

The role of branchless banking in smallholder agriculture in Zimbabwe

By

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ABSTRACT

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Access to financial services from financial institutions has often proved to be one of the major constraints to rural and smallholder agricultural development in Zimbabwe. However, the ICT revolution across the world leading to the development of branchless banking options has brought new financial inclusion opportunities in the rural areas.

The purpose of this study was to determine the role of branchless banking in smallholder agriculture through investigating the user patterns and adoption rate of mobile banking by rural farmers in Zimbabwe. Zvimba District was used as the case study while mobile banking was the branchless banking option investigated. The study also sought to investigate the barriers to adoption of mobile banking, in addition to laying out the difference between traditional banking channels and mobile banking.

A survey through a structured interview with rural smallholder farmers was the main means of data collection. The data collected was then used to quantify the adoption of mobile banking, the barriers to adoption, and the alternative financial service providers used in rural areas, making it possible to draw conclusions for the purposes of policy formulation.

The findings from the study revealed a high rate of adoption of mobile banking among the rural people. According to the study, even though mobile banking was cheaper and more accessible, traditional banking channels were still cited as being an important need for rural people. The significant factors investigated as creating barriers to adoption of mobile banking

included age, education, income, marital status and farming experience, while factors such as gender and farm size proved to be insignificant.

In light of the findings, it was recommended that besides transactional uses, branchless banking should be further developed and enhanced to provide other services such as insurance services and credit needed by smallholder farmers. Furthermore, in order to enhance customer uptake, mobile network operators (MNOs) were recommended to consider a segmentation approach when extending services to appropriate segments in rural areas.

Key terms: branchless banking, mobile banking, smallholder farmers, financial access, financial inclusion

DECLARATION

I, Munyaradzi Laurel Majoma declare that the mini dissertation, which I hereby submit for the degree of Master of Agricultural Management in Agricultural Economics at the University of Pretoria, is my own work and has not been previously submitted by me for a degree at this or any other tertiary institution .

Signature:

Date:

DEDICATION

To my parents, Edna and Israel.

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Firstly, I would like to take this opportunity to express my gratitude towards the Almighty God for his provision, true love, guidance and protection. Praise be to Jehovah, for you have taken me this far.

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ACRONYMS AND ABBREVIATIONS

BB	Branchless Banking
CGAP	Consultative Group to Assist the Poor
FAO	Food and Agricultural Organisation
ICT	Information and Communication Technology
MB	Mobile Banking
MFI	Micro Finance Institute
MNO	Mobile Network Operator
M-Pesa	Mobile Cash (in Swahili)
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
USAID	United States Agency for International Development

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction

Agriculture is an important economic activity that generates food, income and employment for more than 70 % of the rural poor, most of whom are smallholder communal farmers in developing countries (World Bank, 2015a). However, the majority of the developing world today is shrouded in poverty owing to little progress being made in agricultural and rural development. It therefore follows that improving agricultural development, particularly in the smallholder rural farming sector, would go a long way in reducing poverty and fostering economic growth (Kirsten, Dorward, Poulton & Vink, 2009; Demirguc-Kunt, Klapper, Singer & Van Oudheusden, 2015b).

Although there has been a considerable improvement in financial access on a global level in the last few years, the lack of access to financial services is a major hindrance to agricultural and rural development in Sub-Saharan Africa (Kirsten et al., 2009). Lack of financial access refers to the condition where ‘formal financial services have prohibitive costs or barriers to their use, such as regulations requiring onerous paperwork, travel distance, legal hurdles, or other market failures’ (Demirguc-Kunt et al., 2015b). 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 is unbanked globally.

According to Bucker and Krause (2011), access to finance is one of the major limitations amongst poor rural segments, who remain without access to essential services such as loans for productive and consumptive purposes, deposit products, transactional services and insurance. It is this limited financial access that is often blamed for the slow or lack of rural and agricultural development in this region (Kirsten et al., 2009; Mercy Corps, 2012; Vitoria et al., 2012).

According to Levine (1997), there is a first order positive relationship between financial development and economic growth. Therefore, the importance of improving access to finance for rural people in sub-Saharan Africa cannot be understated. Finance is a key factor in helping rural households and entities in making productive investments, smoothing

consumption, managing risks and coping with shocks (Bucker & Krause, 2011). This is especially important for rural households in sub-Saharan Africa whose weather dependent agriculture exposes them to high risk and uncertainty.

Furthermore, banking with formal financial institutions has remained relatively low in sub-Saharan Africa. However, the introduction of mobile banking has brought about the most significant changes to financial services provision in this region, compared with anywhere else in the world. Mobile banking has advantages in its low cost and all-hours technological innovation that allow users to perform financial transactions without a bank account (Demirguc-Kunt et al., 2015b).

Adults in sub-Saharan Africa who use mobile money accounts number 12 %, as compared with just 2 % of adults globally who say they use mobile money accounts. It is this widespread adoption and potential of mobile banking, not only to reduce the unbanked population in sub-Saharan Africa but also to create jobs and support small and medium enterprises(SMEs) and smallholder farmers' growth, which has put mobile banking at the centre of policy debate and interest by multiple stakeholders (Ondiege, 2010).

1.2 Problem Statement

The 2014 FinScope survey (FinMark Trust, 2015) found that in Zimbabwe only 23 % of the rural population were banked, as compared to 46 % in urban areas. These statistics show that rural areas continue to suffer from financial accessibility problems. According to Munyanyi (2014), rural segments in Zimbabwe continue to be shunned by financial institutions due to inaccessibility, which is attributable to poor infrastructure (road and transport networks), and high levels of poverty.

According to the 2014 Finscope survey up to 70% of Zimbabwe's population stays in the rural areas, and of those, 66% depend on agriculture. One of the biggest challenges often faced by agriculture in Zimbabwe is financial access most notably among the smallholder farmers who dominate the sector (Moyo, 2011).

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 & Dhliwayo, 2013). This development has brought much

excitement, as the role of mobile phones in providing financial access opportunities through branchless banking has been getting recognition across the developing world.

However, although the importance of branchless banking in providing the poor with an alternative, low-cost, easy, all-hours channel to conduct financial transactions is highly recognised, little research has been directed towards understanding adoption and usage patterns amongst the poor in rural areas. Secondly, research has ignored the influence of socio-cultural factors and the comparison between mobile and traditional banking services. Thirdly, there is a need for statistical research to be conducted with high levels of reliability to generate highly representative data. Fourthly, researchers have paid little attention to the effect, awareness and usage patterns of branchless banking options amongst smallholder farmers.

It has been almost five years since the first mobile banking services were introduced in Zimbabwe, but its role on rural development has barely been investigated. Therefore, this study sought to understand the role branchless banking plays among the Zimbabwe's smallholder farming sector by investigating farmers in Zvimba rural communal area.

1.3 Objectives of the study

Following the problems that have often been faced by rural farmers in solving financial access problems, the study seeks to examine the role of branchless banking services among smallholder rural farmers in Zimbabwe's communal areas. The specific objectives covered by the present study were:

- To determine the current state of adoption of mobile banking in rural areas.
- To compare mobile banking usage against traditional banking usage among rural dwellers.
- To identify the barriers to adoption of mobile banking among rural smallholder farmers.

1.4 Organisation of the Study

The next chapter reviews literature of some branchless banking studies to reveal some controversies and shortcomings in the findings, which indicate gaps for future research. Chapter 3 outlines the research methodology, describing the methods that were applied to collect data, as well as the sampling procedures and data analysis techniques. Chapter 4 discusses the results and findings from the study, while Chapter 5 concludes with some key recommendations in relation to the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This section critically reviews literature on past studies done on branchless banking and identifies some of its shortcomings in financial inclusion, as well as stating the significant gaps in research findings. Branchless banking as a concept, and its components, are also reviewed, together with the present state in the Zimbabwe context.

2.2 Literature review on mobile banking in Zimbabwe and the developing world

The following is a review of studies conducted on mobile banking in Zimbabwe and other developing countries.

2.2.1 Traditional banking and mobile banking

Over the years, most notably in developing countries, traditional banking has largely failed to properly serve the rural communities as compared to the urban areas. Puschel et al. (2010) investigated the distribution of financial facilities in Zimbabwe and revealed an uneven bias towards the urban areas. Rural areas have continued to suffer from lack of financial access due to poor roads and high levels of unemployment, which make rural areas unattractive to financial institutions. However, the limitations to the Puschel study is that it only focused on the supply side of financial institutions, and only looked at formal financial institutions, without examining the aspects of usage of these services.

Some studies have compared the use of formal financial institutions, such as banks and microfinance institutions, with mobile banking usage. In a survey carried out on branchless banking in 10 countries, McKay and Pickens (2010) found that branchless banking services were 19% cheaper than comparable bank services. In addition, they also revealed that branchless banking adoption grew at a rate five times faster than an established Micro Finance Institution (MFI) in terms of attracting previously unbanked clients.

In recent years, quite a number of studies have acknowledged the inroads made by mobile banking into the Zimbabwe financial sector as a whole but however with some concerns. According to various authors (Mavhiki et al., 2015; Munyanyi, 2014; Ndlovu & Ndlovu, 2013; Zanamwe et al., 2013), although it is cheaper, easier and more convenient, mobile banking is not a complete package and therefore has not replaced the use of formal banking services.

Mavhiki et al. (2015) elaborates that, mobile banking in Zimbabwe has transformed banking activities through convenience, reduction of transaction costs and decongestion of banking halls. The study also observed that although more people are using mobile banking, but those who were already banked have not relinquished their bank accounts, and are rather using mobile banking together with traditional banking. However, the limitation to Mavhiki et al. (2015) is that the study only concentrated on urban areas and did not include rural dwellers in the study, so the landscape of rural dwellers remains unknown in terms of preference for the two banking systems.

The popularity of mobile banking in developing countries had not been as clear across different population sectors (rural and urban). For example, in 2013, two years after the introduction of EcoCash in Zimbabwe, Econet claimed that they were making positive inroads countrywide but however, Chitungo and Munongo (2013) revealed very low usage rates of mobile banking in rural areas. The study however indicated that mobile phone ownership was very high in the study area (88.6 %) and thus predicted an increase in adoption in the near future, since the rate of unbanked stood at 22.6 %.

