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ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESSES AND ECONOMICS,
DEPARTMENT OF ACCOUNTING & FINANCE

THE IMPACT OF MOBILE MONEY ON FINANCIAL SERVICE USAGE IN ADDIS ABABA

A Thesis Submitted In Partial Fulfillment Of The Requirement For The Degree Of Master's In Corporate Finance, with a Specialty in Investment Management

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Addis Ababa, Ethiopia
March 2025

DEDICATION

I dedicate this thesis to my family, who have supported and encouraged me in my pursuit of higher education. I also extend my sincere gratitude to all the curious minds who have dedicated their lives to understanding the world, the human condition, society and the intricate interplay between them.

I hope this dedication resonates with you!

DECLARATION

I hereby declare that the work reported on this thesis, entitled "The Impact of Mobile Money on Financial Services Usage in Addis Ababa," and submitted to the College of Business and Economics, Addis Ababa University, is my original work. It was done in partial fulfillment of the requirement for a Masters In Corporate Finance, with a Specialty in Investment Management, under the supervision of Tenkir Seifu (PhD) at AAU, School of Commerce campus.

Christian Tesfaye Gebremariam	June 01, 2025
Name	**Date**

Signature 

THESIS SUBMISSION APPROVAL FORM

This is to certify that the thesis entitled "The Impact of Mobile Money on Financial Services Usage in Addis Ababa," has been carried out by Christian Tesfaye Gebremariam under my supervision. The thesis is submitted for the fulfillment of the requirements for the **Master of Science in Corporate Finance (with a Specialty in Investment Management)** program at Addis Ababa University. I confirm that the candidate has met the necessary academic requirements and recommend the thesis for submission and defense.

Name of Advisor: Tenkir Seifu (PhD)
Signature:_____
Date:_____

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LIST OF ACRONYMS AND ABBREVIATIONS

DFS	Digital Financial Services
ETB	Ethiopian Birr
GSMA	Global System for Mobile Communications
IDT	Innovation Diffusion Theory
MSMEs	Micro, Small, and Medium Enterprises
NBE	National Bank of Ethiopia
NFIS	National Financial Inclusion Strategy
PLS	Partial Least Squares
SACCO	Savings and Credit Cooperative
TAM	Technology Acceptance Model
USSD	Unstructured Supplementary Service Data

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ABSTRACT

Financial inclusion remains a critical challenge in Ethiopia, where a large, underserved population, particularly in rural areas, faces barriers to economic participation. Low levels of financial service usage, including account ownership, digital payments, and loan uptake, persist compared to regional peers, hampered by factors like limited access points and lack of documentation. Mobile money, leveraging the ubiquity of mobile phones, offers a potent solution, driving financial inclusion across Sub-Saharan Africa. Ethiopia has embraced this potential, with the National Bank of Ethiopia (NBE) prioritizing digital financial services, including mobile money, to achieve 70% adult financial inclusion by 2025. The subsequent launch of multiple mobile money platforms, including Telebirr and M-Pesa, has spurred significant user growth, especially for Telebirr. This study investigates the impact of this growing mobile money adoption on financial services usage in Addis Ababa, addressing the overarching research question: How does the adoption of mobile money impact financial services usage? Specifically, the study seeks to quantify the impact of mobile money adoption on savings rates, loan uptake, and digital transaction adoption in the city. To achieve this, a quantitative research approach was employed, utilizing a survey research design to collect primary data directly from respondents. The study surveyed 100 adults aged 20-64 in Addis Ababa, selected through stratified random sampling, with stratification based on mobile money usage (users and non-users), gender, and age. The survey instrument, a structured questionnaire with Likert scale questions, captured information on respondents' financial behaviors and perceptions related to digital payments, savings, and loan access. Key findings from this study demonstrate that mobile money adoption does not automatically lead to increased financial services usage. While descriptive analysis showed a strong positive shift towards digital payments, regression analysis did not confirm a significant causal link based solely on ownership. Perceptions of easier saving did not translate to increased saving, and loan uptake increases were not consistently linked to mobile money in regression. Lack of awareness and perceived complexity hindered adoption among non-users, emphasizing that adoption alone is insufficient to drive broader financial service engagement.

***Keywords**: Mobile money, financial inclusion, financial services usage, digital payments, loan uptake, savings rate*

Chapter 1: Introduction

1.1. Background of the Study

Ethiopia has a large formally financially excluded population, particularly in rural areas, which has hindered economic participation and financial security. Adult populations are particularly underserved in financial services usage, which measures key indicators such as account ownership, digital payments, loan uptake, savings propensity and insurance coverage, according to the Global Partnership for Financial Inclusion (GPFI 2013). On a majority of such indicators, Ethiopia fares worse than its peers in the Sub-Saharan African region (World Bank 2021).

There are various reasons for Ethiopia's low levels of financial inclusion and usage. While the determinants for different demographics and individuals vary, common ones are distance to financial services access points, lack of documentation, absence of funds and a family member already having a financial account (Mossie 2023).

Mobile money, with its potential to leverage existing mobile phone networks, has emerged as a promising tool for financial inclusion and usage. The World Bank, in its latest Global Findex publication (2021), identifies that mobile money has become one of the principal enablers of financial inclusion and usage through growth in mobile payments, savings and borrowing in Sub-Saharan Africa.

It is with financial inclusion and usage in mind that a significant step was taken in 2020 by the National Bank of Ethiopia (NBE) to allow non-banks to offer mobile money services in Ethiopia. The National Financial Inclusion Strategy II 2021-2025 (NFIS II) identifies "digital financial services, especially mobile money" as a focus area to drive forward financial inclusion in the country to 70% of adults by 2025 (NBE 2021).

A key enabler of NFIS is directives that provide the foundation for the development of mobile money products and services, a critical one being the Payment Instrument Issuers Directive, which has allowed non-bank institutions such as telecom service providers to offer financial services (NBE 2021).

Following the directive, mobile money products have been launched by non-banks, including Ethio telecom (Telebirr), Safaricom Ethiopia (M-Pesa) and Kacha Digital Financial Services (Kacha). The number of users of mobile money has subsequently grown significantly, driven mainly by Telebirr, which currently has over 44.5 million customers (Telebirr, 2024). The entry of non-bank financial services providers (FSPs) has led to significant competition within the mobile money space, where banks also have well-established platforms such as CBE Birr, Amole and E-Birr to mention a few.

Mobile money has the potential to increase financial inclusion and usage by simplifying access to financial services, creating a digital record of financial activities and leveraging network effects to speed up growth. The benefits are visible in countries where credit information such as borrowing information and banking infrastructure such as branches, point-of-sale (POS) and automated teller machines (ATMs) are underdeveloped (Murray, 2023).

1.2. Statement of the Problem

Despite the efforts of the NFIS II, which also identified digital finance and mobile money as a pillar, a significant portion of the population, especially in rural areas, remains unbanked and lacks access to formal financial services.

As of 2022, account ownership[1] of adults stood at 46.5%, which indicates that a majority of the population in Ethiopia was not financially included. This is below the Sub-Saharan Africa average, where 55.1% of adults were considered financially included in 2021. Rural areas in Ethiopia are even more behind, where 37.4% of the population owns an account (World Bank 2021).

Ethiopians fare even worse on the other measures of financial services usage such as loan uptake, savings rate, insurance adoption and digital payments. While 38.1% of adults borrowed money from formal or informal sources in 2022, only 5% borrowed from formal institutions or use a mobile money account. Savings rates are higher. 53.1% of adults save money, with 22.7% doing so at a formal financial institution. Only 13.9% have also made a digital payment[2] far below the Sub-Saharan African average of 45.9% (World Bank 2021). Insurance coverage stood at 0.3% in 2022 (UNDP 2024).

The low levels of financial services usage in Ethiopia hinder economic participation, financial security, and overall well-being. Studies have found a significant relationship between higher levels of financial inclusion and reductions in poverty rates and income inequality. Improving financial access and usage for marginalized sections of the population is likewise linked to enhancements in collective social welfare.

While mobile money has emerged as a promising tool to address financial exclusion, its full potential for driving financial inclusion and usage in Ethiopia remains unexplored.

This research investigates how mobile money adoption impacted financial services usage indicators in Addis Ababa, the capital of Ethiopia. By investigating this question, this research provides valuable insights to policymakers, financial institutions, and mobile network operators in

[1] Defined as maintaining an account, whether held solely or in conjunction with another party, at a bank or recognized financial organization, or documenting personal engagement with a mobile money service during the past year.

[2] Defined as percentage of respondents who utilized electronic payment modalities, including mobile money platforms, debit or credit cards, mobile phone account transactions, or online and internet-connected point-of-sale systems for bill payments or retail purchases during the past twelve months.

designing and operationalizing strategies to maximize the impact of mobile money on financial services usage in Ethiopia.

