

**MOBILE MONEY, FINANCIAL INCLUSION AND LIVELIHOODS OF AGENTS IN
ZAMBIA**

BY

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**A Thesis submitted to the University of Zambia in fulfilment of the requirements for the
Degree of Doctor of Philosophy in Economics**

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CERTIFICATE OF APPROVAL

This thesis by Edna Kabala has been approved for the partial fulfilment of the requirements for the Degree of Doctor of Philosophy in Economics by the University of Zambia.

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ABSTRACT

Mobile money is widely renowned for its positive contribution to financial inclusion and improvements in welfare of users. Yet, little is known about how mobile money contributes to financial inclusion and improved livelihoods of mobile money agents as individual users and key players in financial inclusion processes in Zambia. The study is founded on the Technology Acceptance Model (TAM) and adopts an eclectic or mixed methods approach to investigating the link between mobile money, financial inclusion and livelihoods in Zambia. A cross section survey and exploratory research design was used with a focus on 97 agents that were sampled through a multi-stage mixed sampling procedure from Kitwe and Kalulushi. The study employed primary data collected through structured questionnaires and secondary data sourced from the Bank of Zambia and Zambia Information and Communications Technology Authority. Descriptive statistical analysis in the study availed the presentation of results in tables and graphs coupled with explanation to amplify understanding. Logistic regression analysis was performed to explain the determinants of mobile money adoption among agents in Kitwe and Kalulushi. Ethnographic content analysis was used to explain how mobile money affects the indicators of livelihoods of agents such as quality of water, shelter, food, education, health and acquisition of assets. A major finding is that mobile money contributes to financial inclusion of agents. The adoption of personal mobile money accounts, is significantly determined by education level, number of years agents have been in business, perceived usefulness of mobile money technology and perceived ease of use of personal mobile money accounts. The results in the study also indicate that mobile money plays a critical role in boosting savings and improving the livelihoods of agents. The findings in the study also confirm that mobile money is the most affordable payments system in Zambia and would be useful for serving the financial inclusion needs of low-income earners and poor people. Based on the results, the study recommends that mobile money agents should be given tax and income incentives to offer inclusive financial services in rural parts of Zambia where the poorest and most vulnerable people reside.

DEDICATION

This thesis is dedicated to the loving memory of my parents, John Chibuye Kabala and Janet Kombe Kabala who taught me the value of hard work and commitment to tasks.

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TABLE OF CONTENTS

COPYRIGHT	i
DECLARATION	ii
CERTIFICATE OF APPROVAL	iii
ABSTRACT	iv
DEDICATION	v
ACKNOWLEDGEMENTS	vi
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ACRONYMS	xiv
CHAPTER ONE: INTRODUCTION	1
1.1 Introduction	1
1.2 Statement of the Problem	3
1.3 Research Questions	5
1.4 Objectives	5
1.5 Contribution of the Study	6
1.6 Scope and Organisation of the Study	8
CHAPTER TWO: BACKGROUND	11
2.1 Introduction	11
2.1.1 The Concept of Financial Inclusion	11
2.1.2 Financial Inclusion and Exclusion	13
2.1.3 Financial Inclusion, Inequality and Poverty Trends in Zambia	15
2.2 Mobile Telecommunications and Mobile Money Market in Zambia	20
2.2.1 The Emergence of Mobile Money in the Financial Development of Zambia	23
2.2.2 Agents and the Expansion of Mobile Money	24
2.2.3 State of Mobile Money in Zambia	32
2.3 Regulatory Framework of Mobile Money Technology	36
2.4 Conclusion.....	40

CHAPTER THREE: THEORETICAL AND EMPIRICAL LITERATURE REVIEW41

3.1	Introduction	41
3.2	Theoretical Literature Review	41
3.2.1	The Theory of Financial Deepening	42
3.2.2	The Technology Acceptance Model.....	46
3.2.3	The Diffusion of Innovation Theory	51
3.2.4	Transaction Cost Theory.....	54
3.3	Conceptual Framework	58
3.4	Empirical Literature	60
3.5	Chapter Summary and Research Gap	67

CHAPTER FOUR: PHILOSOPHY AND METHODOLOGY OF THE RESEARCH69

4.1	Introduction	69
4.2	The Nexus Between Methodology and Philosophy of Research	69
4.3	A Brief Review of Various Types of Research Philosophies	71
4.3.1	Positivism.....	73
4.3.2	Interpretivism	78
4.3.3	Pragmatism	82
4.3.4	Humanism.....	85
4.4	Methodological Implications of the Research Based on Philosophical Foundation	88
4.5	Research Design and Approach.....	89
4.6	Target Population.....	91
4.7	Sample and Sampling Technique	91
4.8	Sampling Technique	93
4.9	Data Collection Techniques	98
4.10	Questionnaire Design.....	99
4.11	Ethnographic Methodology in the Study	100
4.12	Application of Ethnographic Methods in the Study	101
4.13	Conclusion.....	102

CHAPTER FIVE: DATA ANALYSIS, FINDINGS AND DISCUSSION	104
5.1 Introduction	104
5.2 Descriptive Analysis of Socio-Economic Characteristics of the Sample.	104
5.2.1 Age Distribution of Mobile Money Agents	105
5.2.2 Gender Distribution of Mobile Money Agents	107
5.2.3 Marital Status of Mobile Money Agents	108
5.2.4 Education Level of Mobile Money Agents.....	109
5.2.5 Employment Status of Mobile Money Agents.....	111
5.2.6 Number of Years in Mobile Money Business.....	112
5.2.7 Name of Mobile Money Service that Agents Use	113
5.2.8 Number of Booths that Mobile Money Agents Operate.....	114
5.2.9 Number of People Employed by Mobile Money Agents	116
5.2.10 Ownership of Personal Mobile Money Account by Agents	117
5.2.11 Purpose of Personal Mobile Money Account	118
5.2.12 An Agent: The Description from Sample Evidence.....	119
5.3 Determinants of Mobile Money Adoption Among Mobile Money Agents.....	120
5.3.1 Empirical Specification	121
5.3.2 Results and Discussion	122
5.4 Comparison of Mobile Money and Other Payment Systems	130
5.5 Mobile Money and Livelihoods of Agents: An Ethnographic Analysis.....	134
5.6 Convergence of the Quantitative and Qualitative Approaches and Results	141
5.7 Conclusion.....	143
CHAPTER SIX: CONCLUSIONS AND POLICY RECOMMENDATIONS	144
6.1 Introduction	144
6.2 Summary of the Study.....	144
6.3 Summary of Key Findings	146
6.3.1 Determinants of Mobile Money Adoption among Agents in Kitwe and Kalulushi .	146
6.3.2 Mobile Money and the Savings of Agents in Kitwe and Kalulushi.....	148
6.3.3 Mobile Money and Livelihoods of Agents	148
6.3.4 Comparison of Mobile Money and Other Payment Systems	149

6.4	Conclusions	150
6.5	Policy Recommendations	151
6.6	Limitations of the Study	152
6.7	Areas for Future Research	153
	REFERENCES.....	155
	APPENDICES	184
	APPENDIX I: STATA Outputs	184
	Table A2: Logistic Regression: Determinants of Mobile Money Adoption Among Mobile Money Agents	185
	Figure A1: Cumulative Density Function	186
	Figure A2: Kernel Density Estimate	187
	Appendix II: Questionnaire.....	188

LIST OF TABLES

Table 4.1: Classification of Sample of Agents by Mobile Money Provider	97
Table 4.2: Classification of Sample by location	97
Table 4.3: Classification of sample (Network vs. Location).....	98
Table A1: Logit Regression: Determinants of Mobile Money Adoption Among Mobile Money Agents	184
Table A2: Logistic Regression: Determinants of Mobile Money Adoption Among Mobile Money Agents	185

LIST OF FIGURES

Figure 2.2: Mobile Market Players and Coverage in Zambia (%).....	20
Figure 2.3: Mobile Telecommunication Absorption (%).....	22
Figure 2.4: Hierarchy of Mobile Money Service Provision	26
Figure 2.5: Trends in Growth of Mobile Money Transactions in Zambia	28
Figure 2.6: Comparison between Registered and Active Mobile Money Accounts.....	29
Figure 2.7: Financial Sector Players and Contribution to Financial Inclusion (%)	30
Figure 2.8: Mobile Money Services Offered by Airtel, MTN and Zoono	35
Figure 3.1: The Technology Acceptance Model	50
Figure 3.2: Conceptual Framework of the Study.....	60
Figure 4.1: Research Onion and Research Philosophies.....	72
Figure 5.1: Distribution of Age of Mobile Money Agents (%).....	106
Figure 5.2: Gender Distribution of Mobile Money Agents (%)	107
Figure 5.3: Marital Status of Mobile Money Agents (%)	108
Figure 5.4: Education Level of Mobile Money Agents (%).....	110
Figure 5.5: Employment Status of Mobile Money Agents (%).....	111
Figure 5.6 Distribution of Number of Years in Mobile Money Business (%)	112

Figure 5.7: Name of Mobile Money Service Used by Agent (%)	113
Figure 5.8: Number of Mobile Money Booths Controlled by Agent (%).....	115
Figure 5.9: Number of People Employed by Mobile Money Agents (%)	116
Figure 5.10: Ownership of Personal Mobile Money Account by Mobile Money Agents (%) ...	117
Figure 5.11: Purpose of Personal Mobile Money Account (%)	118
Figure 5.12: Growth of Mobile Money and other Payment Systems (ZMW Billions)	131
Figure 5.13: Share of Mobile Money in Payment Systems Portfolio (ZMW Billions)	132
Figure 5.14: Average Cost of Payment System (Jan 2012 – Dec 2021).....	133

LIST OF ACRONYMS

ATM	Automated Teller Machine
BoZ	Bank of Zambia
CSO	Central Statistical Office
EFT	Electronic Funds transfer
FSD	Financial Sector Deepening
GDP	Gross Domestic Product
GSMA	GSM Association
HDI	Human Development Index
ICT	Information and Communications Technology
LCMS	Living Conditions Monitoring Survey
MM	Mobile Money
MNO	Mobile Network Operator
PEOU	Perceived Ease of Use
POS	Point of Sale
PU	Perceived Usefulness
TAM	Technology Acceptance Model
UNCDF	United Nations Capital Development Fund

USD	United States Dollar
ZESCO	Zambia Electricity Supply Corporation
ZICTA	Zambia Information and Communications Authority
ZMW	Zambian Kwacha

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Financial inclusion, which broadly identifies the access to and usage of affordable financial services, is a topical issue among policy makers and researchers globally (IMF, 2014; Arun and Kamath, 2015; World Bank, 2016). Substantial theoretical and empirical evidence exists to justify why access to finance is critical to household welfare, poverty reduction, reduced inequality, improvement of enterprise performance and economic growth (King and Levine, 1993; Hulme and Mosley, 1996; Beck et al., 2007; Fafchamps and Schündeln, 2013; Aron, 2015; Kuriakose and Iyer, 2015; Mohammed et al., 2017). Financial inclusion, through notable innovations such as mobile money, is therefore often regarded as an ingredient in the achievement of sustainable development.

Advocates of the UN Agenda 2030 particularly emphasise that broad-based financial access is a long-term solution to poverty. Yet, access to finance is continuously faced with barriers that inhibit economic agents from realising the benefits of using financial services (Demirgüç-Kunt et al, 2015). Common barriers include the costs associated with operating bank accounts, proximity to financial service providers and the time it takes for individuals to be provided with various financial services. Evidence suggests that innovations such as mobile money improve access to finance by bringing financial services in close proximity to people (Donovan, 2012; Yawe and Prabhu, 2017; Aron, 2018). This evidence confirms that by availing affordable financial services to a wider population, such as transferring of money across regions in a country, payment of bills and saving money on platforms such as mobile money, improves people's livelihoods (Morawczynski, 2009; Takahashi, 2016; Mohammed et al., 2017; Aron, 2018). Furthermore, it is

anticipated that as financial inclusion increases, critical beneficiaries of such inclusion, would register improved welfare (Ministry of Finance and National Planning, 2017; Mohammed et al., 2017).

Yet, evidence is mixed on the welfare implications of financial inclusion in terms of whether or not financially included individuals certainly record improved livelihoods (Diagne and Zeller, 2001). The available evidence does not clearly identify the nature of the benefits to those who are financially included and whether or not such benefits are transitory or permanent (Khandker and Samad, 2013). The absence of data on financial inclusion and mobile money in developing countries exacerbates the ability of researchers to arrive at reasonable causal inferences. Available evidence recognises the use of cross-country data that conceals country-specific differences. In this case, there is a lack of specific reference to how the mobile money facility affects the welfare of the crucial links in financial inclusion such as mobile money agents (Beck et al, 2007; Honohan, 2008; de Bruijn et al., 2017). Clearly, for countries like Zambia, recent data indicates that overall financial inclusion has risen from 59.3 percent in 2015 to 69.4 percent in 2020. Similarly, the contribution of the use of mobile money to overall financial inclusion in Zambia increased from 14 percent in 2015 to 58.5 percent in 2020 (FSD, 2020). However, it is not known how this increase in financial inclusion has impacted on the livelihoods of mobile money agents as drivers of inclusive finance in the country.

In contributing to the growing body of literature, this study aims at investigating the influence of mobile money on financial inclusion and livelihoods of mobile money agents in Zambia. While employing the eclectic research philosophy, the study made use of the mixed quantitative and qualitative methods to gain in-depth insights into the relationship between mobile money and financial inclusion. Due to data availability constraints on mobile money agents and livelihoods,

and consistent with and Sarma (2008), Kumar (2013) and Beck (2016), the study generated primary data collected through the use of a questionnaire. Based on the primary data collected, the determinants of mobile money adoption among agents were established through logistic estimation of the Technology Acceptance Model (TAM). Moreover, the study narrowly employed formal banking sector payments secondary data from the Bank of Zambia. This provided a basis for the descriptive statistical analysis that generated a macro level comparison of mobile money with other payment systems. Thereafter, insights on how mobile money usage as a tool for financial inclusion affects livelihoods of agents is qualitatively assessed through ethnographic techniques such as in-depth interviews of agents and observation. Therefore, this research contributes new evidence in the emerging mobile money and financial inclusion literature in Zambia.

1.2 Statement of the Problem

Financial inclusion is identified as a key ingredient in reducing economic and social vulnerability in poverty alleviation strategies that concern poor and vulnerable groups of people (Aron, 2015; Kuriakose and Iyer, 2015; Ministry of Finance and National Planning, 2017). Substantial literature demonstrates that communities with access to affordable savings and transactions instruments experience increased savings, productive investments, increased consumption, more participation of female individuals in the economy, reduced inequality and positive growth (Aportela, 1998; Beck, et al., 2007; Allen et al., 2012; Ministry of Finance and National Planning, 2017). Financial and technical resources have therefore been directed towards support of innovations that promote the access to banking of the unbanked populations. Lack of access to and usage of affordable financial services presents barriers to opportunities that promote secure livelihoods such as financial planning, ability to boost savings and investments among the financially excluded. A

notable innovation that is argued to enhance financial inclusion has been the introduction of mobile money services.

While overall financial inclusion stands at about 69.4 percent, mobile money accounts for 58.5 percent of national financial inclusion in Zambia (FSD, 2020). The popular usage of mobile money services can be attributed to the high mobile phone usage and mobile money services being affordable and accessible to low income groups (Muisyo et al., 2014; ZICTA, 2020). Access to mobile money usage is particularly hailed for benefits such as affordability, reliability and efficiency for its services such as cash deposits, cash withdrawals, person to person cash transfers, purchase of airtime, remittance of funds across regional boundaries and payment of bills, among others (Ndiwalana, et al., 2010; Donovan, 2012; Aron, 2015). Must and Ludwig (2010) argue that mobile money services can serve as a poverty reduction tool for users such as mobile money agents by increasing savings rates, creating jobs, and increasing access to financial products offered by microfinance institutions.

Despite the potential of the usage of mobile money services to aid financial inclusion (BoZ, 2015; Muisyo et al., 2014), little is known about how mobile money usage contributes to improved livelihoods of mobile money agents as frequent mobile money users and key players in financial inclusion processes. Mobile money agents are required to open and use mobile money accounts to perform financial services for themselves and other individuals. The mobile money agents also extend the usage of mobile money services across geographical spaces in exchange for commission incomes. Therefore, these agents are expected to benefit from such participation in the financial system through infrastructure provided by mobile money providers. During this process, mobile money agents earn commission incomes for transactions done using their accounts, thereby offering more opportunities for increased personal savings and investment as aspects of improved

livelihoods. Yet, establishing the extent to which mobile money agents are indeed financially included at individual level, in isolation of their obligations in the business of mobile money, remains a basis for empirical inquiry. Further, it is still unclear how financial inclusion of mobile money agents contributes to improvements in their welfare. This study investigates the relationship between mobile money, financial inclusion and livelihoods of mobile money agents in Zambia.

1.3 Research Questions

The research seeks to answer the following research question: to what extent does mobile money usage facilitate financial inclusion and possibly improve the livelihoods of mobile money agents in Zambia?

Specifically, the study aims to provide answers to the following questions:

- i) What are the determinants of mobile money adoption among mobile money agents?
- ii) What is the effect of mobile money usage on personal savings of mobile money agents?
- iii) How does mobile money usage affect the livelihoods of mobile money agents?
- iv) How does the mobile money payment system compare with other payment systems on a macroeconomic level in Zambia?

1.4 Objectives

In order to address the research questions that were identified in the study, the research had the following objectives:

- i) To investigate the determinants of mobile money adoption among mobile money agents.
- ii) To examine whether mobile money usage boosts the savings of mobile money agents.

iii) To establish how mobile money usage affects the livelihoods of mobile money agents.

iv) To assess how the mobile money payment system compares with other payment systems on a macroeconomic level in Zambia.

1.5 Contribution of the Study

This study makes several innovative contributions to the empirical question of how financial inclusion through mobile money usage improves the livelihoods of users such as mobile money agents. First, this is an important investigation relevant to financial inclusion policy in Zambia. The findings in this research will positively enrich policy assessment and information on the extent to which financial inclusion through mobile money usage improves livelihoods of economic agents. This helps in informing policy on the real impact of financial sector deepening channels such as mobile money usage.

The thesis also makes a microeconomic contribution of focusing on mobile money agents as opposed to many similar studies that take a macroeconomic perspective (Beck et al., 2000; Levin et al., 2000; Beck and Demirgu-Kunt, 2008; Kabala and Seshamani, 2016). Many studies on inclusive finance using mobile money have largely concentrated on mobile network operators and mobile money customers, leaving out investigations on the welfare impact of mobile money on key players such as mobile money agents (Hughes and Lonie, 2007; Pesa, 2016). This study departs from such studies by using a survey at the micro or agent level to investigate the extent to which livelihoods of mobile money agents improve as they participate in the financial inclusion processes.

Contextually, there is also a scarcity of scholarly studies done on mobile money services and financial inclusion in Zambia. This is with the exception of Frederick (2014) who investigated the

impact of mobile money on micro enterprises in Zambia. Further, Kabala and Seshamani (2016) only addressed mobile money and poverty reduction in Zambia using a desk review. The findings in this study promise to make a positive contribution to the literature on financial inclusion and welfare of mobile money agents in the Zambian context.

The study further employs qualitative and quantitative techniques in the methodology as implied in the adoption of an eclectic research philosophy. This is a unique contribution given that most studies rely only on quantitative approaches to investigating financial inclusion and welfare (Beck et al., 2000; Honohan, 2008; Sarma, 2008; Mehrotra, et al., 2009; Chakravarty and Pal, 2010). Evolving innovations such as mobile money may particularly impact the peoples' lives in ways that can be assessed qualitatively and quantitatively. The extent to which this impact on people's lives occurs, is an important contribution that the qualitative approach will seek to bring out in this study. The use of ethnographic techniques such as observations, focus groups discussion and diary logging with mobile money agents is a unique approach that adds in-depth insights into reasons for mobile money adoption among mobile money agents.

Moreover, on a macro level, it is not known how mobile money compares with other forms of payment settlement system as a conduit for financial inclusion. The study employs secondary data from the Bank of Zambia to establish how mobile money compares with other payment systems such as electronic funds transfers (EFT), point of sale (POS), automated teller machines (ATM), Cheques and remittances. This study employs an eclectic or mixed methods approach to the overall investigation of financial inclusion and welfare while noting that the existing financial inclusion studies are conducted from a quantitative perspective (Honohan, 2008; Sarma, 2008; Mehrotra, et al., 2009; Chakravarty and Pal, 2010; Big Lottery Fund, 2018).

Finally, the study also generates new data on determinants of mobile money adoption using the econometric estimation of the Technology Acceptance Model based on a cross sectional survey of mobile money agents. The study makes this contribution while acknowledging that access to mobile money services through mobile phone technology does not guarantee usage by mobile money agents (Beck, 2016). However, for mobile money agents that use mobile money and are actively included in the financial system, this may translate into improved livelihoods and makes a case for investigation. These contributions motivate the need for an inquiry into the relationship between mobile money, financial inclusion and livelihoods of mobile money agents in Zambia.

1.6 Scope and Organisation of the Study

The study conducts a survey in two districts of the Copperbelt Province. This is because at the provincial level, financial inclusion was highest in Lusaka (87.4 percent) and the Copperbelt (79.9 percent) (BoZ, 2015; FSD Zambia 2020; Lwanga, 2021). However, Kitwe and Kalulushi districts are the two locations of interest whose choice is based on budgetary consideration and convenience. Kitwe and Kalulushi districts have a high number of mobile money agents as well. The study will examine the influence of mobile money on the livelihoods of mobile money agents in Kitwe and Kalulushi districts. There are some unique differences between these districts that inform the scope chosen for the study. Kitwe is one of the developed commercial and industrial areas in Zambia, alongside Ndola and Lusaka. Therefore, a larger share of mobile money agents have businesses located in the Kitwe central business district. Mobile money agents in Kitwe are also spread out in different townships and suburban areas such as Parklands, Riverside, Buchi, Chimwemwe, Bulangililo, Kwacha, Kwacha - East, Nkana East, Nkana West, Garneton and Ipusukilo, among others. However, Kalulushi is a relatively smaller town that was established as a company town for mine workers at the nearby Chibuluma copper and cobalt mine. Kitwe is a

district with many formal employment opportunities while Kalulushi is a district with mining and farming settlers. Mobile money in Kalulushi is spread out in areas such as Patason, Mine Area and the Main Market. The differences in the locations may offer more interesting findings on how financial inclusion of mobile money agents affects welfare of mobile money agents that will be sampled from these locations. The study will focus on mobile money agents that offer Airtel Money, MTN Mobile Money and Zoono services. This is because these companies almost extended their mobile money services to agents and tellers around a common period (2010-2011).

The rest of the study is organized as follows: Chapter two provides the background to the study. This chapter will give specific insights on the regulatory framework in the mobile money and mobile telecommunication market. Further, the chapter will generally provide information on financial inclusion and the development of mobile money in Zambia.

Chapter three will highlight the relevant theories to the study as well as the conceptual framework. We review related studies that point to mobile money usage and financial inclusion. Later, a conceptual model that illustrates some relationships that materialised in the study based on the observed theoretical relationships will finally be presented in the chapter.

The philosophy and methodology of the research will be presented in chapter four. In this chapter, the study presents the nexus between the methodology and philosophy of the research. The chapter reviews various types of research philosophies including positivism, interpretivism, pragmatism, humanism and eclecticism. The choice of the eclectic methods and philosophy is given in this chapter based on how these methods and philosophical approaches distinctively suit this study relative to others.

Chapter five will then follow by presenting the data analysis, findings and discussion of results of the study. This chapter is motivated by the eclectic methods and gives the descriptive statistics of the study on one hand, empirical estimation of results and presents an in-depth ethnographic content analysis of the results on the other hand.

Finally, chapter six will present conclusions of the study, citing relevant managerial and policy implications and recommendations emanating from the study.

CHAPTER TWO: BACKGROUND

2.1 Introduction

This chapter presents the contextual analysis of the relationship between mobile money and financial inclusion as it exists in Zambia. We begin by explaining the concepts of financial inclusion and exclusion. We then situate the discussion on financial inclusion into the inequality and poverty outcomes in Zambia. This shall be followed by a discussion of the mobile telecommunications and mobile money market in Zambia. Thereafter, we present the regulatory framework of the mobile money market, highlighting key regulatory players and relationships among them. The chapter concludes with a summary of key issues discussed.

2.1.1 The Concept of Financial Inclusion

Financial inclusion is recognised as an enabler of poverty reduction and is a development policy priority in many countries. However, the concept of financial inclusion or what it exactly constitutes means many things to many people. Madise (2019) argues that financial inclusion is mostly associated with extending the usage of financial services that are in the formal financial system. The formal context of financial inclusion may often refer to the extension of financial services through systems that ensure the best utilisation of money and uninterrupted monetary policy, industry and trade within a region or society (Yin, et al., 2019). In other cases, financial inclusion is linked to situations in which a number of people lack access to bank accounts. For some societies, financial inclusion is associated with addressing issues of barriers to the usage of financial services especially among the poor. The exact barriers may vary in social and economic context but may relate to the packing and pricing of the financial services that people require. For example, in the social context, financial inclusion may be linked with access to and usage of

financial services that are available in various social classes of society. The social context of providing financial services may be related to how the cultural environment appreciates certain financial services over others. This may influence how financial services are packaged and who accesses them. Financial inclusion would thus be associated with facilitating access to financial resources and providing microcredit along with other services to individuals across various socioeconomic groups (Birochi and Pozzebon, 2016). Financial inclusion is also understood to be associated with answering questions on who the best suitable providers of quality financial services should be to those that currently lack these services (Gardeva, 2012).

The competing definitions on what financial inclusion typically entails led this study to adopt the broad definition of financial inclusion by the World Bank (2018). Accordingly, financial inclusion refers to, “individuals and businesses’ ability to access useful and affordable financial products and services that meet the need to make transactions, payments, savings, credit and insurance. These services have to be delivered in a responsible and sustainable way,” (World Bank, 2018)

The various contestations regarding what is really meant by financial inclusion expose the observation that financial inclusion as a concept suffers from being associated with the formal financial system (Madise, 2019). Further, the delivery of financial services must take into account the importance of dimensions beyond access, such as, usage and quality. This study is based on a selected study context of mobile money and financial inclusion and as such benefits most from the adoption of the concept of financial inclusion following the World Bank (World Bank, 2018).

2.1.2 Financial Inclusion and Exclusion

Financial inclusion has emerged in many discussions as a solution to the negative effects of financial exclusion. Financial exclusion generally identifies the lack of access and usage of financial services for some segments of a population. Leyshon and Thrift (1995) point out that although the criteria for exclusion may vary over time, the financial system has an inherent tendency to discriminate against poor and disadvantaged groups. Generally, the exclusion of people from formal financial services has been justified as cheaper for financial service providers. This is because some segments of such businesses, especially in rural areas, cannot cover associated user and infrastructure costs. Kumar (2011) argues that discussions on financial exclusion have gained wide importance given the aggressive persuasion of financial sector reforms. The liberalisation of banking services and the provision for the participation of foreign banks in the banking industry has particularly facilitated the processes of financial exclusion. The unregulated competition mostly injected into the financial sector by the private sector players has produced a number of changes in the financial sector. The private sector investors in the financial sector are motivated by vigorous pursuit of profit rather than the objective of social and financial development. This has spawned into a shift from mass banking to class banking resulting in the exclusion of some segments of the population from sharing in the use of mainstream financial services.

The reality and relevance of financial exclusion has been pronounced through the classification of clients as credit unworthy in financial parlance. This also involves the categorisation of target clients based on their income or wealth, region or locality. Moreover, information and communications technology enabled banking services have similarly kept some economic agents away from the use of financial services. This has led to the technical exclusion of such individuals

from the use of available financial services (Kumar, 2011). Financial service providers consequently highlight that taking formal financial services to areas where regular income generating employment is low often works against the profit maximisation agenda. Profit maximisation in the provision of financial services rides on the ability of service providers to attract a large traffic of people with the ability to pay for user fees besides the services. The employed staff and equipment (such as automated teller machines) used in delivery of financial services come at large maintenance costs. Implicitly, the delivery of such services to economically poor segments of the population is deemed imprudent and unsustainable. Financial exclusion may often prevent affected individuals from potentially adopting available financial services in the future.

Yet, financial exclusion by formal financial service providers does not help individuals to escape social and economic deprivation. The Big Lottery Fund (2018) observes that financial exclusion inhibits people from accessing or using mainstream financial products and services, such as bank accounts, insurance policies or savings products. As a result, such individuals may find it difficult to effectively manage their personal finances. Financial exclusion can be experienced in various ways including individuals finding it challenging to meet monthly financial commitments and missing bill payments regularly. More commonly, financial exclusion has been presented through the lack of access to a bank account, savings or affordable credit.