Similarly, a study in rural Ghana by Iddris (2013) revealed a similar trend of low adoption rates of mobile banking by rural people. These findings, therefore, present a gap for scrutiny, which this study will review in examining the adoption rates in Zimbabwe's rural areas, so as to further understand the dynamics of mobile banking.

2.2.2 Factors affecting mobile bank adoption

The concept of mobile banking and the factors affecting adoption has been studied in the early mobile bank adopting countries such as Kenya, South Africa and other developing countries. These findings present a mixed set of results on the dynamics of the adoption of mobile banking. A study on M-Pesa in Kenya by Jack and Suri (2010) revealed that users of

mobile money were typically the richer and the educated. For example, 56 % of the users surveyed had reached at least secondary education level, while the corresponding figure for non-users was 41 %. This was similarly supported by a study by Mbiti and Weil (2011) which, in addition to educated users, found higher adoption rates of mobile money amongst the banked, urban residents, while in rural areas it was more popular amongst the non-farming sector.

A study by Borg and Persson (2010), which focused on the factors affecting adoption of a mobile banking system (Wizzit) in South Africa, also presented a mixed bag of results. The findings revealed that Wizzit was more attractive to dissatisfied bank customers, companies rather than individuals, the rich and the educated. Koenig-Lewis et al. (2010) focused on the factors affecting mobile banking adoption. Their findings indicated that compatibility, perceived usefulness and risk were significant factors for the adoption of mobile banking services. Furthermore, the study identified males as being more likely to adopt mobile banking than females were, while those who used smart phones and those who were already online banking users also expressed a higher likelihood of adoption.

Oluwatayo (2013) examined the extent to which mobile phones have aided financial services among farming households in rural southwest Nigeria. His findings indicate that the higher the education levels and the ages of people are, then the higher their usage of mobiles for banking will be. However, the study also reveals a negative trend to mobile banking as household size increases and income per capita declines (poverty levels increase), while cooperative activities among farming households increase awareness and provide avenues for training on new inventions and other technologies.

Dube et al. (2011) studied the factors that affect adoption on SMS banking and ebanking. SMS banking is a similar phenomenon to mobile banking, since it falls under branchless banking. They found that the major drivers of adoption of SMS banking were accessibility and affordability.

Several studies have focused on social factors affecting the adoption of mobile banking and arrived at different results. Omwansa (2013) looked at adoption factors in poor areas in Kenya in order to understand the determinants and usage behaviour of mobile money. He revealed that the social determinants, which influence mobile banking adoption, consist of age, gender, education and risk. In addition, perceived trust plays an important role in

determining behavioural intention to use mobile money, while transaction costs influence actual usage.

In rural Ghana, Iddris (2013) looked at barriers to adoption of mobile banking. His findings revealed several social factors that affect adoption, such as age, income, marital status, experience in using mobiles, and gender. For example, a negative relationship between adoption and low income was revealed.

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 perceived ease of using mobile banking. On the other hand, in rural India, Dass and Pal (2010) revealed that the prime drivers of mobile 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.

In a study on awareness of mobile banking in agriculture in Kenya, Kurui et al. (2010) revealed a high awareness of m-banking services among the smallholder farmers. In the same study, it was found that education, distance to a commercial banks, membership of farmer organisations, distance to the m-banking agents, and endowment with physical and financial assets were major factors in determining the use of mobile banking.

2.2.3 The potential of mobile banking

Although mobile banking technology is less than twenty years old in Africa and the developing world, the potential for mobile banking to contribute to both agricultural and economic development through improving financial access renders it very important. For example, Plyler et al. (2010) examined the communal impacts of M-Pesa mobile banking in a rural community in Kenya. They found that M-Pesa mobile banking had a positive effect on local economic expansion in terms of money circulation and local employment, physical, financial and food security, financial, human and social capital accumulation, and on the business environment in terms of ease and quality control of transactions.

Ondiege (2010) examined the impact of mobile banking in Africa and found that mobile banking had “taken financial services to remote areas where traditional banks were physically absent, allowing subscribers to open accounts, transfer money and pay their bills among other

uses”. In addition, Must and Ludewig (2010) also investigated at the impact of mobile money in developing countries. They found that mobile banking had improved access to saving mechanisms and insurance, reduced costs of saving, and it had improved the ease and affordability of sending remittances and accessing loans, particularly for the previously unbanked.

According to Duncombe and Boateng (2009), in order for future research to be more beneficial, it should be ‘more strongly linked to multidisciplinary approaches combining social, cultural and economic perspectives, based on a more detailed understanding of the financial service behaviours and preferences of poor clients and users.’

Despite the growth in financial access brought by branchless bank technology in Zimbabwe, there has been little data publicly available with regard to low-income users, particularly the rural smallholder farmers. Thus, from the evidence of the reviewed literature, this study sought to address this gap by conducting a study to investigate role of mobile banking and barriers to its adoption in the rural areas. This study also made comparisons between mobile banking and traditional banking practices and examined the overall influence of mobile banking in the rural smallholder sector.

The next section discusses the concept of branchless banking in detail.

2.3 The Branchless Banking Concept

2.3.1 Use of technological innovations for finance

The advent of innovative products and services has helped in changing the way people conduct transactions and receive services. One of the most remarkable technology innovations of the past decade has been the spread of mobile phones across the developing world (Donner & Tellez, 2008).

The use of mobile phones is being exploited by using it as a platform for providing mobile financial services, resulting in the reduced reliance on traditional bank branches. In a study on mobiles, Mittal et al. (2010) found that mobiles were being used in ways which contribute to productivity enhancement in agriculture, through facilitation of information access and as a financial services platform.

Duncombe and Boateng (2009) attest that mobile phones have the potential of becoming the poor's most popular financial services delivery channel because of its low cost in providing services such as micro-payments, mobile banking and electronic money.

2.3.2 Branchless Banking

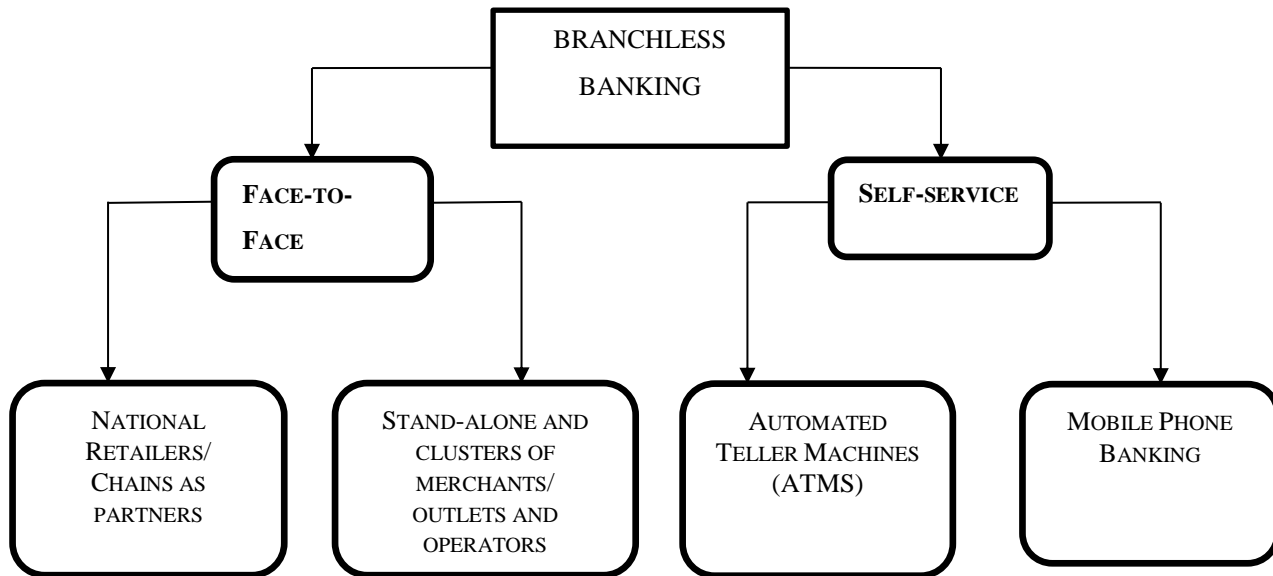
Branchless banking refers to a distribution channel that allows financial institutions and other commercial actors to offer financial services outside traditional, brick and mortar bank premises. Branchless banking technologies come in the form of smart cards or mobile phones services that can be used to conduct transaction (Dermish et al., 2011). Branchless banking is touted as a potential solution for extending access to financial services to the poor owing to its advantages in lowering cost of delivery (costs of building bank structures and maintaining them, and transaction costs experienced by customers, such as queuing) (CGAP, 2010).

Mas (2009) identifies three key elements that make up branchless banking:

- The retail network (outlets where transactions originate)
- The payment network (the agent network)
- The account platform (managing and servicing accounts)

Branchless banking allows clients to transact outside a conventional bank, although Coetzee (2013) argues that branchless banking is more than just mobile phone banking, as evidenced by the existence of point of sale devices. He goes on to differentiate between two pillars of branchless banking (see Figure 2.1 overleaf), which are the face-to-face and self-service approaches. The face-to-face approach is that where a bank uses a partner, working on their behalf, to service clients. On the other hand, the self-service approach involves a client using a self-service device for banking services, for example using an ATM or mobile phone.

Figure 2.1: Pillars of branchless banking



Source: Coetzee (2012)

According to Porteous (2006), there are two types of branchless banking models, namely transformational banking and additive banking. The differences between the two models is that transformational banking seeks to target those clients who have never had a bank account, while additive banking seeks to extend access to financial services to clients who are already served. An example of transformational banking is mobile money, serving the rural unbanked, while for additive banking, it is a bank providing online banking services to its existing clients.

The evolving technological improvement in the features of the mobile phones has helped in creating innovations in the finance industry. One such branchless banking platform has been the development of the mobile money ecosystem. Donovan (2012) gives the basic definition of mobile money as the ‘provision of financial services through a mobile device which encompasses a range of services, including payments (such as peer-to-peer transfers), finance (such as insurance products) and banking (such as account balance inquiries).’

Meanwhile, Tripple Advisory Services (2013) defines mobile phone banking as a channel through which an institution leverages mobile phone telephony to allow customers and banks to interact. There seems to be no clear, significant difference between the terms ‘mobile money’ and ‘mobile banking’. They are sometimes used interchangeably, although Tobbin

(2012) concludes that, “For the developed world most of what is termed mobile banking is an extension of existing bank services to existing customers.”

