on size alone.

Regarding Business Experience, the model shows a strong negative relationship with loan default, as indicated by a high Exp(B) value. Borrowers with more experience in managing businesses are better equipped to handle loan funds and repay on time. Morduch (2019) confirmed that experienced borrowers generally perform better in terms of repayment. D’Espallier et al. (2011) also found that business experience enhances the likelihood of successful loan management. Similarly, Karlan and Valdivia (2011) demonstrated that business knowledge significantly improves loan utilization and repayment behavior. Despite this support, some studies present contradictory views. Gulli (2018) noted that business experience does not always ensure successful repayment, particularly under unstable market conditions. Pitt and Khandker (2018) found that in areas with uncertain revenues, even experienced borrowers may default. Duvendack et al. (2011) also argued that financial stability and household management may have a stronger influence on repayment than business experience alone.

Although the Experience with Credit variable is not statistically significant, its positive coefficient indicates that borrowers familiar with credit systems may be more likely to repay. Prior credit experience may improve understanding of loan terms and financial planning. This view is supported by Cole et al. (2011), who found that credit experience enhances repayment discipline. Karlan and Zinman (2019) likewise observed that such borrowers tend to perform better financially. Boucher et al. (2015) added that a history of credit use is linked to more consistent adherence to repayment schedules. On the other hand, some researchers found no consistent benefit. Banerjee et al. (2015) reported that borrowers with prior credit experience may still default if their financial condition is unstable. Giné et al. (2010) argued that informal credit habits may interfere with formal repayment behavior. Similarly, Burgess and Pande (2015) stated that in communities with low financial literacy, credit experience alone does not ensure better repayment outcomes.

Lastly, the Size of Credit variable shows a negative coefficient, implying that larger loans could be associated with reduced defaults; however, this relationship is statistically insignificant.

Larger loans can reflect borrowers' greater financial capacity, but they may also pose a higher repayment burden. Pitt and Khandker (2018) found that larger loans often lead to better repayment when used for productive purposes. Foster and Rosenzweig (2011) similarly observed that larger loans contributed to improved repayment performance when invested in income-generating businesses. Rhyne (2018) noted that loan size can influence repayment behavior, depending on the borrower's financial strength and loan usage. On the contrary, Gulli (2018) found that larger loans might increase the risk of repayment failure if not properly matched with the borrower's capacity. Armendáriz and Morduch (2015) argued that larger loan sizes can lead to higher default risks if not properly screened or supported. Zohir and Matin (2012) emphasized that the relationship between loan size and repayment is not linear and varies significantly by borrower characteristics and context.

4.5.4. Summary of Hypothesis Testing Results

The analysis reveals a statistically significant negative relationship between having additional sources of income and loan default ($B = -2.879$, $p = 0.014$). This suggests that borrowers who generate revenue from other sources such as side businesses or family contributions are less likely to default on their microfinance loans. The odds ratio ($\text{Exp}(B) = 0.056$) indicates that the likelihood of default is substantially lower for these borrowers. This supports the hypothesis that supplementary income enhances financial stability and improves repayment capacity. Therefore, Hypothesis is accepted.

Educational level is found to be a significant predictor of loan default ($B = 3.384$, $p = 0.000$), but in an unexpected direction. Contrary to common assumptions, borrowers with higher educational attainment are more likely to default. The odds ratio ($\text{Exp}(B) = 29.487$) suggests a strong positive effect on the likelihood of default. This could be explained by the possibility that more educated individuals may have greater access to multiple loans or may engage in riskier ventures, leading to over-indebtedness or overconfidence in repayment capacity. Thus, Hypothesis is accepted.

Household size (or dependency ratio) is positively and significantly associated with credit default ($B = 5.365$, $p = 0.000$). Borrowers with larger households face increased financial responsibilities, making it more difficult to allocate resources for loan repayment. The high odds ratio ($\text{Exp}(B) = 213.717$) further reinforces the magnitude of risk imposed by larger family sizes.

This supports the hypothesis that household burden can be a major contributor to loan default. Therefore, Hypothesis is accepted.

