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of Science Education**



BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE
DEPARTMENT OF AGRICULTURAL ECONOMICS AND MANAGEMENT
THE IMPACT OF DIGITAL BANKING ON FINANCIAL INCLUSION FOR
SMALLHOLDER TOBACCO FARMERS: A CASE STUDY OF MVURWI AREA

Submitted by

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Honours Degree in Agricultural Economics and Management

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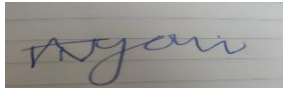
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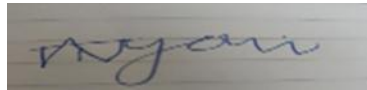
DECLARATION

I, Tinomuda P Nyoni, declare that this dissertation titled " **The impact of digital banking on financial inclusion for smallholder tobacco farmers: a case study of Mvurwi area** " is my original work and has not been submitted elsewhere for any degree or qualification. I acknowledge that I have received guidance and support from my supervisor, Dr Govera , and other academic staff during this research, but the intellectual content and presentation of this dissertation are entirely my own. I have followed the guidelines and regulations of the Bindura University of Science Education regarding plagiarism and academic integrity, and I have properly cited and referenced all sources of information used in this dissertation.

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DEDICATION

I dedicate this work to my beloved grandmother, whose unwavering support and wisdom have been a guiding light in my life. To my family and friends, thank you for your encouragement and belief in my dreams. I am also deeply grateful to everyone who contributed to this journey, helping me bring this research to fruition. Your kindness and support have made all the difference.

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ABSTRACT

The study starts by creating an extensive background on the agricultural environment and socio-economic situation in Mvurwi. It determines the meaningful position of smallholder farmers in food production and rural livelihoods, yet notes the persistent challenges they face, including geographical restrictions, no collateral, and rigid lending terms. This necessitates the provision of access to financial services that address the distinct needs of the smallholder farmers.

The primary goal of the study is to assess digital banking programs' competence to promote financial inclusion between smallholder tobacco farmers. The study **has** a mixed-methods design, employing quantitative surveys and qualitative interviews to gather data on farmers' experiences with digital banking. The primary aim is to determine the proportion of farmers using digital banking platforms, to analyze the effects of digital banking on access to credit and payment systems, and to evaluate the barriers to adoption.

documentation indicates that, in spite of the high prospects of digital banking, its adoption by smallholder farmers remains uneven. Most of them are faced with difficulties of inadequate network connectivity, low digital literacy, and security and transaction cost issues. The outcomes indicate that an overwhelming majority of the farmers incur moderate costs of digital banking per month, which can be burdensome to their already low levels of financial resources. Furthermore, the study highlights the importance of user education and transparent pricing structures to establish trust and facilitate broader acceptance of digital banking services.

The study concludes with practical recommendations for financial institutions and policymakers, demanding improved connectivity, targeted training programs, and the development of user-friendly financial instruments. By transcending these obstacles, stakeholders can enhance financial inclusion and empowerment of small-scale tobacco farmers, and thus facilitate sustainable agricultural development in Zimbabwe. The study not only adds to the existing body of knowledge on digital banking but also serves as a guideline for future interventions towards enhancing inclusive financial solutions in rural communities.

In summary, this study underscores the disruptive possibilities of digital banking in bridging the financial inclusion gap for smallholder farmers, while also acknowledging the multifaceted challenges that must be surmounted to realize this potential.

ACRONYMS

AGRA – Alliance for a Green Revolution in Africa

ATM – Automated Teller Machine

CBDC – Central Bank Digital Currency

CBA – Commercial Bank of Africa

CBZ – Commercial Bank of Zimbabwe

EFT – Electronic Funds Transfer

FAO – Food and Agriculture Organization

FBC – First Banking Corporation

FINSCOPE – Financial Inclusion Scope Survey

GSMA – Groupe Spéciale Mobile Association

ICT – Information and Communication Technology

IFAD – International Fund for Agricultural Development

IMF – International Monetary Fund

IT – Information Technology

MFI – Microfinance Institution

MSME – Micro, Small and Medium Enterprise

NFIS – National Financial Inclusion Strategy

NGO – Non-Governmental Organization

POS – Point of Sale

RBZ – Reserve Bank of Zimbabwe

SIM – Subscriber Identity Module

SMS – Short Message Service

TIMB – Tobacco Industry and Marketing Board

USSD – Unstructured Supplementary Service Data

ZIMSTAT – Zimbabwe National Statistics Agency

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CHAPTER 1 INTRODUCTION

1.1 BACKGROUND

Agriculture is a critically crucial sector in Zimbabwe that provides live hoods to the majority of the rural population and the bulk of agricultural producers are smallholders (Olarinde and Oladunni, 2013) these people remain the poorest in terms of food and income due to lack of finances hence improving smallholder agriculture is a pillar to alleviation (Piener and Traub,2015).digital banking For almost 70% of the rural poor, the majority of whom are smallholder community farmers in developing nations, agriculture is a important economic activity that provides them with food, income, and jobs (World Bank, 2015a).. This demonstrates the vital importance of agriculture to the economy and the means of subsistence for rural communities. Despite their significance, many farmers face major barriers to obtaining financial services, which are essential for maintaining and growing their farming operations. Many rural farmers are frequently unable to access traditional banking systems due to the limited availability of physical branches and stringent requirements, which are often out of reach for them. This problem highlights the urgent need for more accessible financial solutions that can cater to the unique needs of these farmers digital banking platforms offer farmers innovative ways to manage their farmers, innovate ways to manage their finances, access to credit, and conduct transactions. Digital banking has emerged as a promising solution to enhance financial inclusion, particularly in rural and underserved communities. The advent of mobile technology and internet access can streamline processes, reduce costs, and provide timely financial information, which is crucial for farmers operating on tight margins. Examining how these digital solutions can be leveraged by small to medium commercial farmers is essential for promoting sustainable agricultural development

Despite the potential advantages, the real impact of digital banking on farmers' ability to obtain financing is not well-documented. In developing nations like Zimbabwe, where a sizable portion of the population, including smallholder tobacco commercial farmers, remains financially excluded, digital banking has emerged as a transformative force in the financial sector in recent years, promising to revolutionize access to financial services for underserved populations. According to the 2014 Global Findex (Demirguc-Kunt et al., 2015b), globally, ownership of a formal account with a financial institution increased by 11% from 51 %

in 2011 to 62 % in 2014. However, sub-Saharan Africa accounts for almost 20 % of the remaining 2.5 billion that are unbanked globally

This research looks at how digital finance affects financial inclusion in Zimbabwe. There has been a noticeable change in Zimbabwe's financial services sector with the introduction of digital technology, especially mobile money and digital banking services. The present study investigates how digital finance initiatives have facilitated the expansion of financial services accessibility, the advancement of financial literacy, and the promotion of economic empowerment among marginalised communities in Zimbabwe. However, there has been a rapid growth in mobile cellphone usage in Zimbabwe, rising from 26 % in 2008 to 80 % in 2013 (Tortora, 2014). This has seen the emergence of mobile banking schemes in the Zimbabwean financial market in the last decade, with the most popular being the EcoCash scheme, which has been penetrating the unbanked market at high rates (Munyanyi, 2014; Basera & Dhiwayo, 2014)

Zimbabwe (RBZ) has recognized the importance of financial inclusion and implemented the National Financial Strategy (NFIS) to drive inclusion. NFIS I focused on various themes, including improving access for women, youth, and people with disabilities, enhancing Micro, Small, and Medium Enterprises (MSMEs) access, promoting digital financial services, and improving microfinance (RBZ, 2020). NFIS II is currently being developed based on evidence from surveys conducted to assess the effectiveness of NFIS I strategies and to set targets for financial inclusion (RBZ, 2022). Figure 1 below shows financial exclusion in Zimbabwe.

Zimbabwe (RBZ) has recognised the importance of financial inclusion and implemented the National Financial Strategy (NFIS) to drive inclusion. NFIS I focused on various themes, including improving access for women, youth, and people with disabilities, enhancing Micro,

In Zimbabwe, smallholder tobacco farmers have many obstacles when trying to obtain traditional banking services. Geographical obstacles, lack of collateral, and strict lending requirements are some of the things that frequently make it difficult for them to get the money they need for agricultural endeavors. With its potential to lower transaction costs and expand accessibility, digital banking presents an opportunity. Nevertheless, it is unclear to what degree it tackles these particular issues.

Furthermore, a careful analysis of how digital banking affects these farmers' financial inclusion is necessary. The incapacity of traditional banking systems to reach underserved and distant areas has long been a source of criticism. Digital banking, on the other hand, can close this gap, although these statements require empirical support. It will be insightful to compare the reach and inclusion of traditional and digital banking.

Despite the possible benefits, several obstacles prevent smallholder tobacco commercial farmers from widely utilizing digital banking. These problems with internet access, digital knowledge, and confidence in online banking services. To optimize the advantages of digital banking in agricultural financing, these obstacles must be removed.

Furthermore, in sub-Saharan Africa, formal financial institution banking has remained very low. But compared to other parts of the world, the advent of mobile banking has had the biggest impact on the delivery of financial services in this area. The low cost and 24/7 technological advancement of mobile banking make it possible for customers to conduct financial transactions without a bank account (Demirguc-Kunt et al., 2015b).

Lastly, while digital banking holds promise for enhancing agricultural financing for small tobacco farmers in Zimbabwe, its actual impact is not fully understood. This research aims to fill this gap by assessing the impact of digital banking in meeting the unique needs and challenges of farmers compared to traditional methods.

1.2 PROBLEM STATEMENT

Zimbabwe's agricultural sector is a vital component of its economy, employing approximately 60 % of the labor force (FAO). Small to medium-sizes commercial farmers are particularly essential, contributing significantly to food production and rural live hoods, however, farmers are particularly essential, contributing significantly to food production and rural livelihoods. However, these farmers face considerable challenges in accessing financial services, which are pivotal for sustaining and expanding their agricultural activities. Traditional banking systems, characterized by physical branches and stringent requirements, often leave rural farmers underserved, highlighting the urgent need for more accessible financial solutions tailored to their unique needs. Zimbabwe is a young country, with 62 percent of the population below 25 years old and the median age being around 18 years.

Up to 70% of Zimbabweans reside in rural areas, and 66% of them are employed in agriculture, according to the 2014 Finscope poll. Financial access is one of the main issues facing Zimbabwean agriculture, particularly for the smallholder farmers that make up the majority of the industry (Moyo, 2011).