2.3.3 Branchless banking in Zimbabwe’s rural areas

The high proliferation of cellphone usage, together with technological development, has prompted the speedy adoption of mobile banking as a convenient way of providing financial services. Ahead of other branchless banking options, such as ATMs, non-financial institutions, particularly the mobile network operators, have been well placed to reach the poor unbanked in the rural areas of Zimbabwe. Although mobile banking takes precedence in the rural areas, it will be seen in Table 2.2 below that both banks and non-banks provide mobile financial services (which started in 2010) (Bara, 2012).

Table 2.1: Mobile banking products in Zimbabwe

Mobile Network Operator (Non-Financial Institution)	Mobile Product
Econet Wireless	EcoCash
NetOne	OneWallet (now Netcash)
Telecel	Skwama (now TeleCash)
Banks (Financial Institution)	
Interfin Bank	Cybercash
CBZ Bank	Mobile Banking
Tetrad	eMali
CABS	Textacash
FBC	Mobile Moola

Source: Zanamwe et al. (2013)

2.3.4 Mobile Phone Banking

Econet Wireless Zimbabwe, Telecel and NetOne have more than seven million subscribers on their books. Mobile phone subscription in Zimbabwe, at the close of 2010, was sitting at 57 %, up from 49 % recorded in the 3rd quarter of 2010 (POTRAZ, 2010). With 57 % of the population having access to a mobile phone, Centre for Inclusive Banking in Africa (2010)

has argued that this offers a tremendous platform for launching mobile banking in Zimbabwe and thus creating an opportunity for banks and other players to leverage on information communication technology (ICT) developments. Despite the proliferation of mobile phones, which has seen the mobile penetration rate rising to above 50 per cent, financial transactions conducted using this platform were calculated at 1 per cent in 2010 (RBZ, 2011). Musarurwa (2010) contended that Zimbabwe is still a predominantly cash society

2.4 Mobile Phone Banking models in Zimbabwe

2.4.1 EcoCash: Econet

EcoCash is the mobile phone banking package provided by Zimbabwe's largest MNO, Econet. EcoCash was launched in September 2011 and within the first 18 months, recorded 2.3 million EcoCash mobile money accounts, outstripping the total number of Zimbabwe's traditional bank accounts opened up (Levin, 2013).

Since the beginning of 2010, there has been a growth in the provision of mobile financial services in Zimbabwe. The various providers which have been competing with EcoCash include CABS Bank's Textacash, Kingdom Bank's Cellcard, Tetrad's eMali, Interfin Bank's Cybercash, CBZ Bank's Mobile Banking, ZB Bank's E-wallet, Standard Bank's Instant Money, TelOne, Net One and Cell2Cell (Vitoria et al., 2012).

However, Econet is proving to be a popular initiative. It has been reported that the average EcoCash transaction volume is about US\$200 million per month, which is equivalent to 22 % of Zimbabwe's GDP when annualised (Levin, 2013). Mobile money has become part of the daily needs of Zimbabweans from all walks of life, including the poor, by providing a quick, reliable and affordable remittance channel.

The swiftness with which EcoCash has overtaken the market in its short lifetime, as referred to above, has been most notable in Zimbabwe. The remarkable uptake of EcoCash can be attributed to several factors, such as (Levin, 2013):

- 1) The hyperinflationary environment characterising Zimbabwe in the period 2000-2010.
- 2) The collapse of the formal sector and the growth of the informal sector. This dark period was associated with the closure of some banks, with people losing their money.

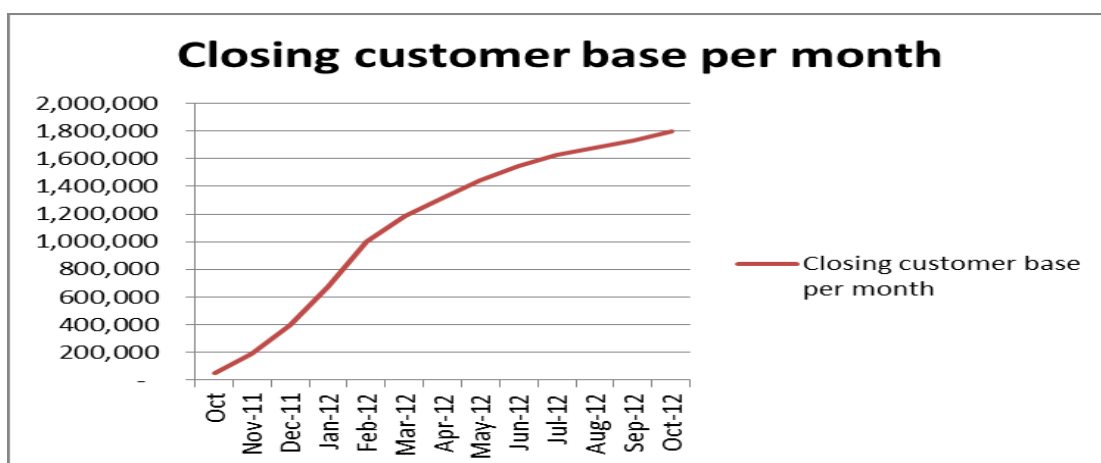
- 3) The adoption of multi-currency use in 2009, which resulted in people’s accounts being lost, leading to the public losing trust in the traditional financial institutions.
- 4) The shortage of coins (of the adopted foreign currency) for transactions.

2.4.1.1 Comparing EcoCash with other mobile initiatives in Africa

An example of a mobile money transfer scheme in Africa and the developing world, widely held to be the most powerful success story, is Safaricom’s M-Pesa in Kenya, which was launched in 2007. According to Tobbin (2012), several mobile banking schemes in sub-Saharan Africa have attempted to venture into the mobile money market, but have been met with very low customer response, such as Ghana’s MTN Mobile Money, Airtel Money and Tigo Cash.

However, EcoCash has been an exception to this general trend. Since its launch, it has been registering very high adoption rates. 2.3 million subscribers registered within first 18 months after launch (Levin, 2013). In comparison, the much popular M-Pesa accumulated 2.5 million in its first year of launch. The rate of adoption in Zimbabwe is quite remarkable for a country with an estimated population of 12 million, as compared to Kenya’s 41 million. Meanwhile, Vodacom South Africa, launched a similar service at the same time as Econet, acquired 500 000 users, a figure four-times less than EcoCash in the first year of launch.¹

Figure 2.2: EcoCash Monthly Subscription acquisition



Source: Nyangari (2013)

¹ See more at: <http://www.techzim.co.zw/2012/10/ecocash-by-the-numbers-now-handles-70-million-monthly->
[Accessed](#) on 2014/03/10.

2.4.2 Telecash: Telecel

Previously launched by Telecel Zimbabwe as Skwama in Jan 2011, targeting subscribers banking with Zimbabwe's Kingdom Bank, this was Zimbabwe's first mobile phone banking service (TechZim, 2013). Skwama was re-launched as TeleCash in 2014. Telecel is Zimbabwe's second-largest network operator, thus offering TeleCash as a direct competitor to EcoCash.

2.4.3 Nettcash: NetOne

Nettcash is owned by NetOne, which is Zimbabwe's third-largest network operator, with approximately 2 million subscribers. Formerly known as One wallet, it was re-launched in November 2013 and experienced a 2000 % increase in transaction volume (Katsamba, 2014).

2.5 Conclusion

The surveyed literature highlights some of the successes of mobile financial services, largely in the developing world and particularly in Kenya, with some highlights on savings and affordability. However, it also presents some controversies, particularly on the fact that the adoption of mobile money in the early stages had appealed more to the rich and educated than to the poor.

However, most of the studies in the literature suggested that branchless banking might be a possible solution for the financial inclusion of the poor. These are some of the gaps that this study seeks to address as it investigates the usage patterns and barriers to adoption in Zimbabwe's smallholder rural farmer community.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

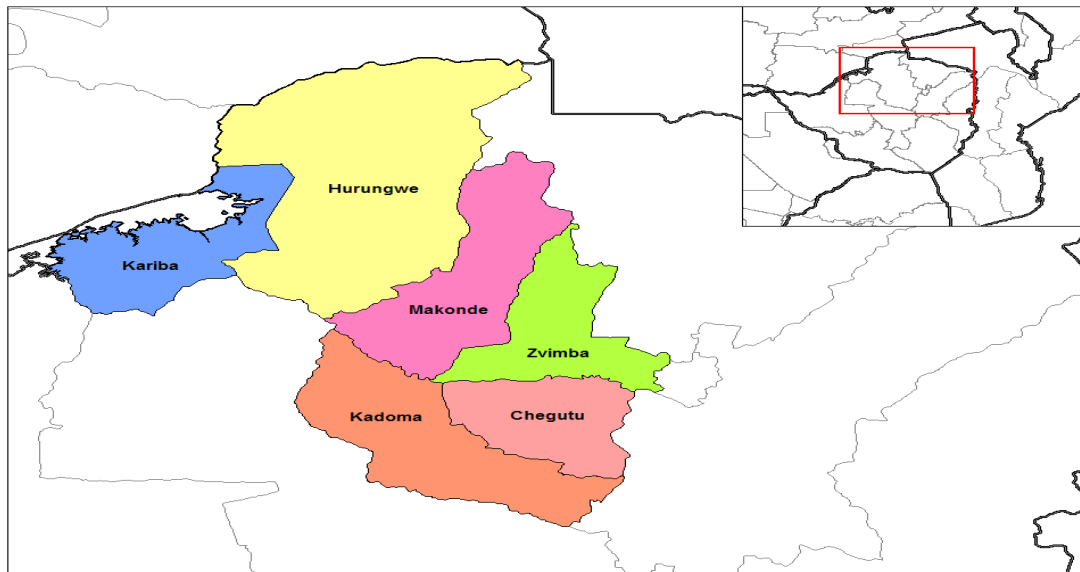
This chapter presents the methodological framework that was employed by the study in order to meet the objectives of the research. It begins by giving an overview of the study area which includes the geographical (location, climate and vegetation) and economic features. This is followed by the description of the research design, the methods, materials and procedures used to collect the data for the study. Then the last part of the chapter presents the ethical considerations and measures taken to enhance the validity of the study in addition to the analytical framework and tools adopted to analyse the results.