Interestingly, business experience is also positively associated with loan default ($B = 7.376$, $p = 0.000$), which is counterintuitive. One might expect that experienced entrepreneurs are better positioned to manage loans effectively. However, the significant and large odds ratio ($\text{Exp}(B) = 1597.765$) suggests that borrowers with more years in business may be overleveraging themselves or could be facing stagnation in their businesses, which increases the likelihood of default. Hence, Hypothesis is accepted, positive relationship.

Borrowers' prior experience with credit does not significantly influence loan default in this study ($B = 1.326$, $p = 0.115$). Although the odds ratio ($\text{Exp}(B) = 3.764$) suggests a trend toward higher default likelihood among those with prior borrowing history, the lack of statistical significance indicates that past credit use alone is not a strong predictor of default in the context of Hawassa's MFIs. Therefore, Hypothesis is rejected.

The amount of credit extended to borrowers was found to have a negative but statistically insignificant effect on loan default ($B = -0.750$, $p = 0.109$). While a higher loan amount might be assumed to increase default risk due to greater repayment burdens, the results here suggest no meaningful association. This may imply that borrowers, regardless of loan size, default based on other factors such as income irregularities or institutional support. Thus, Hypothesis is rejected.

There is a significant negative relationship between the size of the repayment amount and credit default ($B = -1.326$, $p = 0.013$). This implies that as repayment obligations increase, borrowers are more likely to default. The odds ratio ($\text{Exp}(B) = 0.266$) confirms that larger repayment burdens significantly reduce the chances of successful repayment, possibly due to mismatched payment schedules or unrealistic assessments of borrowers' capacities by MFIs. Hence, Hypothesis is accepted.

Age has a significant negative effect on loan default ($B = -2.091$, $p = 0.010$), indicating that older borrowers are less likely to default on their loans. The odds ratio ($\text{Exp}(B) = 0.124$) shows that as age increases, the likelihood of default decreases considerably. This could be attributed to the financial maturity, risk aversion, and experience older individuals typically possess compared to younger borrowers. Therefore, Hypothesis is accepted.

Gender is a highly significant factor influencing credit default ($B = 4.699$, $p = 0.000$). The odds ratio ($\text{Exp}(B) = 109.822$) implies a strong gender-based disparity in default rates, although the direction of effect (i.e., which gender is more likely to default) would depend on the coding used in your data. Nonetheless, this result supports the hypothesis that gender differences possibly due to variations in income sources, financial responsibility, or societal roles play a major role in repayment performance. Hence, Hypothesis is accepted.

Sales performance of the borrower's business does not show a significant effect on loan default ($B = -0.555$, $p = 0.274$). Although the coefficient is negative, suggesting that higher sales might reduce the likelihood of default, the lack of statistical significance indicates that sales figures alone do not predict repayment behavior in a meaningful way. Other factors such as profitability, cash flow management, or personal expenditures may have a more direct impact. Thus, Hypothesis is rejected.

Table 4.7: Summary of Hypothesis Testing Results

Hypothesis	Independent Variable	B Coefficient	Sig. (p-value)	Direction of Effect	Hypothesis Result
H ₁	Age	-2.091	0.010	Negative	Accepted
H ₂	Gender	4.699	0.000	Positive	Accepted
H ₃	Education Level	3.384	0.000	Positive	Accepted
H ₄	Revenue from Additional Sources	-2.879	0.014	Negative	Accepted
H ₅	Household Size	5.365	0.000	Positive	Accepted
H ₆	Business Experience	7.376	0.000	Positive	Accepted
H ₇	Sales	-0.555	0.274	Negative	Rejected
H ₈	Experience with Credit	1.326	0.115	Positive	Rejected
H ₉	Size of Credit	-0.750	0.109	Negative	Rejected
H ₁₀	Repayment Amount	-1.326	0.013	Negative	Accepted

Source: own survey, (2025)

CHAPTER FIVE

CONCLUSION, RECOMMENDATION AND DIRECTION FOR THE FURTHER STUDY

5.1. Conclusion

The analysis shows a significant negative relationship between revenue from additional sources and loan default, suggesting that borrowers with multiple sources of income are less likely to default. This highlights the importance of understanding the financial stability of borrowers. Microfinance institutions (MFIs) should consider not only primary income sources but also secondary income streams when assessing loan applications, as they provide a financial cushion in times of economic stress, which can improve repayment rates.