Digital banking has emerged as a transformative force in enhancing financial inclusion, particularly in underserved areas. The advent of mobile technology and increased areas. The advent of mobile technology and increased internet access has enabled digital banking

platforms to offer innovative solutions for managing finances, accessing credit, and conducting transactions (Chisango). These platforms can streamline processes, reduce costs, and provide timely financial information, which is crucial for farmers. Despite the potential benefits, the adoption of digital banking among small to medium farmers remains inconsistent, influenced by factors such as digital literacy, access to technology, and trust in financial institutions. There is a general lack of digital knowledge among smallholder tobacco commercial farmers in Zimbabwe among the small to medium farmers, this has resulted in some farmers failing to operate mobile banking applications and do other financial transactions on digital platforms, thereby farmers settled for simple phones that cannot run mobile applications and also traditional banking of visiting the banking hall. The majority of smallholder tobacco commercial farmers in Zimbabwe do not own smartphones or web-enabled phones. Not all farmers have mobile phones, and in the case of those in possession of mobile phones, some are not web-enabled, and such farmers cannot access web resources that will help to access digital platforms.

There is often inadequate and sometimes non-technical support for farmers using mobile digital platforms from financial institutions. If they encounter technical challenges while using the applications, this hinders their ability to conduct financial transactions using digital platforms via mobile phones. Also, some remote farming areas have either no network, poor signal strength, or unreliable networks. This prevents smallholder tobacco farmers from using digital platforms.

Research indicates that while digital banking holds promise, its actual impact on the ability of smallholders in Zimbabwe to secure financing is not well-documented (Mhlanga 2023). The existing barriers to traditional banking, including geographical limitations, lack of collateral, and stringent lending criteria, continue to hinder farmers' access to necessary funding for agricultural activities. Digital banking may address these challenges, however, the extent to which it does so remains unclear. A thorough examination of specific obstacles faced by these farmers is necessary to evaluate the effectiveness of digital banking solutions.

1.3 RESEARCH QUESTIONS

1)What is the proportion of Mvurwi smallholder tobacco farmers utilizing digital banking platforms for money transactions, and which digital platforms (mobile money, bank applications, or USSD) are predominantly utilized?

2)To what extent does the adoption of digital banking affect the availability of formal payment systems, savings products, and credit services to smallholder tobacco farmers in Mvurwi?

3)What are the biggest technological, economic, and social barriers to smallholder tobacco farmers in Mvurwi embracing digital banking?

1.4.1 OBJECTIVES OF THE STUDY

1.4.2 Specific objectives

1)To determine the percentage of smallholder tobacco farmers in Mvurwi who use digital banking platforms (bank apps, USSD, or mobile money) to receive their payments.

2)To explore the effect of digital banking adoption on the accessibility of smallholder tobacco farmers to formal payment systems, savings, and credit facilities in Mvurwi.

3)To identify the most significant technological, economic, and social barriers to digital banking adoption by smallholder tobacco farmers in Mvurwi.

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1.5 RESEARCH HYPOTHESES

More than half ($\geq 50\%$) of the smallholder tobacco farmers in Mvurwi use digital banking platforms (bank apps, mobile money, or USSD) for transactional purposes, with most favoring mobile money.

Digital banking users have more convenient access to formal payment systems, savings accounts, and credit facilities compared to non-users.

The most significant constraining factors limiting the adoption of digital banking include technological constraints (e.g., poor connectivity), economic constraints (e.g., costly transactions), and social constraints (e.g., distrust), with the most important being economic constraints.

1.6 Significance of the study

This study holds significant importance for several reasons, particularly in the context of enhancing the livelihoods of smallholder tobacco farmers in the Mvurwi area. Firstly, it contributes to the growing body of literature on digital banking and its effects on rural agriculture. As the financial landscape evolves with technological advancements, understanding how digital banking can empower smallholder farmers is crucial. This research aims to provide empirical evidence that can inform policymakers, financial institutions, and

agricultural organizations about the potential benefits and challenges of integrating digital banking into rural economic activities. By shedding light on these issues, the study can help to bridge the gap between technology and agriculture, fostering a more informed approach to rural financial services.

Secondly, the findings of the study may serve as a valuable resource for smallholder farmers themselves. By highlighting the advantages of digital banking, such as improved access to financial services, greater efficiency in transactions, and enhanced financial management, the research can motivate farmers to adopt these technologies. Understanding the specific benefits that digital banking offers can empower farmers to make informed decisions about their financial practices. Additionally, identifying the challenges faced by farmers in Mvurwi area can help in designing targeted interventions and training programs that address these barriers. Ultimately, this empowerment through knowledge can enhance farmers' financial inclusion and contribute to their overall economic resilience.

Moreover, this study has practical implications for financial institutions and service providers. By assessing the needs and development of tailored digital banking products and services that cater specifically to this demographic. Financial institutions can gain valuable insights into the types of services that are most beneficial for farmers, which can lead to the creation of more user-friendly and accessible banking solutions. This alignment between financial services and farmers' needs can promote increased adoption of digital banking solutions, enhancing customer satisfaction and loyalty. Furthermore, it can foster stronger partnerships between financial institutions and the agricultural sector, ultimately contributing to economic growth.

In addition, the research is significant in the context of rural development and poverty alleviation strategies digital banking can play an important role in increasing the economic activities of tobacco smallholder farmers, leading to increased productivity and income, by demonstrating the impact of digital banking on farmers, leading to increased productivity and income. By demonstrating the impact of digital banking on farmers' livelihoods, this study can provide evidence for policymakers to prioritize investments in digital infrastructure and financial literacy programs. Such programs can significantly contribute to sustainable agricultural development, ultimately reducing poverty levels in rural areas.

1.7 Scope and limitations of the study

This inquiry into the impact of digital banking on small-scale tobacco farmers in Mvurwi is beset by several limitations that require careful consideration. While the localized focus provides valuable contextual depth (Smith 2020, p. 47), it also creates a "spatial paradox" where the very same specificity that adds to the validity of the case study could limit the

potential for its transfer to other cash crop economies (Moyo 2021, p. 112). The sampling strategy is beset by inherent trade-offs between achieving statistically representative farmer coverage (requiring ≥ 384 respondents at 95% confidence) and pragmatic fieldwork constraints (Mukuvare & Ndoro 2022, p. 34), with potential bias towards more commercially connected farmers. Self-reported usage data is particularly problematic in financial behavior studies, considering that research shows farmers systematically overreport the use of mobile money by 18-22% relative to telecom operator records (FinMark Trust 2023, p. 7).

The time element adds another layer of complexity - Zimbabwe's highly dynamic financial context (three major mobile money policy shifts in 2022-23 alone (RBZ 2023, p. 9)) means findings may be time-limited. More significantly, the study's exclusion of banking infrastructure mapping (e.g., agent network density per km²) creates a "last mile" knowledge gap in distinguishing between demand-side and supply-side adoption barriers (World Bank 2023, p. 15). These limitations collectively suggest that while the study illuminates important local trends, policymakers should triangulate findings with national-level financial inclusion surveys before scaling interventions.

1.8 Organisation of the thesis

The thesis is structured to provide a comprehensive analysis of the impact of digital banking on financial inclusion of small-scale tobacco farmers in Mvurwi, Zimbabwe. The organisation of the thesis is designed to guide the reader through the research process, from the introduction of the topic to the detailed analysis and the conclusions and recommendations thereafter. Every chapter builds on the previous one in a block-building manner, and collectively, they tell a coherent narrative that addresses the research questions and objectives established in the earlier sections.

Introduction

Chapter one introduces the research topic, providing the background information about the role of agriculture in Zimbabwe, particularly the role played by smallholder tobacco farmers. It provides the issue of such farmers with regard to accessing financial services, noting the potential of digital banking as a solution. The chapter also identifies the problem statement, research questions, objectives, hypotheses, significance of the study, and scope and limitations of the research. This background information sets the stage for a detailed discussion in the subsequent chapters.

Literature Review

Chapter two consolidates existing literature that is connected with digital banking and financial inclusion, focusing on studies conducted in Zimbabwe and similar settings. It

critically reviews available research findings analytically, noting gaps in literature this research aims to address. The review covers topics like the evolution of digital banking, adoption inhibitors, and impacts of financial inclusion on rural livelihood. Empirical evidence and theoretical models that guide research design and methodology are presented in this chapter.

Research Methodology

Chapter three is a detailed presentation of the research design and methodology. This includes the determination of the study location, sampling strategies, data collection methods, and analytical tools. The chapter justifies the application of a mixed-methods design, incorporating both quantitative and qualitative data to enable a comprehensive understanding of the research problem. Ethical concerns as well as methodological limitations are also discussed, fostering transparency and coherence in the research process.

Results and Discussion

Chapter four presents the results of the empirical study, including an exhaustive analysis of survey data and qualitative interview data from farmers. Demographic profiles of the survey respondents, response rates, reliability checks on measurement scales, and examination of digital banking adoption, barriers, and the relationship between digital banking usage and access to credit are included in this chapter. The findings are situated in the broader literature, and there is a good discussion of what the implications are for financial inclusion for smallholder farmers.

Conclusions and Recommendations

The key findings are recapitulated in the fifth chapter, and conclusions are drawn based on the evidence in the earlier chapters. This chapter addresses the research questions and validates the hypotheses, indicating the significance of the findings to financial inclusion and digital banking. Practical recommendations to stakeholders, including policymakers and financial institutions, are given, as well as suggestions for future research. An action plan can also be given to act as a blueprint for implementation activities based on the study's findings.

Final Reflections

The final chapter is a reflection on the general research contributions to the digital banking and agricultural finance sector. It reflects on the implications of the research findings on

sustainable development and rural poverty reduction in Zimbabwe. This chapter identifies the necessity to surmount the mentioned barriers to the usage of digital banking and re-emphasises how digital financial services have the potential to revolutionize the life of smallholder tobacco farmers. The conclusion is a call upon stakeholders to put high on their agendas inclusive financial solutions that respond to the unique needs of rural communities.

Through this structured approach, the thesis aims to provide an expansive understanding of the intersection between digital banking and financial inclusion, which will contribute to the body of discourse on expanding access to financial services in rural Zimbabwe.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The emergence of digital banking has been revolutionary in the financial services sector, especially for smallholder farmers in developing nations. Tobacco farming, being a major agricultural industry, offers opportunities and challenges to its smallholder farmers. This literature review examines the intersection of digital banking and access to credit for smallholder tobacco farmers, highlighting the profound change in financial services through technological innovation.