1.3 Basic Research Questions

Based on the statement of the problem, the main research question has been formulated:

1. How does the adoption of mobile money impact digital payments in Addis Ababa?
2. How does the adoption of mobile money impact savings uptake in Addis Ababa?
3. How does the adoption of mobile money impact loan uptake in Addis Ababa?

1.4. Objectives of the Study

This study explores the impact of mobile money adoption on financial services usage in Addis Ababa. While mobile money presents a promising tool for inclusion, its impact has yet to be fully explored in Ethiopia, even in the capital of the country. The research aims to:

- Examine the impact of mobile money adoption on savings ratings in Addis Ababa.
- Examine the impact of mobile money adoption on loan uptake in Addis Ababa.
- Examine the impact of mobile money adoption on digital transactions adoption in Addis Ababa.

By achieving this objective through a study of Addis Ababa, the aim is to shed light on the impact of mobile money on financial services usage in Ethiopia.

1.5. Significance of the Study

Financial inclusion remains a significant hurdle in Ethiopia, where a substantial segment of the population is excluded from formal financial systems. This research project holds significant value in addressing this crucial issue by attempting to understand the impact of mobile money, informing policy and strategy development and promoting financial inclusion and well-being.

The research provides a comprehensive understanding of how mobile money adoption has impacted key financial services usage indicators in Addis Ababa. After analyzing changes in digital transactions, loan uptake and savings rates after the adoption of mobile money services, the study reveals the relationship between mobile money and financial inclusion.

By identifying the impact of mobile money on financial inclusion, this study provides valuable information to policymakers, financial institutions, and mobile network operators. This information can be used to design and implement effective strategies to maximize the impact of mobile money on financial inclusion in Ethiopia. Policymakers have identified the development of mobile money as a key pillar to drive financial inclusion in NFIS II (NBE 2021), a causality this study seeks to validate.

Ultimately, the study seeks to contribute to the national financial inclusion strategy of Ethiopia by providing valuable data and insights for policymakers and stakeholders. By promoting greater financial inclusion through the effective utilization of mobile money, the study can contribute to a more prosperous and inclusive financial landscape for Ethiopia, and subsequently improve social welfare.

1.6. Scope of the Study

The study explores how the recent surge in mobile money users has influenced key financial inclusion indicators. The research is limited to a scope bound by timeframe, geographical focus and financial services usage indicators.

The timeframe covered is between the period that respondents opened their first mobile money account and the data collection period for this research. The geographical focus is on Addis Ababa. Nonetheless, national trends and data points on financial services usage and mobile money adoption are utilized to provide context and validate survey results.

Mobile money accounts encompass any digital wallet enabling users to store, send, and receive funds via their mobile phones, eliminating the requirement for traditional bank accounts. It operates independently of traditional bank accounts, making it accessible to a wider population, especially those without access to traditional banking services. Mobile money wallets widely used in Ethiopia are Telebirr, CBE Birr, M-Pesa, E-Birr, Amole and Coopay, to mention a few.

The study investigates trends observed after the introduction of mobile money services on the following key indicators of financial services usage: digital transactions, loan uptake and savings rates.

The study may briefly discuss the performance of mobile money compared to the Sub-Saharan African average for context, but it does not conduct a comparative analysis of mobile money adoption across different countries. The study also does not delve into the specific reasons behind user behavior regarding mobile money usage.

1.7. Limitations of the Study

While the research project strives to provide useful insights into the impact of mobile money adoption on financial inclusion in Ethiopia, there are limitations to acknowledge.

Data availability, particularly for rural areas, is a challenge. As a result, the study utilizes a survey research design to analyze the relationship between mobile money adoption and financial services usage. Since there are security challenges in several regions of Ethiopia and due to cost challenges, the survey, and thus the study, are also limited to Addis Ababa. Further, the majority of the sampled group represented university students, due to their availability for research studies purposes and high response rates.

The study's findings may also be influenced by the potential impacts of additional variables that influence digital financial services usage, such as digital and financial literacy or higher income - i.e. respondents may have a higher usage of loans, savings and digital payments not necessarily because of adoption of mobile money but because they have more trust in financial services, a higher level of literacy or higher income.

As the research primarily investigates financial services usage indicators, it may not capture the broader impact of mobile money on financial behaviors. Additionally, by not exploring the reasons behind user behavior regarding mobile money usage, the study may miss out on valuable insights into user preferences, challenges, and motivations.

Finally, insurance coverage is excluded as an indicator due to the nascent stage of mobile money in Ethiopia, although it is identified as a usage indicator by the GPFI (2013). Currently, there are no mobile money financial service providers (FSPs) in Ethiopia that offer insurance products. This limitation restricts the ability to provide a fully comprehensive picture of mobile money's impact on financial inclusion.

Despite these limitations, this study aims to utilize the best available data and methodologies to provide valuable insights. The limitations highlight areas for further research and data collection to gain a deeper understanding of mobile money's role in promoting financial inclusion in Ethiopia.

1.8 Definition of Terms

Account Ownership: An account, whether held solely or in conjunction with another party, at a bank or recognized financial organization, or documenting personal engagement with a mobile money service during the past year.

Digital Transactions: All types of non-cash transactions carried, including using cards or mobile money products.

Financial Services Usage: One of the three main measures of financial inclusion, along with access to financial services and quality of the products and the service delivery. It refers to how actively people engage with financial products and services.

Formal Financial Services: Financial services provided by licensed and regulated institutions like banks, credit unions, or mobile money service providers.

Loan Uptake: Growth in the percentage of adults with at least one loan outstanding from a bank or other formal financial institution or used a credit card in the past year.

Mobile Money: A service that allows those with an account to store, send, and receive funds electronically using a mobile phone and without being linked to a bank account.

Savings Rate: Percentage of adults that saved at any formal financial institution in the past year.

1.9 Organization of the Paper

The structure of this paper follows a logical flow to address the research questions and objectives. The introduction begins by providing background information on the challenges of financial exclusion in Ethiopia. It highlights the importance of financial services usage for economic participation and well-being. Following this context, the introduction discusses the emergence of mobile money as a potential tool for financial inclusion and the recent surge in mobile money adoption in Ethiopia.

The literature review explores existing research on the relationship between mobile money and financial inclusion in other developing countries, financial inclusion research carried out in Ethiopia and finally identifies literature gaps. This section identifies key financial services usage indicators and potential challenges hindering the full utilization of mobile money.

The methodology section details the data collection methods, research design, data analysis techniques, data sources employed and model specification for regression analysis in the study. This ensures transparency and allows readers to evaluate the credibility of the findings.

The findings section presents the key results of the research, focusing on the impact of mobile money adoption on financial services usage indicators in Ethiopia. This includes analyzing rates of account ownership, digital transactions, loan uptake, and savings rates.

Finally, the conclusion summarizes the key findings, reiterates the significance of the research for promoting financial inclusion in Ethiopia and emphasizes the potential of mobile money to overcome financial exclusion.

Chapter 2: Literature Review

Mobile money has seen significant volume and growth in Sub-Saharan Africa. Of the USD 1.4 trillion in mobile money transaction value globally, 65% came from the region far higher than any other region. With 835 million registered accounts, Sub-Saharan Africa's mobile money market is more than double the size of South Asia's, the second-largest globally (GSMA, 2024). The uptake of mobile money, particularly in East African countries such as Kenya and Tanzania, has been attributed to a robust penetration of mobile phones but insufficient access to traditional banking infrastructure (Wachira, 2023).

The unparalleled growth of mobile money in Sub-Saharan Africa is driving interest in the digitization of financial services as a tool to advance financial inclusion. There have thus been analyses of theoretical frameworks and empirical studies to establish that a positive relationship between the adoption of mobile money and financial services usage does in fact exist.

2.1 The Concept of Financial Services Usage

Financial services usage refers to the extent to which individuals and businesses actively employ financial products and services to manage their financial lives. It goes beyond mere access to financial services, focusing on the actual utilization of these services for various purposes such as savings, payments, credit, and insurance. Financial services usage is a critical component of financial inclusion, as it reflects the practical application of financial access in people's daily lives (i2i 2017).

The concept of financial services usage encompasses several dimensions, including the frequency, volume, and diversity of financial transactions. It involves not only the ownership of financial accounts but also their regular use for activities such as receiving wages, making payments, and saving for future needs. Several factors determine how people use financial services, including their level of financial knowledge, their confidence in financial providers, and whether the services meet their specific requirements (i2i, 2017). A conceptual model of financial services usage, developed by insight2impact (i2i) proposes that usage occurs when "a person deploys a financial device to meet a specific financial need." This model distinguishes between uptake (meeting requirements to use a service) and actual usage (deploying the service).