3.2 Study Area

3.2.1 Geographical Location

The study was conducted in Zvimba rural district, one of the thirteen districts that make up the Mashonaland West Province in the central northern part of Zimbabwe (see Figure 3.1). Zvimba district covers an area of 6 071.72 square kilometres, constituting approximately 11 % of the province's total land area. It shares borders with Guruve District to the north, Mazowe District to the east, the city of Harare to the southeast, Chegutu District to the south, Kadoma District to the southwest, and Makonde District to the west and northwest. The nearest main large town is Chinhoyi, located 48 kilometres away.

Figure 3.1: Map of Mashonaland West province



3.2.2 Climate and Vegetation

Vincent and Thomas (1961) classified Zimbabwe into five natural farming regions, based on agricultural potential and suitability to different farming activities (Table 3.1 below). According to this classification, Zvimba district falls in natural region II, which receives summer rainfall ranging from 700 to 1 050 millimetres and is suitable for intensive cultivation of maize, tobacco and cotton, and rearing of livestock.

Table 3.1: Zimbabwe’s agro-ecological regions

Natural Region	Area	% of total land area (000 ha)	Annual rainfall (mm)	Farming Systems
I	613	1.56	> 1 000. Rain in all months of the year, relatively low temperatures	Suitable for dairy farming forestry, tea, coffee, fruit, beef and maize production
II	7 343	18.68	700-1 050. Rainfall confined to summer	Suitable for intensive farming, based on maize, tobacco, cotton and livestock

Natural Region	Area	% of total land area (000 ha)	Annual rainfall (mm)	Farming Systems
III	6 855	17.43	500-800. Relatively high temperatures and infrequent, heavy falls of rain, and subject to seasonal droughts and severe mid-season dry spells	Semi-intensive farming region. Suitable for livestock production, together with production of fodder crops and cash crops under good farm management
IV	13 010 036	33.03	450-650. Rainfall subject to frequent seasonal droughts and severe dry spells during the rainy season	Semi-extensive region. Suitable for farm systems based on livestock and resistant fodder crops. Forestry, wildlife/tourism
V	10 288	26.2	< 450. Very erratic rainfall. Northern low veldt may have more rain but the topography and soils are poor	Extensive farming region. Suitable for extensive cattle ranching. Zambezi Valley is infested with tsetse fly. Forestry, wildlife/tourism

Source: Vincent & Thomas (1961)

3.2.3 Population and Economy

Zvimba district has a total population of 263 020 people, which makes up 18 % of the total population in Mashonaland West province (PCO, 2012). As in all the other rural districts in the province, for the majority of people in Zvimba rural district (about 57.8 %), agriculture is the main source of livelihood, followed by services (13.5 %). A variety of crops, such as maize, groundnuts, cotton, tobacco, and livestock giving both beef and dairy cattle products, are produced (Gubbins & Pranker, 1983). The district also has the second-highest rate of an economically inactive population (16 %), after Hurungwe district (21 %).

3.3 Descriptive Statistics Research Design

Research design refers ‘to the plans and procedures used by a researcher to answer research questions validly, objectively, accurately and economically’ (Kumar & Phrommathed, 2005). According to Shuttleworth (2013), ‘a descriptive statistics design implies a simple quantitative summary of a data set that has been collected and it helps us understand the experiment or data set in detail and tells us all about the required details that help put the data

in perspective.’ The present study thus adopted a descriptive research design since the overall objective of the research was to understand the role of mobile banking in smallholder farmers in Zvimba district, Zimbabwe, and their relationship with socio-economic factors, with the aim to inform policy makers on the dynamics of financial access in rural areas.

3.3.1 Rationale for Descriptive Statistics Research Design

Descriptive statistics falls under quantitative research and helps to present data in a meaningful way. There are two basic types of research design used in research, namely quantitative and qualitative research design, each of which is appropriate for answering different types of research questions and for different uses of the research findings (Creswell, 2014; Kumar & Phrommathed, 2005; Leedy & Ormrod, 2013).

Quantitative research involves examining the relationships among numerically measured variables using rigorous statistical analysis. Qualitative research, on the other hand, involves providing a thick description of a research topic, phenomenon, situation or issue by looking at non-numerical characteristics or qualities. A qualitative design generates results either in non-quantitative form or in a form, which is not subjected to rigorous quantitative analysis.

While quantitative research is best used to establish, confirm or validate relationships among variables, and to develop generalisations that contribute to existing theory, the qualitative approach is used to explore a phenomenon and understand the meanings that individuals or groups ascribe to a social or human problem, and to build theory (Creswell, 2014; Leedy & Ormrod, 2013; Kumar & Phrommathed, 2005).

According to Kumar and Phrommathed (2005), choosing an appropriate research design should depend on the aim of the inquiry, whether it is exploration, confirmation or quantification, and, the use of the findings – whether it is for policy formulation or process understanding.

Descriptive statistics simply summarizes the sample and the measures and the data can be represented in the form of graphs or histograms to better understand what is happening (Shuttleworth, 2013).

According to Texas State Auditor's Office, Methodology Manual, rev. 5/95, descriptive statistics is recommended for use by researchers when:

- the objective of the study is to describe and discuss a data set more generally and conveniently
- there is a significant amount of qualitative or quantitative data to be computed
- there is a need to summarize and support assertions of fact.

Since the present study sought to simply quantify mobile banking adoption in rural areas, and to understand the influence of socio-economic characteristics on mobile banking adoption for the purposes of policy formulation, a descriptive statistics research design was more appropriate.

Descriptive statistics design allowed the study to generate a quantified profile of rural households' choices of financial service providers and summarization of data through graphs. In addition, quantitative statistical analysis was also done in order to help understand the relationships among socio-economic variables and mobile banking adoption, and to generalise the findings to a wider population (Creswell, 2014; Leedy & Ormrod, 2013; Kumar & Phrommathed, 2005).

3.4 Survey Design

The research adopted a survey because, firstly, in a survey research, a researcher learns about a pre-determined population's characteristics, opinions, attitudes and experiences through collecting information on these variables from a sample of that population and then generalises these results to the larger population (Leedy & Ormrod, 2013). Therefore, the results from the present study could be generalised to represent conditions in Zvimba district.

Secondly, a survey is used to describe the incidence, frequency and distribution of certain characteristics of a population, and in the present study it was therefore used to describe the patterns of use of financial products and services and the socio-economic characteristics of respondents (Leedy & Ormrod, 2013).

The most common techniques for conducting surveys are by face-to-face interviews, telephone, online and mail. The study used face-face interviews because face-to-face surveys allow the researcher to reach a wider sample, including those without access to the internet, phones or mail, at lower costs and they yield a higher response rate through the building of a rapport with respondents and in translating questions from English to people's local language, as compared with other survey techniques (Leedy & Ormrod, 2013). The next section describes the selection of the sample for the survey.

3.5 Sample Design

A sample refers to 'a portion or subset of a larger group called a population (Fink, 2003).' To ensure that the sample was as representative as possible of the targeted population, the simple random sampling technique, a technique that gives every member of the target population an equal chance of selection, thus producing an unbiased sample, was used (Fink, 2003; Leedy & Ormrod, 2013).

To determine an appropriate sample size, the study took into account the aim of the study, the statistical quality needed, and the time and financial resources available (Kelley et al., 2003). As a rule of thumb, a minimum sample size of 30 is recommended for quantitative studies. In order to accommodate the needs of the research to profile users and non-users of mobile banking according to various socio-economic characteristics and to give a better estimate of the population by using a larger sample, this study used a sample size of 100.

3.6 Instrument Used

A structured questionnaire was used to collect the data required for this study. Several measures were taken to ensure that the instrument was valid, reliable and clearly linked to the objectives of the study. Firstly, the researcher consulted existing literature on how to measure the different variables related to the use of financial products and on how to design a good survey (Leedy & Ormrod, 2013; Kelley et al., 2003). All this preparation of the questionnaire was done with the help of an expert from the University of Pretoria.

In addition, the researcher conducted a pilot survey to ensure that the questions were clear and measured what they were meant to (Kelley et al., 2003).

In line with the research objectives of the study, a questionnaire was carefully developed to collect information on the patterns of usage of different financial products, attitudes towards mobile banking, and the demographic profile of smallholder rural households in Zvimba. The questionnaire was accompanied by a cover letter explaining the purpose of the research, and the conditions of confidentiality and anonymity of responses that accompanied the voluntary, non-threatening participation in the survey.

Section A in the questionnaire collected general information on the enumerator's details, and the location of the respondents' household. Section B captured the respondents' demographic characteristics, followed by a profile of land ownership and use in Section C. Section D gathered information on respondents' banking profiles and the products and services used for various financial transactions, such as saving and borrowing. Lastly, Section E collected information on the patterns of use of mobile phones and mobile banking, and barriers to adoption of mobile banking.

3.7 Variable Description

To determine the types of financial service providers used by respondents to perform financial transactions, the study asked respondents where they kept their savings, if any, and their source of loans, if any, in 2014/15.

To understand their banking profiles, respondents were asked to indicate if they owned bank accounts in 2014/15. To determine if their banking profiles had changed, respondents were asked to indicate if they had ever owned a bank account in their lifetime. To determine if there was a demand for bank accounts, respondents were asked to indicate if they would like to own a bank account.

To understand the patterns of mobile phone and mobile banking ownership and use, respondents were asked to indicate if they owned a mobile phone, and if yes, to indicate what they had used it for in 2014/15. They were also asked to indicate if they were registered and used any mobile banking product in 2014/15, which service they had used mobile banking for, and which mobile banking provider they used.

To understand the perceptions of users about mobile banking, a list of statements were presented in Likert form. Users of mobile banking were asked to score each of the statements. An average score was calculated for each respondent. A score of 3 and above indicated positive perceptions, while a score of less than 3 indicated negative perceptions.

To understand barriers to adoption, non-users of mobile banking were asked to indicate the reasons for not adopting this technology. The results were tabulated and frequency tables calculated to determine the most common reason for not adopting mobile banking.

3.8 Ethical Considerations and Minimising Errors

The researcher took the following measures to enhance the response rate and minimise errors throughout the process of collecting data:

- Scheduled appointments with respondents were made in advance.
- Assuring respondents of anonymity and confidentiality of responses at the beginning of the survey.
- Explaining that this study was purely for academic purposes of study and that there was no known risk in participation.
- Respondents were interviewed in their local language, Shona, by trained enumerators under the daily supervision of the researcher, watching for incorrect and incomplete entries.
- Respondents were interviewed at their homes.