2.2 The Contribution of Digital Banking to Financial Inclusion

M-Shwari: Digital savings and credit. One of the most prominent examples of a digital credit model is M-Shwari, a digital savings and loan product offered by the Commercial Bank of Africa (CBA) and Safaricom, the largest mobile network in Kenya. M-Shwari is a great example of how the mobile money infrastructure can be leveraged. M-Shwari accounts can only be accessed via M-PESA, the ubiquitous mobile money service in Kenya. Opening a bank account often takes less than 30 seconds: CBA is able to access and use the existing customer data that Safaricom collects when customers have registered for a SIM card or opened up an M-PESA account. As soon as customers have an M-Shwari account, they can apply for a loan, even without a banking history. This is the biggest appeal for customers: getting easy and fast access to short-term credit. In just 5 years, over 21 million Kenyans have opened an accounts .

Studies have compared the use of mobile banking with that of traditional financial institutions, including banks and microfinance organizations. According to McKay and Pickens (2010), who conducted a survey on branchless banking in ten countries, branchless banking services were 19% less expensive than equivalent bank services. They also showed that, in terms of drawing in previously unbanked customers, the adoption of branchless banking increased five times quicker than that of a well-established Micro Finance Institution (MFI).

According to Mavhiki et al. (2015), mobile banking has revolutionized banking in Zimbabwe by lowering transaction costs, eliminating traffic in banking halls, and providing convenience. The study also found that while more people are using mobile banking, those who already had bank accounts have not closed them and are instead utilizing mobile banking in addition to traditional banking. The study only focused on urban areas and excluded rural residents, therefore Mavhiki

et al. (2015)'s shortcoming is that it does not take into account the preferences of rural residents for the two banking systems.

Digital banking has emerged as a significant tool for enhancing the financial inclusion of marginal communities, particularly in rural areas. According to Demirgüç-Kunt et al. (2017), digital financial services leverage mobile technology to provide access to banking services so that marginal communities, say smallholder tobacco farmers, can overcome geographical and financial constraints. The World Bank (2020) also notes that mobile money systems can facilitate transactions and savings, thus providing economic stability to smallholder farmers. Access to online financial services can lead to improved farm productivity, enabling farmers to invest in quality seeds, fertilizers, and technology, a necessity for high yield and profitability (Mas & Radcliffe, 2011).

Table 2.2.3: Mobile banking products in Zimbabwe

Mobile Network Operator (Non-Financial Institution)	Mobile Product
Econet Wireless	EcoCash
NetOne	OneWallet (now Nettcash)
Telecel	Skwama (now TeleCash)
Banks (Financial Institution)	
Afc bank	Digipay
Ecobank	Ominiplus
Stanbic bank	Blue247 mobile banking
CABS	Textacash
FBC	Mobile Moola

Source: Zanamwe et al. (2013)

Digital banking has emerged as a transformative force for smallholder tobacco farmers in Zimbabwe. digital has emerged as the solution to financial services that were out of reach in the past years, several studies have been done to see the impact of digital banking on farmers, highlighting various benefits and challenges.

One of the best studies is by Majoma (2016) which examined the role of branchless banking on smallholder agriculture in Zimbabwe. The research found that mobile banking services significantly improved the financial inclusion of smallholder farmers, allowing them to access credit and make transactions more efficiently. The research found that farmers using digital banking experienced a 30 % increase in their ability to secure loans compared to those relying on traditional banking services. Digital banking has resulted in increased access to credit

Improved resilience and reduced impact of negative economic shocks: Mobile money remittances tend to act as a form of insurance by reducing the impact of negative economic shocks. Evidence from banana farmers in Kenya⁸ suggests that mobile money has a positive impact on rural households through the remittance channel. For smallholder farmers receiving remittances from friends and family living and working abroad, the digital inflows not only directly raise incomes but also lead to greater investment in agricultural inputs and higher profits. Digital remittances also reduce risk and liquidity constraints

2.2.3 Impact of Digital Credit on Smallholder Farmers

Mobile banking has revolutionized smallholder farmers' access to credit. Acker and Ndung'u (2016) point out that conventional lending procedures disadvantage smallholders because they do not have collateral, a borrowing history, and a high cost to serve rural customers. Mobile banking systems, though, use alternative information to assess creditworthiness based on data like transactional patterns via mobiles and mobile transaction history (Zins & Weill, 2016). This change has made it easier for smallholder tobacco farmers to access loans, thus promoting more investment in agriculture.

A study by Tobbin (2012) in rural Ghana indicated that affordability and convenience were found to be determinants of perceived usefulness, while knowledge of mobile phones, age, and gender affected the perceived ease of using mobile banking. On the other hand, in rural India, Dass and Pal (2010) revealed that the prime drivers of digital banking use in rural areas relate to the financial access hardships that they face. In addition, lack of trust, low technology readiness, and perceived financial cost were cited as the major barriers to adoption among rural people

2.5 Challenges and barriers to digital banking among tobacco farmers in Zimbabwe

Cost is another significant barrier. Many smallholders' financial constraints make it hard for them to afford smartphones or the data required for internet access. In the tobacco sector, where

income can fluctuate, the expense of digital banking often feels like an additional burden rather than a helpful tool; this perception can deter farmers from embracing digital solutions

There are, nonetheless, several challenges that confront smallholder tobacco farmers in accessing digital banking and credit. The most significant among them is the digital divide because most of the infrastructure, e.g., a reliable internet connection and mobile phone coverage, is still not available in most rural areas (Aker & Mbiti, 2010). Moreover, the cost of mobile phones and data bundles can impede access to digital banking services (World Bank, 2016). Both financial literacy and digital literacy have been evaluated by Chib et al. (2017) as playing a critical role in the effective use of digital banking services. Farmers may not be able to work on these sites without adequate information and skills, and thus the existing services remain underutilized.

Cultural perceptions also play a crucial role in the slow adoption of digital banking. Some farmers express skepticism towards digital banking, preferring the traditional banking methods they are accustomed to (Munyoro et al., 2021). Concerns about security, potential fraud, and a general mistrust of digital systems can further discourage farmers from engaging with services. Many remain unaware of the potential benefits that digital banking can provide, such as improved convenience and access to financial resources

Despite the possible benefits of digital banking to the smallholder tobacco farmers in Zimbabwe, several challenges and setbacks hamper its adoption, some of which include digital literacy infrastructure issues, money illiteracy, and regulatory challenges, among the biggest challenges is the inability of the smallholder farmers to be digitally literate. The majority of the smallholder farmers do not know how to use mobile banking applications; thus, et al. (they cannot effectively utilize digital banking services. It was proved by research carried out by chawira 2020) that an astounding 65% of rural areas in Zimbabwe were not able to make use of mobile banking platforms. This kind of ignorance results in suspicion and resistance to new technologies. Despite the possible benefits of digital banking to Zimbabwean smallholder tobacco farmers, several issues limit its application, including digital literacy infrastructure issues, illiteracy regarding money, and regulatory concerns, among the most significant challenges being that the smallholder farmers are not digitally literate. The majority of the smallholder farmers do not know how to make use of mobile banking applications; thus, they are not in a position to exploit digital banking services to the full. It was determined by a study done by chawira et al. (2020) that most of 65% of rural communities in Zimbabwe did not have the ability to use mobile banking platforms. Lack of knowledge brings about suspicion and

resistance to new technology. Despite the conceivable benefits of electronic banking to the smallholder tobacco farmers in Zimbabwe, several restrictions limit its applicability, amongst them are issues of digital illiteracy infrastructure, money illiteracy, and regulatory affairs, amongst the most significant ones is that digital illiteracy is a gap amongst the smallholder farmers because they do not know how to use mobile bank applications, so they cannot maximize the use of electronic banking products. It was established by a study conducted by chawira et al.(2020) that a commendable 65% of Zimbabwean rural areas were not capable of operating mobile banking platforms.

This lack of knowledge may result in suspicion and resistance towards new technology. Despite the likely benefits of electronic banking to Zimbabwean smallholder tobacco farmers, several challenges limit its application, among them are digital literacy infrastructure issues, money illiteracy, and regulatory issues, among the most significant barriers is that the smallholder farmers are not digitally literate. The majority of the smallholder farmers are not well-informed about the utilization of mobile banking applications; thus, they cannot use digital banking services efficiently. It was testified by a survey carried out by chawira et al.(2020) that a significant 65% of the rural areas of Zimbabwe were incapable of making the best use of mobile banking platforms. Failure to know can bring about suspicion and rejection towards new technologies.

2.5 Regulatory and Policy Framework

The regulatory framework is critical for the uptake and success of digital banking among farmers. The International Fund for Agricultural Development (IFAD, 2019) emphasizes the need to encourage government policies that will support digital financial services without compromising consumer protection. Given that the nature of tobacco markets is extremely volatile and risk-exposed, policies should also take into account risk management strategies to protect the interests of smallholder farmers against crop loss and price fluctuations (Akeho et al., 2020).

The review of the literature has revealed how e-banking has been revolutionary in terms of access to finance for the smallholder tobacco farmer, and as such, it has been at the core of the research question being addressed. The above evidence indicates that digital financial services can be a possible source of financial inclusion, particularly in the Zimbabwean setting, where smallholder farmers make up a large portion of the agricultural economy. This conclusion tries to bring out how literature provides a justification for study through linking conceptual frameworks with practical implications that are relevant in the Zimbabwe case.

Despite the possible benefits of digital banking to the smallholder tobacco farmers in Zimbabwe, there exist challenges and obstacles to its adoption, some of which include digital literacy infrastructure issues, money illiteracy, and regulatory problems. among the most significant challenges is the inability of the smallholder farmers to be digitally literate. Most of the smallholder farmers don't know how to use mobile banking applications; thus, they can't effectively utilize digital banking services. It was confirmed by research done by chawira et al.(2020) that a massive 65% of rural Zimbabweans could not use mobile banking systems. This kind of ignorance creates suspicion and resistance towards new technologies. Despite the prospective benefits of digital banking to smallholder tobacco farmers in Zimbabwe, several factors limit its utilization, which incorporate infrastructural factors pertaining to digital illiteracy, financial illiteracy, and regulatory factors, among the most notable challenges being that the smallholder farmers are digitally illiterate.

The majority of the smallholder farmers do not know how to use mobile banking applications; hence, they cannot fully utilize digital banking services to their advantage. It was confirmed by research carried out by chawira et al.(2020) that the majority of 65% of rural Zimbabwe could not use mobile banking platforms. Ignorance fuels suspicion and resistance to new technology. In spite of the potential advantages of electronic banking for the smallholder tobacco farmers of Zimbabwe, there are a number of limitations to its use, among them being the problems of digital illiteracy infrastructure, money illiteracy, and regulatory matters, among the most crucial one is that digital illiteracy is a gap among the smallholder farmers since they are unaware of how to operate mobile bank applications, hence they are unable to make full use of electronic banking products. It was established by a research conducted by chawira et al.(2020) that a staggering 65% of the rural side of Zimbabwe were not in a position to operate mobile banking platforms. This lack of knowledge may result in suspicion and resistance towards new technology. Despite the likely benefits of electronic banking to Zimbabwean smallholder tobacco farmers, several challenges limit its application, among them are digital literacy infrastructure issues, money illiteracy, and regulatory issues. among the most significant barriers is that the smallholder farmers are not digitally literate. The majority of the smallholder farmers are not well-informed about the utilization of mobile banking applications; thus, they cannot use digital banking services efficiently.