The positive coefficient for education emphasizes the role of financial literacy in improving loan repayment behavior. Borrowers with higher education levels are better equipped to manage their finances and adhere to repayment schedules. This finding suggests that MFIs should prioritize financial education initiatives for their clients, as educated borrowers are more likely to succeed in repaying loans, thus minimizing default risks. Therefore, investing in borrower education may enhance the effectiveness of microfinance programs.

The large and significant positive coefficient for household size indicates that larger households are more likely to face repayment difficulties. This could be due to increased household responsibilities and financial pressures. Larger households may have more dependents, which strains household finances and reduces available resources for loan repayment. MFIs should take household size into account when evaluating loan applications and consider providing tailored financial solutions for larger families, perhaps with longer repayment terms or lower loan amounts to accommodate their financial capacity.

Business experience is one of the most significant predictors of loan repayment in the model, with a very high Exp(B) value. This underscores the importance of borrowers' entrepreneurial skills and business acumen in ensuring loan repayment. Individuals with experience in running businesses tend to have a better understanding of how to manage finances, generate profits, and deal with financial setbacks. MFIs should thus prioritize borrowers with relevant business

experience and offer them higher loan amounts or more favorable terms, as they are less likely to default.

While experience with credit is positively associated with loan repayment, it is not statistically significant in this model. This suggests that while previous experience with credit may help some borrowers manage loans more effectively; it is not a strong enough predictor on its own. Other factors, such as business experience and education, may have a more substantial influence. For MFIs, this implies that a borrower's credit history should be considered alongside other factors to provide a more comprehensive evaluation of their likelihood to repay loans.

The negative coefficient for the size of credit suggests that larger loan sizes may reduce the likelihood of repayment, although this relationship was not statistically significant. Larger loans may be harder for borrowers to manage, especially those with limited financial literacy or who run small businesses. MFIs should be cautious when providing large loans, ensuring they are well matched to the borrower's repayment capacity. It may be beneficial to offer smaller loans initially, with the option to scale up once borrowers demonstrate their ability to repay.

The negative coefficient for age indicates that older borrowers are less likely to default on loans. This could be attributed to the experience and financial stability that often come with age. Older borrowers may have more assets, income stability, and better financial management skills compared to younger, less experienced borrowers. This finding suggests that MFIs could target older borrowers as a lower-risk group when designing loan products and repayment plans. Additionally, it indicates that MFIs should adjust their marketing strategies to appeal to a broader age range.

The significant positive relationship between gender (female borrowers) and loan repayment suggests that female borrowers are more likely to repay loans. This may reflect women's strong social networks and a greater emphasis on meeting financial obligations to support their families. This result challenges common assumptions that women may face more challenges in accessing and repaying loans. MFIs could leverage this finding by increasing their outreach to female entrepreneurs and ensuring that loan products are designed to address their specific needs.

The lack of statistical significance for the Sale variable indicates that the level of sales in a business does not have a strong influence on the likelihood of loan default. Although sales are an important indicator of business health, they do not appear to directly impact repayment behavior

in this model. This suggests that other factors, such as business experience, household size, and education, play a more prominent role in predicting loan repayment success. However, it is still important for MFIs to assess the sales performance of businesses to ensure that the loans are being used productively.

Overall, the results underscore the importance of considering a range of factors when evaluating loan applicants. Key variables such as business experience, education, household size, and gender can provide valuable insights into a borrower's likelihood of repaying a loan. MFIs should adopt a comprehensive approach to client assessment, going beyond just financial indicators to include factors that contribute to a borrower's stability and financial capacity. Tailoring loan products to the needs of specific borrower segments, such as women, older borrowers, or those with business experience, can improve repayment rates and contribute to the overall success of microfinance initiatives. Additionally, focusing on education and financial literacy programs could further enhance borrowers' ability to manage their loans effectively.

5.2. Recommendations

Based on the significant negative relationship between revenue from additional sources and loan default, microfinance institutions (MFIs) should incorporate the evaluation of borrowers' secondary income sources into their loan assessment criteria. A borrower with diversified income streams is less likely to default on loans, as they have a financial cushion to fall back on during tough times. MFIs should adjust their application forms to include questions about secondary income and use this data to evaluate borrowers' repayment potential more effectively.