The i2i framework emphasizes that different financial devices, both formal and informal, can be substitutes or complements in meeting these needs. This perspective is crucial for understanding the full spectrum of financial behavior, including the role of informal financial services. Measuring financial services usage requires looking beyond simple account ownership statistics. The i2i framework proposes tracking usage across different dimensions: Recency (how recently the device was used); frequency (number of interactions and intervals between use); duration: (length of time the device has been used); and monetary value (the amounts involved in transactions) (i2i 2017).

By focusing on actual usage rather than mere access or uptake, this conceptual approach to financial services usage provides a more nuanced understanding of financial inclusion. It can help inform policies and strategies aimed at not just increasing account ownership, but also promoting meaningful engagement with financial services that can lead to positive outcomes for individuals and the broader economy.

2.1 Mobile Money Concept

Mobile money has emerged as a transformative force in the financial inclusion landscape, particularly in developing countries. It refers to financial services accessed and delivered primarily through mobile phones, and without the need for bank accounts. It allows users to store, send, and receive funds using their mobile devices (GSMA, 2021). Mobile money has gained significant traction due to its ability to overcome traditional barriers to financial access, such as geographical distance and lack of physical infrastructure.

Mobile money services offer a range of functionalities beyond basic cash transfers, including bill payments, merchant transactions, and access to credit and savings products (Aron, 2018). The system works by creating an electronic wallet linked to a user's mobile phone number, where users can deposit cash into their mobile money account through a network of agents, who are often small retailers. Depending on levels of interoperability, users can also transfer from bank-linked wallets directly to their mobile money accounts. Once the account is funded, users can perform various financial transactions directly from their mobile phones.

The adoption of mobile money can have substantial economic impacts. By providing access to formal financial services, mobile money enables users to save more effectively, manage risk better, and invest in productive activities (Suri & Jack, 2016). For many unbanked individuals, mobile money serves as their first entry point into the formal financial system. However, the successful adoption and usage of mobile money face several challenges. These include the need for improved digital infrastructure and enhanced digital literacy among the population (Demirgüç-Kunt et al., 2021).

Despite these challenges, mobile money continues to evolve. Recent innovations include the integration of mobile money with other financial services, such as microinsurance and microcredit. Some providers are also exploring the use of smartphone apps to offer more sophisticated financial services, although basic feature phones remain the primary access point in many markets (GSMA, 2021).

As mobile phone penetration continues to increase globally, mobile money has the potential to dramatically expand financial inclusion, particularly among populations that have been historically underserved by traditional banking institutions (Demirgüç-Kunt et al., 2022).

2.3 Theoretical Frameworks for Adoption

The relationship between mobile money adoption and financial inclusion (which includes usage) is mainly contingent on what has been one of the main barriers to financial inclusion in Africa - access to financial services. Adults, especially in rural areas, have had limited access to traditional banking infrastructure such as branches, ATMs and POS.

On the other hand, the wide adoption of mobile phones, which is around 46% (GSMA 2023), compared to 39.7% for account ownership at financial institutions (World Bank 2021), offered an innovative path towards financial access for millions of Africans. A significant contributor to this was the ease of use of the internet and USSD technologies, which could be leveraged to expand access to financial services (Menza et al. 2023).

N'dri & Kakinaka (2022) further underline the significance of mobile money to financial inclusion, discussing how mobile money offers a solution to the challenges of traditional financial institutions and promotes financial inclusion for the underbanked in developing countries. They tie mobile money's ease of use (SMS) and affordability for sending money long distances to a more innovative way of reaching the underbaked and argue that advancements in technology and regulations - such as interoperability with traditional financial services - further accelerate financial inclusion.

Studies also show that mobile banking satisfies Rogers' Innovations Diffusion Theory (IDT) where it is argued that a new technology is adopted if it has characteristics such as relative advantage, compatibility and observability (Entele 2019). An adjacent and highly similar technology, mobile money, as an extension of advancements in financial technology, has the potential to diffuse faster and deeper than traditional financial services.

The Technology Acceptance Model (TAM) provides another theoretical framework for understanding mobile money adoption and its impact on financial services usage. The TAM theory suggests that whether someone adopts a technology hinges on how useful and easy to use they believe it to be (Davis, 1989). In the context of mobile money, these factors are particularly relevant as the technology offers convenient and accessible financial services, especially for those previously excluded from traditional banking systems. Tobbin and Kuwornu (2011) applied TAM to mobile money adoption in Ghana, finding that perceived usefulness significantly influenced adoption intentions, suggesting that users recognize the practical benefits of mobile money services for their financial activities.

The Financial Intermediation Theory also provides insights into how mobile money improves financial inclusion and usage. This theory explains how financial intermediaries reduce transaction costs and information asymmetries in financial markets (Diamond, 1984). Mobile money services act as efficient intermediaries in underdeveloped financial ecosystems, lowering barriers to entry for financial services.

2.4 Empirical Evidence on Mobile Money

A number of empirical studies establish the impact of mobile money on financial inclusion. Data collected on Ugandan MSMEs and structural equation modeling in partial least squares (PLS) found that mobile money adoption and usage impact financial inclusion (Okello and Ntayi 2020). Likewise, Ouma et al. (2017) showed that mobile financial services promote saving - a key financial services usage indicator - at a household level and are instrumental in ensuring access to financial services for those without bank accounts. Menza et al. (2023) have also found that financial technologies, among them mobile banking, have a statistically significant and positive effect on financial inclusion.

Furthermore, a study by Naito et al. (2021) in Tanzania found that mobile money users were more likely to save for specific purposes such as business expansion, children's education, and emergencies. This suggests that mobile money platforms not only facilitate savings but also encourage goal-oriented financial planning. The impact of mobile money on borrowing behavior is multifaceted. While some studies indicate an increase in borrowing opportunities, others suggest a more nuanced effect. Naito et al. (2021) observed that mobile money users did not necessarily increase borrowing when faced with negative shocks, unlike non-users. This resilience is attributed to increased remittances and diversified saving portfolios enabled by mobile money services.

Mobile money adoption has shown significant impacts on savings behavior and financial inclusion in Ghana. A study by Osei-Assibey (2015) found that mobile money users saved more compared to non-users. The research revealed that mobile money adoption increased the likelihood of individuals saving for business startups, business expansion, and emergencies. Interestingly, the effect of mobile money on savings was more pronounced in rural areas compared to urban centers. This highlights the potential of mobile money to bridge the urban-rural financial inclusion gap by making financial services more accessible to previously underserved populations. The study also found that mobile money users were more inclined to save through both formal and informal channels, suggesting that the technology complements rather than substitutes traditional savings methods.

Mobile money platforms have also shown a significant impact on lending rates and credit accessibility. Islam et al. (2018), using nationally representative data from Kenya, Tanzania and Uganda, found that the introduction of mobile money services led to a reduction in lending rates and an increase in credit availability for small businesses. This effect was particularly pronounced in areas with low access to traditional banking services. The researchers observed that mobile money platforms enabled lenders to better assess borrowers' creditworthiness through transaction data, leading to more efficient risk assessment and lower interest rates.

In Kenya, the M-Shwari platform, which leverages M-Pesa transaction data, has provided millions of previously unbanked individuals access to formal credit (Bharadwaj et al., 2019). These findings suggest that mobile money not only enhances financial inclusion through savings and payments

but also plays a crucial role in expanding access to credit and potentially reducing borrowing costs for underserved populations.

2.5 Mobile Money Adoption and Financial Inclusion in Ethiopia

Mobile money adoption in Ethiopia has gained significant attention in recent years, with several studies examining its impact on financial inclusion.

Alemu (2020) conducted a study on factors affecting the intention to use mobile banking services, specifically focusing on CBE-Birr, the mobile money service offered by the Commercial Bank of Ethiopia (CBE). The study found that several factors influence customers' intention to use CBE-Birr. These encompass the user's belief in the service's benefits, its perceived user-friendliness, the impact of social norms, and the availability of necessary resources. The research revealed that customers are more likely to adopt CBE-Birr when they believe it as useful for accomplishing tasks quickly and conveniently. Ease of use was also found to be an important factor, with customers preferring simple registration procedures and user-friendly interfaces.

Focusing specifically on Telebirr, Kibru (2023) investigated the factors influencing the adoption of Telebirr mobile money services among 360 respondents in Addis Ababa. Utilizing a quantitative approach, the research examined the impact of perceived trust, perceived ease of use, prior knowledge, perceived usefulness, perceived risk, and awareness on Telebirr adoption. The findings revealed that perceived trust emerged as the most significant predictor of Telebirr adoption, followed by perceived ease of use and prior knowledge. While perceived risk negatively impacted adoption, the study emphasizes the importance of building trust and enhancing user experience. The results underscore the importance of addressing perceived risks, improving service security, and developing effective awareness campaigns to increase Telebirr's market penetration and drive mobile money adoption in Addis Ababa. These findings have significant implications for Ethio Telecom and other stakeholders in the mobile money ecosystem, highlighting the need for strategies that prioritize user trust, enhance service usability, and effectively communicate the value proposition of Telebirr to potential users.