Frequently, financial exclusion leads to people feeling unaccomplished, unhappy, or anxious because of their debt and access to expensive informal financial services. Most people who are financially excluded are often unable to achieve effective financial planning. Such individuals are also unable to easily create a secure future for themselves and their families. This presents tangible negative effects pointing to the contribution of financial exclusion to a myriad of other social

problems such as anxiety, depression, homelessness, poor health, alcoholism and divorce (Big Lottery fund, 2018).

The negative effects of financial exclusion have led governments and public sector players to the justification of financial inclusive outcomes even for those that are deemed poor and unattractive clients. Kuriakose and Iyer (2015) postulate that the main economic aim of ensuring financial inclusion is to bring the otherwise excluded groups into the ambit of formal financial services. This is through the provision of avenues for safe saving practices, secure credit and other financial services efficiently. Ultimately, it is expected that this will ensure overall growth of the economy, by closing the gaps of inequality and deprivation and by promoting equity and transparency. Moreover, financial inclusion also helps in preventing exploitative financial institutions to flourish at the expense of the poor, vulnerable and financially illiterate segments of society. Accordingly, access to secure savings products and other financial services gives the poor prospects to build up their financial security, manage financial shocks and invest in education, health, housing and income generating opportunities. This culminates into reduced poverty through greater participation in economic and social activities and encourages the transition towards a better quality of life (BoZ, 2015).

2.1.3 Financial Inclusion, Inequality and Poverty Trends in Zambia

Zambia is situated in Southern Africa with a population of approximately 18 million people (Zambia Statistics Agency, 2020). About 9 million people (58.2 percent of the population) reside in rural areas, with 76.6 percent of this sub-group living in poverty (CSO 2016; Zambia Statistics Agency, 2020). The rural poor mainly earn a living in subsistence and informal agriculture. About 92 percent of rural workers hold informal jobs. The majority of people live more than 15 kilometers

from the nearest school and hospital. In addition, most houses for the rural poor lack access to electricity and modern water and sanitation services. The country had about 14 percent (1.1million) of adults owning and using mobile money services in 2015 (BoZ, 2015), with only about 50 percent of rural adults having access to financial services and regarded as financially included. Half of the rural settlers were generally excluded from participating in the financial sector.

On the other hand, out of the 6.5 million people (41 percent of the population) that live in urban areas, only 23.4 percent are poor (CSO, 2016). The majority of the country's formal sector jobs (72 percent) are in the urban areas. Urban spaces are readily serviced with relatively better indicators of livelihoods such as health, education, water and sanitation, electricity and modern transportation opportunities. In urban areas, more than 70 percent of urban adults were financially included by 2015. Therefore, it could be anticipated that in a few decades, with the rapid rate of the country's urbanization, that more than half the population will be living in urban areas. The socio-economic disparities between urban and rural settlers in Zambia identify much necessity for increasing access to finance as a way of reducing poverty especially in rural areas (Kabala and Seshamani, 2016; World Bank 2018).

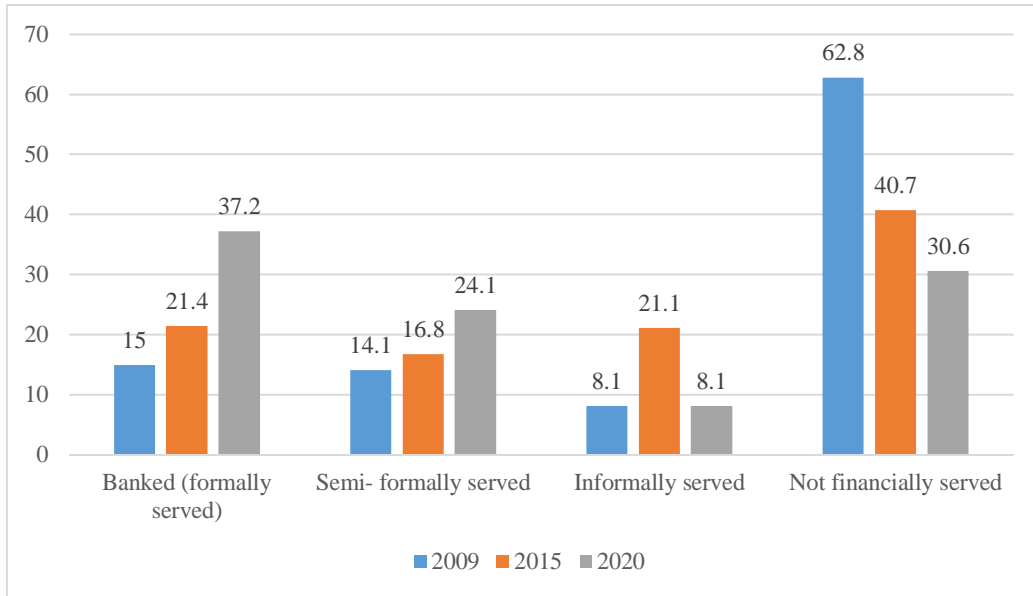
Attempts at ensuring the availability of financial services trace from back in the 1990s with the beginning of Zambia's financial sector development plan. This was a time when the country embarked on its first attempt at actualising financial sector deepening. The banking sector was however small and underdeveloped such that only 8 percent of the population was captured in the banking system by 2005 (Martínez, 2006; Lwanga 2021). This situation caused a growing recognition by the Bank of Zambia for instituting a financial sector development strategy called Financial Sector Development Plan (FSDP). The FSDP was aimed at tackling the lack of financial services especially in rural and peri-urban areas; high bank charges and account requirements;

poor credit culture, and low levels of financial literacy and education. The implementation of the FSDP was in two phases, with FSDP I running from 2004 to 2009 and FSDP II from 2010 to 2015. This greatly resulted in an increase in financial access to 37 percent in 2009 and 59 percent in 2015 (Lwanga 2021). Clearly, this provided proof of enhanced access to financial services in most parts of Zambia through the emergence of new banks and microfinance institutions.

The growth in technological innovations within the financial sector similarly facilitated the emergence of advanced financial services provided with reduced costs and risk. Financial innovation ushered in a shift from access to financial services through traditional banking and microfinance channels to virtual access facilities using credit cards, debit cards, electronic funds transfers and real time gross transfer services (RTGS). Mobile banking soon began to emerge as a popular financial product offered by banks and microfinance service providers. The country witnessed a rise in the number of banks branches and agency extension services from 277 in 2011 to 1,464 in 2015. Further, the number of automated teller machines (ATMs) per 100,000 persons increased from 0.9 in 2004 to 9.92 in 2014 at an average of 5.7 (Lwanga, 2015).

Although the country made strides in improving access to finance, poverty and inequality remained key issues of concern. The national poverty rate stands high at about 54.4 percent with high levels of inequality that spill over to access to finance across the population. Figure 2.1 shows inequality in access to financial services in Zambia between 2009 and 2020 as captured by the 2020 Finscope study. Notwithstanding, inequality as a broad socio-economic issue is not the focus of this study. The focus of the study is on financial inclusion and the livelihoods of mobile money agents.

Figure 2.1: Inequality in Access to Finance in Zambia (%)



Source: Author's construction based on Finscope (2020)

At individual level, up to 69.4 percent of Zambians were formally, semi-formally or informally included in 2020 compared to just 59.3 percent in 2015 (FSD, 2020). The majority of the financially included are economic agents who are salaried or employed for wages, business owners, traders, farmers and fishermen. Figure 2.1 shows that financial exclusion has been reducing between 2009 and 2020. Most of the people who don't participate in the access and use of formal and informal services are individuals without any sources of income or economic activities that generate income for payment towards the use of financial services. These may include the young people in school, older people who rely on remittances and others who may be in farm and non-farm activities that do not generate earnings. Implicitly, as at 2020, approximately 31 percent of the population that is financially excluded is still significantly affected by failure to address poverty through access to affordable financial services.

World Bank (2014) notes that by 2014, only 6 percent Zambians reported borrowing from a bank, a credit union or a microfinance institution despite evidence of growth in the private sector credit to GDP in the past decade. While there is a declining trend in the percentage of financially excluded adults, over 30 percent of population being financially excluded from the formal access to financial services poses a concern for poverty reduction. This implies that some individuals still access expensive financial services out of the relatively formal, informal and semi- formal financing arrangements.

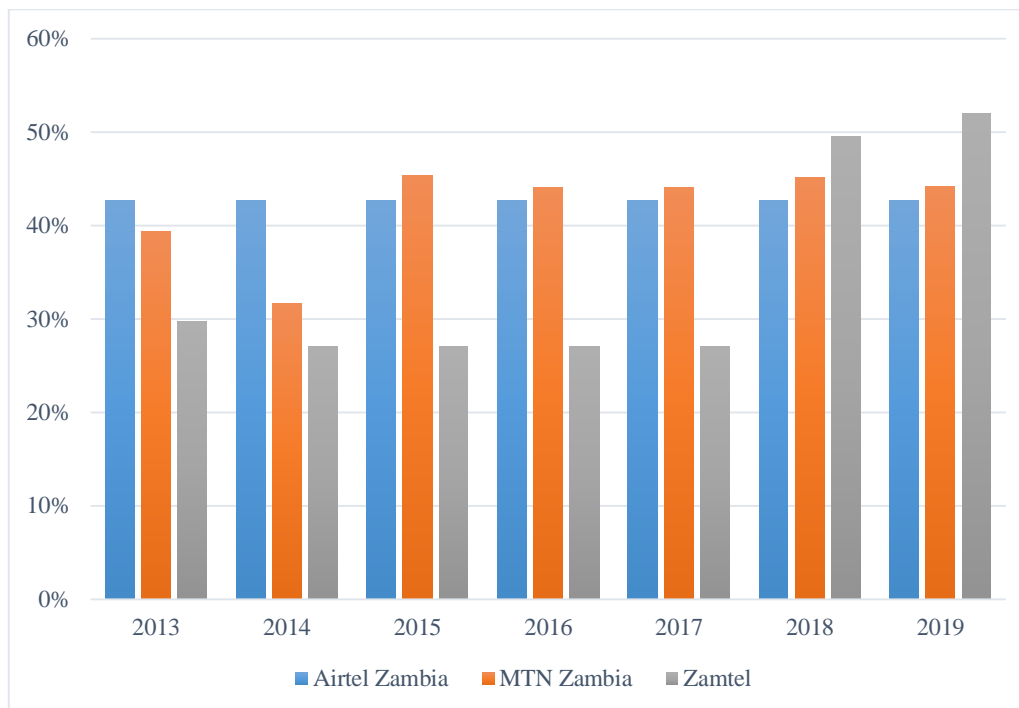
The extent to which financial inclusion has contributed to poverty reduction and welfare improvements in Zambia is yet an empirical question. The country's Gini coefficient averaged 57.1 percent by 2015 with over half the population confined to high poverty levels (World Bank, 2020). This is despite many direct poverty reduction interventions and programmes such as the Social Cash Transfer Programme that aimed to reach up to 500,000 Zambians. Zambia's poverty outlook can be partly attributed to the repeated droughts which negatively affected the output and production in the agricultural sector and spilled over to food prices. This is a combination of which would negatively impact the welfare of those who depend on agriculture for their livelihoods (Lwanga, 2021)

Nevertheless, financial access even through the adoption of information and communication technologies has been empirically noted to reduce poverty (Aron, 2018; Donovan, 2012). Particularly, the growth of mobile telecommunications and mobile money services promises to improve financial inclusion in Zambia for individuals who choose to participate in the financial sector. As such, mobile network operators offer mobile services for bill payments and money transfers, facilitating contributions to financial inclusion that need to be established.

2.2 Mobile Telecommunications and Mobile Money Market in Zambia

The mobile phone market is an important part of the services sector in Zambia. The mobile market comprises of about 8 million internet users and approximately 17 million active mobile phone subscribers (Handford and Wilson, 2019; ZICTA, 2020). The market has three main players, namely Airtel, MTN and Zamtel. Airtel is a public limited company with limited local participation. MTN is fully privately owned while Zamtel is the state-owned telecommunications company (Ndulo and Chanda, 2016). Generally, the three service providers are known for the provision of mobile phone communication coverage across mobile subscribers in Zambia. Figure 2.2 illustrates the subscriber coverage corresponding to each of the three main players in the Zambian mobile phone market.

Figure 2.1: Mobile Market Players and Coverage in Zambia (%)

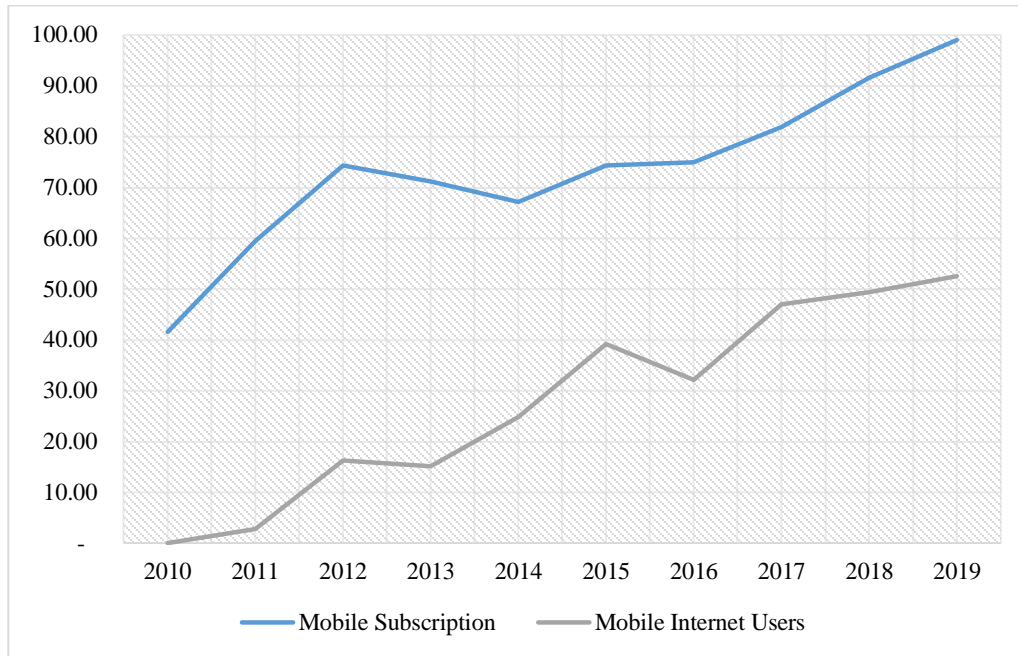


Source: Author's construction based on ZICTA data

Figure 2.2 shows that Airtel, MTN and Zamtel are largely competitors roughly equal in size of area coverage. Between 2013 and 2019, Airtel maintained a constant area coverage at about 43 percent. MTN registered steady growth in area coverage moving from 39 percent in 2013, a decline to 32 percent in 2014 and maintaining growth at 44 percent in 2019. Zamtel improved its coverage growth from covering the lowest area at about 30 percent in 2013 to leading area coverage in 2019 at about 52 percent. Evidently, the market competition is tight among the three service providers with Zamtel as a national telecommunication company leading area coverage in the mobile telecommunication market. The three competitors have been sharing a fixed customer base that can easily switch among them given the possibility of any one of them offering the same services at a lower cost. This is likely especially that mobile subscribers are capable of simultaneously maintaining active mobile phone sim cards on almost all networks in the dynamic mobile phone market.

Figure 2.3. shows the performance of the mobile phone market based on selected indicators between 2010 and 2019.

Figure 2.2: Mobile Telecommunication Absorption (%)



Source: Author’s Construction based on ZICTA Data

The mobile phone market registered rapid growth between 2010 and 2019. Generally, growth in mobile phone subscription has been phenomenal, at an average penetration rate of about 74 percent. The demand for mobile phone services and usage has similarly encouraged the growth of mobile internet usage at an average rate of about 31 percent. There may be many contributing factors to the overwhelming growth of the mobile phone market. However, the steady economic growth Zambia registered over the past decade and growth in foreign direct investment flows may have contributed to the growth of the mobile phone market. Furthermore, telecommunication services are embedded with other services as composites of output (Ndulo and Chanda, 2016). This may motivate further demand and usage of these services, fostering the growth of the mobile phone and telecommunications market. The growth in the mobile phone market has also

encouraged diversification of services beyond mobile phone communication. This can be witnessed by the introduction of mobile money services across the three mobile phone service providers in Zambia.

2.2.1 The Emergence of Mobile Money in the Financial Development of Zambia

Improvements in the country's communications technology especially with the emergence of mobile phones led to more innovation of financial services referred to as mobile money services. These services were now guised as cheaper and more accommodating of poor segments of the Zambian population. Mobile money services were first introduced in the economy through the launch of Celpay Zambia in 2002. Celpay had operations in the Democratic Republic of Congo and Zimbabwe. Celpay Zambia was owned by a Dutch mobile banking and payment solution service provider known as Celpay International BV. This was the first company to be granted a license by the Bank of Zambia to provide mobile banking services (Malakata, 2014). Celpay provided mobile money services in partnership with six financial service providers. Celpay facilitated the digital payment for goods and services (Helix Institute of Digital Finance, 2015; Malakata, 2014). It operated for slightly over a decade with many challenges among them, fraudulent practices and failure to provide sustainable operations in mobile banking and payment solutions. At the same time, the rise in market competition from Airtel and MTN as emerging competitors with similar services later presented huge desperation in the company's survival, profitability and sustained operations. In 2013, the Bank of Zambia revoked Celpay's operating licence and closed the company following reported allegations of a rise in fraud (UNCDF, 2014). The opportunities in the mobile money market and the gap that Celpay left in money transfer needs of the population led to the launch of Zoono in 2009. The company attracted many users across

the urban and rural populations of Zambia. Zoon primarily offered money transfer services on a small scale. Eventually, mobile network operators, Airtel and MTN launched their mobile money services in 2011 and 2012 respectively (UNCDF, 2014).

By the end of 2018, Zamtel also joined the group of mobile network operators offering mobile money services. However, this study only focuses on Airtel, MTN and Zoon agents with the exception of Zamtel agents. This is because Airtel, MTN and Zoon are the only mobile money providers that co- existed for a period of time at the inception of the study and in the mobile money ecosystem in Zambia.

A notable feature of the services offered by the three mobile network operators is competition in the mobile money market. This can be considered as an extension of the long-running battle to offer financial services but also monopolise telecommunications services. Arguably, mobile money operators are perceived to have a strategic competitive advantage in the provision of mobile money and banking services relative to formal banks. Mobile network operators tend to have a higher customer base than formal banks in form of mobile subscribers. This enables them to quickly reach a large market. Mobile money as a product normally has synergies with the telecommunications platform and the established network that mobile network operators like Airtel and MTN already have. That is partly the reason why even Zoon was able to thrive at inception through mobile money services it provided via the Airtel network.

2.2.2 Agents and the Expansion of Mobile Money

The reality in Zambia is that mobile money is increasingly popular and embraced by the majority of people who own mobile phones. Mobile network operators on the Zambian market leverage their expertise in running networks of agents. An agent is a person or entity appointed by an e-

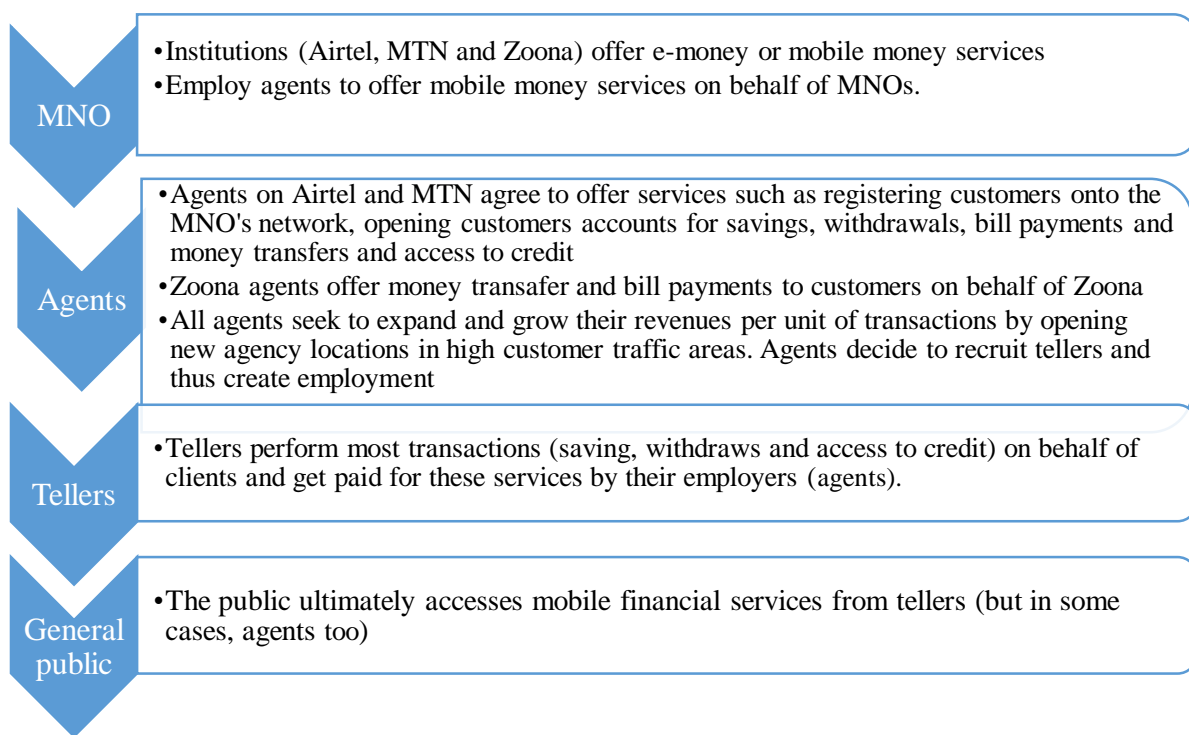
money institution to provide certain e-money related services on its behalf. Agents are classified as either proprietary agents (also known as superdealer(s) or super agents) or ordinary agents. A proprietary or super agent is one who gets into an initial contract with the mobile money service provider as a their first point of contact for mobile money sales in a specific location. The super agent is often managed by and operates under the exclusive branding of a particular mobile money provider. The super-agent is responsible for offering third party contracts to other individuals willing to be mobile money agents based on agreed terms and conditions. In this case, any one who is recruited by the super agent becomes a third-party agent or ordinary agent who is simply referred to as “an agent”. In spite of this distinction between the classification of agents, generally, all agents (super agents and ordinary agents) handle transactions including cash-in and cash-out on behalf of the entity(mobile money provider) that recruits them (UNCDF, 2020). However, this study does not focus on superdealer agents but third party agents who are recruited by superdealer agents.

In relation to mobile money, agents conduct business in various agency outlets. Agency outlets are the locations where agents are offered with several provider- issued tills. Agents are expected to conduct transactions such as registration of new customers to the network of mobile network operators or e-money providers, opening of customer accounts, savings, withdrawals and bill payments for client. In exchange for their services, Mobile Network Operators remunerate agents through incomes called commissions. Agents are also given provider-issued ‘lines,’ which can be SIM cards or point-of-sale (POS) machines, authorized and used to facilitate mobile money transactions. However, the more clients that agents serve, the higher the likelihood of them recording high commission revenues per volume of transactions. Thus, agents normally expand their services to new agency locations, hoping to capture more clients. In this process, agents

employ individuals to work as tellers in additional locations and serve clients on their behalf. This presents an argument of agents creating employment in the mobile money ecosystem and identifies the potential of mobile money to create employment and improve livelihoods (UNCDF, 2020).

Figure 2.4 shows the hierarchy of relations across agents and other players in the mobile money ecosystem.

Figure 2.3: Hierarchy of Mobile Money Service Provision



Source: Author's construction

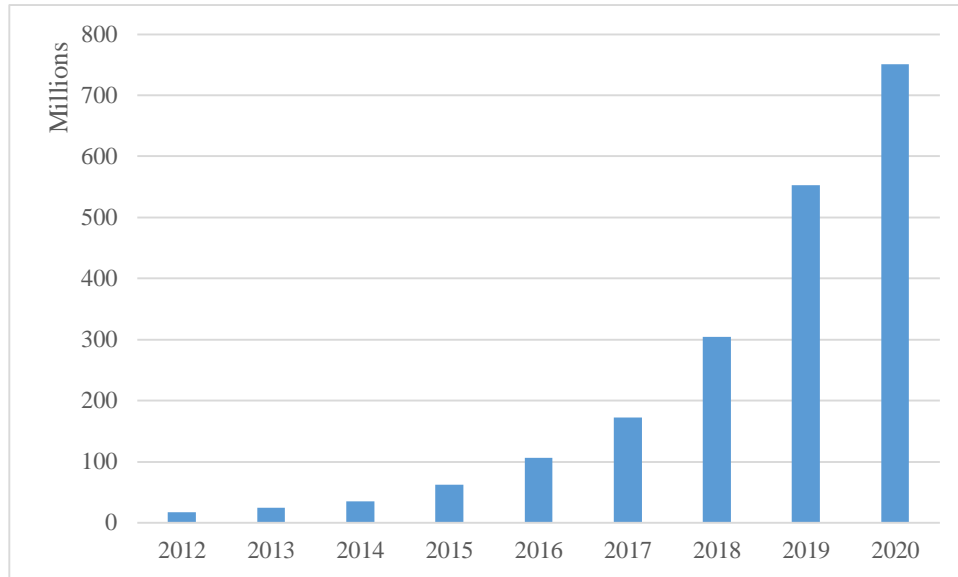
Figure 2.4 demonstrate that mobile money agents are crucial links between network operators and customers. They also contribute to spreading mobile money services to a broad customer base in distinct geographical locations. Agents further train and employ tellers for continued mobile money service provision and potentially advancing financial inclusion. Network operators most times advertise stories of successful agents and claim that becoming a mobile money agent can

enhance entrepreneurship and improve the agents' livelihoods (Pesa, 2016). However, agents have to fulfil the precondition of being financially included by owning mobile money accounts before they can exhibit some improvement in welfare.

Mobile money services that agents and other users adopt are considered to be offered at relatively lower costs and prudent levels of risk compared to formal banking and microfinance services. The services allow more people who cannot afford the costs of regular formal banking to access payment channels for important needs such as education, health care, electricity, water and cable television. These utilities are accessible especially to the unbanked at lower costs which translates into improved livelihoods. Mobile money, as delivered through agency services, allows a large proportion of underserved adults especially those who are poor in rural areas to access financial products and services that are offered by mainstream financial services.

The growth in agency services on mobile money platforms has facilitated improvements in financial inclusion. In particular, mobile money witnessed unprecedented growth in 2019, with the global industry recording over 1 billion registered users. The biggest growth was in sub-Saharan Africa, where digital financial services are being used to reach all people with products and services to improve their livelihoods and quality of life (UNCDF, 2020). Similarly, in Zambia, mobile money has experienced overwhelming growth since 2012. Figure 2.5 shows the trends in mobile money growth in Zambia from 2012 to 2020.

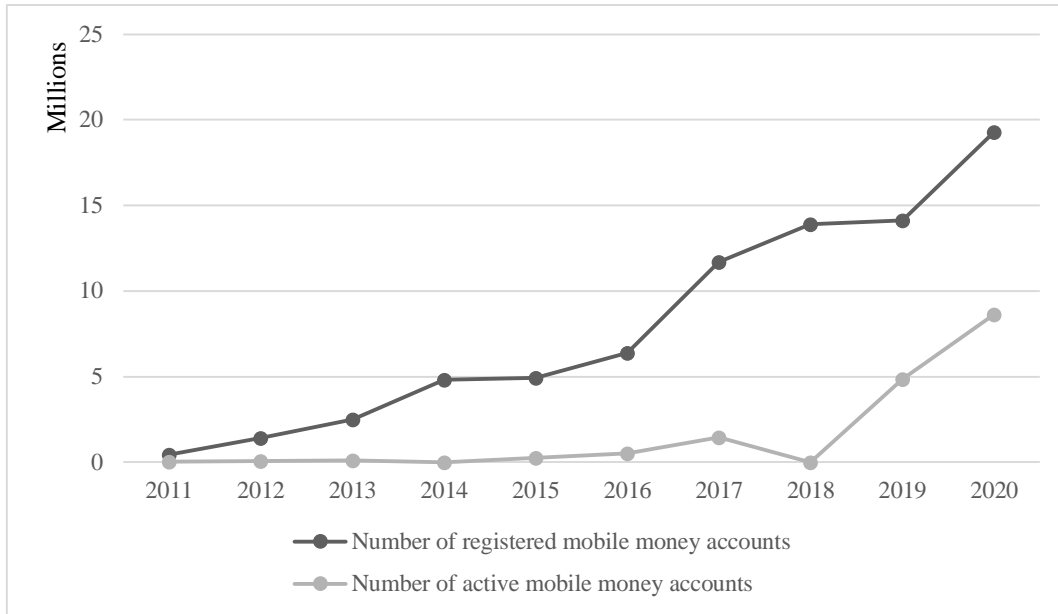
Figure 2.4: Trends in Growth of Mobile Money Transactions in Zambia



Source: Author based on ZICTA, 2020

Figure 2.5 clearly shows that the volumes of mobile money transactions increased steadily between 2012 and 2017. However, between 2017 and 2020, mobile money recorded more rapid increases in the volumes of transactions. This could indicate that more people paid bills, transferred money across social networks, saved or invested using mobile money. Similarly, as figure 2.6 shows, the number of registered mobile money accounts increased between 2011 and 2020.