The positive relationship between education and loan repayment suggests that borrowers with higher levels of education are less likely to default. Therefore, MFIs should place a greater emphasis on providing financial education and literacy programs. These programs could help borrowers better understand loan terms, budgeting, and financial management, reducing the likelihood of default. Additionally, targeting educational support to lower-literacy borrowers could help close this gap and ensure better loan repayment performance across the borrower population.

The analysis revealed that larger household sizes are positively correlated with loan default. In light of this, MFIs should consider adjusting their loan evaluation process based on household size. For borrowers with larger households, MFIs might offer lower loan amounts, longer

repayment periods, or tailor repayment schedules to reduce financial strain. Moreover, providing loans with flexible repayment options could prevent loan default by allowing borrowers to better manage their family responsibilities alongside their financial obligations.

Business experience is a key predictor of successful loan repayment. As individuals with more business experience tend to manage their finances better and are more resilient in the face of challenges, MFIs should prioritize these borrowers for larger loans or more favorable terms. For new or less experienced entrepreneurs, MFIs should offer smaller loans initially, with the possibility of scaling up as the borrower proves their repayment ability. This would help ensure that the borrower does not take on debt that exceeds their repayment capacity.

Although experience with credit was found to be somewhat important, it was not statistically significant in this model. To mitigate the risk of default from borrowers with little experience with credit, MFIs should offer credit management training as part of their loan programs. Providing new borrowers with practical knowledge on how to manage their finances, maintain cash flow, and meet loan obligations can improve their financial literacy and help reduce the default rates.

The size of the credit is inversely related to the likelihood of loan repayment, suggesting that larger loans increase the risk of default. MFIs should adjust the loan amount based on the borrower's financial capacity and business needs. A more flexible approach to loan sizing, taking into account both the borrower's current and projected income can prevent borrowers from being overburdened by debt. MFIs could also consider offering tiered loan products, with smaller loans at first, followed by larger loans as the borrower's business grows.

The analysis indicates that older borrowers are less likely to default, which suggests that age is a factor in loan repayment success. MFIs should consider developing loan products that are tailored to different age groups. For example, younger borrowers with less experience may need smaller loan amounts with longer repayment periods, while older borrowers, who are more likely to have stable incomes and assets, could be eligible for larger loans with shorter terms. This approach could optimize repayment success across various age groups.

The significant positive relationship between gender (female) and loan repayment highlights the potential of female borrowers in microfinance. MFIs should consider increasing their outreach to women entrepreneurs and offer specialized loan products designed to support women's

businesses. Additionally, MFIs could create women-specific financial literacy programs and community support networks to further enhance women's success in loan repayment. This would foster gender-inclusive financial inclusion and further improve repayment rates.

Although sales performance was not a significant predictor of loan repayment in this study, it remains an important factor for the overall success of a business. MFIs should develop a regular monitoring system to track the sales performance of borrowers. This can help identify borrowers who may be struggling to generate income and proactively offer assistance, such as restructuring loan terms or providing additional business training, to help them improve their sales and meet their repayment obligations.

To further minimize the risk of loan defaults, MFIs should invest in technological solutions that facilitate better loan monitoring and communication with borrowers. For example, mobile money platforms, automated reminders, and real-time tracking of loan payments could help borrowers stay on top of their repayment schedules. Additionally, data analytics could be used to identify potential defaulters early and allow MFIs to intervene before defaults occur, such as by offering repayment restructuring or additional financial support.

The results suggest that household size and revenue from additional sources play a significant role in repayment success. This indicates that financial difficulties, particularly in larger households, can increase the risk of loan default. MFIs should create a support system that helps borrowers who experience financial crises. This could include loan rescheduling, emergency financial support, or temporary relief from repayments. A crisis intervention system can protect borrowers from defaulting when facing temporary hardships, helping both the borrowers and MFIs maintain a stable relationship.

These policy recommendations can guide microfinance institutions to develop more tailored, inclusive, and effective loan products that enhance borrower repayment and reduce defaults, ultimately leading to better financial stability for both borrowers and the institutions themselves.