Examining the role of digital financial services (DFS) and fintech in promoting financial inclusion in Ethiopia is a study by Negussie (2020). Employing a quantitative approach, the research found that while DFS and fintech have the potential to drive financial inclusion, their current contribution is perceived as insufficient by 80% of respondents. Key constraints identified include the slow development of fintech, limited growth of DFS, and insufficient customer awareness. The study recommends several measures to enhance DFS and fintech's impact, including establishing a regulatory sandbox, fostering industry associations, enhancing customer awareness, issuing digital IDs, and promoting strategic partnerships between traditional financial institutions and technology providers. The findings emphasize the need for a concerted effort to address these challenges and maximize the potential of DFS and fintech in broadening financial inclusion in Ethiopia.

2.6 Gaps in the Current Literature

Existing research provides useful insights into the potential of mobile money to drive financial inclusion but significant gaps remain in the Ethiopian context. While studies like those by Alemu (2020) and Kibru (2023) have explored factors influencing the adoption of specific mobile money services like CBE-Birr and Telebirr, a more comprehensive understanding of the overall relationship between mobile money and financial services usage in Ethiopia is still lacking.

Previous studies have primarily focused on factors influencing mobile money adoption, such as perceived trust, ease of use, and awareness. However, limited research has specifically quantified the impact of mobile money adoption on key financial services usage indicators such as savings rates, loan uptake, and digital transaction frequency. This study aims to bridge this gap by directly investigating the causal relationship between mobile money adoption and these critical aspects of financial behavior.

Furthermore, while research on mobile money in Ethiopia is growing, it is still in its nascent stages compared to more mature mobile money markets in other parts of Africa. The recent entry of new players like Safaricom Ethiopia and the evolving regulatory landscape present new opportunities and challenges for the mobile money ecosystem. This study aims to contribute to a deeper understanding of the evolving dynamics of mobile money adoption and its impact on financial inclusion in this dynamic context.

By analyzing primary research data on mobile money usage, this research provides valuable insights for financial institutions, policymakers and mobile network operator stakeholders of financial inclusion. This information can be used to develop strategies to maximize mobile money's potential for promoting financial inclusion in Ethiopia and achieving the goals outlined in the NFIS (NBE 2021).

Chapter 3: Methodology

This section outlines the research methodology employed in this study, detailing the approach used to investigate the impact of mobile money adoption on financial services usage in Addis Ababa. It encompasses the research approach and design, data collection methods, sampling techniques, variable construction, validity tests, and data analysis procedures, providing a clear framework for understanding how the research questions were addressed.

3.1 Research Approach

This research relied on numerical data to measure and analyze the relationship between mobile money adoption and financial services usage in Ethiopia. The chosen financial services usage indicators (digital transactions, loan uptake, savings rates) can all be translated into numerical data, making them suitable for quantitative analysis.

The quantitative approach utilizes numerical data collection and statistical analysis to understand phenomena and test hypotheses. It relies on structured research instruments, such as surveys and experiments, to gather measurable data that can be analyzed using mathematical models. This method emphasizes objectivity, precision, and reliability, often involving large sample sizes to ensure the generalizability of the findings. By employing techniques like descriptive and inferential statistics, researchers can identify patterns, compare groups, and establish relationships between variables. The approach is rooted in deductive reasoning, aiming to validate theories or predictions through empirical evidence while minimizing researcher bias (Ghanad 2023).

3.2 Research Design

The research aims to quantify the impact of mobile money adoption on financial services usage in Ethiopia, focusing on digital transactions, loan uptake, and savings rates. Using regression analysis, the most straightforward methodology to employ here was to try and directly establish a relationship between the adoption of mobile money and levels of financial services usage through survey questionnaires that ask respondents if they have made more digital transactions, accessed more loans and saved at higher levels after opening a mobile money account. If respondents confirm a higher rate of financial services usage after adopting mobile money, a potential relationship could be indicated.

This study utilizes a survey research design to collect data on mobile money adoption and its impact on financial service usage in Ethiopia. Participants answered questionnaires designed to capture information about their financial services usage. The main justification for using a survey research design is the lack of rich secondary data on mobile money adoption in Ethiopia.

Using a survey research design in the absence of secondary data allows researchers to collect original, firsthand information directly from respondents tailored to specific research objectives. This method is particularly valuable when existing data is insufficient or unavailable, enabling the exploration of new topics or the gathering of insights on specific issues. Surveys can be structured with closed-ended questions, making them versatile tools for understanding attitudes, behaviors, and experiences. By employing surveys, researchers can efficiently gather data from a large sample, ensuring that the findings are relevant and applicable to their research questions, ultimately facilitating informed decision-making and robust conclusions based on empirical evidence (Aggarwal 2024).

3.3 Sample Size and Technique

The study surveyed 100 adults between the ages of 20-64 in Addis Ababa, selected according to the Stratified Random Sampling technique. The initial stratification was based on mobile money usage, dividing respondents into users and non-users, with 70% of the sample comprising mobile money users and 30% non-users. Subsequent stratification was then performed based on gender and age, ensuring a balanced representation across these demographics, followed by random sampling within each stratum. The sample was drawn exclusively from Addis Ababa due to logistical and cost implications. Further, the majority of the sampled group represented university students, due to their availability for research studies purposes and high response rates.

Table 1: Stratification of sample size for mobile money users

Strata	Sample Group
Mobile money users	
City	Addis Ababa
Gender	50%/50% split
Age[3]	• 20-34 year olds - 54%% of sample • 35-49 year olds - 30% of sample • 50-64 year olds - 16% of sample
Non-mobile money users	
City	Addis Ababa
Gender	47% (female)/53% (male) split

[3] Age group representative sample selected according to a breakdown of age groups on the Ethiopia Data Portal, available here.

Age[4]	• 20-34 year olds - 57% of sample • 35-49 year olds - 30% of sample • 50-64 year olds - 13% of sample

Source: Survey data, 2025

3.4 Sources and Types of Data

Since the study utilizes a survey research design, the source of data is primary data, which is collected directly from the participants through a survey questionnaire. The survey is designed to ask questions with answer choices that can be later converted into numerical values (e.g., "Never," "Occasionally," and "Frequently" for digital transaction frequency). The study also utilized secondary data for literature review purposes and to provide valuable contextual information, establishing a broader understanding of the research topic within existing trends and patterns.

3.5 Method of Data Collection

The primary data collection instrument for this study is a structured questionnaire designed to gather information on the relationship between mobile money and financial services usage. This questionnaire employs a Likert scale to measure respondents' perceptions and experiences regarding digital payments, savings rates, and loan uptake. Given that both users and non-users of mobile money are surveyed, two different questionnaires, which were designed to be relevant to the relevant usage patterns of both groups, were utilized. They can be found in the appendix section.

To optimize data collection efficiency and ensure timely completion, the survey was self-administered after copies of the questionnaire were distributed. Comprehensive definitions of key terms and terminologies were provided to respondents to mitigate potential ambiguity. Furthermore, the researcher's contact information was made readily available to facilitate participant inquiries and address any emergent questions, thereby enhancing data accuracy and minimizing respondent burden.

3.6 Model Specification

The objective is to examine the effect of mobile money account ownership on three financial service outcomes: loan uptake, savings rate and digital payments frequency. For each outcome, the regression model is specified as follows:

$\mathbf{Y = \beta_0 + \beta_1 X_1 + e}$, where

[4] Age group representative sample selected according to a breakdown of age groups on the Ethiopia Data Portal, available here.

- Y = dependent variables
    - Loan uptake (binary: 1 = Yes, 0 = No)
    - Savings rate (ordinal: 0–4)
    - Digital payments frequency (ordinal: 0–4)
- β_0 = Coefficient (for constant)
- B_1 = is the regression coefficient of the independent variable on the dependent variable
- X_1 = are the independent variables
- e = error

The specific model of the regression analysis is the following:

$Outcome_i = \beta_0 + \beta_1 MobileMoneyOwner + e$, where

- $Outcome_i$
    - Loan uptake (binary: 1 = Yes, 0 = No)
    - Savings rate (ordinal: 0–4)
    - Digital payments frequency (ordinal: 0–4)
- MobileMoneyOwner: 1 = owns a mobile money account, 0 = does not

The study employed different regression techniques based on the nature of the dependent variable. To analyze loan uptake, a binary logistic regression model was utilized, given the dichotomous nature of the outcome (Yes/No). For savings rate and digital payments frequency, linear regression models were deemed appropriate. Although savings rate and digital payments frequency were measured on an ordinal scale, linear regression was chosen for these variables to facilitate the interpretability of the results. This approach allows for a clearer understanding of the magnitude and direction of the relationships between the independent variables and these financial services usage outcomes.