Figure 2.5: Comparison between Registered and Active Mobile Money Accounts

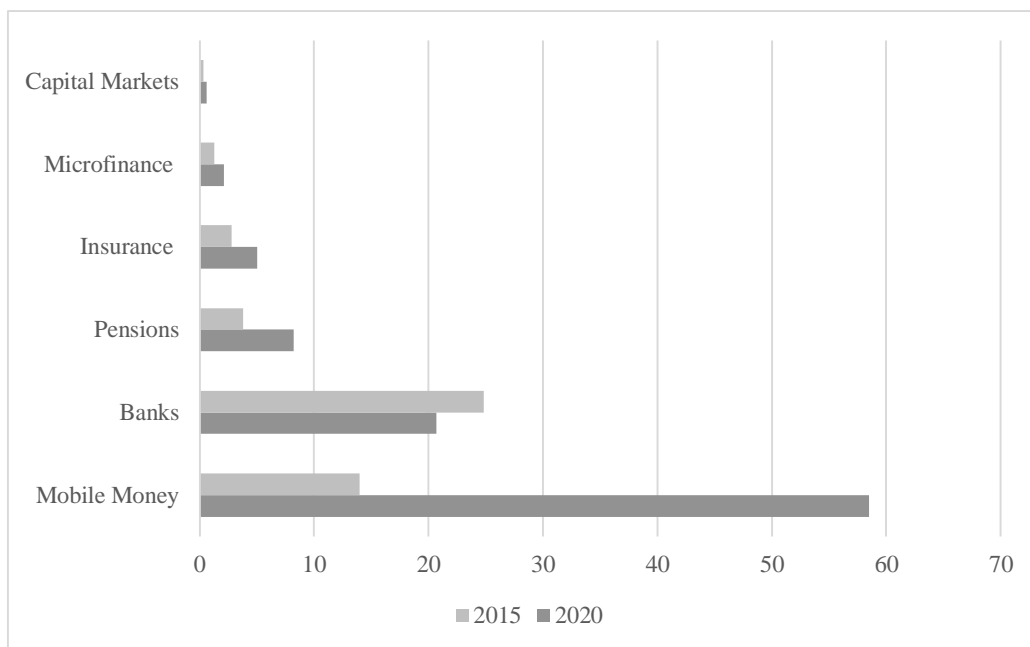


Source: Author's construction based on ZICTA, 2020.

Paradoxically, while active accounts displayed marginal growth in the same period, they significantly lagged behind the number of registered accounts (figure 2.6). In 2018, the number of active accounts was at the lowest. Implicitly, despite many individuals having registered accounts, usage of the accounts was not guaranteed. Figure 2.6 affirms that having access to affordable financial services may not certainly guarantee usage. This establishes a case for the investigation of the usage of mobile money accounts among agents. The activity of mobile money accounts signals the usage of financial services and may help establish whether or not this translates into improved livelihoods in the case of mobile money agents.

Despite the low number of active mobile money accounts in Zambia, mobile money is still considered to be a tool for financial inclusion. Figure 2.7 shows how mobile money contributes to financial inclusion relative to other avenues.

Figure 2.6: Financial Sector Players and Contribution to Financial Inclusion (%)



Source: Author's Construction based on Finscope (2020)

In figure 2.7, mobile money is identified as the biggest contributor to Zambia's recent increase in financial inclusion (FSD, 2020). In particular, financial inclusion grew from 59.3 percent in 2015 to 69.4 percent in 2020. By implication, in 2020, nearly 31 percent of individuals accessed financial services outside the relatively cheaper formal financial system. Such individuals normally live insecure livelihoods and accrue unimaginable debt year after year. However, the growth in mobile money and its contribution to financial inclusion in Zambia offers some hope for dealing with the negative effects of financial exclusion.

Attaining highest levels of financial inclusion through mobile money is a top priority for pro poor public policy (Aron, 2015; BoZ, 2015; Kuriakose and Lyer, 2015; Ministry of Finance and National Planning, 2017; Hansen, 2019). Inclusive financial systems avail low-income adults with the affordable means to borrow, save, make payments, and manage risks. These tools or avenues

in turn facilitate consumption smoothing as well as lessen the impacts of unexpected reductions in income, especially common among those in the informal sector.

Furthermore, access to a range of appropriate and affordable financial products and services facilitates investments in human capital and encourages job creation. This may also boost individual savings for investment in education or opportunities that emerge from entrepreneurship. Similarly, firms must solely depend on their earnings to pursue promising growth and business expansion opportunities. Households have to also borrow from each other as well as pool meagre resources to ensure children and dependants are educated. Social events that are of importance such as funerals and other family expenses can only be managed over long periods of uneven income flows (Ministry of Finance and National Planning, 2017).

While arguments for financial inclusion are convincing and mobile money is noted to support financial inclusion, there is an absence of information on what determines the financial inclusion among agents in Zambia. Mobile money agents, like other individuals are hailed to record improved livelihoods once they become financially included. Yet, little is known about how mobile money transforms the livelihoods of agents with regard to key indicators such as the mobilisation of savings and investments for smoothened consumption in the future. Many studies discuss factors associated with financial inclusion without exhaustive focus on mobile money agents as enablers of financial inclusions. By being financially included, agents that mediate between the mobile money service providers and clients also tend to grow their firms, add to job creation and further deepen access to financial services as they expand.

2.2.3 State of Mobile Money in Zambia

The Zambian business and economic landscape is no stranger to poverty associated with the lack of access to financial services. The lack of access to affordable financial services implies a denial of basic channels for facilitating payment for basic services. These include housing, education, health insurance and investment. Failure to access such services implies deprivation and poverty for many individuals. The incidence of monetary poverty in 2015 stood at 54.4 percent at the national poverty line of ZMW 214 per adult equivalent per month. This was, roughly US\$1 per day. Furthermore, the poverty incidence measured by the population living below US\$1.90 per day of purchasing power parity (PPP) in Zambia was 57.5 percent in the same year. This pronounces the severity of the poverty situation in Zambia (World Bank, 2018). Notwithstanding, the 2015 Fincope study shows that the country has been making strides in promoting financial inclusion as one way to resolve the poverty challenge in Zambia (BoZ, 2015). The daunting reality amidst high poverty levels, however, is that although over half the population were financially included, the majority of financial access points were concentrated in urban areas. Lungu (2019) posits that, only an average of 59 percent (70 percent rural and 50 percent urban) of the population had access to financial services. In addition, most financial access points were largely concentrated in Lusaka and the Copperbelt provinces. A significant number of Zambians in these areas still lived without access to financial services from a regulated service provider.

Zambia remains a good example of a prime market for mobile financial services. This is because the country has about 52 percent of the population owning a mobile phone with large unbanked population. In 2015, the adult population falling under the mobile subscribers bracket as active monthly mobile money users accounted for 2.2 percent of the population (Lungu, 2019). According to ZICTA (2020), the number of active mobile phone subscribers has grown to over 90

percent of the total population. The rise in the mobile subscription rate, presents an opportunity for mobile money across the mobile service providers. Mobile service providers offer mobile money services. One may expect that mobile money services would be provided only by mobile network operators. However, Zambia's mobile money market is unique with interesting developments for the provision of initial mobile money services. For instance, and in relation to the focus of this study, the mobile money market comprises of Airtel, MTN and Zoono as early comers on the market. While Airtel and MTN are mobile network operators (MNOs) providing mobile money services, Zoono without the privilege of having a mobile subscriber base was still able to conduct mobile money transfer services like the two MNOs. The presence of Zoono on the mobile money market was unique when compared to MTN and Airtel. Interestingly, a non-MNO like Zoono still influenced the number of digital money transfer transactions just like MNOs in the country. In 2015, Zoono had the largest agency network for distribution of mobile money services at about 33 percent. MTN and Airtel maintained equal shares of their mobile money agency at approximately 27 percent each (Tiwari and Wagaki, 2016; IFC, n.d).

Notwithstanding, the mobile money industry has experienced recent boom in the Zambian economy. It is estimated that about 58.5 percent of the adult population use mobile money services (BoZ, 2020). A notable feature of the services offered by the three mobile network operators in this study is competition in mobile money market. This can be considered as an extension of the long-running battle to monopolise telecommunications services. Arguably, mobile money operators like Airtel and MTN are perceived to have a strategic competitive advantage in the provision of mobile money and banking services relative to formal banks. Mobile network operators tend to have a higher customer base than formal banks in form of mobile subscribers. This enables them to quickly reach a large market. Mobile money as a product normally has

synergies with the telecommunications platform and the established network that mobile network operators like Airtel and MTN already have. That is partly the reason why even Zoono was able to thrive at inception through mobile money services it provided via the Airtel network. Notwithstanding, mobile network operators on the Zambian market leverage their expertise in running networks of agents. These agents are usually economic actors or individuals who have been reselling airtime vouchers to customers on behalf of MNOs for years (Du, 2019).

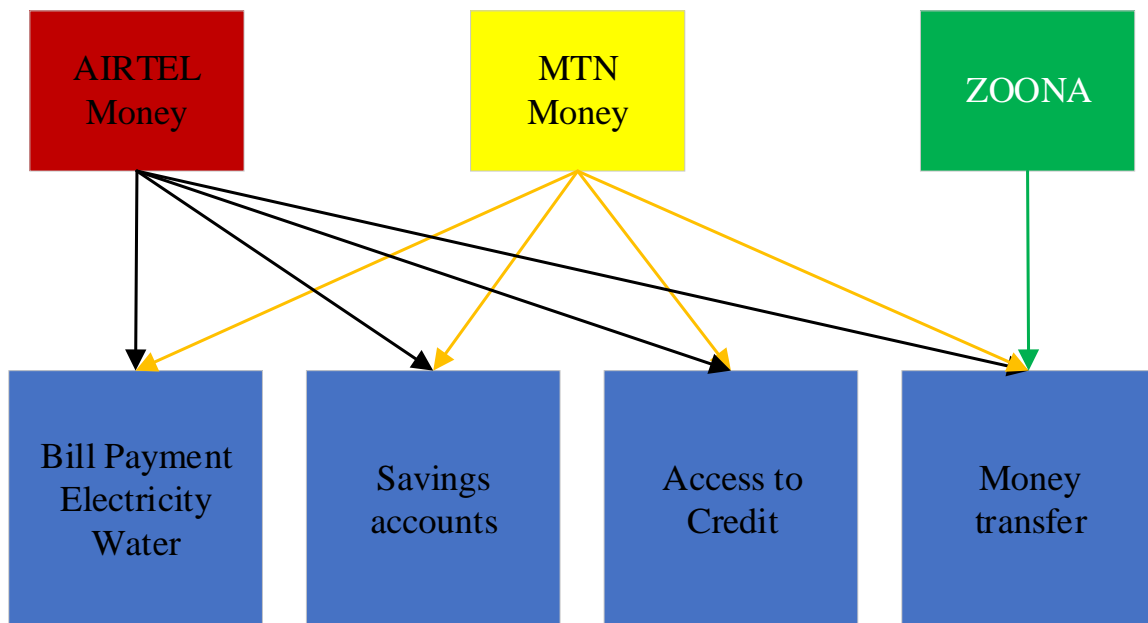
In order for customers to access mobile money, the system requires the use of basic mobile phones. The use of basic phones allows mobile money to thrive on telecommunications technology. Mobile money has the characteristic of growing in innovations based on mobile phone usage. There are two main channels through which customers access mobile financial services. First, for customers that choose services operated by mobile network operators, it is required for them to have mobile money accounts (GSMA, 2015). In Zambia, this is the case for Airtel and MTN mobile money services. The mobile money accounts are managed by Airtel and MTN. To access and use mobile money, customers rely on the network of physical access points that Airtel and MTN operate through their agents. At these points, customers can typically deposit cash in to, or take cash out of their mobile money account. Secondly, customers can also access mobile money services through the technical access channel. The technical access channel essentially involves the interface which customers use to initiate transfers and payments directly on their mobile handsets (GSMA, 2015). In Zambia, Airtel and MTN customers rely both on agent operated and technical access channels for their mobile money services.

The usage of mobile money in Zambia faces competition from entrenched formal banking services. Formal banks also offer mobile banking platforms that use payment service using mobile phone handsets. However, mobile money still attracts some clients even among those banking with

formal banks. Like in most parts of Africa, where mobile money is popular, mobile money users use mobile money services to transfer money to friends and family between rural and urban areas. Furthermore, mobile money is used for airtime purchases and saving small amounts of money that cannot easily be deposited in formal bank accounts. Bill and merchant payments are also among the popular uses of mobile money. This reflects an expanding ecosystem of institutional and business users of mobile money (BoZ, 2015).

Figure 2.8 provides a summary of the mobile money services in Zambia taking into account of the three firms that this study focuses on.

Figure 2.7: Mobile Money Services Offered by Airtel, MTN and Zoono



Source: Author's own construction

In figure 2.8 it is clear that both Airtel and MTN provide common services to their clients. The MNO firms offer a wide range of services when compared to Zoono. Airtel and MTN provide leadership in the diversity of financial services that they offer. These extend to loan or credit

facilities. Airtel provides the Nasova instant loans to clients while MTN offers the Kongola credit services to clients. Through this facility, both Airtel Money and MTN Mobile Money clients can borrow money through personal mobile money accounts. Clients who borrow money get instant credits into their mobile money accounts without the need to go to banks. However, the amount that a client is eligible to borrow is determined by history and frequency of transactions.

Despite Zoono only providing money transfer services in its prime years (2009-2014), the financial service provider opened doors for mobile money services in general. Airtel money and MTN money now remain the leaders in mobile money service delivery services. They ride on a large telecommunication subscriber base. Yet, the two mobile money service providers do not provide other services that would be deemed useful such as insurance services. This could be due to the relatively low penetration and popularity of micro insurance plans that appeal to most Zambians (Lungu, 2019). Furthermore, there are low margins and high costs associated with direct sales of insurance services. This makes the provision of mobile insurance services unattractive to insurance companies.

2.3 Regulatory Framework of Mobile Money Technology

The overall regulatory environment for mobile money services has the potential to influence the decision of providers on whether they can enter the market and sustainably provide the services or not. It also determines how best mobile money service providers can become interoperable and provide a broad range of services that create value around wallets (Maina, 2018). The availability of a regulatory system ensures adequate provisions to support and sustain the smooth growth of mobile money services and a stable financial system. However, the regulations should not stifle competition that may be generated by the rapid growth of mobile money services. Competition

helps to promote the innovation of a great variety of quality services at affordable prices and encourages the healthy development of the financial sector (Lapukeni and Ng'andwe, 2016).

Basically, from a regulatory perspective, the proposition for mobile money to succeed depends on the creation of an open and level playing field that allows non-bank mobile money providers, including mobile network operators (MNOs), to enter the market and issue e-money (or equivalent) (Maina, 2018). In Zambia, mobile money, while leap frogging on mobile telecommunication technology is regulated in two stages. Initially, the MNOs (MTN, Airtel and Zamtel) register with the Zambia Information and Communications Technology Authority (ZICTA) for licensing and regulation of telecommunication service provision. As MNOs decide to offer additional services such as mobile money, they are further regulated by the Bank of Zambia through the payment systems department. The prudential regulation of non-bank mobile money providers in this manner effectively mitigates the risk of mobile money customers losing the money they have stored in the system (Cagri, 2013; Lapukeni and Ng'andwe, 2016; Maina, 2018).

The Bank of Zambia is responsible for regulating, overseeing and maintaining an efficient and safe payment system in Zambia. The Bank of Zambia also has other responsibilities such as licensing, regulation and supervision of banks and financial institutions (FIs), including approval and supervision of mobile money services. In this mandate, the Bank of Zambia is guided by the National Payment System Act of 2007 and the National Payment Systems Vision and Strategy 2013 – 2017. More recently, in 2015, the Bank of Zambia introduced the National Payment Systems Directives on Electronic Money Issuance, covering licensing procedures, minimum capital, use of agents, consumer protection, and Know Your Customer (KYC) requirements, among others. These are cost effective regulatory solutions that target potential operational risk challenges in the mobile money system set up. Therefore, MNOs are required to be directly

licenced as e-money issuers by the Bank of Zambia as customer adoption and service usage accelerates.

The Bank of Zambia's EFT System encompasses the money transfer component of mobile money operations as a way to monitor and regulate mobile money volumes. The EFT System provides a platform for Non-Bank E- Money institutions such as MNOs to participate in providing digital financial services without requiring them to partner with specific commercial banks. Yet, MNOs are given the ultimate responsibility to manage risks within this market, protect consumer and make regular performance reports to the Bank of Zambia.

MNOs are further required to maintain a holding account at a commercial bank. The balance held at the commercial bank should at least equal to the total electronic value in the system. This should be available to meet customers' withdrawal demands and should not comingle customer funds with funds for operational or other purposes, on which it may earn interest, but use of interest must be approved by the Bank of Zambia.

The key regulations for E-money institutions demand that mobile money providers ensure that customer transactions offer a smooth and efficient experience to consumers. This means, for example that, once initiated by a consumer, valid e-money transactions should not be renounced by transaction authentication systems in place. Customers should benefit from complete transactions in real time once initiated.

Regulations that guide E- money services such as mobile money also require a clear audit trail to track all transactions with well-maintained data integrity of the transactions. Security of confidential information on all transactions made by customers should be upheld, among other customer transaction requirements.

Moreover, through these regulations, E-money institutions are expected to have a business continuity plan and disaster recovery ability. Institutions are also expected to have an efficient system of addressing consumer complaints with the goal of reducing them. Complaints handling procedures and strategies are a key requirement for mobile money institutions and other E-money service providers. This requirement reduces complaints handling procedures into writing and make it easily accessible to consumers, maintaining a detailed record of customer complaints, among others.

In the context of the regulations, it is required that each consumer receives a unique identification number for the sole purpose of conducting business with the e-money institution or its agent. E-money institutions are to ensure that sufficient information on the cost of the services and variety of services offered are made available to consumers through the agents. In this case, agents are also required to receive adequate training to administer excellent E-money services, protect customer data and any other confidential information.

On the other hand, ZICTA provides regulatory services to the ICT sector in order to enhance universal access to ICT services. ZICTA operates using Statutory Instrument No. 65 of 2011 relating to the Registration of Electronic Communication Apparatus Regulations. This requires the registration of all SIM cards, with original and valid identity cards.

ZICTA along with stakeholders like the Zambia Police conduct inspections on mobile service providers, distributors, dealers and agents to crack down on the sale of pre-registered SIM cards. Furthermore, ZICTA offers information to clarify the obligations of mobile money service providers, sellers and buyers of SIM cards regarding registration of SIM cards.

Generally, the Bank of Zambia and ZICTA play a pivotal role in regulating, overseeing and maintaining an efficient and safe mobile money payment system in Zambia. Adequate regulation of e- money services such as mobile money is argued to be beneficial for socio-economic development (CUTS, 2020; Maina, 2018).

2.4 Conclusion

This has provided an account of the relationship between mobile money and financial inclusion in the Zambian context. It provided information on the conceptual definition of financial inclusion and financial exclusion. The chapter then analysed financial inclusion, inequality and poverty trends in Zambia. This was followed by a situational analysis of the mobile telecommunication and mobile money market as it exists in Zambia, a discussion which identifies mobile money agents as important players in financial inclusion. Finally, the chapter discussed regulatory framework of the mobile money market. Key regulatory players including the Bank of Zambia and ZICTA as well as relationships between them were brought out. This section of the chapter highlighted how MNOs as E-Money institutions are required to keep detailed records of customers and their account balances with Commercial Banks. Further, these records must be reconciled electronically on a daily basis with the Commercial Bank where the MNO's account is held and any deficiencies be settled the next business day. Overall, regulations that foster a conducive mobile money market environment are important for increased levels of financial inclusion.

CHAPTER THREE: THEORETICAL AND EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter presents the theoretical and empirical literature review of the study. The theoretical literature review offers an interrogation of the theories related to mobile money, financial inclusion and livelihoods of agents in Zambia. It will also provide a theoretical basis on which the study is founded. We critically discuss the Theory of Financial Deepening, the Technology Acceptance Model (TAM), the Diffusion of Innovation Theory and Transaction Cost Theory. These theories offer the necessary appropriateness to the application and relevance to the key concepts of mobile money, financial inclusion and livelihoods of agents in Zambia. We review various studies on mobile money, financial inclusion and livelihoods of agents and understand how common indicators connected to livelihoods and financial inclusion were measured. Generally, we unveil a critical analytical account of the theories and arguments on mobile money and financial inclusion. We conclude with the presentation of a summary and research gap based on the selection of the relevant empirical work.

3.2 Theoretical Literature Review

This section presents theories that are relevant to the study on mobile money, financial inclusion and livelihoods of agents in Zambia. The study focused on the Theory of Financial Deepening, the Technology Acceptance Model, the Diffusion of Innovation Theory and the Transaction Cost Theory.

3.2.1 The Theory of Financial Deepening

Financial sector deepening, or the increased provision of financial services in the economy, has been hailed to lead to financial development in the financial liberalization and economic growth debates (Ramo, 2013; Bhattarai, 2015; Sahay et. al, 2015). Financial deepening as a theoretical concept is associated with the provision of a wider choice of financial services. It is also used to refer to improved access to financial services for different socioeconomic groups. Financial deepening is theoretically applied to a financial system which is largely free from financial repression and promoting a good financial system. Accordingly, “a good financial system channels savings into investment, allows inter-temporal optimisation by individuals and firms, spreads risk among people and is a factor for an efficient dynamic economy” (Bhattarai, 2015).

The adoption of real finance policies related to real rates of returns and real stock of finance often supports financial deepening. On the other hand, a financial system that is shallow may be a consequence of distortions in the comparative finance processes. Growth and financial mediation associated with it, allows for the diffusion of financial services and financial deepening as a whole. This process substantially enhances capital accumulation and growth of modern economies. However, a precondition is that economies should channel resources of millions of risk adverse savers to millions of risk neutral borrowers (Bhattarai, 2015). This was realised by Schumpeter (1911) as an advocate of financial development for economic growth. On the other hand, others like Robinson (1952) have contended that financial development is a by-product of economic growth.

Ho et al. (2018) argue that financial sector deepening may increase the real size of the monetary system. A potentially positive macroeconomic effect would be realised through opportunities for the profitable operations of firms. Firms and institutions operating as dealers, industrial banks and

insurance companies would benefit from financial sector deepening. Furthermore, financial sector deepening would contribute to growth by improving the productivity of investment. The expansion in financial services stimulates economic growth by increasing the rate of capital accumulation and by improving the efficiency with which economies use that capital. The positive relationship between financial sector deepening, financial liberalization and growth has also been recognised (Schumpeter, 1911; ; King and Levin, 1993; Demirguc Kunt and Levine, 2009; Yao, Wu, and Kinugasa, 2015).

Proponents of financial sector deepening argue that financial sector deepening yields improved outcomes in the economy. These benefits range from efficiency of the financial sector to economic outcomes for individuals and firms in the economy. Financial sector deepening, coupled with economic development plays a positive role of freeing up controls on interest rates, among other important economic variables (Yao, Wu and Kinugasa, 2015). Along with the services provided by financial intermediaries, such as mobilizing savings, evaluating projects, managing risk, monitoring managers, and facilitating transactions, society benefits in other aspects such as technological innovation, economic growth and economic development (King and Levin, 1993). The economic growth that emerges creates the necessary demand in the financial sector. Improvements in economic growth necessitate the demand for money and expenditure on socio-economic needs in the economy (Karimo and Ogbonna, 2017). Therefore, the advances in the economy result in a higher demand for the use of money. This ultimately promotes financial development. Financial markets and firms develop due to the increased demand for their services. However, this is ultimately dependent on the growth of the real sector.

The evolution of the financial deepening literature has led to the recognition of the financial sector beyond formal and conventional banking. Traditional banking has emphasized functions such as

the mobilization of savings, facilitating financial transactions, exerting corporate control and managing financial risks (Schumpeter, 1911; Levin and King, 1993; Bhattarai, 2015). Consequently, improvements in banking riding on technological innovation has also led to the growth of alternative but similar banking mechanisms. This has been the case with financial service provision using mobile money (Donovan, 2012; David- West, 2015; Aron, 2017). The financial sector deepening theory explains how financial inclusion through mobile money has led to improved social economic outcomes. Coupled with conventional banking, more investments and savings have been encouraged to support the growth of economic activities.

The growth of the financial sector through options such as mobile money has improved economic outcomes for the previously unbanked and disadvantaged households. Growth of firms has similarly been supported by mobile money. This has happened with a wide majority of people already using mobile phones applications to settle financial obligations related to payments, savings and investments (Aron, 2017; 2018). The rapid increase in mobile phone users and subscribers of mobile money positively influences financial inclusion. The prices of mobile money services are relatively affordable. This encourages adoption of more services such as credit, insurance and microfinance services.

Furthermore, the sustainability of the results of financial inclusion and financial sector deepening may be assured through the availability of mobile money agents. Mobile money agents are the financial intermediaries and act as bank branches for mobile money service consumers. Agents normally have sufficient liquidity to ensure sustainable service provision and clientele satisfaction during transactions. The need for customers to make deposits and withdrawals of cash from their accounts promotes the convenience that may not necessarily occur with conventional banking. Furthermore, the network of mobile money agents has great potential to expand services of mobile

network operators in remote and rural locations. Mobile money thus supports deeper financial penetration in unbanked geographical areas of the population. These are usually locations where physical bank presence is expensive and non-existent, yet more people need access to financial services. The ability of many people to access such services through mobile money promises positive results for poverty reduction especially among low income households (Aron, 2017). Mobile money has helped to address concerns in economic growth with equity in financial service provision. While advancing financial inclusion has also led to efficient payment systems, mobile money also promotes more balanced social and economic development.

However, the theory of financial sector deepening does not exactly look at the inclusion of mobile agents as potential consumers of mobile money services. This study departs from this observation by considering financial inclusion of agents as consumers of services on mobile money platforms. Once agents start using mobile money, they become financially included and are likely to consider adopting other empowering financial products, such as a bank account or microfinance. Rapid growth in the mobile money industry, in particular, has led to increased access for the less privileged and the disadvantaged population to affordable financial services not only within, but also across borders (David-West, 2015). Financial inclusion has been hailed to allow the underprivileged population, who may be agents sometimes, to lead better social and economic livelihoods. For example, most times, agents themselves consider using financial services on mobile money platforms for their personal needs to save, invest and even conduct other transactions easily and cheaply. However, agents are often overlooked as users and only regarded as means to extend the supply of mobile money services.

This study still recognises that the theory of financial sector deepening is useful in explaining the distinctive role of agents in the mobile money eco-system. Agents are individuals contracted by

mobile network operators to facilitate transactions for users. Agents however make decisions to be financially included for personal benefits associated with the convenience that mobile money offers. As they perform important cash-in and cash-out transactions for customers or themselves, in many instances, agents register new customers to mobile money networks. They expand the delivery of financial services and in this way contribute to financial inclusion. Agents usually earn commissions for performing mobile money transactions for themselves or their clients. The commissions earned are a source of income that is dependent on the volumes of transactions. The more transactions an agent makes, the higher the value of the commissions and vice versa. As a result, some agents also expand locations as commissions earned increase with volumes of transactions performed. Typically, as agents extend financial service possibilities to the unserved and underserved, they earn commissions from performing mobile money services which may positively impact their livelihoods. As such, the theory of financial sector deepening is useful in explaining extension of financial services as well as the impact of this process on livelihoods of agents.

3.2.2 The Technology Acceptance Model

The Technology Acceptance Model is a theoretical model developed by Davis (1989) and evaluates effects such as system characteristics on user acceptance. The Technology Acceptance Model makes the assumption that users of computer technology act quite rationally and use information in a systematic manner to make decisions on whether or not to adopt and use particular technologies in the workplace (Gefen and Larsen, 2017). Thus, the decision to adopt a particular technology begins with some rational evaluation as coined in the Theory of Reasoned Action. Dixit and Prakash (2018) adapted the Theory of Reasoned Action as a critical basis for causal links between perceived usefulness, perceived ease of use, attitude towards using technology and

behavioral intention that help to explain technology adoption. The notion of relative advantage is important in the process of technology acceptance and adoption. It refers to the degree to which a new innovation is perceived as providing more benefits than its predecessor.

The relative advantage of emerging technologies often results in increased efficiency, economic benefits and enhanced status (Kamana, 2017). The relative advantage of an innovation is positively related to the rate of adoption (Ashraf, et al., 2014). Typically, when users perceive relative advantage or usefulness of a new technology over an old one, they are more inclined to adopt it (Martens, et al., 2017). In the context of mobile money technology, relative advantage over conventional banking, has been reported. For instance, mobile money has been hailed to offer benefits such as convenience and affordability of services among users (Aron, 2015).