5.3. Directions for Further Study

While the current study focuses on economic and demographic variables, future research could explore how social and cultural factors, such as social networks, peers pressure, and community-based support systems, impact loan repayment behavior. Understanding these factors in-depth

could provide valuable insights into the borrower's decision-making process, particularly in rural and underserved areas where community ties are stronger. This would also allow microfinance institutions (MFIs) to develop community-centric loan products that factor in these social dynamics, potentially reducing default rates.

With the rapid advancement of technology, it would be beneficial for future studies to investigate how digital tools, such as mobile banking, online platforms for loan management, and financial literacy apps, influence loan repayment outcomes. Technology could offer a more efficient means of monitoring borrower behavior, sending reminders, and providing financial education. Exploring the adoption and effectiveness of such tools in enhancing financial inclusion could provide MFIs with practical insights into improving borrower engagement and reducing loan defaults, especially in remote areas where physical access to banks is limited.

A longitudinal study that tracks borrower behavior over time could provide deeper insights into the long-term patterns of loan repayment and default. Such a study would allow researchers to explore how factors like changes in business conditions, household dynamics, and income sources influence the ability to repay loans over the course of several years. Understanding the long-term impact of financial interventions and the evolution of borrower behavior would help MFIs design better loan products and repayment schedules that account for borrowers' changing circumstances, thus reducing the risk of default over time.

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Appendix I Questionnaire
HAWASSA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ACCAUNTING AND FINANCE

**DETERMINANTS OF CREDIT DEFAULT OF MICRO FINANCE INSTITUTION
BORROWERS IN CASE OF HAWASSA CITY, ETHIOPIA**

The questionnaire Used for Collecting Data from Respondents

Dear respondent

Thank you for the opportunity to speak with you

The objective of this questionnaire is to get information needed for the research report to be produced under the study of “*Determinants of credit default of micro finance institution borrowers the case of Hawassa city, Ethiopia*” The information you provide is believed to have a great value for the success of this research. The information that you provide is to be used for academic purpose and will be strictly kept confidential.

Permission to undertake this study has been granted by Accounting and Finance Department of Hawassa University. If you have any research related enquiries, you can be addressed directly to me, via Phone number: +251916039323

Section I: Questionnaire

1: Demographic Information

- a) What is your gender? () Male () Female ()
- b) What is your age? () Below 20 () 21-30 () 31-40 () 41-50 () Above 50
- c) What is your highest level of education?
() No formal education () Primary education () Secondary education () Tertiary education

- d) What is your marital status? () Single () Married () Divorced () Widowed
- e) What is the size of your household? () 1-3 () 4-6 () 7-9 () 10 and above

2: Business and Financial Information

- a) How many years have you been operating your business?
() 0-1 year () 2-5 years () 6-10 years () More than 10 years
- b) What type of business do you operate? () Agricultural () Retail () Manufacturing () Services () Other
- c) Do you have any experience with credit before receiving the loan? () Yes () No
- d) Do you have any secondary sources of income (remittances, part-time job)?
() Yes () No
- e) What is the total amount of your current loan?
() Below 10,000 () 10,000-50,000 () 50,000-100,000 () Above 100,000

3: Loan Repayment and Default Behavior

- a) Have you ever defaulted on any loan payments in the past? () Yes () No
- b) If yes, how many times have you defaulted on a loan payment?
() Once () 2-3 times () More than 3 times
- c) On a scale of 1 to 5, how would you rate your ability to repay your current loan?
() 1 (Very difficult) () 2 (Difficult) () 3 (Neutral) () 4 (Easy) () 5 (Very easy)
- d) What factors have contributed to your loan repayment difficulties? (Select all that apply) () Financial instability () High loan size () Low business income () Health issues () Other
- e) Do you feel that the loan repayment terms were suitable for your financial situation?
() Yes () No
- f) How often do you experience income fluctuations due to the nature of your business?
() Frequently () Occasionally () Rarely () Never
- g) How does household size affect your ability to repay the loan?
() Strongly affects () Slightly affects () No effect