3.9 Data Analysis

Software SPSS version 22 was used to analyse the data. Descriptive statistics, such as frequencies, tables and appropriate graphs, were generated and used to describe and summarise respondents' socio-economic characteristics, financial service provider use for different services, banking profiles of respondents, and the patterns of mobile phone and mobile banking ownership and access among respondents. Cross-tabulations were used to determine the relationships with mobile banking status and demographic characteristics of

respondents, and inferential statistics, such chi-square tests, were also used to confirm the nature of relationships between these variables.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Sample characteristics

A total of 100 respondents from 21 villages in the Zvimba district were interviewed. Seven (7) questionnaires were discarded because they were incomplete. The remainder of 93 questionnaires were analysed using SPSS version 22. A profile of the sample's socio-demographic characteristics, namely the gender, age group, marital status, income source and salary scale, are presented in Table 4.1 below.

Table 4.1: Demographic profile

Characteristic	Category	Number of people	Total (%)
Gender	Female	47	51
	Male	46	49
	Total	93	100
Age group	0-30	15	16
	31-45	32	34
	46-60	17	18
	Above 60	29	31
	Total	93	100
Marital status	Single	7	8
	Married	55	59
	Divorced	3	3
	Widowed	28	30
	Total	93	100
Education level	None	3	3
	Primary	36	39
	Secondary	50	54
	Tertiary	4	4
	Total	93	100

Characteristic	Category	Number of people	Total (%)
Main income source	Farming	62	67
	Casual labour	1	1
	Remittances	10	11
	Pension/grant	9	10
	Self employed	7	8
	Salary	4	4
	Total	93	100
Monthly income	USD 0-20	20	26
	USD 21-100	39	42
	USD 101-300	23	25
	USD 301 and above	7	8
	Total	93	100

Source: Primary data

4.1.1 Gender, age and marital status

As shown in Table 4.1 above, the sample consisted of almost equal proportions of male (49 %) and female (51 %) respondents. Respondents were aged from 21 to 90 years. The total sample average age was 51 years. There were more married respondents (59 %) than unmarried ones (41 %).

4.1.2 Education, employment and income

The results in Table 4.1 above show that the level of basic education in the Zvimba community was quite high, with 97 % of the respondents having attained some kind of formal education. Of these, 54 % had secondary qualifications, while a significant number had reached primary education level (39 %). Only 4 % had obtained tertiary education.

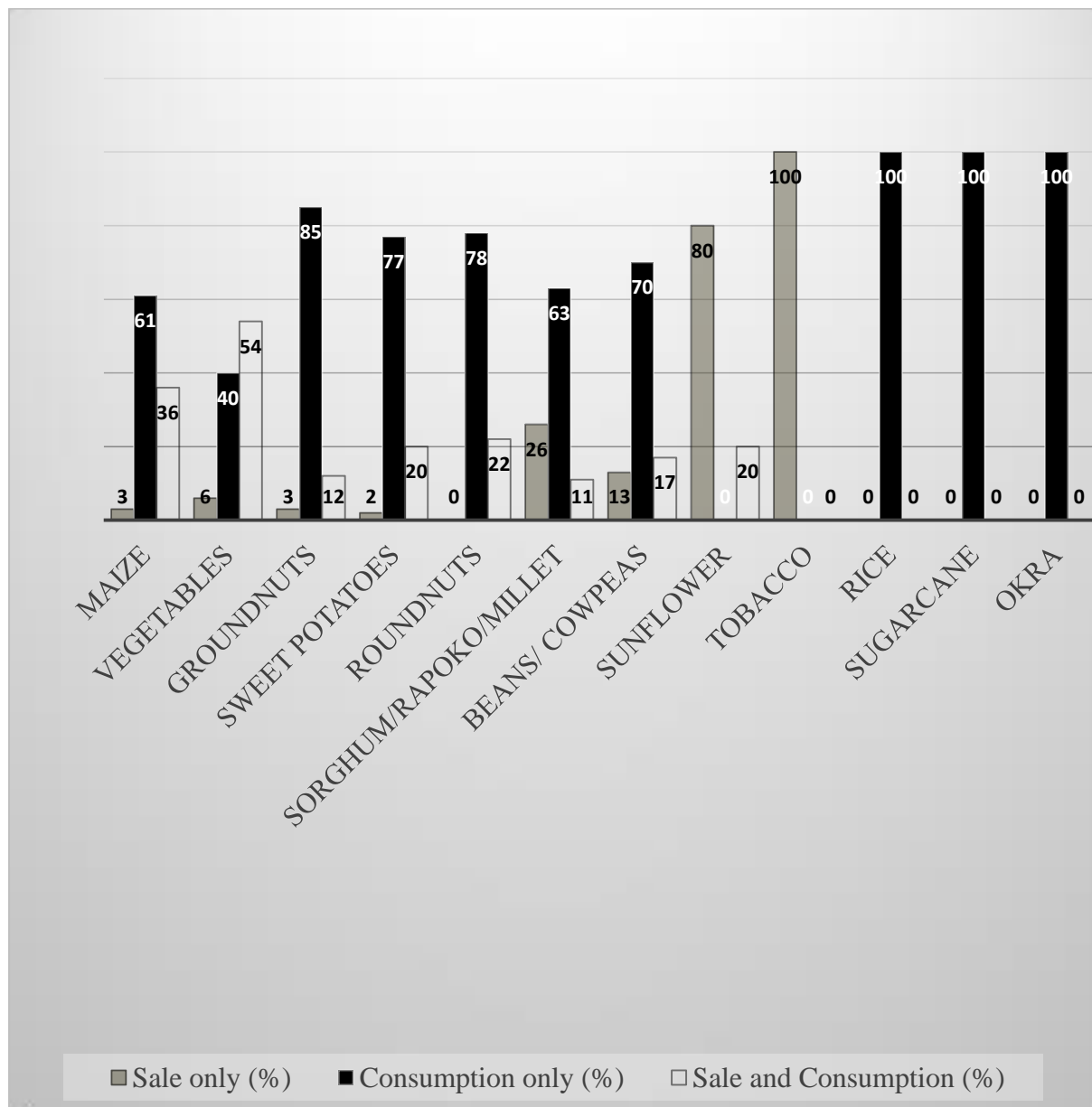
The data on the respondents' employment status also reveals that there are high levels of unemployment among respondents (84 %). The majority of the respondents (67 %) rely on farming as their main source of income, while remittances (11 %) and pensions (10 %) play a significant role for others. The average household monthly income of respondents in 2015 was generally low. Almost half of the respondents (42 %) reported that they earned an average household monthly income ranging between USD21 to USD100 in 2015, while 26 %

earned below USD20 per month. Only 8 % of the respondents reported a household monthly income of more than USD300.

4.2 Farming characteristics

The study ascertained that farming, which included both crop cultivation and livestock rearing, was a major activity in the Zvimba community. A profile of the sample’s farming characteristics is presented in **Error! Reference source not found.** and **Error! Reference source not found.**

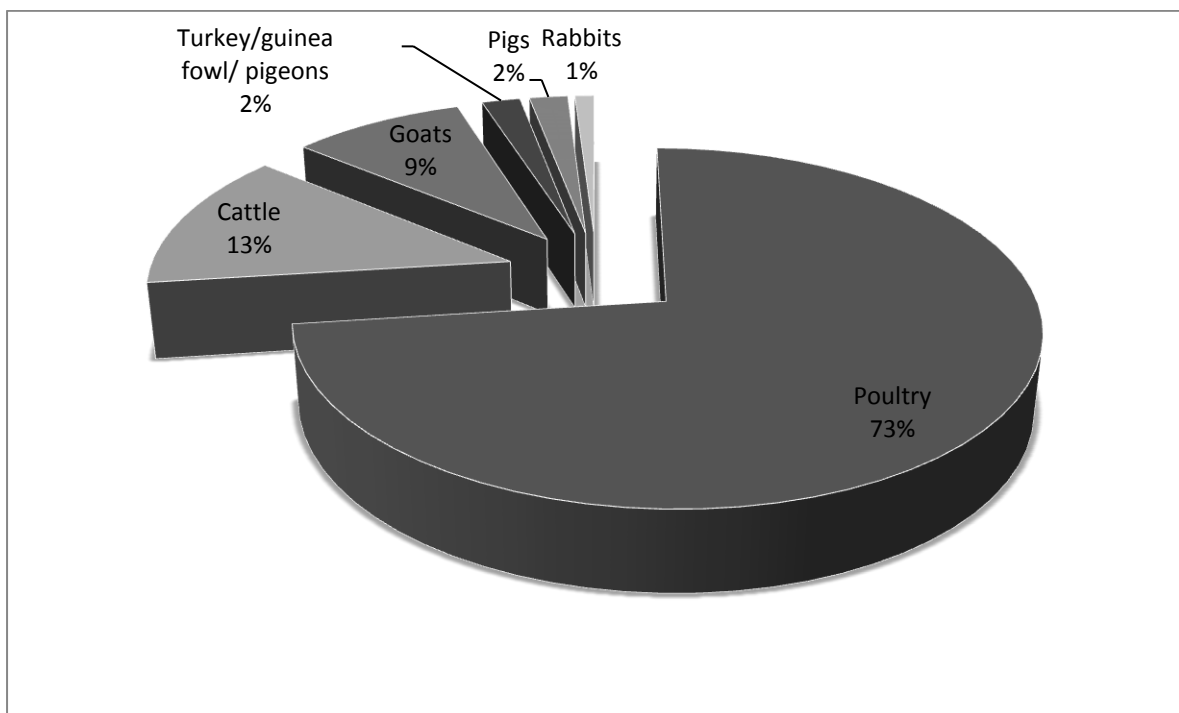
Figure 4.1: Crops grown per household in 2014/15 and the main reasons for cultivation (n=93)



Source: Primary data

Error! Reference source not found. shows the variety of crops grown in the Zvimba communal areas. For each crop that they are involved, respondents were asked the main reasons for growing the crop. The results indicate that to the majority of respondents the main reasons for growing crops was for consumption purposes. Tobacco was the only crop grown entirely for sale. Only 3% of maize growers grow it solely for cash while 61% depend on it for food. Farmers for crops such as sugar cane, rice and okra grew them just for consumption benefits only. These results show that in most cases, the major reasons for growing crops was primarily for subsistence benefits and only in the event of a surplus is when they would consider putting up the yield for sale.