The Technology Acceptance Model is essentially adopted from the Theory of Reasoned Action model and is primarily used to predict users' acceptance of Information Technology and usage in an organizational perspective. The Theory of Reasoned Action explains the behaviour of people in using a certain technology in specific situations. The Technology Acceptance Model thus focuses on the attitude explanations of intention to use a specific technology or service. It concentrates on perceptions around the usage of technology as opposed to real usage. The Model posits two essential factors namely, (i) Perceived Usefulness (PU) and (ii) Perceived Ease of Use (PEOU). PU describes the degree to which a person believes that using a particular technology or system enhances his or her job performance without regarding other limitations. PEOU identifies the degree to which an individual believes that using a particular technology or system would be free of effort (Davis, 1989). This suggests that while a new technology is presented to the potential adopter or user, two attitude-affecting factors, PU and PEOU, influence the decision of users about how and when they will use it (Verma, et al., 2018). This implies that before adopting a

technology, users consider the extent to which a technology eases the way in which work is done by possibly increasing efficiency. Workman (2007) as a proponent of the Technology Acceptance Model argues that people form attitudes and intentions towards new technologies such as personal computers. This is because new technologies are considered to be complex and possess an element of uncertainty in how useful they would be for adopters and users. Decision makers have to critically think of the relative advantage of the new technology, try to learn to use it and encourage others to also use it. However, a notable limitation of the Technology Acceptance Model pertains to the analysis of behavior of users. This is inevitably evaluated through subjective means such as behavioral intention (BI) and interpersonal influence.

Notwithstanding, the Technology Acceptance Model is utilized in this research because of factors enhancing and increasing the use of mobile money services by agents and other users. Increased use of mobile money technology could have an impact on its acceptance as a financial access tool across mobile money agents as they decide to be financially included. Eventually, this could positively impact the livelihoods of agents as they get better ways to save, transact and invest using mobile money. This is given the assumption that mobile money technology may have some usefulness to the agents and their social networks. Mobile money technology may also embody some usefulness in the growth of the businesses operated by mobile money agents and tellers. Mobile money technology may potentially have usefulness across agents who use it and help them record growth in their household income and consumption patterns. This may lead to mobile money being widely adopted as a means of financial inclusion among agents, thereby improving their ability to boost personal savings and encourage improved livelihoods.

The mobile phone as a channel through which mobile money technology thrives has perceived benefits. Some perceived benefits of mobile phone adoption include; easy communication with

family, friends, suppliers and customers, easy business transactions, reduction of travelling costs, reducing the geographical separation between the rural and urban and facilitating sales revenue growth and therefore raising the business status. The Model fits well in relation to the PEOU in this study. This is because the Model may be applicable in explaining how mobile money agents can reduce poverty and vulnerability in their households. Given that mobile money is easy to use, this may encourage more agents to be banked through the use of mobile money technology, thereby increasing personal savings, facilitating affordable and convenient transactions channels and investing in mobile money businesses. In return, mobile money agents may accrue pecuniary and non-pecuniary benefits just by adopting mobile money services provided that mobile phone technology is easy to use.

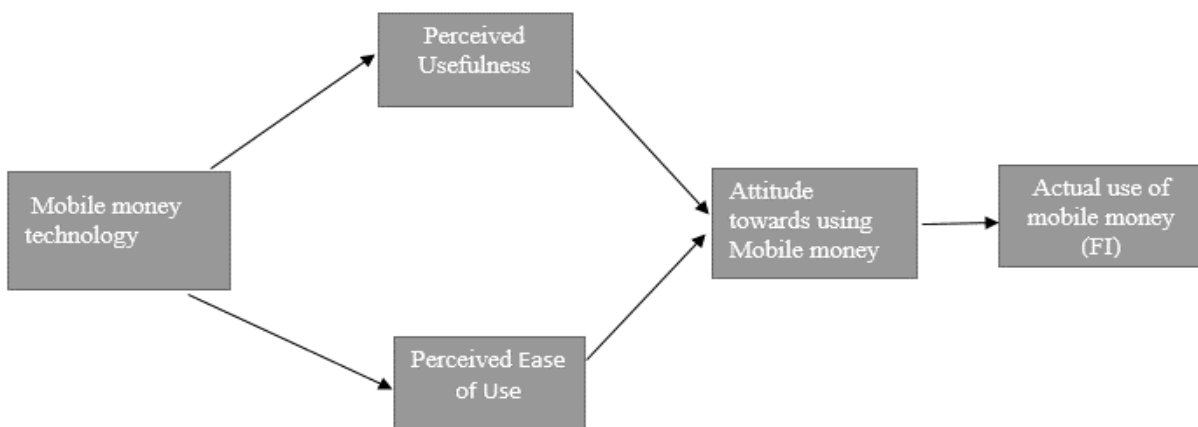
Mobile money can be operated through mobile phones regardless of the type of phone one uses. In this case, mobile phones can be adopted and mobile money services which are easy to learn and cope with can be offered. For instance, the effort or skills required to make mobile money transactions or indeed operate a mobile phone are not acquired through intensive training. Furthermore, agents and tellers and their customers can make transactions with follow up calls regardless of age or education levels.

Mobile money agents can also utilize mobile phones as communication devices. They can send and receive messages on new products, distribute pictures of their products using social media platforms like Facebook, Instagram, Whatsapp and so forth. Mobile phone technology can easily be used by agents and tellers to establish a business network with less effort than anticipated. The mobile money agents and tellers can also use mobile phones to receive information on radio about the products highly demanded by the customers. They can also be informed about daily exchange

rates, take note of business meetings using the mobile phones' calendar. In addition, mobile phones can also be used to improve daily purchase and sales enhancing bookkeeping skills.

Therefore, mobile phone applications and their perceived uses can improve savings and investment decisions of agents with little effort. This has potential to improve the savings rates among agents and even encourage smoothed consumption across households headed by mobile money agents. Considering agents as consumers of mobile money services, the convenience of saving using a mobile phone and paying for basic necessities from commission income earned, may potentially improve agents' livelihoods. The perceived benefits of using mobile phone technology and mobile money services are pulling factors for the adoption and usage of mobile phones in Zambia. Further, the associated ease of usage of mobile phones can explain why mobile money technology is being adopted as a financial inclusion tool by mobile money agents. Therefore, both the PU and PEOU attributes reveal the theoretical significance of the Model to this study. Figure 3.1 illustrates the framework implied in the Model.

Figure 3.1: The Technology Acceptance Model



Source: Constructed based on Davis (1989); Rumanyika and Mashenene (2015)

Kappel (2010) specifies that principally the TAM is used to test the intentions of users of a specific technology to assent or refuse the use the technology, in this case, cashless mobile money payments. The Model is an applicable model in this study given that the usage of mobile money in Zambia is growing and becoming a widely acknowledged channel of financial inclusion. Individuals such as agents are assumed to use mobile money technology when they get knowledge of it and are persuaded that it is good for achieving needs to save, transact and invest. On the other hand, mobile money technology should be evaluated as good when adopted by a number of users such as mobile money agents.

3.2.3 The Diffusion of Innovation Theory

The Theory of the Diffusion of Innovation is a theory coined by Rogers (1962) and seeks to outline how new technologies spread throughout societies and cultures, from introduction to widespread adoption. Rogers (2003) refers to adoption as a decision of “full use of an innovation as the best course of action available” and rejection is a decision “not to adopt an innovation,” (Rogers, 2003:177). The Diffusion of Innovations theory thus aims to explain how and why new ideas and practices are adopted, with timelines potentially spread out over long periods (Munjogu and Namusonge, 2017). Accordingly, diffusion of innovations is described by Rogers (1962) as the process by which an innovation is communicated through certain channels over time among the members of social systems. Diffusion of innovations is a special type of communication, in that the messages are concerned with new ideas (Love, 2003; Sahin, 2006). Technology diffusion is thus a crucial process through which technological potential of innovative activities actually get transformed into some form of productivity. Several characteristics of the economic environment through which diffusion occurs may affect the pace of diffusion as diffusion itself provides

feedbacks on the environment. In this theory, a decision made not to adopt an innovation is associated with the rejection of the available new idea.

In order to explain the rate of adoption of innovations, the diffusion of innovations theory suggests measurement of the following perceived characteristics of innovations: relative advantage, compatibility, complexity, trial-ability and observability (Surry, 1997). Love (2003) postulated that the adoption of innovations is influenced by these five characteristics that can explain the rate of technology adoption. Relative advantage is associated with the degree to which an innovation is seen as better than the idea, program, or product it replaces. Compatibility identifies how consistent the innovation is with the values, experiences, and needs of the potential adopters of technology. Complexity refers to the extent to which an innovation can be considered relatively difficult to understand and use. For instance, complexity may discourage the usage of important technologies such as the internet (Manning, 2001). In the case of mobile money technology, for example, the more complex the technology, the more people will avoid using it and vice versa. Complexity may encourage or obstruct the ease of use of mobile money technology among individuals such as agents (Yawe and Prabhu, 2015). According to Merritt (2010), however, there is a strong impact of perceived ease of use of new technology on its adoption. As technologies such as mobile banking come with user-friendly interfaces, users consider them easy to use, and form positive attitudes towards them.

Observability of an innovation refers to the extent to which an innovation is visible to the members of a social system and benefits can be easily witnessed and communicated. Merritt (2010) redefined observability using two constructs, namely, visibility and result demonstrability. In the context of mobile money, observability may be regarded as the ability to access the saving, payment and other banking related services at any time and from any location. This way an

individual can observe how the technology and its benefits work for them. The effect of availing mobile money transactions immediately and conveying the accessibility benefits to others is critical to observability.

The Diffusion of Innovation theory remains one of the oldest theories in the social sciences that has found its application in the evolution of technology for financial inclusion. In the study of mobile money, the theory explains how, over time, an idea or product (mobile money) gains momentum and diffuses (or spreads) through a specific population or social system (Yawe and Prabhu, 2015). Subsequently, the end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product such as mobile money based on relative advantage, compatibility, complexity, triability and observability. In the mobile money context, adoption implies that a people are now able to save, invest and transact differently using their mobile phones (Aron, 2018). This implies that users adopt new ways of purchasing products, saving money and making withdrawals of funds given new product such as mobile money. Individuals eventually acquire a new behaviour based on the adopted technology. The key to adoption of technology across a social system, however, is that the users must perceive the idea, behavior, or product as new or innovative. It is through the perceived ease of use and increased observable benefits that diffusion of new technology becomes possible.

The Diffusion of Innovation theory is however criticised for not taking into account an individual's resources or social support to adopt the new behavior (or innovation). Due to the lack of support in using new technologies, the adoption of a new idea, behavior, or product (innovation) does not happen uniformly in a social system. Rather, it is a process in which some people adopt the innovation earlier than others. This is the case with mobile money agents who normally adopt mobile money technology much faster and become frontline users compared to other users in a

society. Sometimes, other agents find mobile money difficult to use and decide to opt out of usage of the technology. However, in most cases, people who adopt an innovation early have different characteristics than people who adopt an innovation later. The Diffusion of Technology Theory helps to explain the determinants of mobile money adoption among users such as agents considering the growth in mobile money usage in Zambia.

3.2.4 Transaction Cost Theory

Financial inclusion is hailed to promote poverty reduction at household level. Transaction cost economics may be used to explain financial inclusion with its link to mobile money. The rationale for this is that financial inclusion rides on the potential of expanding financial transactions to the wider and often marginalised population. The frequency and probability that economic agents will subscribe to financial transactions is however determined by the cost implied in these transactions (Boudreau, et. al., 2007).

Transaction cost economics generally explains the alternative modes of organising transactions. It relates to governance structures, for instance markets, hybrids, firms, and bureaus that minimise transaction costs (Williamson, 1979). The Transaction cost theory posits that the organisational structure that is optimum is one that achieves economic efficiency. Economic efficiency is achieved by minimising the costs of exchange between parties. The theory further suggests that each type of transaction produces coordination costs of monitoring, controlling, and managing transactions. Transaction costs can also be broadly categorized as costs of running an economic system of firms. However, these costs may be distinguished from production costs, as they are costs incurred in exchange transactions. Economic agents as decision-makers can make a choice

to use firm structures or source services from the market by comparing transaction costs with internal production costs. Therefore, cost is the primary determinant of such a decision.

The transaction cost theory suggests that the transaction is the basic unit of economic activity, where a transaction “may be said to occur when a good or service is traded across a technologically separable interface” (Williamson, 1993). A transaction cost is a cost experienced in making an economic exchange. Transaction costs are costs over and beyond the price of the product or service that economic agents procure. They broadly break down into motivation and coordination costs (Milgrom and Roberts, 1992). Opportunism (Williamson, 1985) and agency costs (Jensen and Meckling, 1976) are components of motivation costs. Coordination costs include search (Stigler, 1961), input coordination (Alchian and Demsetz, 1972), and measurement costs (Barzel 1982). These costs can be extended across multiple economic exchanges in reality (Boudreau, et al., 2007).

The transaction cost theory has been applied in most studies with a strong focus on efficient organisation of exchange. Aron (2017) notes that mobile payments substantially reduces the transactions costs of sending and receiving money over sometimes substantial distances. This is especially the case in places where there are poor and expensive transport links. Further, Jack and Suri (2014) argue that in Kenya, where families and social networks are widely-dispersed from internal migration, remittances on average travel 200 kilometers. Lowering transaction costs has potential to increase the size and frequency of remittances as well as the ability to smooth risk. Transaction costs are reduced for mobile money customers who seek to acquire cash, if agents are readily available. However, mobile money “infrastructure” has to be in place and working well to reap these benefits. In addition, a poorly monitored agents’ network may be subject to “leakages” (Aron, 2017: 29).

Further, the transaction cost theory demonstrates that promoting financial inclusion through highly insecure and unsafe environments may be difficult to achieve even with low cost avenues like mobile money. This was noted in Aker et al. (2015). Blumenstock et al. (2015) posit that agents face limited scope for network operations in areas like Niger and Afghanistan. The difficulties that mobile money users, like agents, face to access cash substantially raises transactions costs for mobile money services and financial inclusion as whole.

Aron (2017) sums up the high transaction costs in this context to include the transport costs of travel to a bank, utility company or government office. The travel time and waiting time in long queues during exchange also comprise high transaction costs. There are also emerging coordination costs between individuals, firms and suppliers or customers. These can be extensive in both time and money lost. There are also costs of delays and “leakage” through corruption or middlemen with insecure methods of transfer. These act as a tax. At the extreme, there is the cost of complete loss through theft. The loss of money and loss of time during these transactions have an opportunity cost. The reduced funds arising from the transactions could have been invested, spent or saved in alternative uses. Similarly, the reduced time could have been spent in productive activities, such as other businesses, agricultural production or innovation.

Notwithstanding, if transactions are infrequent, this raises overall costs. Therefore, the costs of alternative governance structures may not be justified. Yet, more frequent and high volumes of transactions, warrant the basis for alternative governance structures and may justify expansion (Clamara and Tuesta, 2014). Thus, it is important to consider the volume, number, and/or temporal spread of transactions because of the implications for overall transaction costs. Mwangi, and Sichei (2011) argue that if transactions are infrequent, alternative governance structures may not

be necessary or feasible. The degree of frequency of transactions ranges from occasional to recurrent.

Proponents of the transaction cost theory argue that the transaction costs theory revolves around organizational efficiency. Ketokivi and Mahoney (2016), in this context, highlight how a complex transaction can be structured and governed so as to minimise waste. They indicate that the efficiency objective calls for identifying the comparatively better organizational arrangement and the alternative that best matches the key features of the transaction. However, Alaghehbanda et. al (2011) suggest that the frequency, specificity, uncertainty, limited rationality, and opportunistic behavior largely determine transaction costs.

The transaction cost theory is employed in explanations of the pricing of mobile money services relative to conventional banking services. Mobile money attracts large volumes of subscribers who are normally not served by formal banks. The low cost of mobile money services allows for the poor sections of the populations to use banking services. The low-cost banking provided for in mobile money considerably caters for a number of customers who formerly could be served only at a very high cost. Aggarwal and Klapper (2013) posit that a transaction cost has a direct effect on consumer adoption of a service if the cost is passed on to customers. The usage of mobile banking whether formal or informal is influenced not only by absolute prices. Rather the way a service is priced and its addition to the fixed and variable costs that are transferred to customers is also a factor.

Mobile money is a service that is known to significantly lower the fixed and variable costs that are associated with the transfer of money. This, in return enables households to smooth consumption more successfully. The mechanisms by which such improved smoothing can arise is firstly through lower costs. Lower costs allow for both a wider range of shocks to be offset by transfers and an

increase in the stake of each shock that is remunerated. Secondly, lower transactions costs, with reduced travel time (Kinnan and Townsend, 2010), among others, extend huge benefits to users. Low transactions costs have the capability to expand the scope of the network of the stakeholders involved in the smoothing of risk (Jackson, 2010).

The transaction cost theory applies to this study through reduction of consumer costs of mobile money transactions. Mobile money services largely depend on volumes of transactions that users such as agents make. As consumers or agents demand mobile money services, they are rationally attracted to reduced costs of transactions. Thus, it would be expected that if mobile money lowers cost of exchange, then mobile money services would be demanded a lot more. The agents who also use mobile money services may register some increased earnings due to increased volumes of transactions on their accounts. For instance, if agents as users of mobile money services consider mobile money to reduce transaction costs, they would use it relatively more than traditional financial services. This would lead to increased volumes of transactions that agents record, possibly stimulating an increase in commission income earned by agents for each transaction. Low costs of transactions also increase the disposable income that agents have to manage their households. This may lead to more availability of income that may be channeled towards payment for some indicators of livelihoods such as education and health.

3.3 Conceptual Framework

There are competing ways of understanding the conceptualisation of research ideas using conceptual frameworks. Ravitch and Riggan (2016:16) identify a conceptual framework as a graphic or in print product describing, either graphically or in descriptive form, the key aspects under investigation. The conceptual framework of the study is based on a modified TAM, proposed

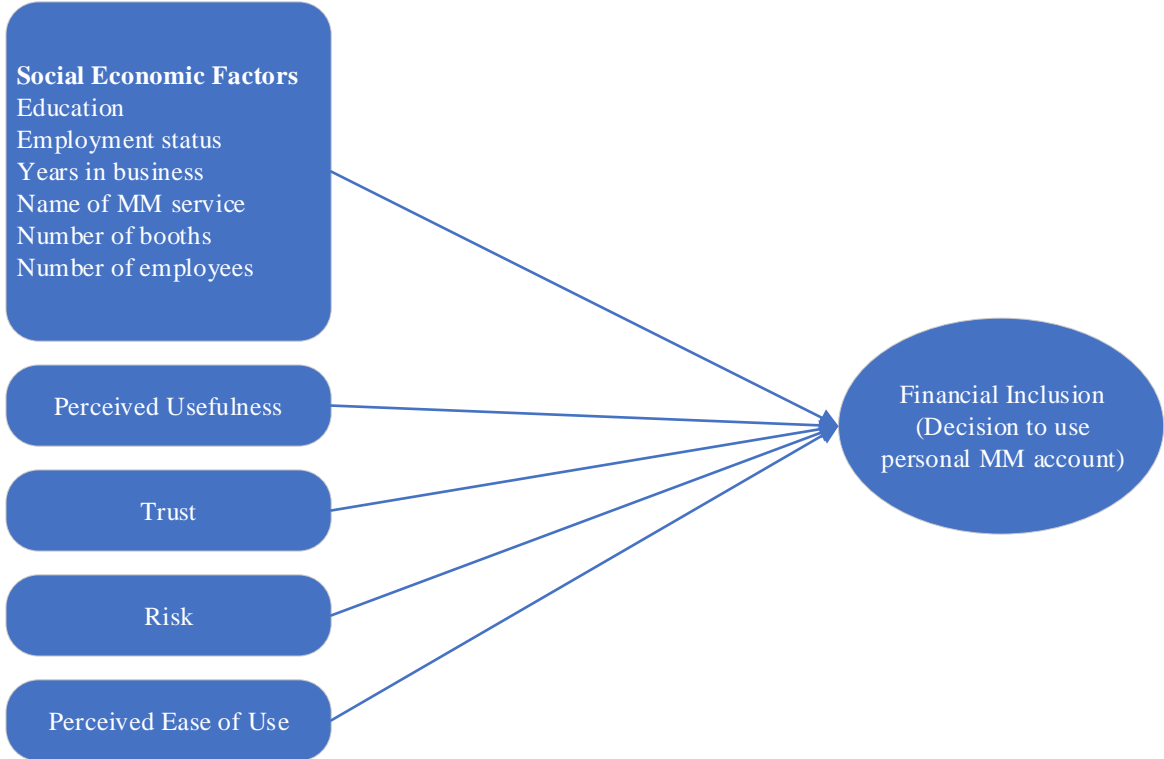
by Davis et al. (1989) as cited by Li, and Bai (2010). The TAM is primarily intended to foretell users' acceptance of Information Technology and usage in an organizational perspective. By focusing on the attitude explanations of intention to use a specific technology or service, the TAM deals with perceptions as opposed to real usage of technology. This suggests that while a new technology such as mobile money is presented to the potential adopters, two attitude-affecting factors, perceived usefulness and perceived ease of use, influence their decision about how and when they will use it (Li and Bai 2010).

Within the Information Systems (IS) and mobile money literature, models such as the TAM have been employed to empirically explore the factors of technology acceptance (Tobbin, 2010; Adebisi et al. 2013; Mutahar et al., 2021). Grounded on the objectives of this study, and due to the importance concerning the explanation of online consumer behavior, we have employed the TAM as an attitudinal model and theory based on social-economic psychology (Salloum et al., 2019). The TAM has also been considered as the most robust, parsimonious and persuasive model in innovations acceptance behavior (Munoz-Leiva, et al., 2017). Thus, we consider this theoretical model as a background for the drive of the present study.

The TAM posits that attitude toward the use of new technology as a construct may be explained by two perceived variables: usefulness and ease-of-use. Various studies apply the TAM model to predict intentions to adopt new technology by individuals, groups, or organizations. They included components such as Perceived risk and trust as an extension to TAM by Davis et al. (1989) (Pavlou, 2003; Schnall, et al., 2015; Meyliana, and Fernando, 2019). This study employed these empirical perspectives and modified the conceptualisation of the TAM model in an economic research context. Specifically, the study used perceived usefulness and perceived ease-of-use from TAM, with the addition of perceived risk and trust to help understand and predict actual usage of

personal mobile money accounts among agents. Further, the study adds selected social economic variables as inspired by the Living Conditions Monitoring Surveys in Zambia. Collectively, this was useful in explaining financial inclusion through mobile money usage by agents. Figure 3.2 displays the conceptual framework of the study

Figure 3.2: Conceptual Framework of the Study



Source: Author’s own construction.

3.4 Empirical Literature

The innovation of mobile money technology has inspired a variety of studies related to the economics of mobile money and its impact on financial inclusion. In this process, mobile phones are identified as a versatile tool that simplifies use of financial services and improves financial access to a growing number of the unbanked. The capacity of mobile finances to constitute an

instrument which allows for the integration of a higher number of the unbanked is the subject of several studies (Coulibaly, 2020). The majority of studies on mobile money, however, are preoccupied with the question of adoption of mobile financial services based on the benefits it provides.

Aron (2015) examined the micro and macro aspects of mobile money and how mobile money has leapfrogged on existing mobile technologies, potentially impacting the economy. On the micro front, while applying the transactions cost theory, the study finds that mobile money reduced transaction costs. Mobile payments substantially reduce the transactions costs (in cash and time) of sending and of receiving money over sometimes substantial distances, where there are poor and expensive transport links. The major transaction costs cited include, “*transport costs* of travel to a bank, utility company or government office; the *time it takes to travel* and *the time to wait* in long queues; *coordination costs* between individuals, between firms and suppliers or customers” (Aron, 2015:26). Mobile money was found to also provide insurance against idiosyncratic shocks like theft. Mobile money also has potential to change family dynamics and social networks. It is argued that mobile money could also lead to improved communication and coordination in a social network with mobile phones and instantaneous mobile payments could improve planning and efficiency.

Prina (2015) used a field experiment on a large sample of female household heads in Nepal to investigate how bank accounts held with zero maintenance fees impact income and allocation of expenditure. The findings in the study indicate that zero fees and physical proximity of the bank led to high take-up and usage rates of bank accounts held by the sampled participants. However, impact on income, aggregate expenditures, and assets were found to be imprecisely estimated to draw a reasonable conclusion. The reallocation of expenditures across categories was characterised

by more spending on education, meat and fish as opposed to health and dowries. Expenditures were also found to be allocated to more needs such as coping with shocks. Qualitative outcomes of the study revealed that the overall financial situation improves when people have affordable means to save. The study also indicates that there was a general lack of a clear story on mechanisms, yet strong result on aggregate self-perception of financial wellbeing. This is consistent with access to quality savings accounts leading to household improvements via multiple mechanisms.

Johnston and Mordouch (2008) analysed the impact of expanding financial access to the poor using a sample of 1,438 households earmarked to be categorised as credit worthy by bank professionals in Indonesia. Approximately 40 percent of the households were considered credit worthy with fewer than 10 percent having successfully borrowed from a bank or microfinance institution. The results of the study reveal that possessing collateral was a minor determinant of creditworthiness in keeping with microfinance innovations. Households were also found to be able to service loans successfully on condition that loans were small amounts. Yet, for banks, given their fee structures among other costs, lending to such small clients would be costly. Therefore, while innovations have helped extend financial access, most financial institutions would not lend money in small amounts in order to cover costs. Accordingly, Aron (2015) argues that mobile money offers an avenue to service individuals who may not be covered by banks due to high bank maintenance costs.

Akinyemi and Mushunje (2020) investigated the determinants of mobile money adoption in rural areas of Africa based on secondary data. The analysis employed a two-part logit and ordinary least squares model. The first part involved the adoption of mobile money and the second part looked at how much money was sent or received using mobile money. The two-part model findings

indicated that age, years of education, unemployment, and ownership of bank accounts explained both the adoption and the amount of money sent using mobile money technology. On the other hand, age, bank account ownership, and net monthly income were found to determine both the adoption of mobile money and the amount of money received using mobile money technology. The study recommended that mobile money operators target rural dwellers that are young and educated with a net monthly income in their marketing strategies in order to encourage its adoption among the unbanked.

Lundqvist and Erlandsson (2014) investigated the penetration of mobile phones and possible impact on financial inclusion and economic growth in 44 African countries during the period 2000-2011. Specifically, the study analysed the relationship between mobile phone penetration, captured by the number of mobile phone subscribers per capita, and economic growth using dynamic panel data model approach. The results of this study indicate that mobile phone penetration has an ambiguously beneficial impact on economic growth. In addition, a part of the positive effect of mobile phone technology is channelized through financial inclusion.

Adebiyi et al. (2013) reconstructed the Technology Acceptance Model in order to investigate the factors that influence the adoption of mobile payments in Nigeria. The Technology Acceptance Model was a revised model that integrated Compatibility, Relative Advantage, Complexity, Trust and Security and Cost with Technology Acquisition Model constructs (Perceived Usefulness, Perceived Ease of Use and Behavioral Intention to use) to investigate what influences Nigerian consumers' adoption of mobile payments. The study covered a total of 250 respondents in Lagos who are users of mobile phones. The results of the study indicate that Nigerians appreciate the benefits of a cashless economy based on convenience of managing finances through a mobile phone. Further, ease of use of mobile payment systems and reduced transaction time costs enable

high levels of adoption. On the contrary, the complications in the interface systems, trust and security associated with service providers and agents are a source of concern.

Economidesy and Jeziorski (2016) analyzed a large individual-level data set of mobile money transactions in Tanzania. This was with the aim to provide evidence of the impact of mobile money on alleviating financial exclusion in developing countries. The three types of transactions identified included money transfers to others, self-transportation of money across short distances; and money storage for short to medium periods of time. The study utilised a natural experiment of an unanticipated increase in transaction fees to identify the demand for these transactions. Using the demand estimates, the study found that the willingness to pay to avoid walking with cash an extra kilometer (short-distance or self-transportation) and to avoid storing money at home (money storage) for an extra day are 1.25% and 0.8% of an average transaction, respectively. The results of this study demonstrate that mobile money alleviates significant amounts of crime-related risk and improves financial inclusion outcomes.

Several studies have also conducted an examination of socioeconomic factors that influence the adoption of mobile money services. Okello et al. (2018) attempted to test the moderating effect of social networks in the relationship between mobile money usage and financial inclusion in rural Uganda. The results of the study revealed the existence of a significant and positive moderating effect of social networks in the relationship between mobile money usage and financial inclusion in rural Uganda. Moreover, mobile money usage and social networks were found to have direct and significant effects on financial inclusion in rural Uganda. The findings of this study suggest that the existence of social networks of strong and weak ties among mobile money users promote financial inclusion in rural Uganda.