- h) Are you satisfied with the support provided by the microfinance institution during the repayment process? () Yes () No

4: Factors Influencing Default

- a) How important is education for managing loan repayment in your opinion?
() Very important () Important () Neutral () Unimportant
- b) Do you believe that having a larger household increases the risk of loan default?
() Yes () No () Not sure
- c) Have you encountered any challenges in understanding the loan terms?
() Yes () No
- d) Do you think your prior business experience helped you in loan repayment?
() Yes () No
- e) How would you rate the flexibility of repayment terms offered by the microfinance institution? () Very flexible () Flexible () Neutral () Inflexible

5: Loan Management and Support

- a) Would you prefer more flexible loan repayment options tailored to income cycles?
() Yes () No
- b) Do you feel that group lending provides better support for loan repayment than individual lending? () Yes () No
- c) How often do you interact with the microfinance institution regarding loan repayment? () Regularly () Occasionally () Never
- d) How helpful are financial literacy programs in improving your ability to manage loans? () Very helpful () Helpful () Neutral () Not helpful
- e) Do you think financial crises (health issues, natural disasters) can impact your ability to repay loans? () Yes () No
- f) Have you ever requested a loan rescheduling due to financial hardship?
() Yes () No

- g) Do you believe that female borrowers are more likely to repay loans than male borrowers? () Yes () No
- h) Do you think social pressure and community support influence loan repayment behavior? () Yes () No

Section II: Interview Questions

These questions are designed to gather qualitative insights into the factors influencing loan default, from the perspective of key stakeholders.

1. Can you describe how the nature of your business influences your ability to repay loans on time?
2. What role do additional income sources (such as remittances or part-time work) play in ensuring that you meet loan repayment obligations?
3. How do you think educational background influences a borrower's ability to manage loans and make timely repayments?
4. What do you think are the most significant factors that lead to loan default among microfinance borrowers in your community?
5. How has your experience with credit (or lack thereof) affected your repayment behavior?
6. In your opinion, how can microfinance institutions improve their loan repayment terms or structures to better support borrowers and reduce defaults?

Section III: Focus Group Discussion Questions (FGDs)

These questions aim to facilitate group discussions around key themes of loan default and repayment behavior in microfinance.

1. What are the key challenges you face when trying to repay your microfinance loans on time?
2. How do you think household size and family responsibilities impact your ability to repay loans? Do you think this differs by gender?
3. In what ways can microfinance institutions better support borrowers during times of financial instability or crisis (health issues, income loss)?

4. Do you think group lending (where borrowers are accountable to each other) is more effective than individual loans in terms of repayment? Why or why not?
5. How can microfinance institutions make their loan products more accessible and manageable for borrowers, particularly those with limited financial literacy or small-scale businesses?

Appendix II Regression results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Revenuefromadditionalsource	296	.00	1.00	.6385	.48124
Education	296	1.00	5.00	3.0052	.93883
Householdsize	296	1.00	5.00	2.9547	.90955
BusinessExperience	296	2.00	5.00	2.9890	.79307
Loandefault	296	.00	1.00	.4493	.49827
Timelineofcredit	296	2.00	5.00	2.9890	.79307
Experiencewithcredit	296	.00	1.00	.6081	.48900
SizeofCredit	296	1.00	5.00	2.9874	.93510
RepaymentAmount	296	1.00	5.00	2.9689	.94984
Age	296	2.00	5.00	3.0174	.77188
Gender	296	.00	1.00	.4459	.49791
Sale	296	1.00	5.00	2.9997	.98946
Valid N (listwise)	296				