Figure 4.2: Proportion of livestock kept in 2014/15 per household (n=93)



Source: Primary data

Besides crop production, the rearing of livestock in Zvimba is also a popular activity. The livestock kept includes cattle, goats, chickens, turkeys and pigs. This is shown in **Error! Reference source not found.** which reveals each type as a proportion to the total livestock kept per household. **Error! Reference source not found.** reveals that poultry contributes the largest proportion of livestock kept per household in the Zvimba community (73%) while rabbits contribute the least proportion (1%).

4.3 Profile of financial service providers used in 2014/15

To investigate the importance of mobile banking in providing basic financial services to rural people, the respondents were asked to indicate which institutions they used to save or borrow money from in 2014/15. The results are presented in Table 4.2.

Table 4.2: Trends and preferences for saving and borrowing in 2014/15

Question	Response	Frequency	Percentage (%)
Did you keep any money for future use?	Yes	46	49
	No	47	51
	Total	93	100
Where did you save your money?	Bank	5	11
	MB service provider	11	24
	At home	30	65
	Total	46	100
Did you borrow money?	Yes	56	60
	No	37	40
	Total	93	100
From whom did you borrow money?	Money lenders	1	2
	Bank	1	2
	Local businesses & retail shops	9	16
	Friends and family	45	80
	Total	56	100
How did you repay the money?	Cash	43	80
	In kind as produce	3	6
	In kind as labour	8	15
	Total	54	100

Source: Primary data

In terms of saving money, the results in Table 4.2 above show that almost half of the respondents saved money for future use and that the most-preferred place for these savings was at home (65 %), followed by mobile bank accounts (24 %). Banks, on the other hand, were the least-preferred saving place.

In terms of borrowing money, the results show that borrowing was generally a common occurrence in the Zvimba community (60 %). The most common source of loans was from friends and family (80 %), while the least-popular loan sources were banks (2 %) and moneylenders (2 %). Loans were repaid mostly in cash (80 %), while other means of repayment, such as provision of casual labour (15 %) and produce (6 %), were also an acceptable form of payment.

4.4 Traditional Banking versus Mobile Banking in the rural areas

Since mobile banking appears to be replacing traditional banks as the preferred service provider of basic financial services, the study investigated the respondents' use of traditional banking and mobile banking products in 2014/15. According to the results presented in Table 4.3 below, the study found that only 30 % of the respondents currently held an account with a banking institution. Of these, 75 % also held an account with a mobile provider. More than half (58 %) of those currently not holding bank accounts once held an account with a banking institution in their lifetime, and 92 % reported that they would still like to own a bank account.

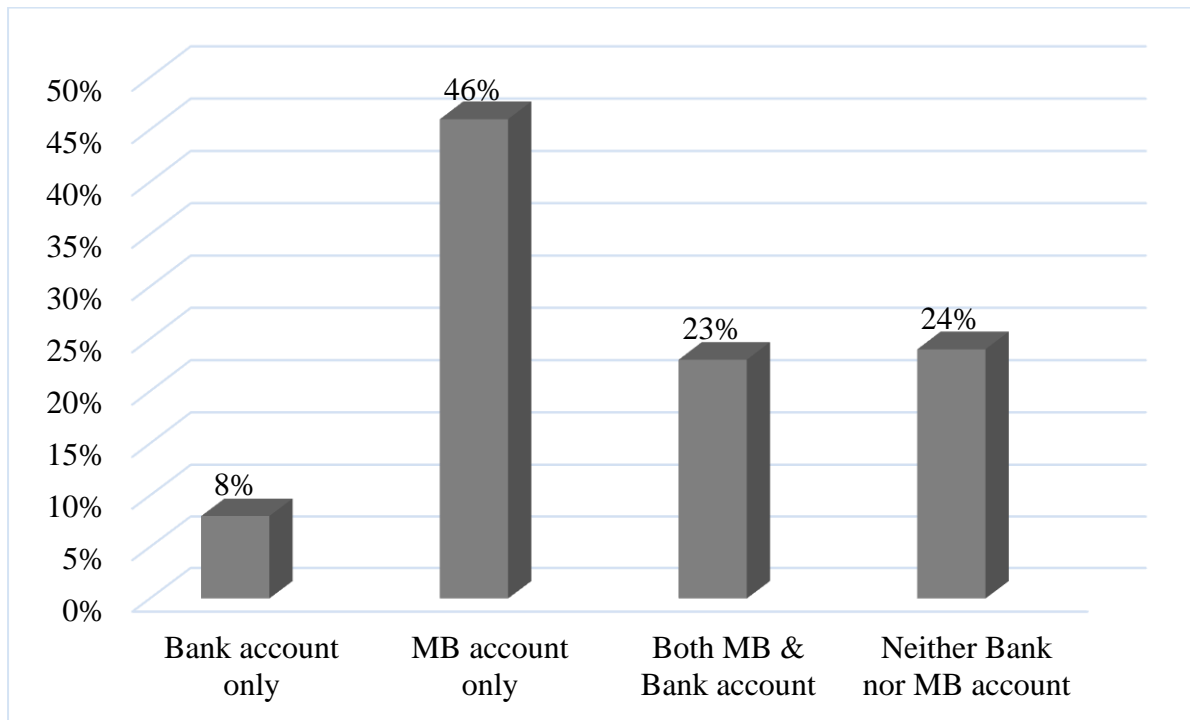
Table 4.3: Adoption and use of bank and mobile bank accounts

Variable	Response	Frequency	%
Do you currently have a bank account in own name? (n=93)	Yes	28	30
	No	65	70
Have you ever owned a bank account? (n=65)	Yes	38	58
	No	27	42
Would you like to own a bank account? (n=64)	Yes	59	92
	No	5	8

Source: Primary data

The study also compared respondents' use of mobile banking and bank accounts in 2015. As shown in **Error! Reference source not found.**, respondents preferred to use mobile banking service providers as their sole service providers (46 %), compared with using only formal banks (8 %) or a combination of both mobile banking and formal banks (23 %).

Figure 4.3: Usage of mobile and formal banking services (n=93)



Source: Primary data

Together, these results indicate a general trend of movement away from traditional banks towards mobile banking in the rural areas for accessing general banking services, such as saving, sending and receiving money. According to FinMark Trust (2015), the limited banking infrastructure and costs of banking products are the major barriers to financial access in Zimbabwe’s rural areas. According to this study, the popularity of mobile banking could be the result of lower transaction costs, greater accessibility, and lower costs per transaction. This also signals that mobile banking could potentially be a borrowing ground for users, and an avenue for offering many functions traditionally offered by banks.

4.5 Adoption and Uses of Mobile Banking

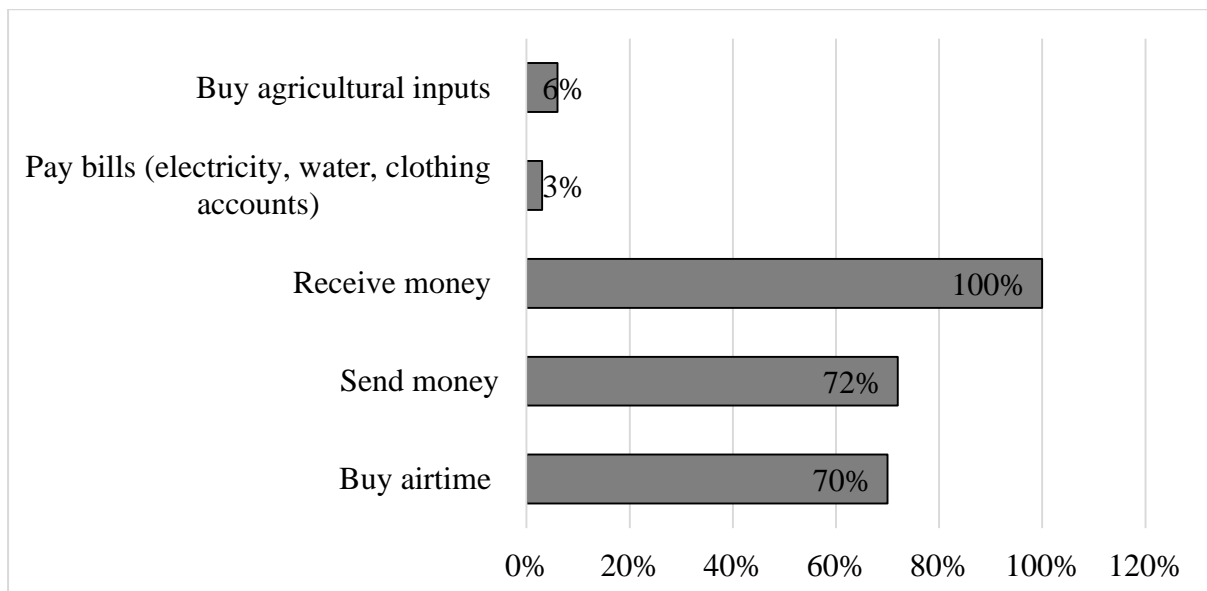
The adoption of mobile banking was generally high in the Zvimba community. More than three quarters (77 %) of those with mobile phones, that is almost 69 % of the entire sample, reported that they had used mobile banking services in the 2014/15 period. This is despite the fact that according to the study, the average distance that the respondents have to walk in order to access their nearest agent was 4.7 km. Econet and Telecel were the only mobile banking service providers used in Zvimba, according to the sample data. EcoCash, the mobile

product from Econet (92 %), was more widely used than TeleCash, provided by mobile service provider, Telecel (8 %). Moreover, 79 % of the non-user respondents expressed their willingness to adopt mobile banking.

4.5.1 Uses of Mobile Banking

According to Figure 4.4 below, mobile banking is used for a variety of purposes that include the sending and receiving of money, buying airtime and agricultural inputs, and paying bills. The most common use was to receive money (100 %) followed by sending money (72 %) and buying airtime (70 %). The least popular uses of mobile banking were buying agricultural inputs (6 %) and paying bills (3 %).