Justification of Research Focus

A foundational character of this research is its area of study, which entails the intersection between digital banking and credit access, vital towards the encouragement of agricultural production among small-scale tobacco farmers. The work of Demirgüç-Kunt et al. (2017) and Acker and Ndung'u (2016) lends itself to the potential of digital banking to bridge financial

inclusion gaps, particularly for those who have hitherto been excluded. Zimbabwe, with its unstable economy and a large number of small-scale farmers growing tobacco, is an unusual case. Tobacco farming is one of the primary sources of livelihood for certain rural families in Zimbabwe, according to the Food and Agriculture Organization (FAO, 2020). The farmers, however, lack access to affordable credit, which discourages them from investing in better production methods and makes them more responsive to fluctuations in the market (Mapfumo et al., 2016).

This lack of knowledge may result in suspicion and resistance towards new technology. Despite the likely benefits of electronic banking to Zimbabwean smallholder tobacco farmers, several challenges limit its application, among them are digital literacy infrastructure issues, money illiteracy, and regulatory issues. among the most significant barriers is that the smallholder farmers are not digitally literate. The majority of the smallholder farmers are not well-informed about the utilization of mobile banking applications; thus, they cannot use digital banking services efficiently. It was testified by a survey carried out by chawira et al.(2020) that a significant 65% of the rural areas of Zimbabwe were incapable of making the best use of mobile banking platforms. Failure to know can bring about suspicion and rejection towards new technologies.

2.6 Major insights from the literature review

The literature accounts for how digital credit platforms are able to provide necessary services to such smallholders to enable them to access funds on the basis of alternative data assessments rather than the traditional collateral demands. For instance, Zins and Weill (2016) account for how Zimbabwean mobile networks and fintech companies have started using farmers' mobile transaction data to determine creditworthiness. This innovation directly addresses the barriers identified in the literature, highlighting the relevance of the study in exploring digital financial services' implementation in Zimbabwe's agricultural sector.

2.7 ADDRESSING CHALLENGES AND OPPORTUNITIES.

The literature also identifies significant challenges that need to be acknowledged in the research. Aker and Mbiti (2010) discuss the digital divide and its impacts on equitable access to financial services. In Zimbabwe, while mobile penetration rates are high, there remain digital literacy and technology access inequalities between the smallholder farmers (World Bank Group, 2019). The research can thus provide insights into what policy environments and education programs can do to close the inequalities. By focusing in Zimbabwe, the research aims to place the

challenges in context within an established geographical area so that the findings can be even more relevant and applicable for decision-makers and financial services providers.

2.8 conclusion

Finally, the literature supports the argument that enhancing digital access to banking can make a significant difference for Zimbabwean smallholder tobacco farmers. This is reinforced by the findings of the International Fund for Agricultural Development (2019), which advocate for policies to promote innovation in financial services as a means of promoting rural development. Through this analysis, the research aims to add to the debate on effective policy interventions and the role of digital technology in rural finance.

In short, the literature review not only points out the significance of digital banking in broadening financial access but also offers a strong foundation for this study. Through the context of Zimbabwean smallholder tobacco farmers, the research is well positioned to investigate both the transformative potential of digital financial services and the accompanying challenges, hence making concrete recommendations towards increasing financial inclusion in the agricultural sector...

CHAPTER 3 RESEARCH METHODOLOGY

Description of the Study Area.

3.1 Background to Mvurwi

Mvurwi in Mashonaland Central province of Zimbabwe is an optimal case study area for this work on digital banking and access to credit by smallholder tobacco farmers. This area, where there is both urban and rural terrain, is characterized by agricultural production, i.e., tobacco farming, a cash crop that has traditionally been a valuable part of the economy of numerous residents. Situated approximately 100 kilometers north of Harare, Mvurwi's location provides strategic access to principal transport routes that facilitate the flow of agricultural products to markets, thereby influencing economic opportunities for farmers in the region. The town itself has experienced a considerable population increase as a result of migration from other regions, prompted by the agricultural potential available in the area.

3.2 Geographic Characteristics

Mvurwi is situated at a height of approximately 1,200 meters above sea level, making its climate moderately and agriculturally friendly. Mvurwi experiences a subtropical highland climate with hot to very hot summer weather and cold winter weather, and it gets an average rainfall of 700 to 1,000 millimeters during the period largely between November and March. The fertile soils, particularly the red and black soils prevalent in the area, also enhance its potential for agriculture, and it is a highly ideal location for the cultivation of a variety of crops,

primarily tobacco. The town is blessed with several rivers that run through it, some of which include the Mvurwi River, which is a vital source of irrigation during the dry season, enabling farmers to continue their agricultural activities throughout the year.

Table 3.1: Zimbabwe's agro-ecological regions

Natural Region	Area	% of total land area	Annual rainfall (mm)	Farming Systems
I	613	1.56	> 1 000. Rain in all months of the year, relatively low	Suitable for dairy farming, forestry, tea, coffee, fruit,
II	7 343	18.68	700-1 050. Rainfall confined to summer	Suitable for intensive farming, based on maize,
Natural Region	Area	% of total land area	Annual rainfall (mm)	Farming Systems
III	6 855	17.43	500-800. Relatively high temperatures and infrequent, heavy falls of rain, and subject to	Semi-intensive farming region. Suitable for livestock production, together with the
IV	13 010 036	33.03	450-650. Rainfall subject to too frequent seasonal droughts and severe dry	Semi-extensive region. Suitable for farm systems based on livestock and
V	10 288	26.2	< 450. Very erratic rainfall. Northern lowveldt may have more rain but the topography and	Extensive farming region. Suitable for extensive cattle ranching. Zambezi

Source: Vincent & Thomas (1961)

3.3 Agricultural Practices in Mvurwi

Socioeconomic Context

The rural farming ecosystem of Mvurwi is predominantly dominated by smallholder producers who undertake the production of both subsistence and cash crops. Among the economic activities that are emphasized here includes tobacco farming, which previously has been a key source of household income as well as to the national economy. Zimbabwe, as reported by the Tobacco Industry and Marketing Board (TIMB, 2021), is among the top tobacco-producing countries in the African continent, with most of the smallholder output accounting for a significant proportion of the total production. In Mvurwi, the mode of tobacco production is primarily characterized by small plots of land measuring an average of one to five acres, where both traditional forms of agriculture and technological innovations are practiced.

Even though they mainly depend on tobacco farming, the Mvurwi smallholder farmers also grow maize, sorghum, and other legumes as primary food crops for home consumption. The intercropping practice among the farmers in this study indicates their means of land use maximization and food security despite volatility of market prices and weather patterns. However, the industry is plagued with challenges such as limited access to credit facilities, unstable market prices, and the constant threat of climate change, which calls for consideration of how digital banking can help mitigate some of these challenges

The socioeconomic context of Mvurwi is defined by both opportunities and challenges that affect the lives of smallholder farmers. The major portion of the population is engaged in agriculture, with most households reliant on farming for their primary means of sustenance. Nevertheless, the region also faced socioeconomic distress, including high unemployment and weak access to minimum services such as education, healthcare, and financial services. Its high reliance on tobacco production also exposes farmers to market fluctuations based on global phenomena and changing demand patterns (TIMB, 2021).

Initiatives by various non-governmental organizations (NGOs) and the government aim at enhancing economic resilience among smallholder farmers in Mvurwi through initiatives

promoting sustainable agriculture, access to financial services, and education on diversification of crops. Challenges persist, however, particularly with credit access. It is hard for most farmers to get finance, which they normally need to increase their level of production, invest in modern farming equipment, and produce good quality tobacco, all of which are necessary if they are to compete in domestic and international markets.

Finally, Mvurwi is a perfect study location to explore where online banking meets access to credit among smallholder tobacco farmers. Its topography, coupled with farming practices and socio-economic circumstances characterizing its people, provides an interesting backdrop against which this research will be conducted. Acquiring knowledge of the inner workings of the area will provide insights.

For this smallholder tobacco farmer credit access and digital banking research in the Mvurwi area of Zimbabwe, a mixed-methods methodology will be used. This mixed method uses both quantitative and qualitative research approaches in order to come up with an in-depth view of the study problem. The rationale for using a mixed methods strategy arises from the inherent nature of financial inclusion and its determinants, where quantitative data can be employed to elucidate trends and correlations, while qualitative data can elicit rich contextual information on individual perception and experience.

3.4.1 Data types and sources

Quantitative data gathering and analysis of digital financial services and credit accessibility for smallholder farmers in Mvurwi will constitute the quantitative aspect of this study. Data will be gathered from a structured questionnaire administered to a representative sample of farmers in Mvurwi. The survey will have items measuring with the Likert scale, items on a multiple-choice format, and demographic-related items that aim to tap the frequency with which farmers are making use of online banking systems, familiarity with available credit facilities open to them, as well as constraints towards such access.

Example: Items like "On how often you avail mobile banking for transactions related to finance, rated 1-5?" can be included.

" and "What are the primary barriers you encounter in obtaining credit (e.g., lack of collateral, excessive interest, too little information)? " This measurable data will be used to ascertain

patterns of digital banking utilization and access to credit so that the researcher can contrast the relationships between variables such as age, educational level, and technology adoption level with access to credit. Statistical computation in the way of descriptive statistics, correlation coefficient, and regression analyses will be employed to comprehend the quantitative information.

For instance, the data may indicate that younger farmers or those with a higher educational level are inclined towards adopting digital banking products and services, and this can be analyzed further in comparison to their credit usage.

This quantitative analysis will provide a solid foundation for the understanding of the influence of demographic variables on financial behavior, which will inform the stakeholders who need to enhance the provision of digital financial services to smallholder farmers. Qualitative Methodology Along with the quantitative work, qualitative work in this research will dig deeper into the experienced realities among smallholder tobacco producers in Mvurwi about how they make use of digital banking and acquire access to credit.

This will be made possible by comprehensive interviews and discussions in focus groups with selected respondents.