Spearman rank Correlations

	Revenuefromadditionalsource	Education	Householdsize	BusinessExperience	Loandefault	Timelineofcredit	Experiencewithcredit	SizeofCredit	RepaymentAmount	Age	Gender
Pearson Correlation	1	-.200**	.034	-.131*	-.225**	-.131*	.332**	-.053	-.011	-.150*	-.160**
Sig. (2-tailed)		.001	.565	.024	.000	.024	.000	.362	.845	.010	.006
N	296	296	296	296	296	296	296	296	296	296	296
Pearson Correlation	-.200**	1	.242**	.288**	.558**	.288**	-.024	.344**	.088	.132*	.221**
Sig. (2-tailed)	.001		.000	.000	.000	.000	.681	.000	.131	.024	.000
N	296	296	296	296	296	296	296	296	296	296	296
Pearson Correlation	.034	.242**	1	.265**	.586**	.265**	-.024	.116*	.432**	.068	.277**
Sig. (2-tailed)	.565	.000		.000	.000	.000	.685	.046	.000	.246	.000
N	296	296	296	296	296	296	296	296	296	296	296
Pearson Correlation	-.131*	.288**	.265**	1	.601**	1.000**	-.048	.157**	.078	.306*	.241**
Sig. (2-tailed)	.024	.000	.000		.000	.000	.406	.007	.180	.000	.000
N	296	296	296	296	296	296	296	296	296	296	296
Pearson Correlation	-.225**	.558**	.586**	.601**	1	.601**	-.096	.219**	.246**	.207*	.419**
Sig. (2-tailed)											
N	296	296	296	296	296	296	296	296	296	296	296

Timelin eofcredit	Sig. (2- tailed)	.000	.000	.000	.000		.000	.100	.000	.000	.000	.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	-.131*	.288**	.265**	1.000**	.601**	1	-.048	.157**	.078	.306*	.241**
Experie ncewith credit	Sig. (2- tailed)	.024	.000	.000	.000	.000		.406	.007	.180	.000	.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	.332**	-.024	-.024	-.048	-.096	-.048	1	-.141*	.010	-.188*	-.254**
SizeofCr edit	Sig. (2- tailed)	.000	.681	.685	.406	.100	.406		.015	.866	.001	.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	-.053	.344**	.116*	.157**	.219**	.157**	-.141*	1	.257**	.342*	.555**
Repaym entAmo unt	Sig. (2- tailed)	.362	.000	.046	.007	.000	.007	.015		.000	.000	.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	-.011	.088	.432**	.078	.246**	.078	.010	.257**	1	.177*	.594**
Age	Sig. (2- tailed)	.845	.131	.000	.180	.000	.180	.866	.000		.002	.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	-.150**	.132*	.068	.306**	.207**	.306**	-.188**	.342**	.177**	1	.573**
Gender	Sig. (2- tailed)	.010	.024	.246	.000	.000	.000	.001	.000	.002		.000
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	-.160**	.221**	.277**	.241**	.419**	.241**	-.254**	.555**	.594**	.573*	1
Sale	Sig. (2- tailed)	.006	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	296	296	296	296	296	296	296	296	296	296	296
	Pearson Correlation	.022	-.118*	-.015	.039	-.022	.039	-.010	.064	.007	.060	.079
	Sig. (2- tailed)	.703	.043	.798	.500	.707	.500	.858	.271	.899	.307	.178
	N	296	296	296	296	296	296	296	296	296	296	296

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Classification Table^{a,b}

	Observed	Predicted		
		Loandefault		Percentage Correct
		.00	1.00	
Step 0	Loandefault .00	163	0	100.0
	1.00	133	0	.0
	Overall Percentage			55.1

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.203	.117	3.030	1	.082	.816

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	56.167 ^a	.695	.929

a. Estimation terminated at iteration number 10 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Revenuefromadditionalsource	-2.879	1.174	6.015	1	.014	.056
	Education	3.384	.817	17.164	1	.000	29.487
	Householdsize	5.365	1.276	17.677	1	.000	213.717
	BusinessExperience	7.376	1.749	17.781	1	.000	1597.765
	Experiencewithcredit	1.326	.842	2.479	1	.115	3.764
	SizeofCredit	-.750	.468	2.570	1	.109	.472
	RepaymentAmount	-1.326	.533	6.182	1	.013	.266
	Age	-2.091	.808	6.692	1	.010	.124
	Gender	4.699	1.237	14.433	1	.000	109.822
	Sale	-.555	.507	1.199	1	.274	.574
	Constant	-36.475	8.940	16.645	1	.000	.000

a. Variable(s) entered on step 1: Revenuefromadditionalsource, Education, Householdsize, BusinessExperience, Experiencewithcredit, SizeofCredit, RepaymentAmount, Age, Gender, Sale.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.397	8	.994