Similarly, Murendo et al (2015) attempted to identify the role of social networks in the adoption of mobile money in Uganda. This study employed survey data based on 477 rural households and a probit model. The results of the study suggested that training within social networks contributes to the diffusion of information on mobile money and improves adoption. Relative to poor households, non-poor households largely dependent on social networks in terms of obtaining information on mobile money. The study also assumes that the adoption of mobile money is likely to be improved if promotional programmes reach more socially integrated networks. Further, the study notes the M-Pesa mobile money system has been adopted at the national level in Kenya due to the many benefits it avails to users.

Munyegera and Matsumoto (2014) also investigated the impact of financial innovation on household welfare using household survey panel data from rural Uganda. Results of this study reveal that adopting mobile money services increases household per capita consumption by 72 percent. The results show that the mechanism of this impact is through the ability of mobile money to facilitate remittances. With mobile money, households are more likely to receive remittances more frequently and the total value received is significantly higher than that of non-user households. This way mobile money improves the welfare of beneficiary households.

Gikunda et al. (2014) equally examined the socioeconomic effects of mobile money adoption on the means of subsistence in the sub-county of Bureti in Kenya. The study utilised a purposive sample of 105 Mpesa owners and operators from three divisions, namely, Roret; Cheborge, and Buret. Primary data was collected using a structured questionnaire and the data was analyzed using descriptive and inferential statistics. The results of the study revealed a positive correlation between M-Pesa and employment creation, access to credit facilities and the generation of income.

Further, the indication of the results is that mobile money through M-Pesa enhances social capital between families and friends,

Mbiti and Weil (2011) examined how M-Pesa is used as well as its associated economic impacts. The study analysed data from two waves of individual data on financial access in Kenya. The findings of the study indicate that increased use of M-Pesa lowers the propensity of people to use informal savings mechanisms such as rotating savings and credit associations (ROSCAS). However, increased use of M-Pesa raises the probability of people who are likely to become banked. Calculations based on aggregate data in the study showed that the velocity of M-Pesa stood at roughly four person-to-person transfers per month. Moreover, M-Pesa was found to influence a decrease in the prices of competing money transfer services such as Western Union. Yet, inasmuch as there is little proof that people use their M-Pesa accounts as places to keep their savings, M-Pesa improves individual results by promoting banking services and increasing transfers.

Fredrick (2014) examined the effect of mobile money usage on microenterprise profits in Zambia. In this study, an instrumental variable strategy was used to identify the type of mobile operator as the instrument. This was done in order to address the selection bias in adoption given that mobile money services are available to everyone. The results of the study reveal that the ability for people to access affordable financial services is linked with overcoming poverty, reducing income disparities and increasing economic growth. Mobile money reduces the extent to which the underserved population in the financial sector lack access to the financial services needed to invest in their livelihoods. The study finds that the financially excluded group includes women, youth and rural residents. These people are usually unable to protect their assets to enable them to move out of poverty or prevent falling deeper into poverty. Among firms, the younger and smaller ones

are confronted by more binding constraints to finance as compared to larger firms. Through mobile money, the unbanked and excluded segment is served and uplifted from some form's poverty.

3.5 Chapter Summary and Research Gap

Researchers through many studies have investigated financial inclusion using mobile banking and mobile money channels. There is evidence that mobile money positively influences financial inclusion and, in some cases, improves the welfare of users. For example, mobile money has been noted to reduce asymmetric information and improve transparency in financial transactions, increase savings and improve the nature of saving (Aron, 2015; Economidesy and Jeziorski, 2016; Akinyemi and Mushunje, 2020). Yet, most studies on the relationship between mobile money and financial inclusion focus on household level analyses. The studies reviewed in this thesis do not bring out determinants of mobile money adoption as well as the impact of mobile money on the livelihoods of specific users such agents. Agents are mostly regarded as passive intermediaries when they may also be able to use mobile money for inclusive finance purposes at the individual level. The empirical literature, while being useful in discussing mobile money, does not specify units of analysis such as agents in the mobile money ecosystem. However, agents are individuals who would benefit from the many positive facets of mobile money and their personal intentions to adopt mobile money is investigated in this study.

The surveyed literature mostly analyses mobile money using the quantitative approach. There is limited in-depth analysis through qualitative approaches in the study of mobile money and financial inclusion. This was also noted by Akinyemi and Mushunje (2020). Thus, understanding some key determinants of mobile money adoption among mobile money agents would also require employing qualitative techniques to get in-depth insights on mobile money and financial inclusion.

The use of qualitative techniques may also bring out unique impacts of mobile money on livelihoods of agents. Qualitative insights would also highlight the challenges that mobile money poses on users, such as agents, which are not highlighted in the surveyed empirical studies. This leaves a gap that will be addressed in this study using ethnographic analysis as a complement to the quantitative approach.

Previous studies have also concentrated only on investigating the impact of mobile money in promoting financial inclusion in developing economies, especially in Sub-Saharan Africa. However, this particular study adopts the Technology Acceptance Model and introduces an agent-level analysis of mobile money and financial inclusion. The study analyses how the livelihoods of agents in Zambia are shaped by the decision of agents to use mobile money, an empirical inquiry which seems to be sparse and lacking in literature. This will be important in contributing to academic literature on mobile money and financial inclusion in the Zambian context.

CHAPTER FOUR: PHILOSOPHY AND METHODOLOGY OF THE RESEARCH

4.1 Introduction

Financial inclusion is a key component of the discipline of finance and economics. It has particularly found its place in the social sciences through discussions in public policies emerging from the interrelation of finance and economics. Social sciences in general point to the importance of exploring the links between development of theory and its application to empirical research. Research is structured and given direction by existing theory (Goode and Hatt, 1952). Hence, the development of theory largely depends on research. This study adopts an eclectic research philosophy. However, in order to justify the study's espousal of this paradigm in guiding the methods and data management, this chapter examines the following: the link between methodology and research philosophy; review of various research philosophies and; delves into the actual methodology that the study adopted based on the adopted research philosophy. The actual methodology employed in the study describes the type of data used in the study as well as sources of data, research design and the target population. This is followed by the sampling methods and the techniques that were used to select the sample size. Similarly, we describe how data was collected and analysed.

4.2 The Nexus Between Methodology and Philosophy of Research

The general notion of methodology has often been used to refer to procedures and/or techniques applied in the collection of data. Kothari (2004) and Taylor et al. (2015) understand methodology to mean the way people approach problems and seek answers to specific problems. In essence, it is a whole system of principles and ways of organizing and structuring theoretical and practical activity. However, an adequate conceptualization of the term methodology should rarely neglect

the theoretical basis of social research methods. An examination of the relationship between techniques and their broader theoretical considerations is key to inquiry (Sjoberg and Nett, 1968). Taylor et al. (2015) observe this by looking at methodology in the social sciences to be all encompassing of how research is conducted. Therefore, this study adopts a broader view of methodology. Methodology in this study thus considers the techniques and procedures employed to seek answers to research questions. The examination of the relationship between techniques and procedures with the broader logical and theoretical considerations of the research project is also implied in the conceptualisation of methodology.

Philosophy and methodology do not have a direct relationship in scientific research and practice. Many scholars, for instance Agustin (2016) and Sjoberg and Nett (1968) point to the rigidity propositions that some theoretical frameworks have. In their view, only certain theoretical frameworks and techniques can be used together. Eyles and Lee (1982) and Schhneider (2016) similarly observe that a researcher cannot select a concept from one approach and employ a method or view from another approach. This translates into individual judgement and commentary that does not side with any philosophical orientation (Schhneider,2016). These perspectives strongly point to the lack of flexibility and the mechanistic nature of approach to research.

Yet, inspirations of Christian Thomasius through some scholars (Eskildsen, 2008; Hunter, 2000; Kelly 2001) posit that it is likely for scientists to adopt eclectic approaches to research. The justification of rigid approaches is therefore not necessarily reasonable. In fact, eclecticism has been employed by modern historians, indicating different philosophical attitudes with a varying number of senses or perspectives. Thus, eclecticism constitutes the tendency of researchers to more or less apply an arbitrary attitude towards accepting other doctrines in their own school of thought. In this case, extraneous elements are considered because researchers are honestly convinced that

these are compatible with, and indeed helpful in explaining or defending, their own doctrine. However, this is as long as within any philosophical framework, the subject matter and associated analytical techniques are articulated in a logical and consistent manner.

This study adopts an eclectic view of constructing the appropriate approach and methodology (Jackson and Smith, 2014). The rationale for choosing the eclectic approach is that this study examines a subject that involves social interaction requiring in-depth understanding of key variables and issues. The study additionally features numerical analyses on the one hand but to a large extent also employs qualitative ethnographic research practices. The study therefore relies on a range of different methods, adopting both qualitative and quantitative data.

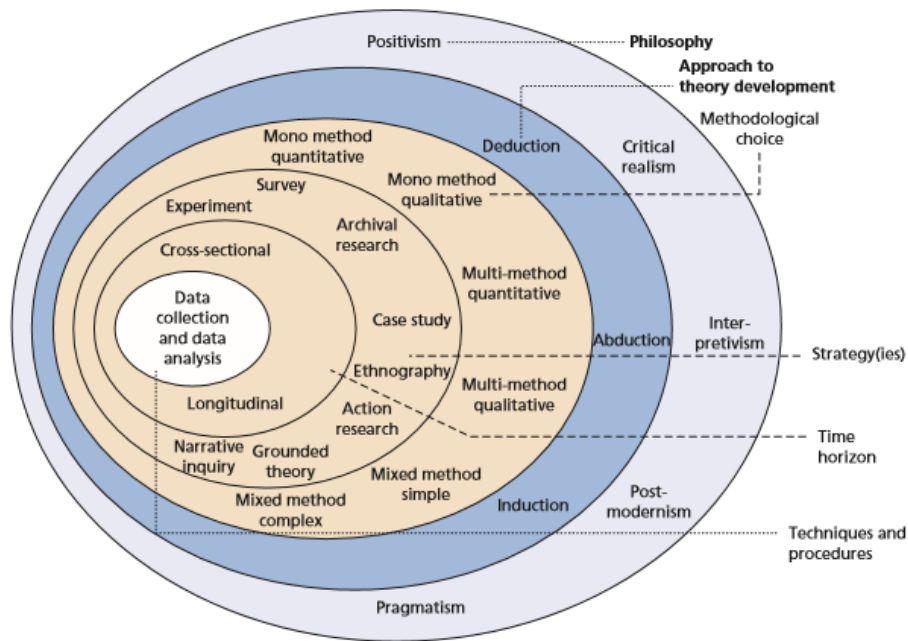
The challenge with other methods like positivism, for instance, is that they would limit the study to the use of only quantitative techniques. Similarly, other opposing philosophies to positivism would restrict the study to only using qualitative approaches. Yet, such a choice of a rigid philosophy would limit the scope for using different methods to answer research questions around mobile money, financial inclusion and livelihoods of agents in Zambia. Thus, throughout the research process this study has used multi-methods (quantitative and qualitative). This is to the extent that the integrity of the different methods has not been compromised. Employing the eclectic approach justifies the interplay between the adopted methodology and research philosophy for the purposes of this study. A further justification is provided by an understanding of the various competing philosophical approaches to research in the proceeding texts.

4.3 A Brief Review of Various Types of Research Philosophies

Research philosophy is of great importance to the development of theories and knowledge. Saunders (2009:124) observes that very often, research philosophy refers to... “a system of beliefs

and assumptions about the development of knowledge.” All research regardless of type conforms to some research philosophy. In essence, the philosophy of any research outlines the ways in which data on a specific subject should be gathered and analysed. This is with the aim of facilitating the development of knowledge in a particular field (Saunders et al. 2007; Saunders, 2009). The philosophy of the research thereby outlines the knowledge development a researcher embarks on. There are competing ways to view the approaches to research. However, it is generally recommended to employ an approach that is best applicable to answering specific research questions that appeal to a particular branch of research philosophy. Figure 4.1 presents a research onion with an overview of some research philosophies and approaches.

Figure 4.1: Research Onion and Research Philosophies



Source: Saunders (2009)

There are many ways research philosophy is visualized. However, Saunders et al. (2007) note that generally, research philosophy can be divided into three common categories namely; positivism, interpretivism and pragmatism or realism (see figure 4.1 for example).

4.3.1 Positivism

Positivism traces its history from Auguste Comte in the 19th century who was the first philosopher to advocate for it. Comte explicitly claimed the label of positivist (Jackson and Smith, 1984; Ryan, 2018). The positivist advanced the idea of “positive thought” with assertions that only observable phenomenon exists. Therefore, the task of an analyst translates into one of establishing law-like relationships between phenomena through accumulation of factual knowledge. Positivism is thus commonly associated with quantitative research and experiments.

Various scholars (Korstanje, 2014; Halfpenny, 2015; Matta, 2015; Ryan, 2018) have argued that positivism is founded on the following basic principles: Firstly, positivism takes negative consideration of speculation to social science research. They believe that this speculation in social sciences is not constructive or practical. Positivists argue that philosophers such as other scientists should not be concerned with matters or issues that involve speculation. On the other hand, they should investigate things through scientific measurement of people and system behaviours. Positivism is alleged to drive the contention that any knowledge that is not concerned with “positive thought” is unscientific and invalid. These principles all form the basis of the positive approach to research. The positive approach thus regards speculation as metaphysical and unscientific. Accordingly, Comte argued that, “in positive society, scientific knowledge would replace free speculation or make it unnecessary” (Holt-Jensen, 1988: 88).

Secondly, the philosophical foundations of positivism form a building block for empiricism. According to Phillips and Burbules (2000), the emphasis of empiricism is that knowledge should be objectively based on scientific observations. The researcher's beliefs and values must be separated from the research in order to eliminate bias. Matta (2015) similarly observes that within positivism, there is a strong belief that reality is stable. Accordingly, this reality can be observed and described from an objective perspective. Yet, such observation must happen without necessarily interfering with the phenomenon itself. Positivism thus guides the belief that hypotheses that are developed from existing theories can be tested by measuring observable social realities. Lakatos and Musgrave (1970) note that Popper (1970) advanced that using empiricism principles, a researcher must apply a step by step approach to test developed hypotheses (systems of theories) with the aim of achieving a logical result. The hypotheses are particularly tested against experience by observation and experiment as scientifically provided. Generally, under positivism, past explained realities and their interrelationships make it possible for researchers to make predictions.

Finally, linked to the second principle, a major precept of positivism is that it is founded on the unity of science. All science must be driven by the same rules and guaranteed by a common experience of reality. A shared scientific approach to enquiry as well as method guarantees that observations can be repeated. Hence, science has a unified method and logical positivists see aims and methods as conventional (Holt-Jensen 1988; Stump, 1992). This view affirms the positivists belief that the natural and social sciences are similar and share a basic methodology. However, the similarity is not by virtue of their subject matter but in view of the comparable logic of inquiry and research procedures. The implication is that positivists consider other sciences (for instance, social sciences) to be much like natural and physical sciences (Matta, 2015; Ryan, 2018).

Economics as a discipline has also embraced some tenets of positivism in a branch called positive economics. Positive economics generally reflects an earlier view of its epistemological parity with some advanced natural sciences. It describes “what is” and thus likened to physical sciences as an objective science (Ray, 2011). Therefore, positive economics has been preoccupied with quantification, operational definitions of variables and a largely formalized methodology. The practice within this field has been drawn towards modelling and statistical analysis of economic phenomena.

The thought of positive economic methodology, however, raises considerations on the positive-normative dichotomy incorporated in various aspects of economics (Hands, 2009). Mainstream economics suggests the use of positive approaches. Yet, mainstream economic methodology incorporates normative characteristics due to the social function of the methodology in general and economic methodology in particular (Berg, 2003; Hodgson, 2007). This presents ambiguity for social science research forming some misgivings with the philosophy of positivism. On the one hand, positivism holds that since we cannot investigate things such as morals and norms subjectively using our senses we should avoid normative questions. Normative questions regarding “what ought to be” would be left to science for description as things are. Science can experimentally or by other measurement, discover the association of causes that explain why things exist like that. On the other hand, the ideal case is that science is value free, neutral, impartial and objective. This presents fundamental problems that forms an additional basis for the critique of positivism.

Furthermore, while positivism argues for independent value judgement, other critics go further to contend that value-free research is practically impossible (Holt-Jensen, 1988). In most cases, the research process is confronted by subjective elements at many stages. For instance, the choice of

a particular research topic is at the discretion of a researcher. In fact, at such a stage in the social sciences, the researcher does not often exercise value free choice of the topic. The researcher fails to do so at the expense of potentially many other topics available in various strands of a particular discipline. Similarly, the interpretation of research results may be affected by intrusion of some value judgements from the researcher.

Moreover, the working hypothesis behind the unity of science has long been challenged by some scholars (Andler, 2011; Holt-Jensen, 1988; Wylie, 1999). The consideration of the unity of science is entirely regarded as unrealistic. For instance, Holt-Jensen (1988) contends that disciplines such as psychology and other social sciences do not display any evolution towards the ideal unified science. Similarly, Van Der Steen (1993) argues that over-arching theories of stress which may unite sciences like biology and psychology, turn out to represent terminology rather than substantive unity. However, within science itself, each area of investigation conforms to its own form of expression. Thus, critics of positivism call for a distinction between the two sciences. Inevitably, in the process, this calls for the metaphysical and speculative aspects in research in the human sciences. Yet, considerations of the natural sciences show that all elements are treated as objects (things). In this case, it is impossible to treat the elements in the human sciences as objects because human beings have intentions and beliefs. The risk of losing in-depth understanding of human beliefs and intentions is high if one studies humans as objects.

The beginning of the 20th century thus ushered in an era of German sociologists proposing the concept of anti-positivist sentiments. The general notion of anti-positivism was the opinion that social sciences and natural sciences are essentially different from each other. The difference between the two significantly manifests epistemologically. As a result, the approach to studying natural sciences cannot be similarly applied to social sciences. However, contrary to the objective

approach, a subjective approach with the aim of studying social phenomena was advanced. The reasoning was that social scientists must reject extremes advanced by empiricism and scientific methodology in order to study sociology.

This perspective was further developed by Max Weber (1922) who used the term anti-positivism for the first time. Weber subscribed to the positivist idea of sociology being called as a science because it conforms to the principle of causal relationship. Nonetheless, Weber carried the strong belief that society was very different from the natural world. Consequently, the study of society must employ special tools and methods that focus on humans and their cultural values. Developments to anti-positivism views followed among different philosophers.

Hegel (1975) argued against positivism citing that the categories employed in classification and thought (concepts and speech) are not fixed for all time. They are dynamic and conditioned by historical and social influence. His emphasis was that to some lines of theses or understanding of anything, one needs to consider the antitheses or opposite. As a result, this shades light on the focus of specific theses. The resulting synthesis brings out a new thesis which is presented with its unique antithesis. This was termed as the dialectic. The dialectic process inevitably suggests that a permanent form of knowledge being deemed correct for all time is impractical (Hegel and Wallace, 1975; Gregory, 1978; Rayn, 2018). Karl Marx's theory of historical materialism and critical sociology, which was actually based on positivism, further provided a boost to the anti-positivism movement from the dialectic Hegelian idealism .

Despite the criticisms advanced against positivism, it has much influence to the field of economics and finance that are the subject matter of this study. The study's link of mobile money to financial inclusion and livelihoods of agents cannot entirely yield proper analysis without some positivist practices. For instance, operational definitions of mobile money terminology as well as financial

inclusion and livelihoods is guided by positivism. The measurable aspects that this study adopts from positivism make it more dialectic to add to the body of knowledge. It forms a unique argument surrounding the study in arriving at mixed methods implied in the adopted eclectic approach. However, other research philosophies that provide diverging views from positivists approaches have also emerged as showed in the research onion by Saunders (2009).

4.3.2 Interpretivism

The criticisms of positivism paved way to interpretivism and other philosophical views that emerged under anti-positivism. Interpretivism traces its foundations in anthropology. Originally, interpretivism traces back to the 18th century under the philosophical advances of Giambattista Vico. Giambattista argued that the natural and the social world have a great distinction. Particularly, his argument was that social organisation and social experiences enable individuals to form their own perspectives of reality (Rayn, 2018). Thus, the paradigm of interpretivism rests on the notion of treating natural science and social science method distinctively. Specifically, the methods used to understand knowledge related to human and social sciences cannot be the same as its usage in physical sciences. The line of reasoning behind this is that humans interpret their world. They subsequently act based on such interpretation while the world does not (Hammersley, 2013; Pham, 2018).

Dean (2018) contends that interpretivism is often placed in dichotomy with positivist approaches such as hard sciences versus social sciences, numbers versus discourse, generalisability versus situatedness. Consequently, under interpretivism, researchers adapt a relativist ontology. The implication is a single phenomenon may have multiple interpretations relative to a truth that can

be determined by a process of measurement. Pham (2018) argues that researchers under the interpretivism approach tend to gain deeper understanding of the phenomenon.

Interpretivism is, however, not straight forward. It has a unique complexity when it comes to generalising the base of understanding for the whole population. The doctrine places emphasis on the development of multiple interpretation among humans' relationship. Research founded on interpretivism should thus endeavour to understand the diverse ways of seeing and experiencing the world through different contexts and cultures. Further, it should attempt to avoid the bias in studying the events and people with their own interpretations (Hammersley, 2013).

Ryan (2018) notes that there are four main facets or approaches to interpretivist research. These include Hermenutics (Heidigger, 1962); Verstenhen (Weber, 1947); Symbolic Interaction (Mead, 1962) and Phenomenology (Schutz, 1962). These approaches are related but have distinctive features from each other. For instance, Hermenutics is concerned with interpreting and understanding texts or documents as well as the deeper meaning within them. Verstenhen focuses on exploration and understanding of the perception from the research participants. The aim of Verstehen is to comprehend why a specific phenomenon exists or behaves the way it does. Verstehen can be taken in form of empathetic understanding obtained from the adoption of the subjects own perspective (Holt-Jensen, 1988).

Symbolic interaction is however diverse in the way it presents itself within the main paradigm of interpretivism. Blumer (1969) argues that symbolic interaction is guided by three main principles: Firstly, humans behave based on their own individual meanings. Secondly, social interaction generates meanings and; thirdly, meanings may be adapted based on an individual's perception of a situation or their experience of it. The three principles of symbolic interactionism entail that the shared understanding and interpretations of meanings is what affects the interaction between

individuals. People's actions are based on a common understanding of meaning within their social context. Consequently, interaction and behavior is framed through the shared meaning that objects and concepts have attached to them. Given this perspective, individuals live in both natural and symbolic environments.

Notwithstanding, phenomenology emphasizes interpretation and description of people's lived experiences. Phenomenology is largely informed by philosophical assumptions (Rayn, 2018). Basically, phenomenology attempts to create conditions that allow for the objective study of topics usually considered to be subjective in nature. For instance, phenomenology would be concerned with some topics such as individual experiences related to aspects such as judgements, perceptions, and emotions.

Correspondingly, one can conclude that interpretivism is far from an objective philosophy. Ryan (2018) notes that interpretivism recommends that truth and knowledge is subjective, culturally and historically situated. The acquisition of knowledge is based on lived experiences and intuition derived from these experiences. Inevitably, it is not possible to separate a researcher from their own values and beliefs on a particular subject. The data collection, interpretation and analysis employed in research is influenced by the values and beliefs of the researcher.

The paradigm of interpretivism has been appreciated for the advantages it offers. Firstly, interpretivism gives researchers an opportunity to deeply understand and describe phenomenon (objects, humans and events) in a social context. Tuli (2010) also supported by Pham (2018), points out that interpretivism allows research to be conducted in the natural setting. This occurs while employing key methodologies such as grounded theory, ethnography, case study or life history. This allows researchers to gain rich insider's insights of the research objects. In addition, more authentic information related to the object of research is assured in the process. Interpretivism

also provides an opportunity for researchers to adopt key methods such as informant interviews. This allows for investigating and stimulating things that we cannot observe as researchers have room to probe an interviewee's thoughts, values, prejudices, perceptions, views, feelings and perspectives (Wellington and Szczerbinski, 2007; Pham, 2018). The interpretivism paradigm thus ensures that valuable data is collected with provision of better insights for researchers to use in future.

In spite of the many strengths of interpretivism, the philosophy has attracted some criticisms. Cohen, et al. (2011) argues that approaches to interpretivism leave out a gap in verifying validity and usefulness of research outcomes that employ scientific procedures. Particularly, while aiming to gain a deeper understanding and knowledge of phenomena within its complexity of the context, generalising these results to other individuals and other contexts is impractical. Likewise, Yanow (2014) posits that interpretivists' research is negatively cited for small sample size coupled with the lack of generalisability and objectivity.

Interpretivism has also been cited to have an excessive preoccupation of self – a kind of 'naval-gazing' (Yanow, 2006). This tends to disregard the impacts or influence on individuals and their power. Schwartz-Shea (2006) also points that questions related to the quality of the mixed methods approach to gathering data often arise. In view of interpretivism lacking universal evaluative criteria to judge its merits, critics ride on this, among other limitations of the paradigm. Further, a short coming of interpretivism is that researchers do not continually hold concrete hypotheses prior to field work. These concerns raised by critics of interpretivism are, however, are a matter of philosophical differences. Interpretivists over time have developed trustworthy and quality research practices that counter these arguments (Yanow and Schwartz-Shea, 2014).

Although interpretivism has been cited for many shortcomings, this research considers its foundations valuable. For instance, in order to understand the subject of mobile money and its influence on financial inclusion, ethnographic methods were employed. The use of such methods like key informant interviews draws inspiration from interpretivism. Furthermore, insights gained from interviews from data collection is provided by interpretivism. This potentially enriches the quality of data collected in the study. Therefore, the views of interpretivism provided complementary guidance towards the study's choice of eclectic philosophical underpinnings.

4.3.3 Pragmatism

The development of philosophical thinking also paved way to distinctive views such as those embedded in pragmatism. The philosophical tradition of pragmatism traces its origin in the United States around 1870 and has made significant historical contributions in the social sciences (Kaushik and Walsh, 2019; Maxcy, 2003). Pragmatism is a philosophy that shares in the plurality of methods. Broadly, as a research paradigm, pragmatism advances the proposition that researchers should employ the philosophical and/or methodological approach that works best for the particular research problem that is being investigated (Kaushik and Walsh, 2019). Hence, the paradigm of pragmatism is often associated with the use of mixed-methods or multiple-methods (Creswell and Clark 2011; Maxcy 2003; Morgan 2014; Teddlie and Tashakkori 2009). The focus of pragmatism is on the consequences of research and on the research questions rather than on the methods. Thus, pragmatic research may employ both formal or informal rhetoric (Creswell and Clark 2011; Kaushik and Walsh, 2019).

Often, this notion has attracted contrary yet rich range of interpretations, such as the belief that all philosophical concepts should be tested via scientific experimentation. In this case, a claim is true

if and only if it is useful. Accordingly, if a philosophical theory does not contribute directly to social progress then it is not worth much. In addition, if the experience proposed by a theory consists in transacting rather than representing nature, that articulate language rests on a deep bed of shared human practices that can never be fully ‘made explicit’.

The classical philosophers in pragmatic thinking included Charles Sanders Peirce (1839–1914), William James (1842–1910), and John Dewey (1859–1952). Since inception classical pragmatism has been a philosophy decisively open to the social sciences. Pragmatists have in fact been actively engaged in social scientific research. This has resulted in innovative traits in the social sciences and modern society (Frega and Carreira da Silva, 2011).

Principally, the paradigm of pragmatism views words and thought as tools and instruments for prediction, problem solving, and action. It disregards the notion that the function of thought is to describe, represent, or mirror reality. Pragmatists rather argue that most philosophical topics including those related to the nature of knowledge, language, concepts, meaning, belief, and science are best perceived in terms of their practical uses and successes.

Kaushik and Walsh (2019) argue that in the philosophy of pragmatism, humans cannot be separated from past experiences. It is also not possible to separate humans from their beliefs originated from their past experiences. Thus, human thoughts are often intrinsically connected to their actions. People take action with consideration of the potential consequences that would emerge from their actions. Inherently, individuals use results of their actions as a basis to predict the consequences of similar actions in future. Thus, pragmatic philosophy to a large extent contends that meaning of human actions and beliefs is contained in their consequences. External forces have no determination of humans. Rather they shape their experience through actions and intelligence. Pragmatic thinking is also driven by the belief that reality is not static. Reality

reasonably changes at every turn of events. Likewise, the world is not static but dynamic with constant state of becoming. Actions can cause the world to change and are an important factor in changing the existence of things in the world. Since actions play an intermediary role in determining change, they are a key element of pragmatic thought (Maxcy 2003; Morgan 2014). Notwithstanding, an important feature of pragmatism is that it never considers knowledge as final, universal, or absolute. The view of pragmatists is that knowledge is never finished or perfect as it stands. Rather, knowledge is always in a process that can be revised and improved. The implication of this is that researchers have an opportunity to engage in critical thinking in the process of scholarship. Researchers can then analyse and synthesise extant knowledge while at the same time exploring the possibilities of inventing new knowledge (Kaushik and Walsh, 2019).