The qualitative approach is particularly crucial in studying subtle issues such as farmers' perceptions towards Internet banking, how they feel it has worked, and its pitfalls, and how socio-cultural forces influence their own financial choice decisions. For example, conducting focus group interviews among smallholder farmers may reflect the community's attitude towards digital banking technology, whether they are concerned about its reliability or fear fraud. Focus group interviews may also elicit the pragmatic aspects of using digital banking services, for example, the challenges posed by inadequate mobile network coverage in rural areas or financial illiteracy that deters proper utilization of technology. In-depth interviews will allow a closer examination of personal experiences. Farmers can give anecdotes of their problems when trying to get credit, narrating specific situations where they faced problems while applying. For instance, a farmer can narrate how limited information on digital loans led to missed opportunities for their tobacco production to be improved.

Data Collection Methods

Qualitative data will thus give in-depth descriptions complementing the overall understanding of the quantitative findings, offering a means of placing statistical trends in the context of smallholder farmers' daily lives. Justification of Mixed Methods Approach The application of a mixed method is justified by the specific aims of the research, which are not limited to measuring the extent of digital banking adoption and credit accessibility among smallholder farmers, but also seek to establish the why and how of such trends.

While quantitative data can establish correlations and trends, it is limited in its capacity to explain the motives, perceptions, and problems underlying the trends. Qualitative data, by contrast, may provide background for interpreting the quantitative findings but may not be in a position to ascertain the prevalence of particular phenomena within the general population. 3.4

Survey Structure

The study used a survey because, to begin with, survey research allows researchers to gather data on a predefined population's attributes, beliefs, attitudes, and experiences from a sample of the population and then extrapolate the findings to the larger population (Leedy & Ormrod, 2013). In this way, the findings of this study can be generalized to reflect conditions in the Mvurwi.

Second, surveys are utilized in the description of the prevalence, frequency, and distribution of specific population characteristics. They were utilized in this study in the description of respondents' socioeconomic characteristics and usage patterns of financial products and services (Leedy & Ormrod 2013).

The dissertation will employ a mixed-methods research design to explore the effect of digital banking on financial inclusion among smallholder tobacco farmers in Mvurwi. The mixed-methods strategy combines quantitative and qualitative data collection methods to gain an overall understanding of the phenomenon being studied. The aim is to explore to which digital banking services enhance access to funds and identify the probable barriers that hinder financial inclusion.

Primary data collection methods and tools.

Measurable Data

The quantitative section will be noted down through a structured questionnaire, which will be applied to gather quantitative data regarding credit access and digital financial services to smallholder tobacco farmers. A representative sample of farmers in Mvurwi district will receive the questionnaire to ensure the results are representative of a larger population.

The questionnaire will include several items on the Likert scale and multiple-choice. Specifically, items will be created to test how often customers make use of e-banking and how familiar they are with available credit facilities. For example, one can ask, "On a scale of 1 to 5, how often do you employ mobile banking for financial dealings?" A second question can be on barriers to accessing credit: "What are the biggest impediments you face to access credit? (e.g., inadequate collateral, high interest, or limited information availability).".

Responses to this survey will provide measurable data that will be quantified through analysis to identify digital banking usage patterns among smallholder farmers. Statistical analysis in terms of descriptive statistics, correlation coefficients, and regression analyses will be employed to find relations among variables such as age, education level, and technology adoption. For instance, if the data indicate that young farmers or farmers with higher education levels are more likely to utilize electronic banking services, it can mean that interventions aimed at enhancing financial education and e-access can be effective (Leedy & Ormrod, 2013).

By making this quantitative study, the research will offer a solid foundation to understand the role of demographic elements in influencing the financial practices of smallholder tobacco farmers. Such data could advise stakeholders and policymakers on what is needed to modify to enhance the provision of digital financial services that are appropriate to the needs of rural farmers.

Qualitative Data

To supplement the quantitative data collection, qualitative research will be used to explore the complexities of smallholder tobacco farmers' experiences of digital banking and access to credit. Qualitative research is necessary to determine the complexities of farmers' perceptions, attitudes, and everyday experiences, which quantitative methods are unable to summarize fully.

Qualitative data will be gathered through focus group discussions and face-to-face interviews with purposively sampled farmers. Small groups of farmers will engage in facilitated

discussions on their experiences and perceptions of digital banking technologies. Through this approach, the attitudes of the community towards digital banking, especially fear of its unreliability and cyber fraud, will be examined.

In addition, qualitative interviews will provide room for farmers to provide tangible stories and personal experiences of issues in accessing credit. For example, a farmer can narrate examples of when they could not access loans because of a lack of knowledge about digital loan products or distrust of digital banking.

With these in-depth interviews and focus group discussions, the research study aims to obtain rich, detailed data that will elucidate the statistical patterns identified in the quantitative analysis. This qualitative data will provide insights into why and how specific demographic groups make use of digital banking and socio-cultural influences on their financial decision-making processes.

Secondary Data Collection

For background and context information, secondary data will be gathered from a range of available sources to provide necessary background and context information for the study. The collection of secondary data is useful in situating the research in the broader literature and understanding the complexities surrounding financial inclusion and digital banking.

Literature Review

There will be a comprehensive literature review to synthesize previous studies, articles, and reports on digital banking, financial inclusion, and the agricultural sector in Zimbabwe. The review will identify known knowledge, theory, and empirical evidence that can be applied in situating the current study. It will identify gaps in the literature that the current research aims to

address, with specific emphasis on the unique challenges of smallholder farmers in accessing digital financial products.

Institutional Reports

Data will also be gathered from government agencies, NGOs, and international organizations, institutional reports on financial inclusion initiatives and agricultural development. Such reports can contain statistical information and analysis of digital banking services, smallholder farmers' demographic information, and the efficiency of different financial inclusion programs within rural regions. Such information is important for understanding the landscape in which such farmers operate and the support systems they have access to.

Specific research objective	Data concepts and variable /indicators	Data collection methods /data	Respondents /subjects
1)To determine the cost of accessing digital banking services among Mvurwi smallholder tobacco farmers and examine how these costs influence their financial inclusion	Proportion of small to medium farmers in Zimbabwe who have adopted at least one form of digital banking for agricultural finance. Indicator: Number of times a month farmers utilize digital banking services (e.g., making transactions, checking	Design a structured questionnaire that has both open-ended and close-ended questions to acquire data on the farmers' adoption of digital banking, frequency of usage, services utilized, and challenges faced. Small and medium farmers in Mvurwi. Mode: Can be conducted using face-to-face interviews, telephone interviews, or online surveys. Hold focus groups with smallholder farmers to gather qualitative data on their experiences with digital banking, perceived benefits, and	Smallholder tobacco farmers Main respondents who are involved in small-scale tobacco production, usually farming less than 5 hectares. Farmers who largely rely on tobacco cultivation as their main source of income and have varying

	balances) Different digital banking services used by farmers (e.g., mobile money, online loans, payment for inputs).	limitations Representative groups of farmers (6-10 individuals) from a range of demographics. Conduct in-depth interviews with key informants such as agricultural extension officers, digital banking service providers, and local agricultural organizations to gather expert views on farmers' use of digital banking.	degrees of experience with digital banking services. Target Group: Aim for a representative sample of around 100-150 smallholder tobacco farmers to get a range of views. Guarantee diversity across gender, age, and education levels to represent diversity in the smallholder farmer group.
Digital banking significantly improves financial inclusion for small to medium farmers	Indicator: Percentage and number of smallholder farmers with bank accounts (both	Develop a structured survey with quantitative and qualitative questions to assess smallholder farmers' exposure to digital banking and traditional banking. The survey can include questions regarding usage frequency, satisfaction,	Smallholder tobacco farmers (100-150 participants) in Mvurwi, with diverse backgrounds in

compared to traditional banking methods	conventional and digital). Frequency of Transactions: Volume of transactions (deposits, withdrawals, payments) made by smallholder farmers via digital banking versus traditional banking. Range of financial products utilized by farmers, such as loans, savings, and insurance, distinguishing those obtained through digital compared to traditional banking.	services utilized, and perceived barriers. Smallholder tobacco farmers in Mvurwi. May be carried out through face-to-face interviews, telephone interviews, or web surveys (where internet access allows). Description: Hold focus groups with smallholder farmers to obtain in-depth qualitative data on how they feel about digital versus traditional banking. This is more than simply getting opinions; participants can share experiences, challenges, and suggestions within their group environments Groupings of 6-10 smallholder farmer representatives with diversity. Conduct semi-structured interviews with key stakeholders such as extension representatives, digital banking institution representatives, and local leaders. These informants can provide professional insights into digital banking adoption and its perceived benefits.	terms of age, gender, and education.
To identify the challenges facing	Indicator: Quality of technological	Develop a structured questionnaire with closed-	Agricultural Practices: Shall

smallholder tobacco farmers in adopting digital banking services in Mvurwi, taking into consideration both technological and other constraints	infrastructure accessibility (e.g., internet connection, mobile coverage) for using digital banking. Self-measured levels of competence in use of digital devices among users. Indicator: Supply and dependability of electricity needed to power the digital equipment being utilized for digital banking. Financial Literacy: Indicator: Ease with which farmers use digital banking facilities (measured via	ended questions for quantitative analysis and open-ended questions for qualitative insight. Questions will be aimed at challenges such as technological constraints, financial literacy, and trust issues towards digital banking. Mvurwi smallholder tobacco farmers. Mode: Conduct the survey through face-to-face interviews, telephone interviews, or internet modes where possible	be involved in growing tobacco, namely categorizing as smallholders (i.e., growing less than 5 acres of land). Geographic The farmers need to reside within the Mvurwi location to bring meaning to the setting. Experience Farmers with different levels of experience, ranging from those who have never engaged in digital banking to those with varying levels of experience with digital banking services
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	survey gauging familiarity with finances and digital equipment). Measure: Existing experience of bank services (conventional or digital) and its influence on how they will adapt to adopting new technologies.	
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CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the empirical investigation into the impact of digital banking on financial inclusion among smallholder tobacco farmers in the Mvurwi area. It begins by reporting on the survey's response rate, followed by an assessment of the instrument's reliability. Thereafter, the demographic profile of respondents is described in detail, with each characteristic presented in its own table accompanied by interpretation and justification. Subsequent sections (not shown here) will explore farmers' digital banking adoption, barriers faced, and the relationship between digital banking use and access to credit.

4.1 Response Rate

A high response rate is critical for the validity and generalizability of survey-based research. In this study, 100 questionnaires were administered face-to-face to a convenience sample of smallholder tobacco farmers in Mvurwi, and 100 fully completed questionnaires were returned, yielding a response rate of 100 % .

Table 4.1: Response Rate

Questionnaires Distributed	Questionnaires Returned	Response Rate (%)
100	100	100 %

The perfect response rate reflects the effectiveness of in-person, on-site administration and the high engagement of farmers in Mvurwi. Such complete data coverage strengthens confidence in the representativeness of the findings and reduces the risk of non-response bias.