3.7 Variable Construction

The independent variable for this study is mobile money account ownership, which is operationalized as a categorical variable. This variable encompass two distinct categories: ‘has a mobile money account’ and ‘does not have a mobile money account.’

The dependent variables, representing financial services usage, include frequency of digital transactions, loan uptake, and savings rates. Frequency and usage of these services is measured using categorical variables, with options such as “Never,” “Rarely,” “Sometimes,” “Often,” and “Very often.” These options capture changes in transaction frequency before and after mobile money account ownership, as well as usage levels by those who do not have mobile money.

3.8 Validity and Reliability Test

To ensure the measurement is accurate, a thorough review of existing literature on mobile money and financial inclusion is conducted. This helped confirm that the chosen variables (mobile money adoption, digital transactions, loan uptake, savings rates) precisely capture these concepts. The study also pilot-tested the survey instrument with a sample group of 10 (10% of the total sample). This pilot test assessed whether the questions were clear and effectively gathered the intended information on mobile money usage and financial behaviors.

3.8.1 Reliability Test Using Cronbach's Alpha

Reliability refers to the consistency of the measurement instruments (survey questions) used in your study. For survey data, the most common reliability test is Cronbach's alpha, which measures the internal consistency of a set of items intended to measure the same construct. A Cronbach's alpha above 0.7 is generally considered acceptable, indicating good internal consistency (Cronbach 1951).

Table 2: Cronbach's alpha reliability test

Variable	Number of items	Cronbach's alpha
Digital payments	3	0.713
Savings	3	0.820
Loans	2	0.908

Source: Survey data, 2025; SPSS V29

For this analysis, the internal consistency of the instruments was confirmed to have an alpha value above 0.7, confirming the reliability of the survey questionnaire.

3.9 Method of Analysis

Descriptive statistics is the cornerstone of data analysis, allowing the study to delve into the characteristics and distribution of the information. This provides a clear understanding of the sample on two key fronts: demographics (age and gender) and their financial services usage (mobile money adoption, digital transaction frequency, loan uptake, and savings habits). By analyzing how the financial services usage of users before and after their adoption of mobile money has changed across different groups, and comparing to groups that do not have a mobile money account, we can uncover initial potential relationships. In addition to descriptive statistics, regression analysis is employed to formally test the hypothesized relationships between mobile money adoption and financial services usage. Specifically, linear and logistic regression models is used to assess the predictive power of mobile money ownership on digital transaction frequency, savings rates, and loan uptake.

Chapter 4: Data Presentation, Analysis and Interpretation

The following section presents a comprehensive analysis and interpretation of the data collected through the survey. This section systematically presents the findings, exploring the relationships between key variables and drawing meaningful conclusions based on the observed patterns and trends.

4.1 Demographic Characteristics

4.1.1 Mobile Money Users

As specified earlier, a gender-balanced number of 70 mobile money users were selected for the survey. The largest age group was 20-34 years (54.3%), followed by 35-49 years (30%), and 50-64 years (15.7%). Regarding occupation, students comprised the largest segment (48.6%), followed by employed individuals (20%). The majority of respondents had completed secondary education (64.3%) or college/university (27.1%). Income distribution was skewed towards lower brackets, with 60% earning less than ETB 7,904 ETB monthly, and 20% earning between ETB 7,904 and 15,809.

Table 3: Demographic characteristics by occupation

Occupation	Frequency	Proportion
Employed	14	**20.00%**
Retired	4	**5.71%**
Self-employed	8	**11.43%**
Student	34	**48.57%**
Unemployed	10	**14.29%**
Grand Total	**70**	**100.00%**

Source: Survey data, 2025

Table 4: Demographic characteristics by education attainment

Highest educational attainment	Frequency	Proportion
College/University	19	**27.14%**
Post-graduate	4	**5.71%**
Primary school	2	**2.86%**
Secondary school	45	**64.29%**
Grand Total	**70**	**100.00%**

Source: Survey data, 2025

Table 5: Demographic characteristics by income

Income bracket[5]	Frequency	Proportion
< ETB 7,904	42	**60.00%**
ETB 7,904 - ETB 15,809	14	**20.00%**
ETB 15,809 - ETB 23,713	7	**10.00%**
ETB 23,713 - ETB 31,617	5	**7.14%**
ETB 31,617 - ETB39,522	1	**1.43%**
More than ETB 39,522	1	**1.43%**
Grand Total	**70**	**100.00%**

Source: Survey data, 2025

4.1.2 Non-mobile Money Users

As specified earlier, a gender-balanced number of 20 non-mobile money users were selected for comparative purposes with the group that owns mobile money. Similar to the mobile money user group, the dominant age bracket was 20-34 (56.7%), followed by 35-49 (30%). However, there were more students in this group (53.3%). Education level was also higher, with half having a college/university degree. Income distribution was similar, with most earning below ETB 7,904 (66.7%).

Table 6: Demographic characteristics by occupation

Occupation	Frequency	Proportion
Employed	6	**20.00%**
Self-employed	3	**10.00%**
Student	16	**53.33%**
Unemployed	5	**16.67%**
Grand Total	30	**100.00%**

Source: Survey data, 2025

Table 7: Demographic characteristics by education attainment

Highest educational attainment	Frequency	Proportion
College/University	15	**50%**
Post-graduate	2	**6.67%**
Primary school	1	**3.33%**
Secondary school	12	**40.00%**
Grand Total	**30**	**100.00%**

Source: Survey data, 2025

[5] Income brackets were calculated using the World Bank's GNI per capita estimates for 2023. Available here.

Table 8: Demographic characteristics by income

Income bracket	Frequency	Proportion
< ETB 7,904	20	**66.67%**
ETB 7,904 - ETB 15,809	3	**10.00%**
ETB 15,809 - ETB 23,713	5	**16.67%**
ETB 31,617 - ETB39,522	1	**3.33%**
More than ETB 39,522	1	**3.33%**
Grand Total	30	**100.00%**

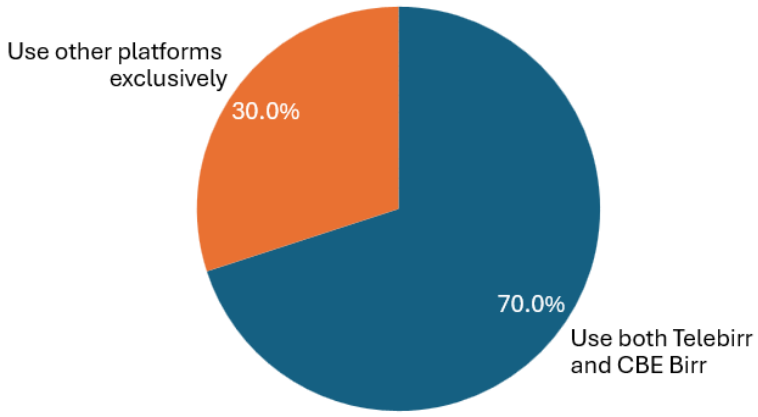
Source: Survey data, 2025

4.2 Adoption of Mobile Money

4.2.1 Mobile Money Users

Among the respondents that use mobile money, a significant majority (70%) use both Telebirr and CBE Birr, highlighting the dominant market share of these two platforms. Account usage duration varied: 24.3% had used mobile money for 1 to 2 years, 20% for 6 months to 1 year, and 17.14% for over 3 years. Smaller percentages reported shorter usage periods (less than 6 months or 2-3 years) or used other mobile money services like M-Pesa or Amole.

Figure 1: Usage rates of various mobile money platforms



4.2.2 Non-mobile Money Users

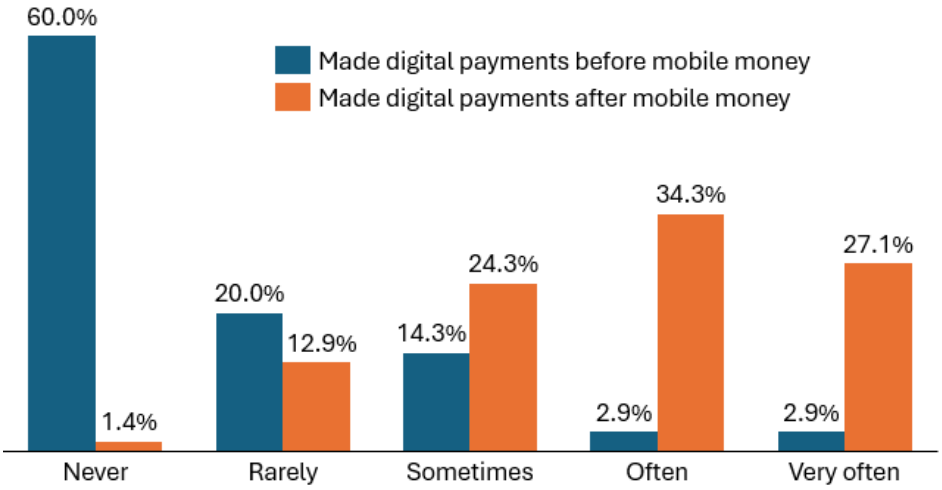
The primary reasons for not having a mobile money account, as indicated by the 30 respondents who do not own a mobile money account, were a lack of awareness and the perceived complexity of the process. 30% cited the complexity of the process as a deterrent, suggesting that potential users might find the procedures involved in opening and operating a mobile money account to be confusing or cumbersome. Furthermore, 26.7% of respondents indicated a lack of awareness as a barrier, suggesting that a significant portion of the population might be unfamiliar with the concept

of mobile money, its benefits, or how to use it. Other reasons, including complexity and lack of losing money, were cited by 13.33% each, while 16.7% said that they fear losing money by using mobile money.