Pragmatism and its approaches have been appreciated in social research discipline. It is recognised for allowing researchers the possibility of choosing the appropriate research methods from a variety of qualitative and/or quantitative methods. The wide plurality and flexibility of choice of methods entailed in pragmatism is often regarded as the core strength of the philosophy. In this case, a pragmatic approach to inquiry sets an inclusive framework that supports interdisciplinary research. It is more instrumental in cooperative research about social work and social injustices (Kaushik and Walsh, 2019; Pappas 2017). Further, researchers that are motivated by confronting various perspectives can rely on the pragmatic approach as an important tool. Johnson and Onwuegbuzie (2004) acknowledge that pragmatism endorses eclecticism and pluralism and accepts different, even conflicting, theories and perspectives. The allowance for mixed methods in both pragmatism and eclecticism ensures its superiority of research compared to employing other paradigms that use mono methods. However, pragmatism is often cited for the weaknesses that eclecticism suffers. More profoundly, that the choice of a specific method and not a mixture of

methods removes elements of speculation in research (Sjobert and Nett, 1968; Eyles and Lee, 1982; Schhneider, 2016).

4.3.4 Humanism

The previous section discussed three philosophies that are embedded in Saunders (2009). However, another philosophy of importance that has shaped the choice of eclecticism in this research is Humanism. Humanism is a philosophical paradigm that emphasizes the value and agency of human beings as individuals and as a collective. Successive intellectual movements have led to fluctuations in the meaning of the term humanism (Walter, 1997). Yet, the term humanism was coined by theologian Friedrich Niethammer at the beginning of the 19th century. Humanism was meant to refer to a system of education constructed on the study of classical literature. On the other hand, humanism generally refers to a viewpoint that affirms some idea of human freedom and progress. It considers humans as exclusively responsible for the promotion and development of individuals. Humanism commonly emphasizes a concern for man in relation to the world (Marbaniang, 2009). Hence, human agency in humanism is considerably active and not passive as in other philosophies.

Nonetheless, Jackson and Smith (1984) recognise that humanism as a method extends beyond intuition and empathy towards a more constructive role of interpretation. Therefore, the humanistic endeavor can be described as a process involving the contextual interpretation of subjectively meaningful social action. Humanism has transitioned away from the model of explanation implicit in scientific rationality. It has evolved into a methodological leap from empirical to hermeneutic analysis and from quantitative to qualitative interpretive social science.

For instance, in practical research, humanism has embraced methods like participant observation to supplement information pragmatically abstracted from documentary sources, interviews and case study methods. The common aim of such techniques in humanism was to uncover the actors' or informants' views on social issues. Further, this was also done with the belief that certain key actors have the power to shape beliefs and behaviours in society (Jackson and Smith, 1984).

Humanism encompasses three interrelated philosophies. These are idealism, phenomenology (discussed earlier) and existentialism. These three philosophies give man a central and active role in the world, a principle which directly opposes positivism (Jackson and Smith, 1984; Walter, 1997). The paradigm of humanism places man as the determining factor, while society, in all its complexity is the dependent product of human interaction. Hence, one can deduce that in humanist perspectives, it is important to draw a distinction between the social and natural sciences. In the study of phenomenon, reality does not exist independently of the observer or the observed. Rather, it is a social production whose meaning arises out of the behaviours people direct towards it (Jackson and Smith, 1984).

However, in general terms, humanism as a paradigm argues for the distinction and separation of natural and social sciences. The contention is that the two branches of science are different especially in the nature of the subject matter involved. Humanists use this argument to advance that natural and social scientists must therefore adopt different methodologies and research strategies. For instance, social scientists must take into consideration of both the historical dimension of human action and the subjective aspects of human experience (Sjoberg and Nett, 1968). Employing such an approach, social scientists are able to get inside the subject matter. In-depth understanding of actions of individuals and groups by social scientists allows those involved

to learn and appreciate the role of the others. This is only possible by first delving into the core of the matter and thereby understanding one's symbols, attitudes and values.

Herbert Blumer is recognised as one proponent of this tradition (Sjoberg and Nett, 1968). Blumer advocates the view that the subject matter and the resulting methodological structure of the natural and social sciences is noticeably different. The difference is that the social order is in a state of constantly becoming. Consequently, scientists cannot impose fixed or rigid classifications and approaches upon a social world in the face of revolution.

Although humanism has been a well-established philosophy that has impacted many disciplines, a number of criticisms have been raised against it. Humanism has been viewed to concentrate so much on the individual. Furthermore, opponents of this paradigm argue that it is not an easy task to incorporate emotional life of an actor into a particular research. The reason for this is that an actor can rarely (if possible) replicate emotions and rationality. A worst-case scenario of this occurs when researchers study the intentions of actors and their actions which happened in history. Humanism has also been criticised for its failure to recognise that the scientific method in the natural sciences and in the social sciences have some principles of commonality. Therefore, humanists fail to appreciate the contributions of positivism in research.

Humanism has also failed to incorporate any concepts of validity in its analytical framework due to the absence of a basis for comparison in this philosophy. Accordingly, Walmsley (1974) condemned the whole humanistic initiative as characteristically non-empirical. The lack of empirical underpinnings implies that empirically minded social scientists would have reservations about accepting the phenomenological idea that knowledge can be based on intuition. Humanism is also considered to be highly subjective which implicitly gives into the problem of individualistic bias.

In spite of its shortcomings, humanism is considerably valuable to research on mobile money, financial inclusion and livelihoods of mobile money agents in Zambia. Understanding the factors that influence agents to participate in mobile money and ultimately affect financial inclusion outcomes requires use of ethnographic methods (interviews, participant observation etc.) advanced by humanism. The environment in which mobile money businesses occur also requires to be understood. This is given the view that the business and financial environment is highly dynamic in Zambia and most other places.

However, most concepts on mobile money in relation to financial inclusion and livelihoods of agents can be evaluated with methods of hypothesis testing. This is because humanism is dominated by value judgements and emotions. It is for this reason that this study adopts an eclectic philosophy to amplify the quality of research. Eclecticism, as endorsed in pragmatic thinking allows plurality of research methods. The implication is that on the one hand, the qualitative methods allow for in-depth information on the study areas to be captured. On the other hand, the quantitative methods from positivist approaches allow for separation of value judgement and add some objectivity to this study.

4.4 Methodological Implications of the Research Based on Philosophical Foundation

This study seeks to understand the link between mobile money and financial inclusion as well as its influence on livelihoods of agents in Zambia. In order to achieve this, the study employed a mixed methods approach. The choice of mixed methods is premised on the philosophical foundation of eclecticism (Jackson and Smith, 2014) as previously justified. Therefore, an empirical investigation of the theoretical relationships between financial inclusion and mobile money was undertaken. The study being rooted on eclectic epistemology allowed for the use of

both ethnographic approaches to data collection, management and eventually analysis. The data was collected through structured questionnaires. The data were then scrutinized for possibility of variables that can be operationalised to aid the explanation of the relationship between mobile money and financial inclusion objectively. This is a characteristic of the positivist epistemology with a focus on explaining and predicting what happens in the social world between elements or variables. The study also utilised techniques inspired by the interpretivism, humanist and pragmatic approaches in data analysis. The mixture of several approaches in responding to research questions influenced the adopted components of the research design and data management processes.

4.5 Research Design and Approach

The study was inspired by the eclectic methodology following Jackson and Smith (2014). It employed a cross-sectional survey and exploratory research design. The adopted research design involved the collection of primary data at a particular point in time (March-May, 2018) that is useful in obtaining facts and perceptions of the respondents. This was combined with explorative approaches through in-depth interviews that revealed more about the link between mobile money, financial inclusion and livelihoods of agents in Zambia. Still, much of the data collection was primarily in line with a cross sectional survey design. Following Saunders et al. (2011), the cross-sectional component of the study's research design was chosen because it is useful in attaining the objectives of the study. It is also key to making statistical explanations and inferences about determinants of mobile money adoption among mobile money agents based on the tenets of the Technology Acceptance Model.

The study particularly adopted participant observation and diary logging as key ethnographic approaches (tools). In this case, the researcher was immersed in the cultural setting of agents in Kitwe and Kalulushi and had 6 working days (7:30 – 18 hours, Monday- Saturday) that were divided equally between the two districts. The researcher spent one and half months in each district (March- mid April, 2023 in Kalulushi and mid-April to May in Kitwe). This gave the researcher more experience of the two environments where mobile money trading took place.

During the data collection period, the researcher became naturally part of this social and business environment, observing various relations across agents and their clients. Frequently during in-depth interviews, customers would walk to kiosks requesting for agents to assist them with fund withdrawals (Zoon, Airtel and MTN) or deposits of funds into their mobile money accounts (Airtel and MTN). Initially informed by observation, the researcher would also participate in welcoming customers to the mobile money kiosks. This was the accepted practice by both agents and customers as a customer-gratification practice before any transaction was made between the agents and the clients. When transactions were completed, the practice was to thank customers for demanding these services and to wish them a good day. Through participant observation, the researcher gained a more informed perspective about the social environment and relations across agents, their networks and clients. Further, this ethnographic approach provided intuitive reasoning for the results that were obtained.

Ultimately, the use of the cross section and exploratory approach (through ethnography) was relatively inexpensive. This is considering that beyond the study period (March-May, 2018), no data collection follow-ups were expected, thereby reducing the possibility of incurring more costs. It should be mentioned that the approach provided some groundwork for follow-up studies as noticed by Sekaran (2000). To a large extent, this study utilised both deductive and inductive

reasoning to enhance the quality of the research by riding on the strengths of both lines of thought (Yanow and Schwartz-Shea, 2014).

4.6 Target Population

Russel (2013) describes target population as a universal set of study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result. This research targeted mobile money agents operating Airtel, MTN and Zoon mobile money services in Kitwe and Kalulushi districts of the Copperbelt. The unit of analysis was mobile money agents captured in the study. The study uses mobile money agents because on the one hand, mobile money has been hailed to encourage financial inclusion and improve livelihoods of users. On the other hand, financial inclusion of mobile money agents and how it affects livelihoods of agents has not been investigated. Having agents as a unit of analysis will help identify observable characteristics of agents that are useful in explanations of external validity in the study (Singpurwalla, 2013). Further, qualitative exploratory techniques were also applied on the non-homogenous population of mobile money agents.

4.7 Sample and Sampling Technique

Sampling is a procedure by which some elements of the population are selected as representative of the total population. The use of probability sampling techniques in this process helps to acquire a representative degree of reliability in the selected sample (Acharya et al., 2013; Etikan and Bala, 2017). However, the population of mobile money agents in this study is unknown because no census of mobile money agents has ever been conducted by the Zambia Statistics Agency. The number of mobile money agents also increases or decreases in the mobile money ecosystem because of easy entry and exit into this market. Furthermore, mobile money service providers do

not make available to the public the number on mobile money agents registered on particular networks. Competition policies of the Mobile Network Operators prohibit the disclosure of such information (Interview with Bank of Zambia Official and Mobile Network Operator Senior Managers, 18th March, 2018).

The study therefore focused on the determination of a reliable sample size for an unknown population. Given that the population is very large and unknown, it is recommended that one employs a secondary formula that uses the Z-score for the determination of appropriate sample size for an unknown population (Smith, 2013). A Z-score is a numerical measurement used in statistics, of a value's relationship to the mean (average) of a group of values. This is measured in terms of standard deviations from the mean. If a Z-score is 0, it indicates that the data point's score is identical to the mean score.

The Z-score can be used to determine the sample size by considering normal derivation set at 95% confidence level (1.96). For this study a choice or response of (50%= 0.5) was picked using the formula below:

$$n = \frac{Z^2 p(1 - p)}{(e)^2}$$

Where:

n = sample size

Z = z-score,

e = margin of error, and

p = standard of deviation (percentage picking a choice or response)

To carry out this calculation, the margin of error (e), or the maximum distance desired for the sample estimate to deviate from the true value was set. To do this, the study used the confidence interval equation above, but set the term to the right of the \pm sign equal to the margin of error, and solved for the resulting equation for sample size, n . Next, the confidence level was turned into Z-score. This study used + 95% - Z-score = 1.96. The calculations for the sample size are shown below with a 95% confidence level, 0.5 standard deviations, and a margin of error (confidence interval) of $\pm 10\%$ (Smith, 2013: 3).

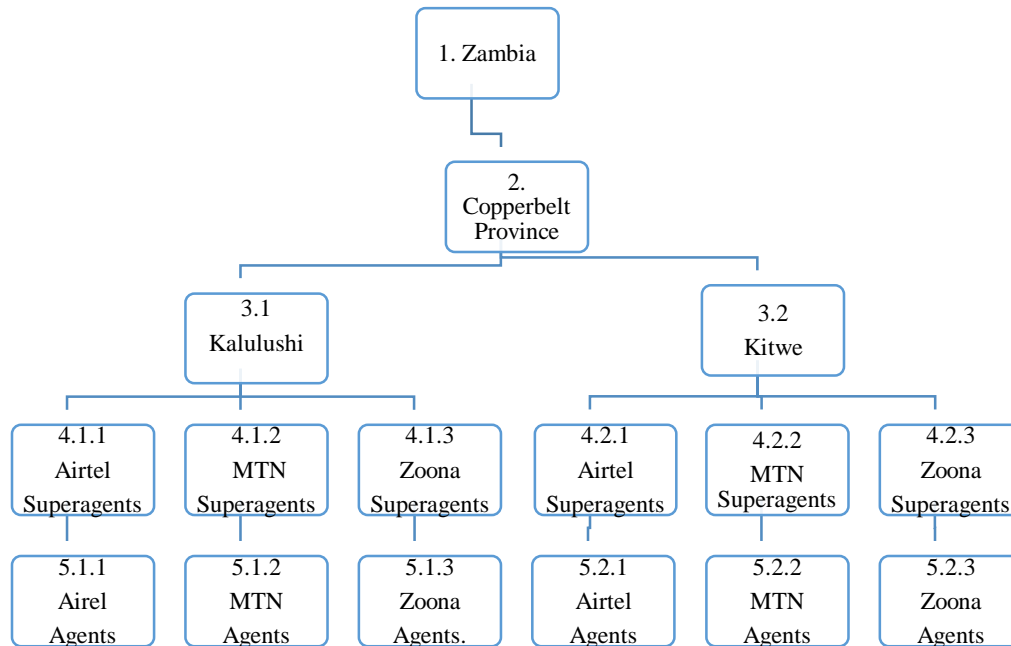
$$n = \frac{1.96^2 \times 0.5(1 - 0.5)}{(0.10)^2} = \mathbf{96.04}$$

Further, following Smith (2013), the determination of the sample for an unknown population of agents was 96.04, which was rounded up to 96 respondents. Therefore, the study targeted 96 agents but eventually ended up having 97 mobile money agents from MTN, Airtel and Zoon. Agents from the three service providers were targeted because these services co-existed in Zambia's mobile money ecosystem from about 2012. Others like Zamtel, only surfaced much later and were therefore left out.

4.8 Sampling Technique

The study employed a sampling procedure that was organized in four stages as shown in figure 4.2.

Figure 4.2: Sampling Stages and Procedure



Source: Author’s construction

In the first stage, through literature review, the researcher identified Zambia as one of the countries with an overriding gap in mobile money and financial inclusion research. The decision to locate the study in Zambia was also justified based on the premise that no study of such nature had been conducted in the country.

In the second stage, following Oteng (2019), the researcher purposively chose to focus the study on the Copperbelt province. This was because between 2012 and 2017, mobile money gained high adoption in the country’s most urbanised areas especially in Lusaka and Copperbelt provinces. Evidence suggests that at provincial level, financial inclusion supported by mobile money was also highest in Lusaka province (87.4 percent), followed by the Copperbelt province (79.9 percent) (BoZ, 2015; FSD Zambia 2020; Lwanga, 2021). The researcher however chose to conveniently conduct the study on the Copperbelt province. While the Copperbelt province had the second

highest financial inclusion rate in Zambia, it was also within the reach of the researcher. Further, given limited budgetary and time considerations, the study could not be undertaken in Lusaka Province.

In the third stage, the researcher had to make a choice of districts on the copperbelt province where the study was to be undertaken.

The researcher selected Kalulushi and Kitwe because the two districts were within close proximity. This also gave the researcher more convenience in terms of time and also saved the researcher the costs associated with data collection. Furthermore, managing ethnographic approaches adopted in the study including, diary logging and participant observation, required that the researcher easily spends more time in the communities where agents offered mobile money services. This offered a possibility of building trust between the researcher and the respondents especially where sensitive information regarding determinants of savings and agents' livelihoods was concerned. Moreover, Kalulushi and Kitwe were observed to have many mobile money kiosks, indicating a likelihood of high mobile money agent population key to the study.

Thirdly, in order to identify the agents in these two districts, the researcher approached the mobile network operators (Airtel and MTN) and Zoono with a request for lists of agents registered on their platforms. These lists were not availed to the researcher due to agency coverage privacy policies maintained by the mobile money providers. However, the researcher was referred to leading sales persons on the mobile money platforms called super dealers or super agents. Super agents were responsible for recruiting and managing agents in specific locations of the two districts. Although the actual population of agents was not known at this stage, on average, between March and May 2018, Kitwe had about 13 super agents across the three mobile money service providers. On the other hand, Kalulushi had about 6 super agents across the three mobile money services in the study.

Each of the super agents maintained a list of agents they recruited and shared this information with the researcher.

In the fourth and final stage of the sampling exercise, agents were identified based on lists provided by super agents that managed the mobile money agency networks in Kitwe and Kalulushi districts. Accordingly, stratified random sampling was used to select mobile money agents from MTN, Airtel and Zoono at that point in time (between March and May, 2018). Stratified random sampling was ideal because the group of agents was heterogeneous and gave members from each strata of the target sub-populations – MTN, Airtel and Zoono – a chance of being selected so that all three sub-populations were included in the study (Greener, 2008; Oteng, 2019). Samples were then drawn from each stratum of respondents that was based on heterogeneity of mobile money service used and location. The stratum was classified as shown in Table 4.1, Table 4.2 and Table 4.3 below.

Samples of mobile money agents in Kitwe were drawn from different townships and suburban areas such as Parklands, Riverside, Buchi, Chimwemwe, Bulangililo, Kwacha, and Kwacha - East, Nkana East, Nkana West, Garneton and Ipusukilo, among others. On the hand, mobile money respondents in Kalulushi were sampled from areas such as Patason, Mine Area and the Main Market.

According to Table 4.1, the majority of agents (33) in the sample were from MTN. This is because most agents on the Copperbelt subscribe to the MTN network. The study drew 32 agents from Airtel and Zoono respectively.

Table 4.1: Classification of Sample of Agents by Mobile Money Provider

NETWORK	No. of Targeted Agents	Percentage
MTN	33	34.02
Airtel	32	32.99
Zoona	32	32.99
TOTAL	97	100

Source: Author's construction based on survey data

Table 4.2 shows that the majority of the sampled agents were from Kitwe district. This was because Kitwe district has a higher concentration of mobile money businesses. Kitwe has a relatively large presence of industrial and business opportunities that attract the necessary traffic for mobile money usage. Thus, compared to Kalulushi district, a relatively large number of agents resided in Kitwe and formed the sample of respondents.

Table 4.2: Classification of Sample by location

Location	No. of Sampled Agents	Percentage
Kitwe	68	70.10
Kalulushi	29	29.90
TOTAL	97	100

Source: Author's construction based on survey data

Table 4.3 summarises the classification of the selected sample by location and mobile money service that each responding agent provided. The sample comprised slightly more of MTN mobile money agents than Airtel and Zoona.

Table 4.3: Classification of sample (Network vs. Location)

Location	Network			Total
	MTN	AIRTEL	ZOONA	
Kitwe	23	22	23	68
Kalulushi	10	10	9	29
TOTAL	33	32	32	97

Source: Author's own construction based on survey data

4.9 Data Collection Techniques

The study applied research methodology triangulation because the study used both primary and secondary data methods of data collection in order to improve validity and reliability outcomes. To achieve internal validity, data that was used was cleaned and well managed to ensure it generates useful and efficient statistics. Further, comparisons of the selected statistics with national statistics from the Zambia Statistics Agency, Bank of Zambia and Finscope studies assured some form of external validity. These techniques conformed to the eclectic research philosophy adopted in the study. The combination of several research methodologies in the study of the same phenomenon increases credibility of knowledge by improving both consistency and generalizability (Greener, 2008). The secondary data the study used was readily available for the researcher and useful in providing contextual information for the study. The choice of sources of secondary data employed in the study relied on the authenticity of the data. Secondary data that was useful in the study emanated from government and international agencies and their sites (e.g. Central Statistical Office, Bank of Zambia, World Bank, etc.), books, peer reviewed journals and

other such gazettes. The study largely utilised primary data that was generated through structured questionnaires and interview guides designed by the researcher.

Primary data was collected by use of structured questionnaire that captured the various variables of the study. The Likert-scale was used in the questionnaire employed. This was with the aim of restricting the respondents from giving unnecessary information. This also allowed the researcher to obtain accurate data related to answering the research questions in the study. Furthermore, designing a questionnaire using a Likert-scale approach makes the process of filling in the questionnaire relatively easy as respondents only tick where necessary. Face to face interviews were also conducted in order to fill the same questionnaires where respondents were unable to fill questionnaire. These complemented the use of some ethnographic techniques in the study.

4.10 Questionnaire Design

An interviewer- administered questionnaire technique was employed in the study because of its ability to control for interviewee related challenges in comprehending key themes of the study. The technique was adopted in order to deal with the minimisation of measurement errors and amplifying validity which are key issues in eclectic survey research (Jenkins and Dillman, 1995). A structured questionnaire was designed to allow for the collection of data that would be useful in high content and descriptive analyses of the study. The questionnaire design was specifically based on the guidelines from Jenkins and Dillman (1995) and Saunders et al. (2011). Yet, the style, language and the context of the questions in the questionnaire were modified and simplified in relation to the study topic and developing country context. The specific questions posed in the questionnaire were formulated with reference to national surveys, for instance, the Living Conditions Monitoring Surveys and Finscope surveys undertaken in Zambia.

The questionnaire had questions relating to four main themes and context of the Technology Acceptance Model. The themes were demographic information; mobile money aspects such as perceived usefulness, trust, perceived risk and perceived ease of use; behavioural intention of agents in deciding to be included and livelihoods of mobile money agents. The demographic information of the respondent, captured the age, sex, marital status, level of education, occupation and religious background. The mobile money theme incorporated, among others, questions relating to how the respondents knew about mobile money, the uses of mobile money, average value of transactions recorded and general perceptions of mobile money. Questions in the questionnaire sought to examine whether or not mobile money affects financial inclusion and impacted livelihoods of agents.

4.11 Ethnographic Methodology in the Study

Ethnography was key to understanding the influence of mobile money on financial inclusion through the study. Ethnography has made valuable contributions as a complement to quantitative research techniques in economic thematic areas. Ethnographic practice involves combining multiple research methods in order to best answer a research question or questions (Kabala and Seshamani, 2019). The main aim of including ethnographic approaches in studies that are normally quantitative in nature is that the objectives of ethnography add extra quality to data collected and analysed. In particular, ethnography has the ability to amplify a research experience in doing anthropological fieldwork research. Anthropological research can have a profound influence on the social, economic, and political spheres in which many economists and researchers operate. Designing social and economic policies for development requires use of methods like ethnography to amplify their understanding of social and economic problems.

Ethnography also avails researchers the experience in objectively recording data during fieldwork. Further, ethnography allows researchers to gain experience in interacting with and collecting data from key informants. This is an important aspect to consider especially in research studies that are recent and whose past data may not be available. Ethnography also allows researchers to apply fieldwork techniques such as focus group discussions and portraits that are barely just discussed in class settings and researchable readings.

Accordingly, in understanding ethnography as a method, researchers understand that ethnography takes the duration of being in the field as its main qualification. A long interaction with the field enhances one's knowledge and comprehension of social and cultural practices. The practice of ethnography consists of several methods: observation, participation, interviewing, conversation, 'being', keeping a logbook and diary, interacting and the famous "thick description". The combination of the ethnographic method with qualitative surveys, visual methods and semi-structured interviews brings a level of in-depth knowledge to case studies (de Bruijn, et al., 2017). Given its profound relevance, an ethnographic methodology was utilised while also taking into account some positivist approaches in this study.

4.12 Application of Ethnographic Methods in the Study

The key ethnographic techniques that were utilised in the study included in-depth interviews with key informants (agents), collection of field notes and participant observation. The ethnographic procedure in the study involved first identifying the various sites where mobile money agents operate from. These sites were central business district or town centre and high traffic locations in communities around the study sites. Secondly, agents that operated Airtel, MTN and Zoono businesses were identified and classified as key informants in the study. Thirdly, data collection

proceeded with the identified agents being interviewed. This occurred while the researcher also practiced participant observation through watching and jotting down notes related to the mobile money business setting in the study sites. Finally, the field observations were compiled in notes that represented the picture of mobile money, financial inclusion and livelihoods of agents in Kitwe and Kalulushi.

4.13 Conclusion

The aim of this chapter was to present the philosophy and methodology of the study of the mobile money, financial inclusion and livelihoods of agents in Zambia. This was important in understanding the philosophical underpinnings that the study is inspired by. In this case, the study settled for the eclectic or mixed methods approach. The justification of eclecticism was based on a review of some of the most influential philosophies such as positivism. While positivism emphasises the use of objective and quantitative methods based on unified science, others like interpretivism, pragmatism and humanism were found to hold opposing views. In fact, other philosophies only supported subjective methods and data management and research. The unique feature of positivism and other opposing paradigms like interpretivism, pragmatism and humanism is that they emphasize only the use of mono methods in research.

It is for this reason that an eclectic approach was adopted for this study. This strengthens the research methods adopted and the ultimate quality of the research. The study then employed a mixed method research design using cross-sectional research design that incorporates aspects of positivism on one hand. On the other hand, the study adopted ethnographic data collection techniques that use humanistic, pragmatic and interpretivism approaches.

The study thus examined mobile money, financial inclusion and livelihoods of agents in Zambia using a cross sectional and exploratory research design. The study employed both primary and secondary data. In particular, the researcher employed participant observation along with semi structured interviews for the enquiry. The study focused on 97 mobile money agents in Kitwe and Kalulushi.

CHAPTER FIVE: DATA ANALYSIS, FINDINGS AND DISCUSSION

5.1 Introduction

This chapter presents the results of the study on mobile money, financial inclusion and livelihoods of agents in Zambia. The results are based on eclectic methodology or mixed methods analysis to answering the research questions. The study relies on quantitative approach using a logistic regression, descriptive analysis as well as high content and transcription ethnographic analyses. Specifically, we present the findings and empirical analyses of the prediction of the link between mobile money, financial inclusion and livelihoods of agents in Zambia. This presentation of results was performed in four related steps motivated by Yawe and Prabhu (2017) in an effort to answer the research questions. In the first step, we perform a descriptive analysis of the social economic characteristics of the sample. Secondly, we proceed with an econometric prediction of the Technology Acceptance Model (TAM) in establishing the determinants of mobile money adoption among agents in Kitwe and Kalulushi districts. Thirdly, we use descriptive analysis to demonstrate how mobile money compares with other payments systems on macro- level using secondary data from the Bank of Zambia. In the fourth and final step, we demonstrate the use of ethnographic content analysis in the discussion of results on the influence of mobile money on livelihoods of mobile money agents.

5.2 Descriptive Analysis of Socio-Economic Characteristics of the Sample.

The relevant demographic information is key in understanding population characteristics in many areas. Demographic data is often associated with socio-economic information expressed statistically (United Nations Statistics Division, 2014). Most often, such data pertain to age, location, sex, employment, education, income, marriage rates, birth and death rates and more other

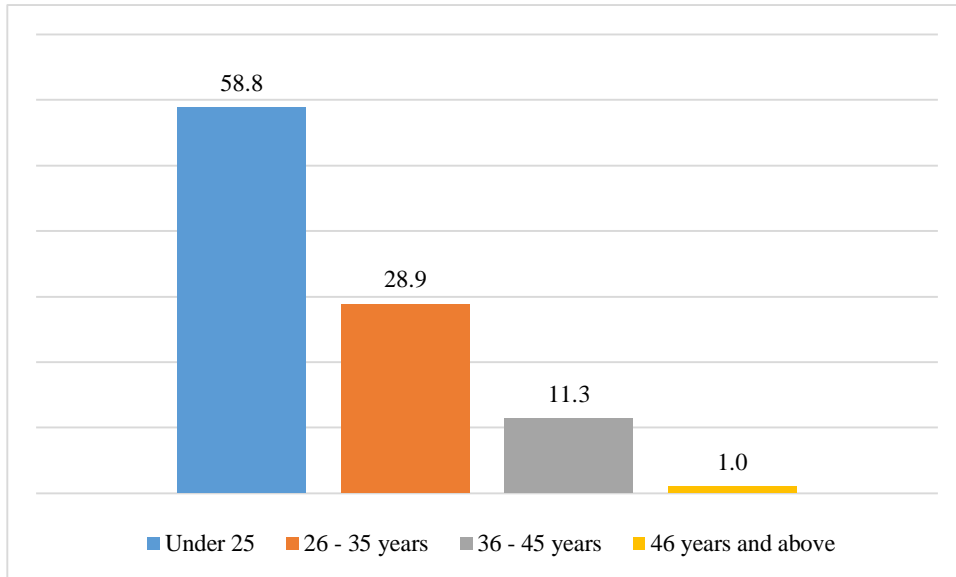
factors. This is important information that offers researchers in academia, governments, corporations, and non-government organisations the opportunity to draw an eyeball insight into a study population (Tellier, 2014). In the context of this study, the demographic statistics informed the researcher on the composition of the sample. The information was also useful in shaping the general implications and recommendations of the study specific to the considered population.