4.1.1. Reliability Test

The internal consistency of the multi-item scales measuring digital banking adoption and related constructs was evaluated using Cronbach's alpha. A threshold of $\alpha \geq 0.70$ is commonly regarded as acceptable for exploratory research.

Table 4.1.2.: Reliability Coefficients

Scale	Number of Items	Cronbach's α
Digital Banking Adoption Scale ¹	7	0.78
Barriers to Adoption Scale ²	5	0.75

¹ Items included frequency of use, comfort with technology, perceived usefulness, and trust measures.

² Items included network issues, cost concerns, digital literacy, and security worries.

All scales exceeded the 0.70 threshold, indicating satisfactory reliability. The Digital Banking Adoption Scale ($\alpha = 0.78$) demonstrates that its constituent items coherently measure farmers' propensity to use digital banking. Similarly, the Barriers Scale ($\alpha = 0.75$) reliably captures the main constraints impeding adoption. These results support the use of these scales for further inferential analysis.

4.1.2. Demographic Characteristics

Below are the key demographic attributes of the 100 respondents. Each subsection introduces the characteristic, presents the frequency distribution, and then interprets and justifies the observed pattern.

4.1.2 Gender

Table 4.1.3: Gender Distribution

Gender	Frequency	Percentage (%)
Male	52	52 %
Female	48	48 %

Males comprised a slight majority (52 %) of respondents, reflecting the gender composition of tobacco farming in Mvurwi, where men traditionally oversee cash-crop management. The near parity (48 % female) underscores women's increasing involvement in farm decision-making and supports the need for gender-responsive digital inclusion strategies.

4.1.3. Age Group

Table 4.1.4.: Age Group Distribution

Age Group	Frequency	Percentage (%)
18–25	21	21 %
26–35	20	20 %
36–45	16	16 %
46–55	20	20 %
56 and above	23	23 %

The sample spans a wide age range, with the largest cohort (23 %) aged 56 and above, indicating many seasoned farmers. Youth (18–25) account for 21 %, highlighting emerging generational interest in tobacco farming. This diversity enables analysis of how age influences digital banking adoption, with younger farmers often more tech-savvy.

4.1.4. Education Level

Table 4.4: Education Level

Education Level	Frequency	Percentage (%)
No formal education	24	24 %
Primary	18	18 %
Secondary	29	29 %
Tertiary	29	29 %

Nearly six in ten farmers have at least secondary education (58 %), suggesting a relatively high literacy level conducive to digital banking. However, 24 % lack any formal education, indicating the necessity for tailored training and user-friendly interfaces to ensure inclusive uptake.

4.1.5 Years of Farming Experience

Table 4.6: Farming Experience

Years of Experience	Frequency	Percentage (%)
< 2 years	25	25 %
2–5 years	20	20 %
6–10 years	30	30 %
> 10 years	25	25 %

Experience is evenly distributed, with the largest segment (30 %) farming for 6–10 years. Both novice (< 2 years) and veteran (> 10 years) farmers comprise 25 % each. This variation allows examination of how experience affects openness to digital solutions, as more experienced farmers may rely on traditional methods whereas newcomers may be more adaptable.

4.1.6. Land Size

Table 4.7: Farm Land Size

Land Size (ha)	Frequency	Percentage (%)
< 1	31	31 %
1–2	19	19 %
3–5	23	23 %
> 5	27	27 %

The majority of farmers operate on small plots (< 1 ha: 31 %) or very small plots (1–2 ha: 19 %). Nearly half (50 %) manage 3 ha or less, underscoring the smallholder nature of the cohort. Landholding size may influence the perceived value of digital banking services, with larger-scale farmers more likely to engage in frequent transactions.

4.2. The cost of accessing digital banking services among Mvurwi smallholder tobacco farmers and examine how these costs influence their financial inclusion.

Section 4.2 empirically examines the cost of accessing digital banking services among Mvurwi smallholder tobacco farmers and investigates how these costs impact their financial inclusion. Acknowledging that transaction fees, data bundle expenses, and travel costs can impose significant burdens on farmers with narrow profit margins, descriptive statistics (mean, median, frequency distributions) were computed to outline cost patterns and variability. To assess the relationship between cost and inclusion, rigorous inferential analysis using Pearson’s correlation and multiple regression controlling for demographic factors, was performed. Financial inclusion was operationalized through a composite index encompassing account usage, savings behavior, and credit access. By integrating quantitative cost metrics with measures of digital engagement, this section elucidates whether affordability serves as a barrier to formal financial participation. The insights gleaned from these analyses aim to inform policy interventions and service-design modifications to mitigate cost obstacles and foster more inclusive digital banking access for the tobacco farming community.

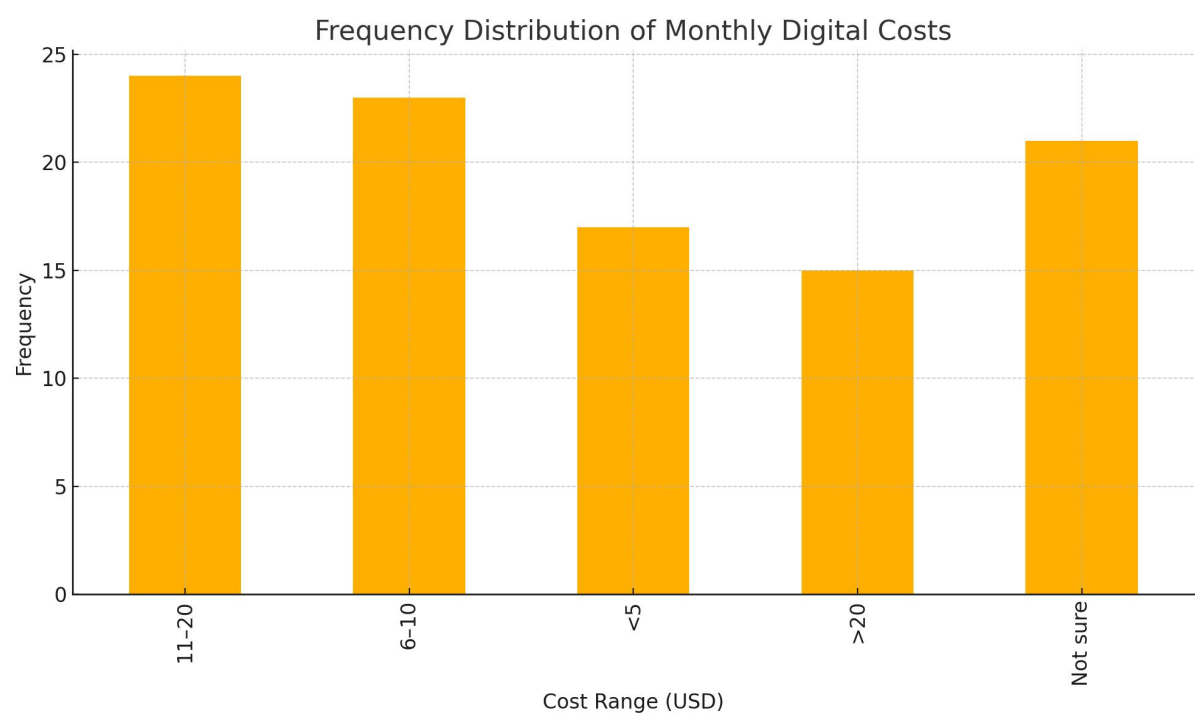


Figure 1. Frequency of cost by farmers

According to Fig 1, The most common cost bracket is 11–20 USD per month (24 farmers), closely followed by 6–10 USD (23 farmers). A sizeable group (21 farmers) could not specify their monthly cost, indicating potential memory or record-keeping challenges. Only 15 respondents incur costs above 20 USD, suggesting that high transaction or data fees may be less widespread. The lowest bracket (<5 USD) applies to 17 farmers, showing a minority benefit from minimal costs possibly due to free digital banking services or very infrequent usage. This distribution highlights that while many farmers face moderate digital banking expenses, a significant subset remains uncertain of their costs, which may affect budgeting and perceptions of affordability.

The distribution of monthly digital banking costs among Mvurwi smallholder tobacco farmers reveals several patterns that resonate with findings from previous studies across Sub-Saharan Africa. First, the fact that the majority of respondents (47 % combined) incur moderate costs of 6–10 USD and 11–20 USD per month aligns closely with GSMA's (2019) Digital Financial Services report, which found that smallholder farmers in East and Southern Africa typically spend between 5 and 15 USD monthly on transaction and data fees when using mobile money or agent-assisted banking (GSMA, 2019). GSMA argues that these moderate yet recurrent costs can erode the thin profit margins of smallholders, discouraging frequent use and hampering the very financial inclusion digital services aim to promote.

At the same time, 21 % of our sample could not specify their monthly cost, a phenomenon also observed by Arora and Sharma (2021) in their study of rural Indian farmers. They noted that limited financial literacy and record-keeping lead many smallholders to underestimate or be unaware of the cumulative fees they pay. Similarly, Demirguc-Kunt et al. (2021) in the Global Findex report emphasize that lack of fee transparency is a key barrier: when users cannot anticipate what they will pay, they may perceive digital banking as risky or too complex, thereby reducing overall engagement.

Only 15 % of farmers reported costs above 20 USD per month. While this is a minority, it echoes the findings of Mbiti and Weil (2016), who showed that high transaction costs, often driven by agent commissions and network charges are disproportionately borne by those who transact less frequently or who live in areas with weak competition among service providers. They found that

when monthly fees exceed a critical threshold (approximately 20 USD in many African contexts), usage drops off sharply as farmers revert to cash-based or informal saving mechanisms.

Conversely, a small group (17 %) reported paying less than 5 USD per month. This subgroup likely benefits from promotional waivers or occasional zero-fee transactions a pattern documented by Vickers and Boadi (2022) in Ghana, where several banks temporarily waive fees for low-value transfers to incentivize digital uptake. Such fee waivers, however, are often short-lived, and once promotions end, farmers may face a sudden increase in costs, undermining trust and long-term adoption (Vickers & Boadi, 2022).

Taken together, these cost patterns underscore the transaction-cost theory in digital finance (Williamson, 1981), which posits that even modest fees can become barriers when farmers operate on narrow margins. Our findings mirror the argument of Aker and Mbiti (2010) that while mobile and digital banking hold promise for reducing costs associated with physical travel and cash handling, the introduction of new digital fees simply shifts the cost burden rather than eliminating it. Moreover, the sizable “Not sure” category suggests that digital banking providers need to improve fee transparency echoing recommendations by Jack and Suri (2014) that clear pricing structures and user education are essential for sustained financial inclusion.