4.3 Adoption of Digital Payments

Prior to opening a mobile money account, a significant majority (60%) of the respondents that now use mobile money never made digital payments, while 20% did so rarely. However, after adopting mobile money, the situation reversed dramatically: only 1.43% never made digital payments, while 27.1% did so very often, and 34.3% often. This suggests a strong correlation between mobile money adoption and the increased frequency of digital payments.

Figure 2: Digital payments adoption before and after opening a mobile money account

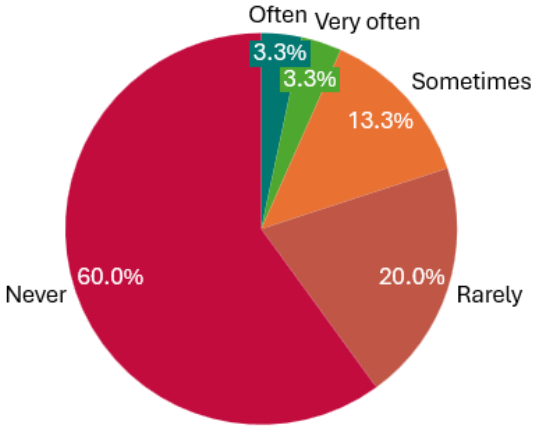


Mobile money users overwhelmingly perceive the service as beneficial for digital payments. On ease of use, a significant majority (45.7%) strongly agreed that mobile money has made digital payments easier, with only a small fraction (4.3%) strongly disagreeing. This suggests a strong positive perception of mobile money's role in facilitating digital transactions. Similarly, when asked about the frequency of digital payments, 38.6% strongly agreed that mobile money has increased their payment frequency, compared to only 2.9% who strongly disagreed. This reinforces the idea that mobile money is seen as a tool that encourages more frequent digital transactions. Finally, 14.5% strongly agreed that mobile money has reduced the cost of making digital payments, while 23.2% strongly disagreed, which indicates that there is a cost barrier to the adoption of digital payments through mobile money.

Meanwhile, non-mobile money users show lower levels of digital payment adoption compared to users of the service. Among the 30 respondents without mobile money accounts, a significant majority (60%) have never made digital payments. This highlights a potential disconnect between this group and digital financial services. A smaller portion (20%) rarely make digital payments, while 13.33% make them sometimes, and another 13.33% make them very often. This suggests

that while some non-users engage with digital payments, a large portion remain excluded from this aspect of financial activity.

Figure 3: Frequency of digital payments by non-mobile money users

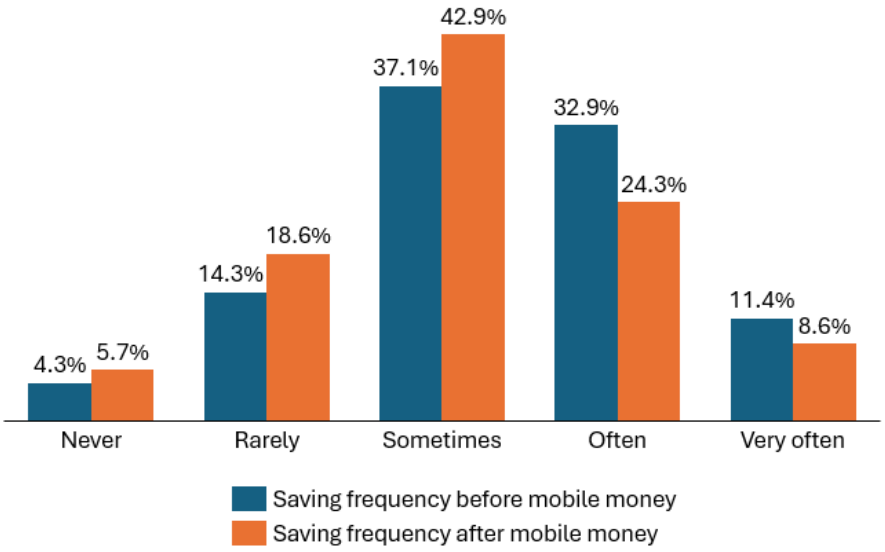


The link between mobile money and financial services usage is further assessed using regression analysis in chapter sub-section 4.6.

4.4 Changes in Saving Behaviour

There is a less pronounced shift in savings behavior compared to digital payments among respondents using mobile money. Before adopting mobile money, 18.6% of respondents never or rarely saved, and 44.3% saved often or very often. However, after adopting mobile money, respondents who say never or rarely save increased to 24.3%, while those saving often decreased to 32.9%. This indicates that saving rates are influenced less by mobile money and more by other factors, for instance, inflation.

Figure 4: Frequency of saving before and after opening a mobile money account



Mobile money users generally hold positive views regarding mobile money's influence on their savings habits. A minority (5.7%) strongly agree that mobile money has simplified the process of saving, compared to 22.86% who strongly disagree—on a scale of 1 (indicating strong disagreement) to 5 (indicating strong agreement), the majority (25.7%) score the statement that "Mobile money has made it easier for me to save money" a 4 out of 5. Perceptions regarding the impact on the amount saved are more divided; while 11.43% strongly agree that mobile money has led to increased savings, a larger group (25.7%) strongly disagree—this finding aligns with the reported decreases in savings rates. The perceived effect of mobile money on improving access to savings is also divided, with 40% agreeing that mobile money has made their savings more accessible and 47.1% disagreeing.

Savings habits among non-mobile money reinforce the findings that mobile money's impact on saving rates may be limited. While a significant portion of non-mobile money users (53.33%) save sometimes, compared to 42.9% for mobile money users, 23.3% save often or very often, compared to 32.9% for mobile money users. On the other hand, non-mobile money user respondents (20%) are less likely to say they have never or rarely saved compared to mobile money users (24.3%).

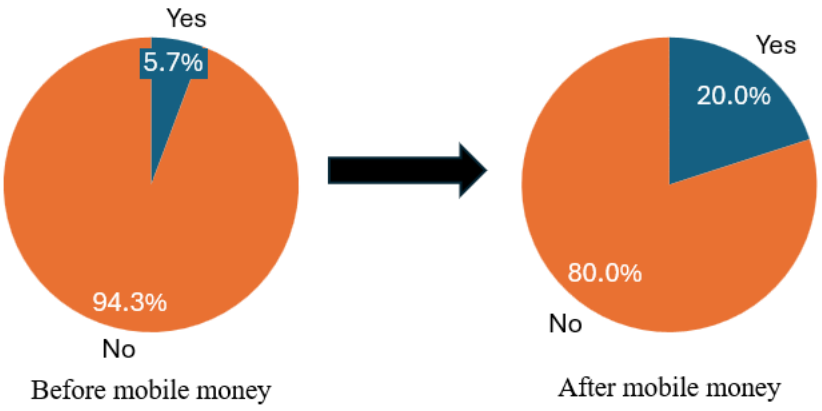
When non-mobile money users do save, the overwhelming majority utilize banks, while a smaller portion keeps their savings at home.

The link between mobile money and financial services usage is further assessed using regression analysis in chapter sub-section 4.6.

4.5 Changes in Loan Uptake

There is an increase in loan uptake among mobile money users after adoption. Before using mobile money, only 5.7% of respondents had taken a loan from a formal financial institution. However, after adopting mobile money, respondents taking a loan from either a formal institution or a mobile money provider increased by more than four-fold.

Figure 5: Proportion of respondents that took out a loan



While 7.1% strongly agree that mobile money has made it easier to access loans, a considerable 32.9% strongly disagree. Similarly, 5.7% strongly agree that mobile money has increased access to affordable loans, while 42.9% strongly disagree. These contrasting views suggest that while mobile money may have facilitated loan access for some, a significant portion of users either have not experienced this benefit or remain skeptical. Even among respondents with a mobile money account who have taken out loans, 57.1% do not agree that mobile money has made it easier for them to access loans, and 64.3% do not agree that mobile money has increased their access to affordable loans.