The demographic and socio-economic characteristics of the respondents of the study were outlined in terms of gender, age, marital status, education level, employment status, years in business, name of mobile money service used, number of booths, number of employees, possession of personal mobile money account and purpose of mobile money account. We present the findings of the study in relation to these characteristics of the sample.

5.2.1 Age Distribution of Mobile Money Agents

The study took account of the age of the respondents. The age of the captured respondents was particularly useful considering the assumption that how old one is may affect their ability to become an agent and decision to own a personal mobile money account. Figure 5.1 below shows the distribution of age for the respondents who participated in the study.

Figure 5.1: Distribution of Age of Mobile Money Agents (%)



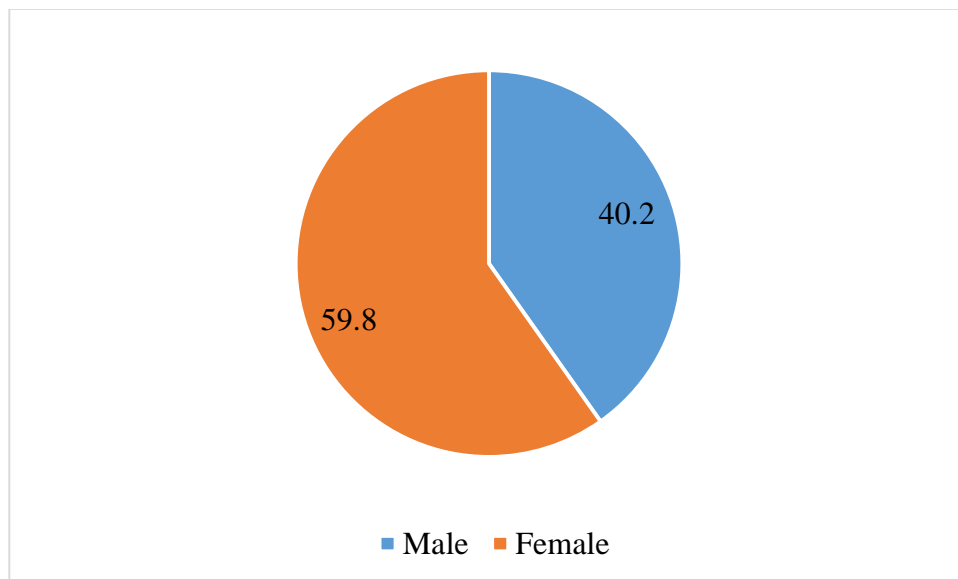
Source: Author’s construction based on survey results

The results in the study indicate that the majority of respondents in the sample were under the age of 25 years old. In particular, of the 97 mobile money agents in the sample, 58.8 percent of the mobile money agents were under the age of 25 years. On the other hand, 28.9 percent of the mobile money agents were aged between 26 to 35 years old while 11.3 percent of the mobile money agents were aged between 36 to 45 years old. Only 1 percent of the sample in the study was found to be between at least 46 years and above. The sample having a large number of agents under the age of 25 is considerably expected given that the mobile money agency services are dominated by the youths. The youths are normally not employed and often pursue entrepreneurial opportunities through businesses such as those in the mobile money ecosystem. This finding in the study tallies with CUTS (2020) that on average, mobile money agents in Zambia are largely youths.

5.2.2 Gender Distribution of Mobile Money Agents

The study was interested to understand the gender distribution of the sample. The analysis of gender as a key demographic feature was to enable the researcher understand whether females are more likely to participate in mobile money relative to males and vice versa. Figure 5.2 below shows the results of the study on distribution of gender for the respondents who participated in the study.

Figure 5.2: Gender Distribution of Mobile Money Agents (%)



Source: Author's own construction based on survey results

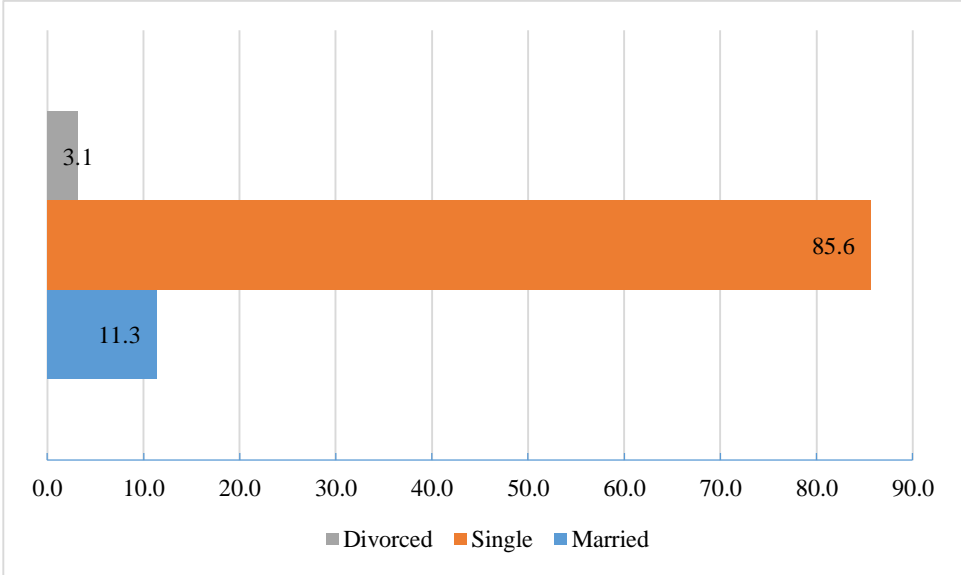
The information in Figure 5.2 shows that of the 97 participants of the study, 59.8 percent of the respondents were Female and 40.2 percent of the respondents were male. The implication of this is that the sample was dominated by females relative to males. The sample of respondents who participated in the study consisted of more females compared to male mobile money agents. This

is an interesting result because notable evidence suggests that representation of female agents in the mobile money ecosystem remains low (Reitzug et al., 2020; Vandewalle et al. 2021). An explanation to this contradictory position away from what evidence suggests is that this particular sample had more females than males. It appeared that the cultural setting on the Copperbelt where the sample was drawn provided for females to either focus on taking up entrepreneurial roles or work at home as housewives. On the other hand, most males, upon completion of their general education pursuits, looked for opportunities to work in the mines.

5.2.3 Marital Status of Mobile Money Agents

The study also considered the marital status of the respondents in the study. Marital status comparisons are interesting in providing some detail about distribution of the participants who were married, single, or otherwise in the study’s sample. Marital status may also indicate the unique nature of the dependents that may surround the respondents in the study. Figure 5.3 below presents the distribution of marital status for the respondents who participated in the study.

Figure 5.3: Marital Status of Mobile Money Agents (%)



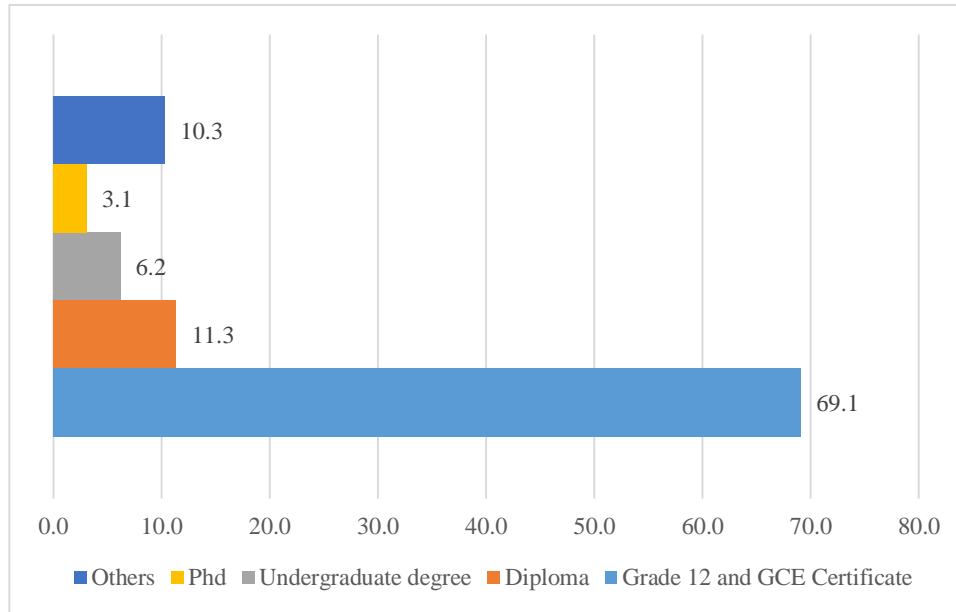
Source: Author’s own construction based on survey results

Concerning the marital status of mobile money agents that were sampled for the study, the results in the study show that 85.6 percent of the respondents were single. Approximately 11.3 percent of the mobile money agents in the study were married and 3.1 percent of the respondents were divorced. The majority of mobile money agents that were sampled from Kalulushi and Kitwe were found to be single. This may correspond to the earlier finding that most agents are young and below the age of 25 years. It appeared that single people were more ready to work as mobile money agents with the hope of making some commission income for investment in priorities such as education. This tallies with the finding by Xinhua (2021) that most Zambian youths worked in the mobile money business to enable them to provide for their immediate basic needs as well as to set aside some money for college or business.

5.2.4 Education Level of Mobile Money Agents

The study also sought to find out the level of education and qualifications that mobile money agents in the sample possessed. The education level of the respondents is displayed in Figure 5.4.

Figure 5.4: Education Level of Mobile Money Agents (%)



Source: Author's own construction based on survey results

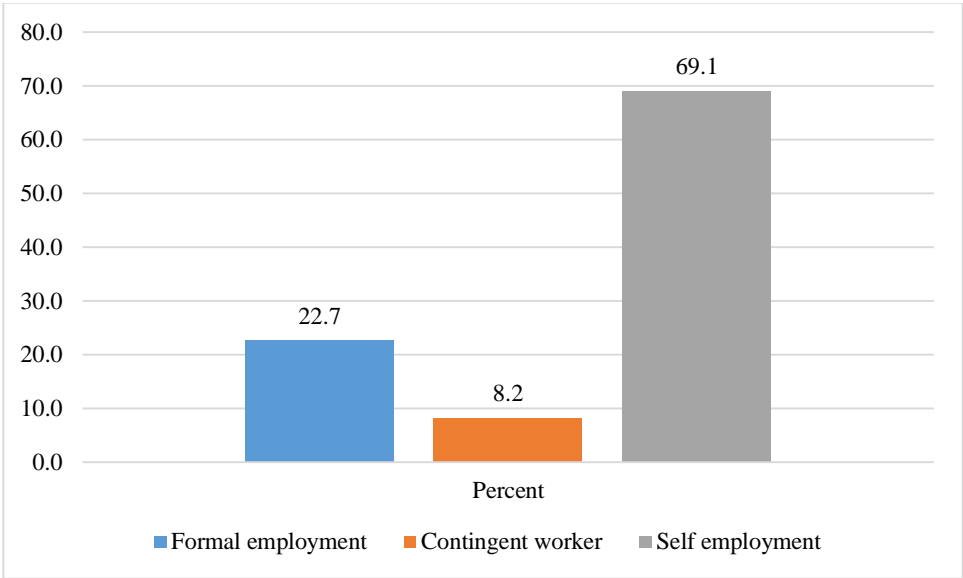
The findings showed that from the mobile money agents that were sampled for the study, 69.1 percent had acquired a Grade 12 or GCE certificate as their highest level of education. An estimated 11.3 percent of agents had a diploma, 6.2 percent of the mobile money agents had acquired an undergraduate degree as the highest level of education. Interestingly, the results also showed that 3.1 percent of the agents declared that they had a PhD as their highest level of educational qualification. The remaining 10.3 percent of the mobile money agents had acquired other educational qualifications that were not part of the categories listed in the questionnaire. Overall, majority of agents are mainly Grade 12 or GCE certificate holders. The finding that GCE certificate holders were the majority in the sample could be explained by the observation in the field that many school leavers often found mobile money as an activity they would undertake before going to college. Following Xinhua (2021), most GCE holders in the study could have participated in mobile money with hopes of earning incomes that they would save and later on use

for education and other needs. Interestingly, a few PhD holders who would otherwise not be expected to be agents were also noted to work as mobile money agents. It appeared that these individuals used mobile money as an income generating venture in view of limited formal employment opportunities.

5.2.5 Employment Status of Mobile Money Agents

The assumption of whether a respondent was employed or not as they engaged in mobile money services was also considered in the study. This was useful in identifying whether or not mobile money was a key source of income for the respondent. Figure 5.5 below shows the distribution of occupation for the respondents who participated in the study.

Figure 5.5: Employment Status of Mobile Money Agents (%)



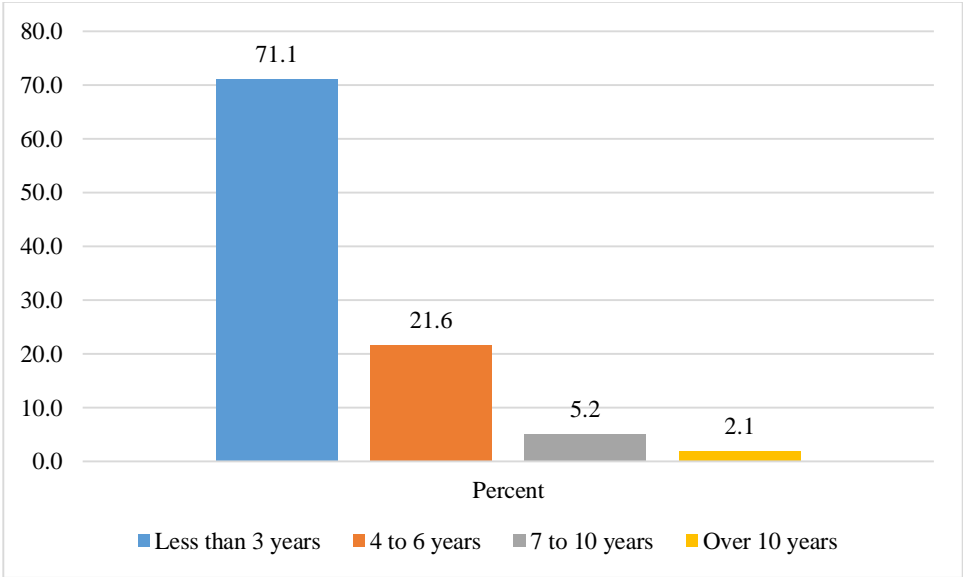
Source: Author’s construction based on survey results

The results concerning the employment status of the mobile money agents that participated in the study revealed that 22.7 percent of the mobile money agents were in formal employment while 8.2 percent of the respondents were contingent workers or workers who mainly got short term jobs normally referred to as “piece work”. The majority of agents were found to be self-employed and this corresponded to about 69.1 percent of the mobile money agents in the study. This finding tallies with the observation from the Finscope (2020) and CUTS (2020) that mobile money provides creates a lot of opportunities for self-employment especially among the youths.

5.2.6 Number of Years in Mobile Money Business

The study was interested in finding out how long the mobile money agents had operated their mobile money businesses in Kitwe and Kalulushi districts. The number of years the agents had been in the business of mobile money service is displayed in Figure 5.6.

Figure 5.6 Distribution of Number of Years in Mobile Money Business (%)

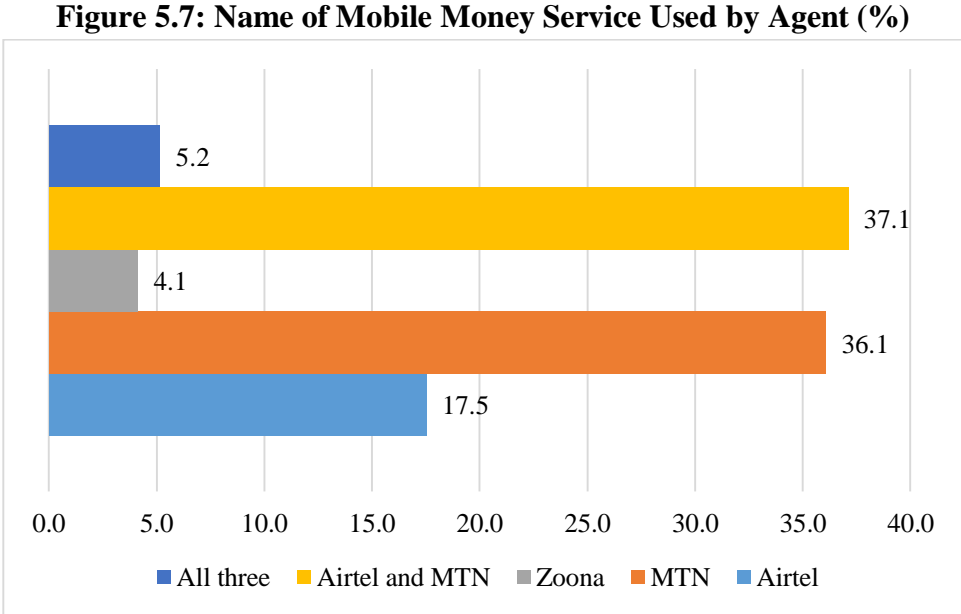


Source: Author’s construction based on survey results

The study found that 71.1 percent of the respondents had been mobile money agents for less than 3 years and 21.6 percent of the sample consisted of mobile money agents who had been in business between 4 to 6 years. About 5.2 percent of the respondents stated that they had been mobile money agents for a period between 7 to 10 years. Only about 2.1 percent of all agents in the study had been mobile money agents for over ten years. The sample comprised of mostly those mobile money agents that served less than three years in the mobile money service business. This is reasonable considering that the majority of agents were young people who may have had relatively low levels of experience than those agents with over ten years in the business.

5.2.7 Name of Mobile Money Service that Agents Use

There are many mobile money services that mobile money agents can subscribe to for their businesses and personal accounts. The study desired to understand which services mobile money agents were offering and often used. The name of the mobile money service the respondents used is illustrated in Figure 5.7 below.



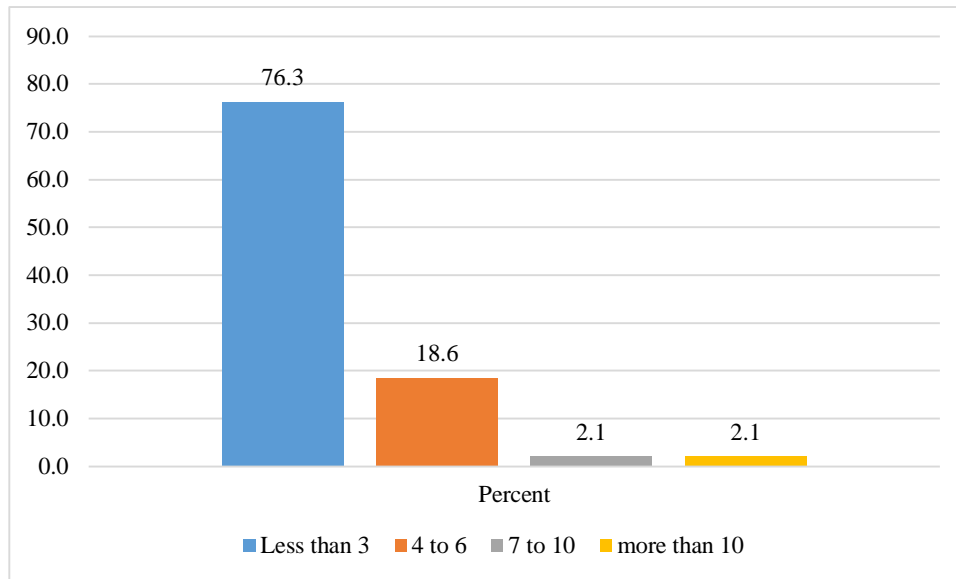
Source: Author’s construction based on survey results

The findings showed that 17.5 percent of the mobile money agents in the study stated that they used Airtel mobile money service only. About 36.1 percent of the mobile money agents stated that they used only MTN mobile money while 4.1 percent of the mobile money agents stated that they used Zoono. Some agents used both Airtel and MTN mobile money services and these corresponded to 37.1 percent of the mobile money agents in the study. Finally, 5.2 percent of agents stated that they were using all the three mobile money services provided by Airtel, MTN and Zoono. The sample comprised mainly mobile money agents that used Airtel and MTN money services. Coupled with those who used MTN money only, the findings suggest that MTN was the most popular mobile money service among the respondents in the study. This could be explained by the observation that MTN was adopted much more than Airtel in terms of mobile subscription.

5.2.8 Number of Booths that Mobile Money Agents Operate

The study was interested to learn of the number of booths that mobile money agents owned. The number of booths is similar to the distribution of bank branches in the formal banking set up. This would also signal the contributions of mobile money towards financial sector depending. Thus, it was interesting to find out the number of booths that the agents in the study controlled. The results on the inquiry of the number of booths the respondents had is outlined in Figure 5.8 below

Figure 5.8: Number of Mobile Money Booths Controlled by Agent (%)



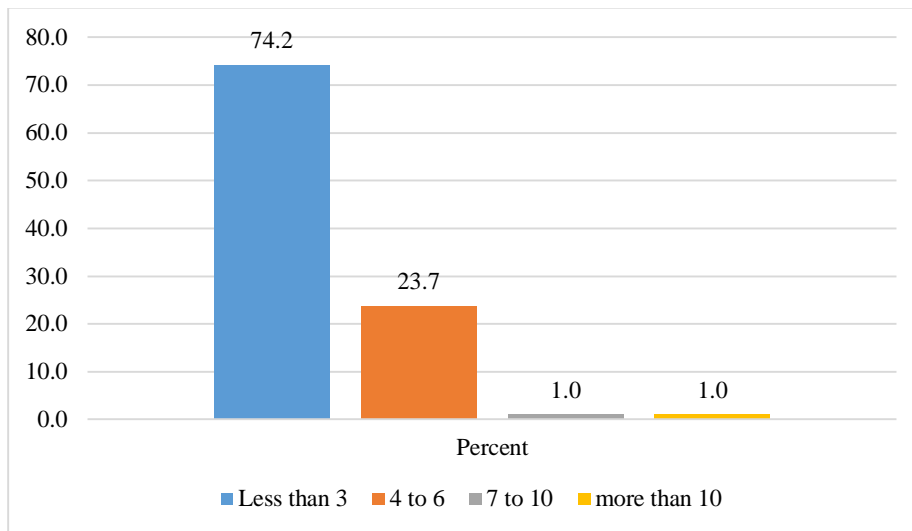
Source: Author's own construction based on survey results

It was found that 76.3 percent of the mobile money agents stated that they had less than 3 booths. On the other hand, about 18.6 percent of the mobile money agents had between 4 to 6 booths. Interestingly, approximately 2.1 percent of the mobile money agents had between 7 to 10 booths. Another 2.1 percent of the mobile money agents in the study stated that they had more than 10 booths. The sample comprised more agents who had less than 3 booths. Notably, with a large number of mobile money agents being youths with few years of experience in the business, it was expected that most of these agents would operate fewer outlets or booths. This is compared to agents who would have stayed longer in the mobile money business and therefore appeared to have a relatively large number of booths.

5.2.9 Number of People Employed by Mobile Money Agents

Mobile money agents have often been hailed to contribute to the creation of employment. The study was thus interested in finding out how many people the sampled agents had employed. Figure 5.9 displays the distribution of the number of employees each mobile money agent had.

Figure 5.9: Number of People Employed by Mobile Money Agents (%)



Source: Author's own construction based on survey results

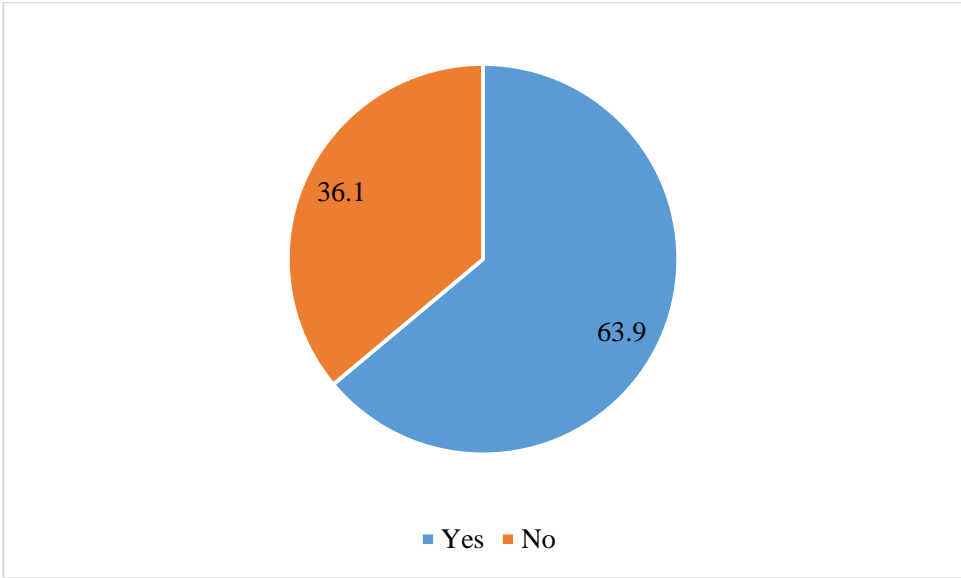
The results in the study indicate that 74.2 percent of the mobile money agents had less than 3 employees and 23.7 percent of the mobile money agents had between 4 to 6 employees. Other agents who had between 7 and 10 employees represented 1 percent of the sample. Equally, of the mobile money agents in the sample, 1 percent of the mobile money agents had more than 10 employees. The findings suggest that the sample was largely dominated by mobile money agents with less than three employees. This outcome was reasonable given that the majority of agents in the sample were young people with few years of experience. It appeared that these agents would

be considered to only extend limited employment opportunities in view of limited number of booths they operated.

5.2.10 Ownership of Personal Mobile Money Account by Agents

Mobile money agents are often assumed to already own mobile money accounts at individual level. The assumption is based on the fact that they operate mobile money transactions for clients and would thus find it beneficial to almost always own mobile money accounts. The study inquired on how many mobile money agents in the sample had personal mobile money accounts. This was important in establishing the actual financial inclusion of agents in isolation of their role as service bearers through their businesses. The results concerning whether the mobile money agents had personal mobile money accounts or not are summarised in Figure 5.10 below.

Figure 5.10: Ownership of Personal Mobile Money Account by Mobile Money Agents (%)



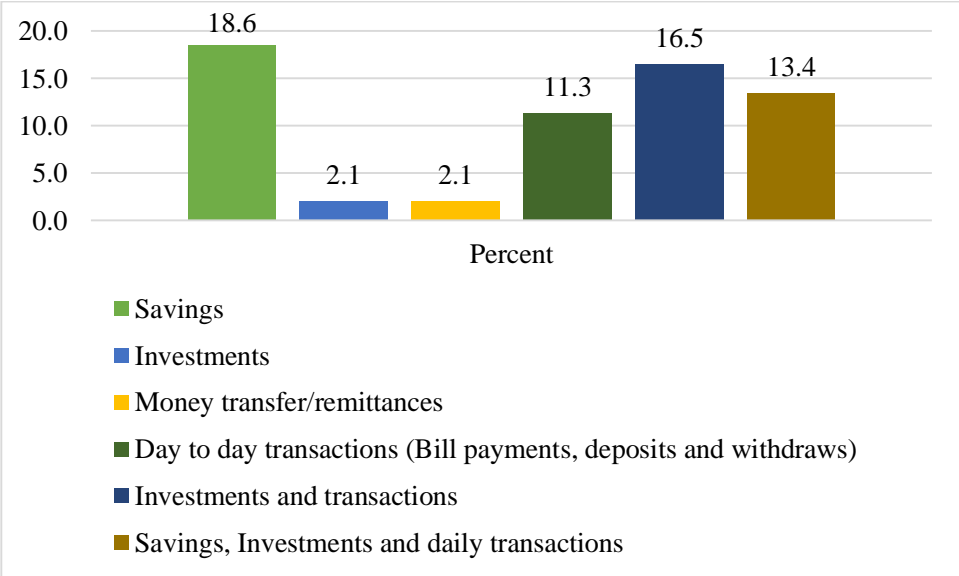
Source: Author’s own construction based on survey results

The study found that 36.1 percent of the mobile money agents did not have a personal mobile money account. These agents often relied on the accounts they used for their business operations when they needed to perform mobile money transactions. They also reported that, as such, it was difficult to indicate how mobile money impacted their lives since they mostly used it to perform transactions on behalf of customers. On the other hand, the majority of mobile money agents representing 63.9 percent of the mobile money agents owned personal mobile money accounts. These agents were able to report how mobile money affected their livelihoods and further shared the purpose that personal mobile accounts served.