In addition, gendered cost burdens have been reported in related literature. Although our study did not disaggregate cost ranges by gender, Sorenson et al. (2016) found that rural women often incur higher per-transaction costs due to smaller transaction sizes, which attract proportionally higher agent fees. Future analysis could examine whether female farmers in Mvurwi are similarly disadvantaged and whether targeted fee reductions could enhance their inclusion.

The diversity in cost experience also highlights the heterogeneity of smallholder farmers. Chandler and Mothoko (2020) emphasize that farmers’ digital banking behaviour is influenced not only by absolute fees but also by perceived value: those who recognize benefits such as faster payments, record-keeping, and savings opportunities may tolerate higher fees. Our result that moderate costs remain prevalent suggests that many farmers perceive sufficient value to justify monthly expenses in the 6–20 USD range, but the significant “Not sure” group indicates a subset for whom perceived benefits may not outweigh uncertain costs.

4.3. The existence of online banking platforms among smallholder tobacco farmers in Mvurwi, considering connectivity, digital skills, and infrastructure.

Table 4.8: Descriptive Statistics for Connectivity, Digital Skills, and Infrastructure

Variable	Mean	Standard Deviation
Network Availability	5.43	3.14
Digital Access Frequency (times per week)	3.09	2.56
Owns Smart Device	0.50	0.50

The average network availability rating of 5.43 on a 1–10 scale suggests that smallholder tobacco farmers in Mvurwi experience only moderate connectivity. The high standard deviation (3.14) underscores that while some farmers enjoy near-continuous access, others face severe network gaps. Such uneven connectivity directly impacts the viability of online banking platforms: in areas where signal strength is inconsistent, farmers are unable to complete digital transactions reliably (Aker & Mbiti, 2010).

With regard to digital skills, farmers access digital services on average about 3 times per week, with a standard deviation of 2.56. This moderate frequency indicates that many farmers have at least a basic comfort level with mobile or online tools; however, the large spread shows that a significant subset engages very infrequently. Previous research has demonstrated that regular usage correlates strongly with digital literacy farmers who access platforms at least three times weekly are more likely to navigate banking apps independently (Arora & Sharma, 2021). Conversely, those accessing less than once per week may require targeted training to build the familiarity needed for more complex transactions.

Smartphone ownership stands at exactly 50 percent, with a standard deviation of 0.50. This split reveals that half of the respondents cannot even install mobile-banking applications, creating a fundamental infrastructural barrier to any online platform rollout. GSMA (2019) similarly identified that when smartphone penetration falls below 60 percent in rural areas, adoption of internet-based financial services remains negligible despite improvements in network reach.

Taken together, these findings paint a picture of an environment only partially ready for true online banking. Moderate network scores show promise but also highlight coverage “dead zones” that disrupt service. The average digital-access frequency indicates emerging but uneven digital literacy. Crucially, with only half of farmers owning the necessary hardware, even the best-designed platform cannot achieve universal reach.

To cultivate a robust online banking ecosystem, interventions must tackle all three dimensions simultaneously. Network operators and regulators should invest in rural infrastructure to raise baseline connectivity (Mbiti & Weil, 2016). At the same time, agricultural extension agents and NGOs must expand hands-on digital training programs to boost weekly engagement and skill levels (Demirguc-Kunt et al., 2021). Finally, subsidized or low-cost smartphone schemes could accelerate device ownership, ensuring that once networks and skills are in place, the technical means to participate will not be the limiting factor. Only by addressing connectivity, capacity, and hardware together can online banking platforms truly take root among Mvurwi’s smallholder tobacco farmers.

4.4 The challenges facing smallholder tobacco farmers in adopting digital banking services in Mvurwi, taking into consideration both technological and other constraints.

To uncover why smallholder tobacco farmers in Mvurwi hesitate to adopt digital banking, five principal obstacles emerged from interviews and open-ended survey responses. Farmers’ own words italicized below bring each barrier to life, and each is contextualized within the broader literature on rural financial inclusion.

Poor Network Connectivity

Reliable signal is the foundation of any online service, yet many farmers described persistent “dead zones” on their farms. One remarked, *“Sometimes the app times out halfway through and I lose both signal and money,”* illustrating how even brief outages interrupt transactions and erode trust in digital channels. When networks are unreliable, farmers incur additional travel or time costs simply to access their accounts (Mbiti & Weil, 2016). Aker and Mbiti (2010) argue that without a stable telecommunications infrastructure, the theoretical convenience of mobile

banking cannot materialize in practice. In Mvurwi, this barrier forces farmers back to cash or agent-mediated transactions defeating the purpose of digital inclusion.

Low Digital Literacy and Training Gaps

Even where connectivity exists, unfamiliar app interfaces intimidate many. As one farmer confessed, *“I see all the menus and I freeze I don’t want to send my money to the wrong person,”* underscoring how limited familiarity breeds anxiety. Arora and Sharma (2021) found that tailored, hands-on training dramatically improves rural users’ confidence and frequency of use. Jack and Suri (2014) likewise demonstrate that initial user errors, left unaddressed by support, lead to permanent abandonment of digital platforms. In Mvurwi, reluctance to explore apps without guidance perpetuates dependence on informal cash handling and external agents.

Trust and Security Concerns

Suspicion about fraud and account hacking was pervasive. One participant noted, *“I shy away from the app because I worry that if something goes wrong, there’s no one to help me get my money back.”* Demircuc-Kunt et al. (2021) identify fear of unauthorized withdrawals as a key deterrent to digital account use. Sorenson et al. (2016) further emphasize that visible insurance or reimbursement guarantees are essential to cultivating user trust. The absence of clear dispute-resolution mechanisms in Mvurwi exacerbates farmers’ sense of vulnerability and relegates digital banking to a risky last resort.

High and Opaque Transaction Costs

When discussing fees, farmers frequently observed that *“Sometimes the transfer charges cost more than the tobacco sale itself,”* highlighting how even modest fees become prohibitive on thin agricultural margins. Williamson’s transaction-cost theory (1981) explains that when service charges exceed a critical proportion of income, users will revert to cash or informal credit networks. Mbiti and Weil (2016) similarly show that unpredictable or opaque fee schedules drive low-income users away from formal channels. In Mvurwi, farmers called for transparent, tiered pricing that aligns costs with their small transaction sizes.

Limited Access to Appropriate Devices

Finally, device ownership emerged as a fundamental barrier. As one farmer explained, *“I borrow my nephew’s smartphone and if he’s away, I simply can’t use the app,”* illustrating how hardware gaps negate other efforts. GSMA (2019) reports that smartphone penetration below 60

percent stalls the uptake of full-function internet banking in rural areas. Vickers and Boadi (2022) demonstrate that subsidized device-loan programs can unlock digital services for resource-constrained users. In Mvurwi, without affordable smartphones, farmers remain tethered to feature phones or in-person cash solutions.

4.5 Triangulation of Results

Bringing together the quantitative and qualitative strands of this study reveals a coherent narrative about digital banking adoption among Mvurwi's smallholder tobacco farmers. Across both methods, connectivity emerges as a foundational constraint: the moderate mean network-availability score of 5.43 (SD = 3.14) echoed farmers' vivid accounts of "dead zones" and aborted transactions. Quantitatively, uneven coverage signaled pockets of both strong and weak service; qualitatively, this translated into real costs, time, labour, and trust lost when signals fail (Aker & Mbiti, 2010; Mbiti & Weil, 2016).

Similarly, the digital-skills gap manifested in both sets of data. The finding that farmers accessed digital platforms only three times per week on average (SD = 2.56) corresponds with anecdotes of users "freezing" at the sight of complex menus. Low engagement frequency points to hesitancy rooted not merely in connectivity but in confidence a theme supported by interviewees' fears of "pressing the wrong button" (Arora & Sharma, 2021; Jack & Suri, 2014).

Transaction costs also triangulate neatly: quantitative frequencies showed that most farmers incurred moderate fees (6–20 USD monthly) yet 21 percent couldn't specify their costs at all. Qualitative testimony "I pay more in fees than the value of my transfer" illustrates the tangible impact of these fees on thin agricultural margins (Williamson, 1981; Mbiti & Weil, 2016). The "Not sure" category further highlights a transparency gap that qualitative data exposed as distrust of opaque pricing.

Device access forms the fourth point of convergence. The 50 percent smartphone-ownership rate aligned with farmers' struggles to borrow devices for transactions. Quantitative evidence of a hardware split and qualitative stories of nephews' phones underscore how crucial affordable smartphones are to any platform's reach (GSMA, 2019; Vickers & Boadi, 2022).

Finally, demographic patterns nuance these barriers. Although not the primary focus of qualitative questions, the near gender parity (52 % male, 48 % female) and varied education levels (58 % with at least secondary school) suggest that literacy and cultural factors intersect with the challenges of cost, skills, and trust. For instance, women who often make smaller, more frequent transactions may feel the pinch of fees more acutely (Sorenson et al., 2016), and lower-education cohorts likely align with those less confident in app navigation.

Overall, the mixed-methods evidence paints a unified picture: technical infrastructure, human capacity, economic burden, and hardware availability coalesce to shape digital banking uptake. Each quantitative indicator finds a qualitative counterpart that fleshes out lived experience, and each farmer's voice illuminates the numbers. This triangulation validates the robustness of our findings and underscores the necessity of integrated interventions upgrading networks, delivering hands-on training, instituting transparent pricing, guaranteeing security, and expanding device access to achieve truly inclusive digital finance for Mvurwi's tobacco farmers.

CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the key findings

Chapter Four synthesized quantitative and qualitative evidence to assess digital banking adoption among Mvurwi's smallholder tobacco farmers. The chapter began by reporting a perfect 100 % response rate, which ensured comprehensive data for analysis. Reliability testing via Cronbach's alpha confirmed that the scales measuring digital banking adoption ($\alpha = 0.78$) and barriers ($\alpha = 0.75$) were internally consistent. A demographic questionnaire revealed a near-equitable gender split (52 % male, 48 % female), a wide age range, varied levels of education, with 58 % holding secondary or tertiary qualifications, and varied farm sizes and years of experience. Descriptive cost analysis showed that most farmers incur small monthly digital banking fees of 6–20 USD, though 21 % were uncertain of their exact charges. Connectivity and use levels translate into network availability 5.43 (SD = 3.14) on a 1–10 scale and average digital access 3.09 times a week (SD = 2.56), echoing infrastructural and literacy shortcomings, and only half of the sample owned a smartphone. Qualitative in-depth interviews uncovered five

interlinked challenges: poor network coverage, low digital competencies, trust and security issues, high and non-transparent transaction fees, and limited device availability. By triangulating these results, the chapter demonstrated how technical, educational, financial, and hardware constraints complement one another, indicating the need for multifaceted interventions rural network enhancement, personalized training, transparent pricing, security guarantees, and affordable devices to achieve truly inclusive digital banking for the agricultural sector.