Compared to mobile money users, loan uptake among non-mobile money users is lower, with 6.7% saying that they have ever taken a loan from a formal financial institution. While there are other factors that lead to lower credit usage among non-mobile money users, mobile money may also play a role in facilitating access to credit, potentially by increasing users' engagement with the formal financial system or by providing access to mobile-based lending options.

The link between mobile money and financial services usage is further assessed using regression analysis in chapter sub-section 4.6.

4.6 Regression Analysis of the Study's Variables

To provide a clearer understanding of the sample and the main variables used in this study, a descriptive statistics for the three key dependent variables—loan uptake, savings rate, and digital

payments frequency—is provided. These statistics are based on the 100 respondents with complete data for all relevant variables, ensuring the integrity and comparability of the analysis.

Table 9: Descriptive statistics

Variable	N	Mean	Std
Loans	**100**	**0.2**	**0.401**
Savings	**100**	**2.719**	**1.141**
Digital payments	**100**	**3.611**	**0.781**

Source: Survey data, 2025; SPSS V29

The mean for loan uptake is 0.20, meaning that 20% of respondents reported taking a loan after opening a mobile money account. The average savings rate is 2.72, and the average digital payments frequency is 3.61, both on a 1–5 scale. This suggests that, on average, respondents engage in savings and digital payments with moderate to high frequency. The standard deviations (1.14 for savings rate and 0.78 for digital payments) indicate a reasonable spread in how often respondents participate in these activities.

4.6.1 Regression Analysis of the Study's Variables

The following hypotheses were tested using regression models with mobile money ownership as the sole predictor:

- H1: Mobile money ownership is a significant predictor of digital payments frequency.
- H2: Mobile money ownership is a significant predictor of savings rate.
- H3: Mobile money ownership is a significant predictor of loan uptake.

H1: Mobile money ownership and digital payments frequency

A linear regression was conducted to test whether mobile money ownership predicts digital payments frequency. The results are shown below:

Table 10: Mobile money ownership on digital payments frequency

	Coef.	Std Error	t	P>|z|	[0.025	0.975]
const	**3.461**	**0.141**	**24.404**	**1.966e-43**	**3.179**	**3.742**
MobileMoneyOwner	**0.150**	**0.169**	**0.889**	**0.375**	**-0.185**	**0.487**

Source: Survey data, 2025; SPSS V29

The coefficient for mobile money ownership is 0.15 (p=0.38), with a confidence interval that includes zero. This shows no significant association between mobile money ownership and digital payments frequency.

H2: Mobile money ownership and savings rate

A linear regression was conducted to test whether mobile money ownership predicts savings rates.

The results are shown below:

Table 11: Mobile money ownership on savings rate

	Coef.	Std Error	t	P>|z|	[0.025	0.975]
const	**2.755**	**0.209**	**13.131**	**2.508e-23**	**2.339**	**3.171**
MobileMoneyOwner	**-0.036**	**0.250**	**-0.145**	**0.884**	**-0.534**	**0.461**

Source: Survey data, 2025; SPSS V29

The coefficient for mobile money ownership is -0.04 (p=0.88), and the confidence interval includes zero. This indicates no significant relationship between mobile money ownership and savings rate.

H3: Mobile money ownership and loan uptake

A logistic regression was conducted to test whether mobile money ownership predicts loan uptake.

The results are shown below:

Table 12: Mobile money ownership on loan uptake

	Coef.	Std Error	Z	P>|z|	[0.025	0.975]
const	**-1.189**	**0.431**	**-2.755**	**0.005**	**-2.035**	**-0.343**
MobileMoneyOwner	**-0.196**	**0.524**	**-0.374**	**0.707**	**-1.22**	**0.832**

Source: Survey data, 2025; SPSS V29

The coefficient for mobile money ownership is -0.20 (p = 0.71), with a 95% confidence interval that includes zero. This means there is no statistically significant association between mobile money ownership and loan uptake.

Chapter 5: Summary of Findings, Conclusion and Recommendation

This chapter consolidates the key findings from the data analysis, drawing together the various strands of evidence to provide a comprehensive overview of the impact of mobile money adoption on financial services usage in Addis Ababa. Based on these findings, conclusions are presented regarding the relationship between mobile money and financial inclusion, followed by actionable recommendations for stakeholders, including policymakers, financial institutions, and mobile money service providers, to maximize the positive effects of mobile money and address any identified challenges.

5.1 Summary of Findings

This study explored the impact of mobile money adoption on financial services usage in Addis Ababa, comparing mobile money users and non-users. Among mobile money users (n=70), the majority were aged 20-34 (54.3%), and students comprised the largest occupational group (48.6%). Telebirr and CBE Birr were the dominant platforms (70% usage), and most users had adopted mobile money within the past two years.

A key finding from the descriptive analysis among mobile money users was the strong positive correlation between mobile money adoption and digital payment frequency. Before adopting mobile money, 60% of users never made digital payments; after adoption, this dropped to 1.4%, with a significant increase in frequent and very frequent digital transactions. However, regression analysis revealed no statistically significant association between mobile money ownership and digital payments frequency ($p = 0.38$). While mobile money users perceived positive impacts on ease of saving, its influence on the amount saved was less clear. Regression analysis also showed no significant relationship between mobile money ownership and savings rate ($p = 0.88$). Loan uptake also increased after mobile money adoption, though user perceptions regarding the ease and affordability of loans were mixed. Similarly, regression analysis indicated no statistically significant association between mobile money ownership and loan uptake ($p = 0.71$).

Non-mobile money users (n=30) were also predominantly aged 20-34 (56.7%) and students (53.3%). The most significant barriers to mobile money adoption cited were lack of awareness (26.7%) and perceived complexity (30%). Digital payment adoption was significantly lower among non-users, with 60% never making digital payments. Savings habits varied, with 53.3% saving sometimes, but 3.3% never save. Meanwhile, loan uptake was considerably lower among this group (6.7%).

These findings partially align with existing literature highlighting the potential of mobile money in driving financial inclusion, particularly in expanding access to digital payments. While descriptive statistics suggested a strong impact of mobile money adoption on digital payment

frequency, regression analysis did not confirm this relationship, nor did it find significant relationships between mobile money ownership and savings rates or loan uptake. The study underscores the importance of addressing barriers to adoption, such as awareness and perceived complexity, to fully realize mobile money's potential. The mixed perceptions regarding savings and loan access, and the non-significant regression results, suggest that other factors beyond mobile money adoption, such as financial literacy and economic conditions, also play a significant role.

5.2 Conclusion

The study provides valuable insights into the impact of mobile money adoption on financial services usage in Addis Ababa. The descriptive analysis revealed a clear association between mobile money usage and digital payment behavior. Mobile money users demonstrated a significant shift towards more frequent digital transactions after adoption, suggesting that mobile money facilitates greater engagement with digital payment systems. However, contrary to initial expectations, regression analysis did not confirm a statistically significant relationship between mobile money ownership and digital payment frequency. This discrepancy indicates that while mobile money usage and digital payment frequency appear to coincide, other factors may be driving digital payment adoption. Further research is needed to disentangle these relationships and identify the specific mechanisms through which mobile money influences or interacts with digital payment behavior.

The study also explored the impact of mobile money on savings behavior and loan uptake. While mobile money users expressed positive perceptions about the ease with which mobile money allows them to save, the analysis of savings rates did not show a clear increase following adoption. Similarly, regression analysis found no significant association between mobile money ownership and savings rates. This suggests that mobile money's influence on saving behavior may be limited or mediated by other variables, such as income levels, financial literacy, or access to other savings mechanisms. Loan uptake, on the other hand, did increase after mobile money adoption, indicating that mobile money may play a role in expanding access to credit. However, user perceptions regarding the ease and affordability of mobile money-enabled loans were mixed, and regression analysis did not confirm a significant relationship between mobile money ownership and loan uptake.

The findings suggest that while mobile money adoption can play a role in facilitating access to financial services, it does not automatically translate into increased usage. Other critical factors, such as financial literacy, affordability, the availability of relevant financial products, and broader socioeconomic conditions, significantly influence individuals' engagement with the financial system. Therefore, promoting financial inclusion requires a holistic approach that goes beyond simply increasing mobile money adoption rates.

5.3 Recommendations

To maximize the positive impact of mobile money on financial inclusion, targeted interventions are needed from various stakeholders. The following recommendations, categorized by stakeholder, aim to address the key findings of this research and promote broader, more effective mobile money adoption and usage.