Figure 4.4: Uses of mobile banking (n=64)



Source: Primary data

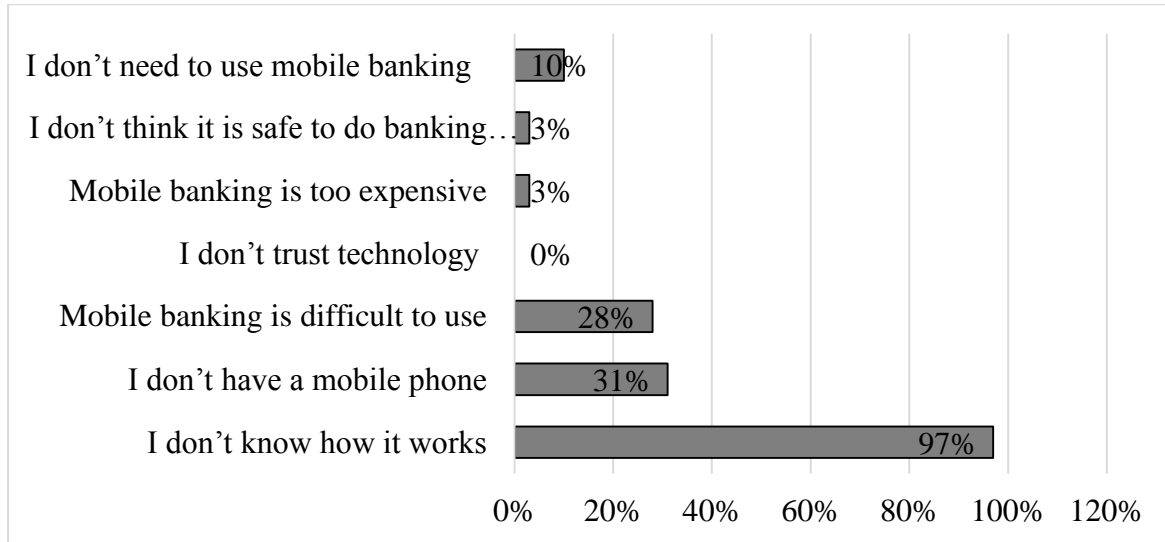
4.6 The main barriers to adoption of mobile banking

Generally, the rate of mobile banking adoption was high in the Zvimba community, coupled with a high willingness to adopt in the future for the non-users. However, in order to investigate the barriers to adoption of mobile banking, respondents were asked to indicate the major reasons for not using mobile banking from a list of reasons adopted from a previous study on mobile banking consumers from the Mobile Financial Services Report (2013).

Figure 4.5: Barriers to adoption (n=50)

shows that the major barrier to mobile banking adoption is the lack of knowledge on how it works (97 %), followed by not having access to a mobile phone (31 %), while 28 % expressed how difficult it was to use.

Figure 4.5: Barriers to adoption (n=50)



Source: Primary data

4.7 Effects of demographic characteristics on adoption of Mobile Banking

To investigate the constraints of socio-demographic characteristics on the adoption of mobile banking, adoption was cross-tabulated against each of these characteristics. Frequencies and chi-square statistics were used to provide meaningful information about the nature, strength and statistical significance of association between the cross-tabulated variables (Leedy & Ormrod, 2013).

In line with what is shown in Table 4.4, socio-demographic characteristics generally had a significant influence on the adoption of mobile banking. The only exception was gender. Yu (2012), in a study dealing with mobile banking literature, concluded that the findings concerning gender have been inconsistent. For example, a study in India (Nysveen et al., 2005) found that mobile banking adoption rates were higher among men than among women, while in Singapore, Riquelme and Rios (2010) recorded the opposite. In this study, gender has shown to be an insignificant factor, thus supporting earlier assertions that gender is not a useful moderating factor when looking at mobile banking adoption.

Table 4.4: Socio-demographic characteristics against mobile banking adoption

Variable	Frequency	χ^2 value	Chi-Square (sig.) at 5 % level
Gender	93	2.242	0.134
Marital status	93	7.844	0.005*
Education level	93	9.624	0.002*
Age group	93	10.695	0.005*
Income level	93	12.86	0.002*

Significant at 5 % level (*)

Source: Primary data

The sections that follow discuss each of the significant social variables in more detail.

4.7.1 Effects of marital status on adoption of mobile banking

To determine how marital status would influence the adoption of mobile banking, adoption status was cross-tabulated against gender. The results in Table 4.5 show that a higher proportion of those that adopted mobile banking were married, while their unmarried counterparts did not.

Table 4.5: Comparison between mobile banking adoption and marital status

Adoption of MB	Unmarried	Married	Total
Yes	20	44	64
	31 %	69 %	100 %
No	18	11	29
	62.1 %	37.9 %	100.0 %
Total	38	55	93
	40.9 %	59.1 %	100.0 %

Source: Primary data

These results imply that married people are more likely to adopt mobile banking than unmarried people are. This is in line with findings by Iddris (2013) in a study on mobiles in Ghana, where he concluded that rejection of mobile banking tended to be higher among unmarried couples, as compared with the married couples. Based on this finding, it is married

people who are more likely to be receiving money from, or, at a lower scale, sending money to their children in towns or in the diaspora.

4.7.2 Influence of education on mobile bank adoption

The cross-tabulation of mobile banking adoption against the level of education presented in Table 4.6 below shows that the greater percentage value of respondents who adopted mobile banking constituted respondents with secondary education or higher, compared with respondents with only primary level education or none. These results suggest that the adoption of mobile banking is likely to increase with an increase in the level of formal education.

Table 4.6: Comparison between mobile bank adoption and education

MB adoption	Primary level or none	Secondary education or higher	Total
Yes	20	44	64
	31.3 %	68.8 %	100.0 %
No	19	10	29
	65.5 %	34.5 %	100.0 %
Total	39	54	93
	41.9 %	58.1 %	100.0 %

Source: Primary data

Sim and Koi (2002) and Venkatraman (1991), among others, have also concluded that the first line of adopters of innovative technologies include young and educated individuals, before those technologies diffuse into the rest of the population.

4.7.3 Influence of income on mobile bank adoption

As presented in Table 4.7 , the cross-tabulation of adoption of mobile banking against monthly household income levels shows that, in terms of monthly household income, higher income households made up the larger proportion of mobile banking adopters than did low incomes households (USD20 and below), and the percentage value of mobile banking non-

adopters decreased with an increase in income level. These results suggest that rejection of mobile banking is likely to be increase as income levels decrease.

Table 4.7: Comparison between mobile bank adoption and household monthly income (USD)

MB adoption	0-20	21-100	>100	Total
Yes	10	28	26	64
	15.6 %	43.8 %	40.6 %	100.0 %
No	14	11	4	29
	48.3 %	37.9 %	13.8 %	100.0 %
Total	24	39	30	93
	25.8 %	41.9 %	32.3 %	100.0 %

Source: Primary data

4.7.4 Influence of age on mobile bank adoption

To determine the influence of age on the adoption of mobile banking, adoption status was cross-tabulated against age group. The results in Table 4.8 show, in terms of percentage share of mobile banking adopters, that respondents aged between 31 and 45 years constituted the largest share of adopters, while younger respondents aged below 30, and older respondents aged above 45, each constituted equally lower proportions (20 %) of mobile banking adopters. This suggests that there is a curvilinear relationship between age and adoption of mobile banking – the income-earning group was more likely to adopt mobile banking than younger, non-income earning group was. These findings are much in line with the conclusions of a study on Wizzit’s early mobile banking customers in South Africa, which found higher adoption rates among younger, wealthier, better educated, banked, employed people in non-farm sectors and urban residents (Ivatury & Mas, 2008).

Table 4.8: Comparison between mobile bank adoption and age

MB adoption	0-30	31-45	46-60	61+	Total
Yes	12	26	13	13	64
	18.8 %	40.6 %	20.3 %	20.3 %	100.0 %
No	3	6	4	16	29
	10.3 %	20.7 %	13.8 %	55.2 %	100.0 %
Total	15	32	17	29	93
	16.1 %	34.4 %	18.3 %	31.2 %	100.0 %

Source: Primary data

4.8 Influence of farming characteristics on mobile banking adoption

To determine the influence of farming characteristics on mobile banking adoption, mobile banking adoption was cross-tabulated against various farming characteristics. Again, frequencies and chi-square statistics were used to provide meaningful information about the nature, strength and statistical significance of association between the cross-tabulated variables (Leedy & Ormrod, 2013).

A summary of chi-square test results presented in Table 4.9 shows that farming characteristics had generally no influence on the adoption of mobile banking. The only characteristic with a significant correlation with adoption of mobile banking was the number of years in farming. The following section examines the relationship between farming experience and mobile banking adoption in more detail.

Table 4.9: Comparison between mobile bank adoption and farming characteristics

Variable	Frequency	Chi-Square value	Chi-Square (sig.)
Total farm size	93	1.473	0.479
Total cultivated area	93	0.745	0.689
Number of years in farming	93	6.905	0.032*
Number of crops grown for sale	93	1.65	0.438

Significant at 5% level

Source: Primary data

4.8.1 Influence of farming experience on mobile banking adoption

Mobile banking adoption was cross-tabulated against the number of years spent in farming. The results, presented in Table 5.10, show that of those who adopted mobile banking, the highest proportion consisted of respondents who had between 0 to 10 and 11 to 20 years of experience in farming. In the non-adopters group, those with more than 20 years of farming experience constituted the highest proportion, while those with less than 20 years constituted a lower proportion.

Table 5.10: Comparison between mobile bank adoption and farming experience

MB adoption	0-10	10-20	>20	Total
Yes	22	24	18	64
	34.4 %	37.5 %	28.1 %	100.0 %
No	8	5	16	29
	27.6 %	17.2 %	55.2 %	100.0 %
Total	30	29	34	93
	32.3 %	31.2 %	36.6 %	100.0 %

Source: Primary data

These results imply that respondents with less farming experience are more likely to adopt mobile banking, compared with those with more farming experience. Furthermore, less experience may also indicate younger respondents, thus supporting existing findings, mostly on M-Pesa in Kenya, that younger people, and in this case young farmers, are more likely to adopt new technology than older farmers are.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study concluded that branchless banking has been of great help in facilitating financial access in Zimbabwe's rural areas. The results of the study show that branchless banking is indeed playing a part in solving access problems for the low-income rural people, who are mostly dependant on agriculture. Through the study, mobile banking which is a major component of branchless banking was shown to bring high level of convenience to the rural people as compared to the traditional banking channels. Branchless banking proved to be quite affordable as it does not carry monthly charges and makes it possible to conduct smaller transactions. Moreover, mobile banking has helped to bridge the gap of mistrust in banks following the collapse of the formal banking system, which happened in Zimbabwe during the hyperinflationary period of 2008-2011.