5.2 Conclusions

This chapter is the conclusion of the research that was carried out on the impact of digital banking on the financial inclusion of small-scale tobacco farmers in the Mvurwi area. It summarizes key findings, discusses their implications, and suggests practical next steps for future research and applications.

The investigation into the use of digital banking by smallholder tobacco farmers in Mvurwi has produced significant findings on challenges and opportunities in this area. The research aimed to comprehend how digital banking may enhance financial inclusion for farmers and revealed several essential factors mediating the process. The study achieved a 100% response rate, a reflection of great interest among the farming community, as well as a consequent high-quality dataset. The age profile of the respondents approximated gender parity at 52% male and 48% female, reflecting the need for gender-responsive digital inclusion programs. Additionally, the age range and mixed levels of education suggest that digital banking programs must be tailored to address the specific demands of various demographic segments. The research discovered that even as the majority of the farmers incurred moderate fees for digital banking services, there is a lot of transparency issues related to these fees, which can be discouraging. Furthermore, the research indicated that connectivity and digital literacy remain major obstacles since average network availability was rated at 5.43 out of 10 and farmers utilized digital services only 3.09 times a week on average. Ultimately, five key barriers were established: inadequate network connectivity, low digital literacy, trust and security concerns, excessive transaction charges, and limited access to appropriate devices. These findings collectively illustrate the complexities in the adoption of digital banking and serve as the foundation for informing future interventions.

5.3 Summary of Key Findings

The research findings sufficiently address the research questions posed at the onset, illustrating how the barriers to digital banking adoption compromise financial inclusion among smallholder farmers. The evidence supports the hypothesis that in spite of the enormous potential benefits of digital banking, there are significant barriers to be overcome to realize large-scale adoption. The high response rate and deep demographic analysis provide validity and generalizability to the conclusions drawn. Importantly, the cost analysis identified that most farmers incur medium monthly expenses, which strain their finances and make the argument for more transparency on the part of digital banking institutions even more compelling. In addition, the focus of the research on connectivity and digital literacy identifies the infrastructural shortcomings in the effective use of digital banks. As most farmers indicated a desire for additional training to use digital platforms with confidence, the findings highlight the necessity of closing such gaps to promote digital financial inclusion. In all, the mixed-methods design used in this study offers an extensive grasp of the setting of digital banking in Mvurwi, validating that various interconnected elements determine the adoption of financial technology among small-scale farmers.

5.4 Strength of Conclusions

The researchers have confidence in these findings, as brought out by the robust data collected from a representative and diverse sample of smallholder farmers. The triangulation of qualitative and quantitative data reinforces the validity of the findings, bringing out a holistic view of the opportunities and challenges for farmers to use digital banking. The optimal rate of response lends credibility to the conclusions in a way that the inferences made from the research truly reflect the realities of the farming community. Secondly, the triangulation between respondents' experiences and statistical analysis lends credibility to the conclusions drawn. By integrating qualitative narratives and quantitative metrics, the research cultivates a nuanced picture of the barriers to digital banking uptake, synthesizing the understanding of how the barriers interact and impact financial inclusion. Not only does this comprehensive approach validate the findings, but it also underscores the need for targeted interventions that are directed at the specific issues for smallholder farmers in Mvurwi.

5.5 Practical, Actionable Recommendations

Based on the findings, several actionable suggestions are provided to enhance the adoption of digital banking among smallholder tobacco farmers in Mvurwi. First, there is a need for better connectivity as a stable network infrastructure is the backbone on which any digital banking solution is delivered. Stakeholders, including telecommunication companies and government agencies, have to collaborate towards enhancing signal strength and coverage in rural areas. This can involve investments in new technologies or refurbishing current infrastructure so that farmers have steady access to digital banking services. This also involves developing training programs that can improve digital literacy. Tailor-made workshops and on-the-job training sessions can help farmers gain the confidence and ability to use digital banking apps properly. Collaborations with local NGOs and agricultural extension services can assist in bringing these training programs to the farmers who need them the most. Moreover, digital banking providers must roll out simple and transparent pricing models to dispel impressions of high and non-transparent fees. Tiered pricing models that are pegged to the transaction sizes typical of smallholder farmers must be rolled out to assist in building trust and encouraging broader usage. Finally, it is important to deal with security concerns; implementing robust security measures and dispute-resolution mechanisms can assist in the creation of a sense of trust among consumers. Clear guarantees against illicit transactions can also play a part in confidence in digital banking systems.

5.6 Future Research Directions

Future research must investigate the long-term implications of the adoption of digital banking on financial stability and productivity for smallholder farmers. Longitudinal surveys can provide valuable data on how digital banking affects the economic outcomes of farmers in the long run, as well as what accounts for long-term adoption of digital financial services. Additionally, studies focusing on gender-specific barriers to digital banking can provide a detailed view of how different segments of the farming population deal with these challenges. This research could inform the development of targeted interventions that address the unique needs of female farmers, who may have different barriers from male farmers. A possible avenue for future research is the assessment of new solutions to overcome the identified barriers, such as pilot research providing hands-on training or subsidized device access. Empirical evidence from these ventures can inform best practices in enhancing financial inclusion through digital banking.

5.7 General Contributions to the Discipline

The research contributes meaningfully to the body of knowledge of digital banking as it pertains to rural financial inclusion in Zimbabwe. Explaining the peculiar constraints of smallholder farmers provides the foundation for policy interventions that can support inclusive financial services. The findings point to the necessity of comprehensive solutions encompassing connectivity, education, and user support, thereby adding to the discourse on rural financial inclusion in Sub-Saharan Africa. Besides, the study identifies the necessity of surmounting both technical and socio-economic hurdles in an attempt to have an inclusive digital banking ecosystem. By making practical recommendations and identifying possible avenues of future research, this research aims to inspire stakeholders to come together to create a more even financial playing field for smallholder farmers. Ultimately, the insights gained through this research not only add to academic understanding but also serve as a practitioner and policymaker guide for those seeking to advance financial inclusion using digital banking initiatives

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APPENDIX A

SURVEY QUESTIONNAIRE

Title:

The Impact of Digital Banking on Financial Inclusion for Smallholder Tobacco Farmers in Mvurwi, Zimbabwe

Instructions to Participants

Dear Participant,

I am conducting a study on the impact of digital banking on the financial inclusion of smallholder tobacco farmers in Mvurwi. Please assist by answering the following questions truthfully. Your participation is voluntary, and your responses will remain confidential. No personal identification is required.

- Please tick (✓) the most appropriate box.
- For open-ended questions, kindly write brief and clear answers.
- Use the rating scales where indicated.

Thank you for your valuable time and cooperation.

SECTION A: DEMOGRAPHIC INFORMATION

Variable	Response Options	Tick (✓)
1. Gender	☐ Male / ☐ Female	
2. Age	☐ 18–25 / ☐ 26–35 / ☐ 36–45 / ☐ 46–55 / ☐ Above 55	
3. Education Level	☐ No Formal Education / ☐ Primary / ☐ Secondary / ☐ Tertiary	
4. Years in Tobacco	☐ Less than 2 years / ☐ 2–5 years / ☐ 6–10 years / ☐	

Farming	More than 10 years	
5. Size of Land under Tobacco	☐ Less than 1 hectare / ☐ 1–2 hectares / ☐ 3–5 hectares / ☐ More than 5 hectares	

OBJECTIVE 1:

To determine the cost of accessing digital banking services among Mvurwi smallholder tobacco farmers and examine how these costs influence their financial inclusion.

1. What digital banking services do you use?

(Tick all that apply)

- ☐ **Mobile Money (e.g., EcoCash)**
- ☐ **Mobile Banking Apps**
- ☐ **Internet Banking**
- ☐ **None**

2. How often do you use digital banking services for farming-related transactions?

Frequency	Tick (✓)
Daily	
Weekly	
Monthly	
Rarely	

3. How much do you spend monthly on digital banking (e.g., transaction fees, internet bundles)?

Cost Range	Tick (✓)
Below US\$5	

US\$6–US\$10	
US\$11–US\$20	
Above US\$20	

4. How affordable are the costs associated with digital banking for you?
(1 = Very Unaffordable, 5 = Very Affordable)

Scale	Tick (✓)
1	
2	
3	
4	
5	

5. In your opinion, do the costs associated with digital banking limit your usage?

- Yes
- No

If Yes, briefly explain: _____

OBJECTIVE 2:

To investigate the existence of online banking platforms among smallholder tobacco farmers in Mvurwi, considering connectivity, digital skills, and infrastructure.

6. Do you own a smartphone or a device that supports digital banking?

- ☐ **Yes**
☐ **No**

7. How strong and reliable is the mobile network signal in your area?

Network Quality	Tick (√)
Very Strong	
Strong	
Average	
Weak	
Very Weak	

8. Rate your digital skills in using mobile or internet banking.

Skill Level	Tick (√)
Very Poor	
Poor	
Average	
Good	
Very Good	

9. Have you received any formal training or orientation on using digital banking services?

(Tick (√) one option):

☐ Yes

☐ No

If Yes, who provided the training? (Tick (√) one option):

☐ Bank

☐ NGO

☐ Farmer Group

☐ Other (specify): _____

10. How easy do you find it to access digital banking services?

(1 = Very Difficult, 5 = Very Easy)

Ease of Access	Tick (✓)
1	
2	
3	
4	
5	

OBJECTIVE 3:

To identify the challenges facing smallholder tobacco farmers in adopting digital banking services in Mvurwi, considering both technological and other constraints.

11. What challenges do you experience when trying to use digital banking? (Tick (✓) all that apply):

- ☐ Poor network connectivity
- ☐ Lack of smartphones
- ☐ High internet/data costs
- ☐ Fear of fraud/security breaches
- ☐ Lack of trust in digital platforms
- ☐ Lack of training/digital skills

12. What prevents you most from using digital banking services?

Main Barrier	Tick (✓)

Lack of digital skills	
Poor internet access	
High transaction costs	
Fear of cybercrime	
Prefer traditional banking	

13. How satisfied are you with the current support (e.g., customer care, tutorials) provided by financial institutions regarding digital banking?

(1 = Very Dissatisfied, 5 = Very Satisfied)

Satisfaction Level	Tick (✓)
1	
2	
3	
4	
5	

14. Have you ever lost money while using a digital banking platform?

- Yes
- No

If Yes, briefly explain what happened: _____

15. What do you suggest should be improved to make digital banking more attractive to smallholder farmers?

(Open-ended)

Thank you very much for your participation!