- **For Policymakers:**
    - **Address Lack of Awareness:** Implement nationwide campaigns to raise awareness about the benefits, usage, and security of mobile money services to overcome this key barrier to adoption.
    - **Simplify Processes:** Review and streamline regulations related to mobile money account opening and usage to reduce the perceived complexity for potential users.
- **For Mobile Money Service Providers:**
    - **Enhance User Experience:** Focus on creating user-friendly interfaces and providing support in multiple local languages to simplify the mobile money experience.
    - **Build Trust:** Invest in robust security measures and transparent communication to address user concerns about the safety of their funds.
- **For Financial Institutions:**
    - **Explore Integration:** Consider partnerships with mobile money providers to broaden the reach of formal financial services and offer integrated solutions.

5.4 Further Areas of Research

Several avenues for future research emerge from this study. Longitudinal studies tracking changes in financial behavior over time would offer valuable insights into the sustained impact of mobile money adoption. Qualitative exploration, such as in-depth interviews, could provide richer insights into user experiences and motivations. Further research could focus on the impact of mobile money on women, youth, rural populations and other underserved groups, and investigate its interplay with other financial services. Examining the role of mobile money providers, the regulatory environment, and the influence of social networks on adoption would also be beneficial. Additionally, research exploring the impact on small businesses, and focusing on security and trust perceptions, would contribute to a more comprehensive understanding of mobile money's role in financial inclusion.

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Appendices

Appendix A: Questionnaire for Mobile Money Owners

Hello! I am conducting this interview as part of my thesis for a Master's degree at Addis Ababa University. I am conducting research on the impact of mobile money on financial services usage in Addis Ababa. Would you be willing to spend around 10 minutes filling in a few questions about your experiences with mobile money and other financial services? ***Your answers will be completely confidential, and you can stop at any time.***

This questionnaire is about your personal experiences. Please do not share information about, for instance, other members of your household. This survey is solely focused on your individual experiences.

Thank you for agreeing to participate in this survey. We will begin with some general questions about your background. This will help me ensure that we have a diverse range of perspectives.

A. Timestamp at start [Manually record time, not to be read to interviewer]

Day	**Month**	**Year**

1. *Age:*
    - *20-34*
    - *35-49*
    - *50-64*
2. *Gender:*
    - *Male*
    - *Female*
3. *Which of these answers best describes your main occupation?*
    - *Employed*
    - *Self-employed*
    - *Unemployed*
    - *Student*
    - *Retired*
    - *Other (Please specify)*
4. *What is the highest level of education you have completed?*
    - *Primary*
    - *Secondary*
    - *College/University*
    - *Post-graduate*
5. *Where would your monthly income band falls under?*
    - *Less than ETB 7,904*

- *ETB 7,904 - ETB 15,809*
- *ETB 15,809 - ETB 23,713*
- *ETB 23,713 - ETB 31,617 ETB*
- *ETB 31,617 ETB - ETB 39,522*
- *More than ETB 39,522*

Section 1: Adoption of Mobile Money

1. *Do you currently have a mobile money account? The following are examples of mobile money: Telebirr, CBE Birr, Amole, CooPay, Kacha, M-Pesa, Yaya, Sahay, E-birr and Hellocash.* **[Terminate interview if answered 'No']**
   - *Yes*
   - *No*
2. *If yes, for how long have you had a mobile money account?*
   - *Less than 6 months*
   - *6 months - 1 year*
   - *1-2 years*
   - *2-3 years*
   - *More than 3 years*
3. *Which mobile money service provider do you use? (Select all that apply)*
   - *Telebirr*
   - *M-Pesa*
   - *CBE Birr*
   - *Amole*
   - *CooPay*
   - *Kacha*
   - *Yaya*
   - *Sahay*
   - *E-birr*
   - *Hellocash*
   - *Others (Please specify)*

Section 2: Digital Payments

1. *Before opening a mobile money account, how often did you make digital payments?*
   - *Never*
   - *Rarely*
   - *Sometimes*
   - *Often*
   - *Very often*
2. *After opening a mobile money account, how often do you make digital payments?*
   - *Never*
   - *Rarely*
   - *Sometimes*
   - *Often*
   - *Very often*
3. *Please rate the following statements on a scale of 1-5, where 1 = Strongly Disagree and 5 = Strongly Agree:*

- *Mobile money has made it easier for me to make digital payments.*
- *Mobile money has increased the frequency of my digital payments.*
- *Mobile money has reduced the cost of making digital payments.*

Section 3: Savings Rates

1. *Before opening a mobile money account, how often did you save money?*
   - *Never*
   - *Rarely*
   - *Sometimes*
   - *Often*
   - *Very often*
2. *After opening a mobile money account, how often do you save money?*
   - *Never*
   - *Rarely*
   - *Sometimes*
   - *Often*
   - *Very often*
3. *Please rate the following statements on a scale of 1-5, where 1 = Strongly Disagree and 5 = Strongly Agree:*
   - *Mobile money has made it easier for me to save money.*
   - *Mobile money has increased the amount of money I save.*
   - *Mobile money has made my savings more accessible.*

Section 4: Loan Uptake

1. *Before opening a mobile money account, have you ever taken a loan from a formal financial institution?*
   - *Yes*
   - *No*
2. *After opening a mobile money account, have you ever taken a loan from a formal financial institution or a mobile money provider?*
   - *Yes*
   - *No*
3. *Please rate the following statements on a scale of 1-5, where 1 = Strongly Disagree and 5 = Strongly Agree:*
   - *Mobile money has made it easier for me to access loans.*
   - *Mobile money has increased my access to affordable loans.*

B. Your first name, phone address and signature please?

Name	**Phone no**	**Signature**

C. Timestamp at finish [Manually record time, not to be read to interviewer]

Day	**Month**	**Year**

Appendix B: Questionnaire for Respondents without Mobile Money Accounts

Hello! I am conducting this interview as part of my thesis for a Master's degree at Addis Ababa University. I am conducting research on the impact of mobile money on financial services usage in Addis Ababa. Would you be willing to spend around 10 minutes filling in a few questions about your experiences with mobile money and other financial services? ***Your answers will be completely confidential, and you can stop at any time.***

This questionnaire is about your personal experiences. Please do not share information about, for instance, other members of your household. This survey is solely focused on your individual experiences.

Thank you for agreeing to participate in this survey. We will begin with some general questions about your background. This will help me ensure that we have a diverse range of perspectives.

A. Timestamp at start [Manually record time, not to be read to interviewer]

Day	**Month**	**Year**

1. *Age:*
    - *20-34*
    - *35-49*
    - *50-64*
2. *Gender:*
    - *Male*
    - *Female*
3. *Which of these answers best describes your main occupation?*
    - *Employed*
    - *Self-employed*
    - *Unemployed*
    - *Student*
    - *Retired*
    - *Other (Please specify)*
4. *What is the highest level of education you have completed?*
    - *Primary*
    - *Secondary*
    - *College/University*
    - *Post-graduate*
5. *Where would your monthly income band falls under?*
    - *Less than ETB 7,904*
    - *ETB 7,904 - ETB 15,809*
    - *ETB 15,809 - ETB 23,713*

- *ETB 23,713 - ETB 31,617 ETB*
- *ETB 31,617 ETB - ETB 39,522*
- *More than ETB 39,522*

Section 1: Adoption of Mobile Money

1. *Do you currently have a mobile money account? The following are examples of mobile money: Telebirr, CBE Birr, Amole, CooPay, Kacha, M-Pesa, Yaya, Sahay, E-birr and Hellocash.* **[Terminate interview if answered 'Yes']**
    - *Yes*
    - *No*
2. *If no, why don't you have a mobile money account?*
    - *Lack of trust in mobile money services*
    - *Fear of losing money*
    - *Lack of awareness of mobile money services*
    - *Complexity of the process*
    - *Other (Please specify)*

Section 2: Financial Services Usage

1. *How often do you make digital payments?*
    - *Never*
    - *Rarely*
    - *Sometimes*
    - *Often*
    - *Very often*
2. *How often do you save money?*
    - *Never*
    - *Rarely*
    - *Sometimes*
    - *Often*
    - *Very often*
3. *Where do you typically save your money?*
    - *At home*
    - *At a bank*
    - *At a savings and credit cooperative (SACCO)* [Give examples: Awach]
    - At informal savings groups [Give examples: Equp]
    - *Other (Please specify)*
4. *Have you ever taken a loan from a formal financial institution?*
    - *Yes*

- *No*

5. *If yes, please specify the type of loan and the institution:*

Term of loan	**Type of loan (mortgage, car loan, micro-credit)**

6. *What are the main challenges you face in accessing financial services? (Select all that apply)*
    - *I don't have much awareness about them*
    - *The fees and charges are too high*
    - *Distance to financial institutions*
    - *I lack the required documentation to open an account*
    - *Not enough money to save and open an account*
    - *Other (Please specify)*

B. Your first name, phone address and signature please?

Name	**Phone no**	**Signature**

C. Timestamp at finish [Manually record time, not to be read to interviewer]

Day	**Month**	**Year**