However, it was also clear and evident from the study that branchless banking has its own limitations. Most uses for mobile banking was for transactional purposes only, involving money transfers and airtime purchases, while a small portion goes to purchases of agricultural inputs and other uses. This shows that the current mobile banking product still needs to be further developed into a diversified product that can be of more benefit to the farmers such as credit services and clear savings facilities. The current savings platform on mobile banking is not clear cut and user friendly to the ordinary person.

This study also explored the different social dynamics which affected the adoption of branchless banking in Zvimba. The significant factors included age, education, income, marital status and farming experience. Those who were younger, higher educated, had higher incomes, were married and were less-experienced in farming reflected a more significant correlation with mobile banking adoption. However, factors such as gender and farm size proved to be insignificant.

All these different dynamics can be of assistance to different role players and stakeholders in creating more comprehensive financial products and possible interventions for the benefit of smallholder farmers, in line with the bigger picture of empowering them against poverty and in support of a sustainable rural development.

5.2 Recommendations

While indications from this study have shown that branchless banking is a useful rural financial access tool for the small rural farmer, it will still need collaborative efforts and initiatives from the government, policy makers, banks and mobile service providers to be taken in order to utilise this opportunity to increase agricultural productivity. In light of the findings and conclusions from this study, the following recommendations were made:

- ❖ There is a need for the development of mobile banking into a package that is more encompassing in terms of the financial services provided. The current mobile banking products are mostly for transactional purposes only, yet the financial needs of smallholder farmers include services such as credit and loan facilities, insurance services, investment platforms and savings facilities. In order to develop this core product, there is a need for collaboration and engagement of all stakeholders, including MNOs, the government, the public, and farmer organisations, which can help inform product design according to the farmers' needs. An initiative, such as a product design workshop, might help bridge this gap.
- ❖ In order to promote further adoption, there is need for mobile bank service providers to consider a segmentation approach when it comes to marketing strategies, targeting potential users that fall within the categories of low income, less educated, elderly, and more experienced in farming. This is in response to the study results, which showed lower adoption rates among these groups.
- ❖ Further investment in mobile banking and on-going research is also needed to capture and better understand the local farmers' needs and existing systems. This could prove useful when designing appropriate products and strategies for increasing customer uptake.
- ❖ There is a need for the government to create an enabling legal and regulatory environment for the various mobile services providers, which will also promote fair competition and rural development.

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ANNEXURE A: SURVEY INSTRUMENT

Date.....

Consent for participation in an academic research study by:

Mr Munyaradzi Majoma

Faculty of Agricultural and Natural Sciences

Department of Agricultural Economics, Extension, and Rural Development

University of Pretoria

Pretoria

TITLE: The role of branchless banking in smallholder agriculture in Zimbabwe

Dear Respondent

Munyaradzi Majoma is a student from the **University of Pretoria** who is involved in an academic research on the above stated topic. You are kindly requested to participate in the survey/interview. The purpose of the study is to assess the awareness, general perceptions and use of branchless banking on Zimbabwe's smallholder rural communal farmers

We will present you with a set of questions as part of the interview, which will take approximately 20-30 minutes to be completed. Your participation in responding will be highly appreciated. We also assure you, that:

1. We will treat all your responses with confidentiality with no links to your identity.
2. We will use your information for research purposes only.

3. Your participation is on a voluntary basis and there will be no negative consequences should you wish not to participate or to discontinue your participation anytime during the interview.

If you would like to participate in the survey, please sign in the space provided below to indicate that:

1. You have read and understood the information provided above
2. You have agreed to participate in this survey on a voluntary basis

Do you have any questions before we start?

Name

Signature

Start Time.....

End Time.....

SECTION A: GENERAL INFORMATION:

1. Fill in the information asked for in the following table on the general information

Required Information	Response
Questionnaire entry number	
Name of Interviewer	
Relationship to household head	
District	
Ward	
Village	

SECTION B: DEMOGRAPHIC INFORMATION

1. The purpose of this section is to gather more information about you and your household. Please select the response which **best** describes your situation. *Use the key below the table to guide you*

Age	Sex 1=Male 2=Female	Marital Status	Highest Education Level	Professional Employment status 1=Yes No= 0	Type of Employment (Specify)	If not employed what is the main source of Income

Key

B03

1=Single
2=Married
3=Divorced or separated
4=Widowed

B04

1= No formal education
2= Primary education
3=Secondary education
4= Tertiary/higher
5= Other

B07

1= Farming
2= Pension
3=Government grants
4=R emittances
5= Other

2. What is your **personal** average monthly income?

- a. 0- US\$20 b. US\$20 – US\$100 c. US\$100-\$300 d.US\$300+

3. I will now ask you to provide a few more details regarding the size, ages and employment status of members of this household including yourself. *A household member is anyone who has stayed in this household for at least four nights a week for the last four weeks (month). *Fill in the details in the table provided below. All responses must be in numbers*

[Enumerator: Begin each question by saying: “What is the number of ... [read out the question]”

Question	Response
a. Number of people living in this household including yourself	
b. Children below 16 years old	
c. Adults aged between 16 and 64 years of age	
d. Adults aged 65 and above	
e. Employed	

SECTION C: LAND USE AND PRODUCTION PROFILE

Fill in the information asked for in the following questions and tables about land use and agricultural production

1. State the number of years in farming.....

2. Indicate the **size** of your farming unit in hectares in the table below

	Number of hectares
Total size of farming land	
Cultivated land	

3. Fill in the table below on crop and livestock production for the last farming season

Main crops grown	Tick	Reason for growing crop	Type of Livestock kept	Number of livestock
Maize			Cattle	
Cotton			Goats	
Groundnuts			Sheep	
Vegetables			Poultry	
Other(specify)			Other(specify)	

Key: Reasons for growing crop 1=cash crop, 2= food security, 3= highly profitable, 4=easily marketable, 5= not labour intensive, 6= easily accessible inputs, 7= other (specify)

SECTION D: BANKING PROFILE

We are going to talk about your use of various banking products and services. We want to understand which products or accounts are in your name.

1. Fill in the table below on banking status

Do you have a bank account in your name? 0=No 1=Yes	If answer to D01 , is <i>No</i> , proceed from D04 to D05		Have you ever owned a bank account before? 0=No 1=Yes	Would you like to have a bank account? 0=No 1=Yes
	Where do you typically (most often) withdraw money? 1=Bank teller 2=ATM 3=Point of Sale 4=Agent 5=Other(specify)	Do you borrow from your bank account? 0=No 1=Yes		
D01	D02	D03	D04	D05

Can you provide information on how you access the following financial services?

2. Do you keep money for future use? 1=yes, 2=no

3. Where and how do you save your money? 1= at home, 2=in kind (purchase livestock), 3= give friends and family for safe keeping, 4= lend it out, 5= in a savings group, 6= bank, 7. Other (specify).....
4. Do you borrow money? 1=yes, 2= no
5. Who do you borrow from? 1= friends and family, 2= local businesses and retail shops, 3= cooperatives, 4=social groups, 5= money lenders, 6=bank, 7. Other (specify).....
6. What method do you use to repay loans that you borrow? 1= cash, 2= bank transfers, 3= in kind (produce), 4= in kind (labour), 5= other (specify).....

SECTION E: BRANCHLESS BANKING USAGE

Cell-phones are being used for more and more things in daily life. We would now like to ask you some questions about using your cell-phone for financial activities

1. Fill the table(**below**) on cell-phone ownership and usage

Do you own or have access to a cell-phone? 0=No 1=Yes	If answer to E03 , is <i>No</i> , go to question 4		Are you registered under any of the mobile bank product? 0=No 1=Yes	If <i>Yes</i> , which provider are you registered under?	Do you generally send, receive, or do both send and receive?	What is the distance to your nearest agent when you want to send or receive money
	Which of the following services do you use it for?	Do you use mobile banking? 0=No 1=Yes				
E01	E02	E03	E04	E05	E06	E07

Key

E02

- 1=Voice calls
- 2=Sms services
- 3=Internet (whatsapp/facebook)
- 4=Other (specify)

E06

- 1= Send money
- 2=Receive money
- 3=Both

E05

- 1= Ecocash
- 2= Telecash
- 3= One wallet
- 4= Cellcard
- 5= Texta cash
- 6=Other (specify)

MOBILE BANK USERS

2. If you own a cell-phone, which of these activities do you currently use your cell phone for (Fill in the appropriate answer)

Activity	Yes/No
Buying airtime	
Send money by cell-phone	
Receive money by cell-phone	
Checking your bank balance or bank statement	
Paying bills like water, phone	
Paying for farm inputs	
None of these(<i>single mention</i>)	

3. I am now going to read out a number of statements. After I read out each statement, please tell me how much you agree with the statement. Tell me if you ... [*Read out the scale*] 1-Least true and 5-Most true

- 1 = Strongly Disagree 2 = Somewhat Disagree 3 = Not sure
 4 = Somewhat Agree 5 = Strongly Agree
 NB= **Applicable to Mobile bank users**

[*Fill in score in score boxes at end of each statement*]

Perceptions on mobile banking	Score
a) Mobile banking is easy to access	
b) Mobile banking is more affordable	
c) I trust cell-phones as a way of doing banking	
d) I trust the company offering the service (my personal information and money is safe)	
e) It saves time	
f) Use of cell-phones is a useful thing in farming	

4. Which factors do you think are most important in the adoption of mobile banking? Rank of the following choices (1 –Least important to 6 – Most important) according to your concerns when using mobile banking services



	1	2	3	4	5
Security Concern/Risk					
Reliability/Trust					
Cost					
Usefulness					
Ease of use					

NON MOBILE BANK USERS

5. You indicated that you do not currently use mobile banking, what are the main reasons why you have decided not to use mobile banking

Reason	Tick
I don't know how it works	
I don't have a phone	
It is too difficult to use a phone to do mobile banking	
I don't trust the technology	
It is too expensive	
I don't think it is safe	
I don't need it	
Other	

6. If you get the chance, are you **willing to use** it? 1= yes, 2= no,

Thank you so much for your time. We appreciate your participation in this survey. For any questions or comments regarding this survey, please contact our study leader, Prof A. Louw on tel. +27 12 420 5772 or e-mail: andre.louw@up.ac.za.