5.2.11 Purpose of Personal Mobile Money Account

The study also inquired on what the 63.9 percent of agents who had mobile money accounts would use their accounts for. The distribution of the purpose of the personal mobile money account for the respondents who owned personal accounts is highlighted in Figure 5.11.

Figure 5.11: Purpose of Personal Mobile Money Account (%)



Source: Author’s construction based on survey results

The results indicated that 18.6 percent of the mobile money agents stated that they used the personal mobile money account for savings only. The share of agents that used their personal mobile money accounts for investments only corresponded to 2.1 percent. In addition, 2.1 percent of the mobile money agents stated that they used their personal mobile money account was for money transfers or remittances across their social networks. A further 11.3 percent of the agents in the study stated that the mobile money account was for day to day transactions only. On the other hand, 16.5 percent of the mobile money agents used their personal mobile money accounts for investments and transactions. Approximately, 13.4 percent of the mobile money agents in the study were found to use their personal mobile money accounts was for a combination of savings, investments and daily transactions. The sample largely comprised of mobile money agents who used their personal mobile money accounts for the purpose of saving money. This verifies that mobile money is a technology that encourages agents to boost their savings. The finding also echo those of the Finscope (2020) and BoZ(2015) that mobile money promotes savings among users.

5.2.12 An Agent: The Description from Sample Evidence

The descriptive analysis of the sample reveals that an average agent is aged below 25 years and most likely to have attained a GCE certificate. Mobile money agents are mostly female who are single and self-employed. These agents mostly appear to have less than three years of work experience in the mobile money ecosystem and largely operate MTN mobile money services. The mobile money agents mostly have less than three booths and employ less than three people. Despite mobile money agents conducting transactions on behalf of their clients, some agents do not own personal mobile money accounts and may be regarded as not financially included. Yet, on average, most mobile money agents own personal mobile money accounts and largely use them for savings and investment purposes.

5.3 Determinants of Mobile Money Adoption Among Mobile Money Agents

The decision to have a personal mobile money account is used as a measure of financial inclusion among the sampled agents. Our basic empirical problem is to determine how mobile money agents attributes affect the decision to adopt mobile money accounts. It is difficult to observe or measure the probability that an agent with given attributes will adopt or open a mobile money account. However, given a sample, we can identify those agents who have a mobile money account and those who do not have. In this case, the dependent variable, whether one has opened an account or not, becomes a binary variable. The mobile money adoption function can thus be expressed as:

$$MA(1,0) = MA(X_1 \dots X_n) \dots\dots\dots 5.1$$

Where MA is the mobile money adoption function where MA= 1 is the case where the agent has opened an account, and MA = 0 , is the case where the agent did not open an account . X is vector of attributes of the mobile money agent.

We hypothesise a positive relationship between the probability of adoption, education employment status, number of years in business, name of mobile money service, number of employees, perceives usefulness of mobile money, trust in mobile money innovations and perceived ease of use. A negative relationship is anticipated for perceived risk. Particularly, if a mobile money agent is educated, they are expected to be more literate and make the decision to own a personal mobile money account. Similarly, when an individual is in employment and has an income, they are more likely to own a mobile money account for savings and transactions purposes. Further, individuals who are exposed to many years in business and are familiar with how mobile money services operate are expected to have a high probability of opening and using mobile money accounts. In addition, agents who have a high number of employees are more likely to own mobile money

accounts for the purpose of separating business and personal transactions. Moreover, if mobile money agents perceive mobile money to be highly useful and a trusted channel for managing finances, they are highly likely to open mobile money accounts. It is also expected, apriori, that if mobile money agents perceive mobile money to be an easy technology to use, the probability of opening mobile money accounts will be high. Finally, in cases where mobile money is expected to be a risky option for one to save their money and transact, the probability of agents not opening mobile money accounts is high.

The dependent variable, mobile adoption (the decision “to own and use” versus the decision to “not own and use” a mobile money account) in this case is a discrete variable. This would be equivalent to the probability equal to one, if the mobile money agent owns and uses a personal mobile money account and zero otherwise (Camron and Trivedi, 2005).

5.3.1 Empirical Specification

We use a logistic regression to model the outcome of ‘owning and using’ versus ‘not owning and using’ a personal mobile money account by agents in the sample. The logistic regression is appropriate in this study because it deals with situations in which the observed outcome for a dependent variable can have only two possible types (for example, ‘owning a personal mobile money’ versus ‘not owning a personal mobile money’). The estimated regression coefficients predict the probability that an observation falls into one of the two categories of the dependent variable based on the independent variables (Camron and Trivedi, 2005; Yawe and Prabhu, 2017).

Our basic assumption is that the probability of adoption, P_i , can be characterised by the logistic form:

$$p_i = [1 + e^{-(\beta_0 + \beta_1 X_i)}]^{-1} \dots\dots\dots(5.2)$$

Where $i = 1, \dots, n$; β_0 is a constant, β is the coefficient vectors and X_i is the vector of the attributes of mobile money agents in 5.1. (Pindyck and Rubinfeld, 1981; Watson, 1974). Alternatively, we can write the logistic function in the form:

$$\begin{aligned} \text{Log} \left[\frac{P_i}{1-P_i} \right] = & \beta_0 + \beta_1 \text{Edu} + \beta_2 \text{EMPSTAT}_i + \beta_3 \text{BSYRS}_i + \beta_4 \text{NAMSERV}_i + \\ & \beta_5 \text{NUMBTHS}_i + \beta_6 \text{NUMBEMP}_i + \beta_7 \text{PUSE} + \beta_8 \text{TRUST}_i + \beta_9 \text{PRISK} + \beta_{10} \text{PEOU}_i + \varepsilon_i \end{aligned} \quad (5.3)$$

Where, EDU = Education level of mobile money agent; EMPSTAT = Employment status of mobile money agent; BSYRS = Number of years in business; NAMSERV = Name of mobile money service; NUMBTHS = Number of mobile money booths; NUMBEMP = Number of employee that mobile money agent has; PUSE = Perceived usefulness; TRUST = Trust in mobile money innovation; PRISK = Perceived Risk and PEOU = Perceived Ease of Use.

5.3.2 Results and Discussion

The estimated logit equation is shown in table 5.1. The dependent variable are the logarithm of the odds that a particular choice will be made: in this case that the mobile money agent will open a mobile money account.

Table 5.1: Maximum Likelihood Estimates of Mobile Money Adoption Among Agents

Variable	Coefficients	Odds Ratio	P>(z)
Education Level	0.309 (0.193)	1.362	0.029**
Employment Status	0.487 (0.534)	1.628	0.138
No. of Years in Business	0.977 (1.284)	2.657	0.043**
Name of MM service	0.066 (0.208)	1.068	0.736
No. of MM booths	-0.062 (0.150)	0.940	0.700
No. of Employees	-0.162 (0.494)	0.850	0.780
Perceived Usefulness	0.707 (0.732)	2.027	0.050*
Trust	-0.157 (0.247)	0.855	0.588
Perceived Risk	0.371 (0.427)	1.449	0.208
Perceived Ease of Use	0.784 (0.794)	2.191	0.030**
Constant	-8.633 (2.706)	0.0002	0.001***
N =	97		
Prob > chi2 =	0.027		
Pseudo R2 =	0.160		
Log likelihood =	-53.279		

Note: Standard error in parentheses; *p<0.1, **0.05, ***p<0.01

Source: Field Survey (2018)

We find that the model converged very quickly. The log-likelihood (-53.279) was found in this logit model on financial inclusion. The likelihood ratio χ^2 (10) of 20.30 with a p-value of 0.027 implies that our model as a whole, fits significantly at 5 percent level of significance. The output

table also displays the coefficients, Odds ratio, the standard errors and associated p-values (also see Appendix I). The results indicate that of the ten predictors of mobile money adoption among mobile money agents, four of them bear significant coefficients. While the signs of the estimates are important to find out the direction of change of the dependent variable, the values of the coefficients do not provide the magnitude of change (Camron and Trivedi, 2005). We interpret and discuss the results that were significant in the proceeding section.

Education level and Financial Inclusion of Agents

Clearly, from table 5.1, the logits or log odds of a mobile money agent having a personal mobile money account change by 0.309 for a one-unit change in the education level, holding other factors constant. Equivalently, the odds of having a personal mobile money account change by a factor of approximately 1.362 for a one-unit increase in the education level, when all other predictors are held constant. This implies that mobile money agents with higher levels of education are more likely to own and use a personal mobile money account and vice versa. The indication of this is that mobile money technology is more likely to be accepted among highly educated mobile money agents. Education in this sense positively impacts financial inclusion of mobile money agents.

These findings on the contribution that education level can make towards financial inclusion concur with Amoah et al., (2020) who equally examined mobile money as a financial inclusion instrument and sought to find its determinants. Including other variables such as technology savvy cohorts (youthful age cohorts), available services such as phone credit recharge, and income, education was found to be amongst the key determinants of mobile money use in Ghana.

The findings of our study are also similar with the FinScope (2013) survey that covered the demand side determinants of financial inclusion in Uganda. The specific focus of the survey was on how

financial inclusion is affected by financial literacy and financial innovations. The survey was also limited to mobile money and mobile banking and agency banking products. Particularly, the survey controlled for demographic factors such as age, gender and education level, which were also an integral part of our study. Although control variables are not the central interest of a researcher, they are paramount to adequately understanding the relationship between independent and dependent variables. They help the researcher to accurately test the value and influence of an independent variable on the dependent variable (Allen, 2017). The control variables used in Finscope (2013) compare greatly with those adopted in our study.

Furthermore, in their research on financial inclusion in Africa, Triki and Faye (2013) found that adults with a tertiary education were more likely to report having an account at a formal financial institution. This signifies the importance of education level on financial inclusion. Saqib et al. (2018) also outlined the role that education plays in financial inclusion by examining the factors influencing farmers' access to agricultural credit in a flood disaster risk-prone area in Pakistan. This research employed weighted least squares regression and found that education level, experience in farming, the size of land owned, income earned per month and household size were the factors influencing farmers' access to credit facilities.

Similarly, Chandio et al. (2017) used the Probit regression technique to examine farmers' access to credit and the influence of collateral in credit access and inclusion. In this study it was discovered that factors such as the gender of the household head, the size of the household, the level of education, the size of the farm, level of income and availability of collateral were factors which positively influenced farmers' access to credit. The two studies by Saqib et al. (2018) and Chandio et al. (2017) coincide on many factors including education level (in our study) as a determinant of access to credit and financial inclusion.

Furthermore, the findings in our study that education level determines financial inclusion of agents also concurred with studies that looked at financial inclusion and its importance in realizing the goal of inclusive economic growth. Zulfiqar et al. (2016) examined the state of financial inclusion and its significance for inclusive growth in Pakistan. The study utilised a probit estimation technique to find out the determinants of financial inclusion in Pakistan. The study found that Education level, income and gender discrimination are important determining factors of financial inclusion. These results help emphasize the importance of education not only for the sake of being financially included. Yet, education also acts as a means to enable individuals to have a more comprehensive and easy understanding of access to finance options in society. This enhances sustainable inclusive economic growth that would be a benefit to the wider society.

Number of Years in Business and Financial Inclusion of Agents

The logits or log odds of having a personal mobile money account change by 0.977 for a one-unit change in the number of years a mobile money agent has been in business, holding other factors constant. Consistently, the odds of a mobile money agent having a personal mobile money account change by approximately 2.657 for a one-unit increase in the number of years a mobile money agent has been in business, when all other predictors are held constant. This implies that mobile money agents who have been in business for a longer period of time are more likely to having a personal mobile money account. Thus, the number of years a mobile money agent has been in business leads to a higher likelihood of an agent being financial included, and vice versa. Furthermore, the indication of this is that mobile money technology is more likely to be accepted among agents who have served many years in business. The number of years agents operate their businesses positively impacts their financial inclusion outcomes.

These findings support the assertion by Westhead et al. (2009) that habitual entrepreneurs with prior business ownership and experience are better able to accumulate (and utilise) additional human capital. Habitual entrepreneurs also use their mix of skills and experience to build up other types of capital and this can be seen by the need to own personal accounts and boost savings. Thus, habitual entrepreneurs such as mobile money agents can be distinguished from novice entrepreneurs by the way they adapt to existing technology and find multiple ways of using it.

Perceived Usefulness and Financial Inclusion of Agents

The results of our estimation further indicate that the logits or log odds of having a personal mobile money account change by 0.707 for a one-unit change in Perceived Usefulness, holding other factors constant. Equally, the odds of having a personal mobile money account change by a factor of approximately 2.027 for a one-unit increase in Perceived Usefulness, when all other predictors are held constant. This implies that mobile money agents are more likely to be financially included if they perceive that having a personal mobile money account will be useful, and vice versa. Mobile money technology is therefore more likely to be accepted by agents because of how useful they perceive it to be. Undoubtedly, Perceived Usefulness of mobile money technology positively influences the decision of mobile money agents to be financially included.

The findings in our study are consistent with the prediction of the TAM coined by Davis (1989). Perceived Usefulness is considered as the degree to which users believe that the use of technology or systems will improve their performance at work (Lubis, et al., 2019). In our study, Perceived Usefulness was found to have a significant contribution to financial inclusion. Implicitly, mobile money agents believed that the use of a personal mobile money account justified their need to be financially included.

Other scholars have also outlined the important contribution that Perceived Usefulness makes towards the adoption of technology leading to financial inclusion. Bhuvana and Vasantha (2017) investigated the factors that determine the usage of Mobile Banking Services among the rural customers. They identified the significant relationship between the factors affecting technology acceptance and intentional behavioural of rural customers towards mobile banking usage. The study adopted the TAM for constructing the theoretical framework. The study found that attitude, Perceived Usefulness, Perceived Ease of Use, Trust and Perceived Risk determined intentional behaviour of rural customers towards accessing mobile banking services.

Additionally, the findings of this research are also similar with those of Mutahar et al. (2018) who aimed to test the mediation effect of TAM core constructs between the external factor self-efficacy and the intention to use mobile banking. Questionnaire survey data was collected from 482 valid responses from bank clients and analysis was done using structural equation modelling. The proposed model explained 81 percent of the variance in intention to use mobile banking. The findings of the multivariate analysis revealed that Perceived Usefulness had a positive and direct influence on the intention to adopt mobile banking.

Perceived Ease of Use and Financial Inclusion of Agents

The study also found that the logits or log odds of having a personal mobile money account change by 0.784 for a one-unit change in the Perceived Ease of Use, holding other factors constant. Equivalently, the odds of having a personal mobile money account change by a factor of approximately 2.191 for a one-unit increase in the Perceived Ease of Use, when all other predictors are held constant. This implies that mobile money agents are more likely to be financially included if they perceive that a personal mobile money account is easy to use, and vice versa.

Perceived Ease of Use identifies a case of a user believing that a particular technology or system can be used easily and free from problems (Lubis, et al., 2019). In our study, Perceived Ease of Use was found to make a significant contribution to the financial inclusion. Mobile money agents felt that owning and using personal mobile money accounts was considerably easy and convenient with negligible problems.

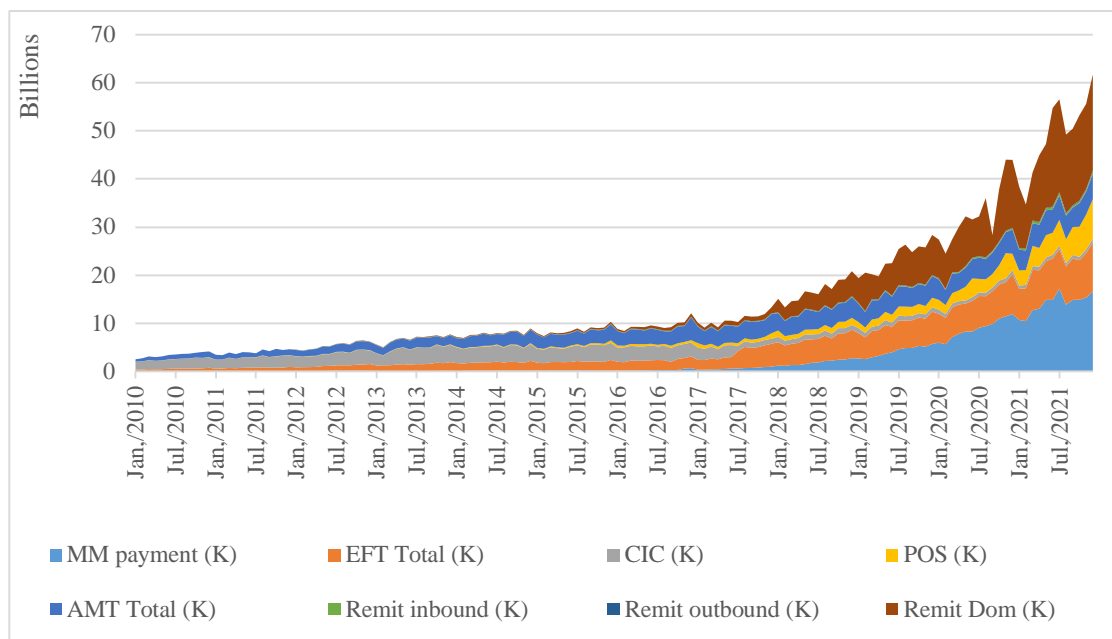
The results in our study also echo the work of Lwoga and Lwoga, (2017) who investigated the effects of user-centric, security, and system characteristics and the moderating effects of gender on behavioural intention to use mobile payments (m-payment) services in Tanzania. The study extended the TAM to better explain and predict the users' intentions to use m-payment services. The study found that Perceived Ease of Use in turn, had positive effects on the behavioural intention to use m-payments.

Finally, prior mobile money studies have largely focused on adoption drivers and also used Perceived Ease of Use as a key determinant of mobile money adoption (Chauhan, 2015; Jaradat and Al-Mashaqba, 2014; Rahman et al., 2017; Upadhyay and Jahanyan, 2016). Jaradat and Al-Mashaqba (2014), for example, focused on adoption drivers such as Perceived Ease of Use, Perceived Usefulness, behavioural intention and usage behaviour to investigate mobile money adoption in Jordan. Similarly, Chauhan (2015) also, used Trust, Perceived Usefulness, Perceived Ease of Use, attitude towards use and behavioural intention as mobile money adoption drivers in India. This outlines that through its application in various empirical literature Perceived Ease of Use has been identified as a key determinant of mobile money adoption. Perceived Ease of Use, in the case of our study, evidently explains financial inclusion of mobile money agents.

5.4 Comparison of Mobile Money and Other Payment Systems

The study sought to make a contribution to empirical literature on mobile money and financial inclusion in Zambia. Riding on the use of multi-methods in eclectic philosophy, we used secondary data from the Bank of Zambia to establish how, on a macro level, mobile money as a conduit for financial inclusion compares with other forms of payment settlement systems. We use descriptive analysis of the data on mobile money payments (MM payment) electronic funds transfer (EFT), Cheques (CIC), automated teller machines (ATM), point of sale (POS), remittances inbound (Remit inbound), remittances outbound (Remit outbound) and domestic remittances (Remit Dom) to make this macro level comparison. The comparisons are made in terms of growth in share of value of transactions, share of transactions and average cost of transactions. This is important in deriving necessary policy implications on how mobile money affects financial inclusion and which socio-economic groups it should be tailored to. Figure 5.12 illustrates the comparison of mobile money with other payment systems that that Bank of Zambia oversees.

Figure 5.12: Growth of Mobile Money and other Payment Systems (ZMW Billions)



Notes: MM = Mobile money; EFT= Electronic Funds Transfer; CIC = Cheques in clearance;

POS= Point of Sale; ATM= Automated teller machine; Remit = Remittances

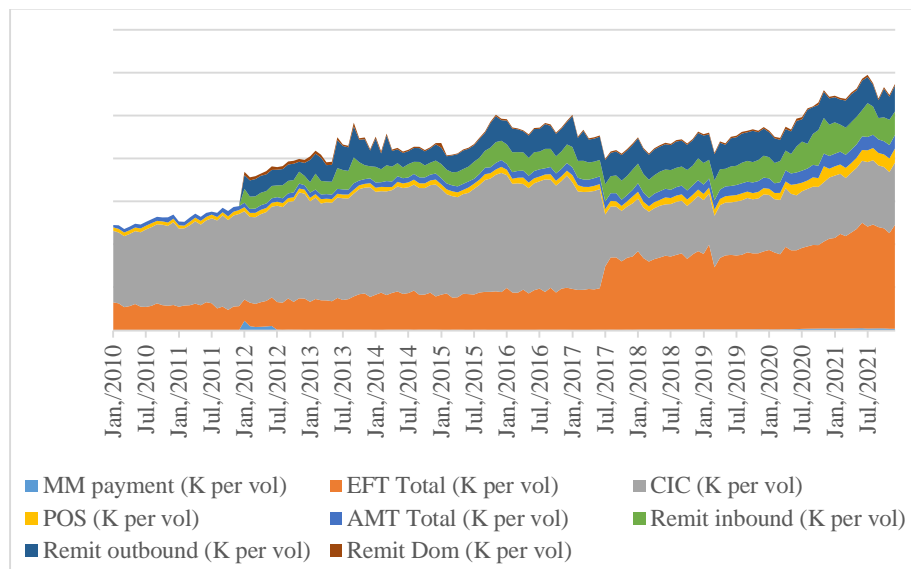
Source: Author’s Construction based on Bank of Zambia Data

The share of the value of mobile money payments when compared to other payment systems displayed some improvements between January, 2010 and July, 2021. Initially, mobile money payments were extremely negligible between 2010 and 2017 compared to ATM and POS as leading payment systems. This could also be associated with the relatively low levels of mobile phone ownership by the majority of the adult population. Furthermore, in 2015, only 14 percent of Zambians were using mobile money. Zambia had under 75 percent mobile phone subscription across the adult population (BoZ, 2015). This justifies the extremely low share of mobile money growth between 2010 and 2017.

Beyond 2017 growth in mobile phone subscription and penetration at over 85 percent of the adult population enhanced the acceptance of mobile money across the Zambian population. This largely contributed to growth in the share of mobile money payments between 2017 and 2021. By July 2021, mobile money payments claimed a share comparable to domestic remittances. This is consistent with the findings of the Finscope (2020) study that mobile money made the largest contribution to financial inclusion at about 58.5 percent.

Mobile money has however remained an unpopular payment system among the surveyed payment options (Figure 5.13). Evidently, the study found that mobile money forms only a very tiny part of the overall portfolio of payment systems in Zambia.

Figure 5.13: Share of Mobile Money in Payment Systems Portfolio (ZMW Billions)



Notes: MM = Mobile money; EFT= Electronic Funds Transfer; CIC = Cheques in clearance;

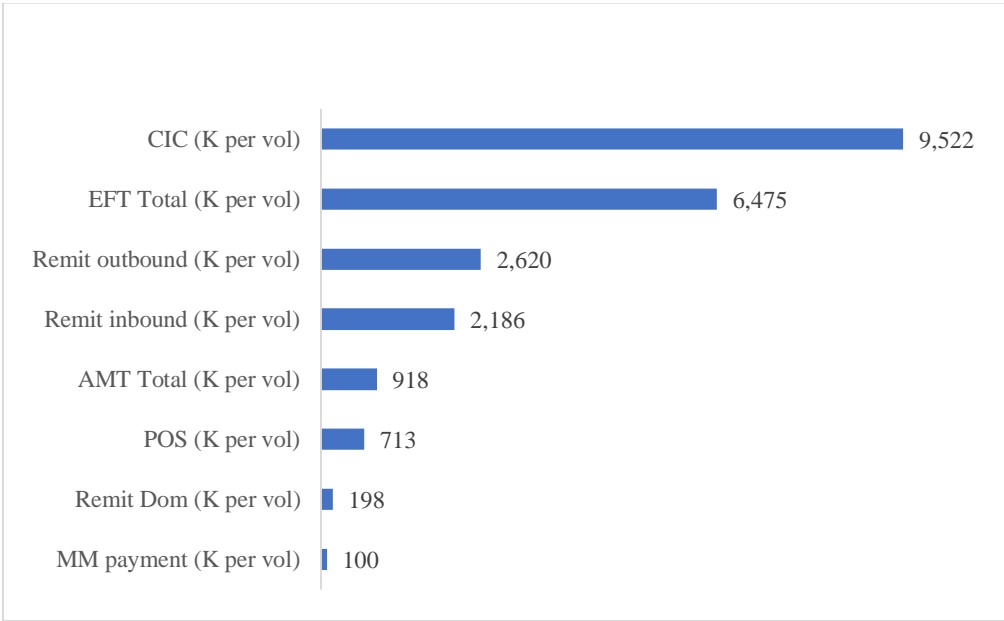
POS= Point of Sale; ATM= Automated teller machine; Remit = Remittances

Source: Author’s construction based on Bank of Zambia Data

Over the period 2010 and 2017, payments were largely settled through Cheques and electronic funds transfers. Even with the growth in mobile money transactions, between 2017 and 2021, the dominant forms of payment systems were electronic funds transfers and Cheques. Remittances were also considerably used alongside ATM payments. The extremely low share of mobile money in the payment systems portfolio suggests that the value of mobile money payments is extremely small compared to those captured through other payment systems.

Despite the evidence that mobile money payments are small in value relative to other payment systems, the study found that mobile money is the least costly of all payment systems (Figure 5.14).

Figure 5.14: Average Cost of Payment System (Jan 2012 – Dec 2021)



Notes: MM = Mobile money; EFT= Electronic Funds Transfer; CIC = Cheques in clearance; POS= Point of Sale; ATM= Automated teller machine; Remit = Remittances

Source: Author’s construction based on Bank of Zambia Data

The study found that concerning the monetary value of transactions, between January 2012 and December 2021, it was most expensive to conduct transactions by cheque and electronic funds transfer. In particular, the average cost of a transaction by cheque was K9,522 and that of an electronic funds transfer was K6,475. Outbound and inbound international remittances were costing an average of about K2,620 and K2,186 respectively. ATM payments costed an average of K918 per transaction while domestic remittances were costing K198 per transaction. Overall, mobile money payments were the cheapest at an average of K100 per transaction during the period January 2012 and December 2021. This suggests that while mobile money lends itself to small transactions, it is the most affordable compared to other payment systems. The implication is that mobile money could be mostly used by low income groups. Mobile money could therefore be an effective tool for the financial inclusion of the poor and vulnerable individuals in the Zambian society.

5.5 Mobile Money and Livelihoods of Agents: An Ethnographic Analysis

The study notes that defining quality and better quality of livelihoods is not straight forward and is multidimensional in nature. For example, better quality shelter, quality education and so forth are often subjective in interpretation. However, following the Living Conditions Monitoring Survey (LCMS) definition by CSO (2016) and the Sustainable Livelihoods Framework by Carney (1998), the study adopted a context that is comparable in defining livelihoods and guiding the ethnographic inquiry. We analyse aspects of livelihoods that formed the main themes from interviews such as water, shelter, education, health and access to assets such as land (CSO, 2016). Ethnographic techniques of participant observation (by being immersed in the environments where agents live and observing their day to day lives), diary logging and in-depth interviews were employed following de Bruijn, et al. (2017). Using high content analysis, the study presents an

analysis of mobile money and its influence on livelihoods of agents in Kitwe and Kalulushi districts.

Financial inclusion of Mobile Money Agents and Improvement in Quality of Water Accessed

The agents who confirmed having personal mobile money accounts stated that they used the mobile money accounts to make bill payments for utilities such as water. The quality of water accessed was an indicator of livelihoods that was adopted from the LCMS framework. The study sought to find out if at all the agents registered an improvement in the quality of water accessed prior to opening personal mobile money accounts. The majority of the agents indicated that the quality of water the accessed before opening their mobile money account remained the same. Agents only used mobile money as a platform to enable them pay water bills but that did not change the quality of water they paid for. The findings thus confirmed that the quality of water the agents accessed after being financially included through mobile money remained unchanged.

Financial inclusion of Mobile Money Agents and Access to Better Quality Shelter

Mobile money agents informed the study that among those who owned personal mobile money accounts, some paid for transactions such as renting or owning accommodation with features such as electricity. Quality of shelter was identified by the physical housing quality and shelter with access to water, decent toilets, electricity and other basic amenities. Hence in this context, respondents were asked if their ownership of mobile money accounts availed opportunities for access to better quality shelter. The quality of shelter accessed was adopted as an indicator of livelihoods based on the LCMS framework. Yet, those agents who confirmed that they owned and used personal mobile money accounts stated that ownership of personal mobile money accounts did not change the type of shelter they accessed. Thus, the study found that financial inclusion of

agents through use of personal mobile money accounts did not affect the access to be better quality shelter.

Financial inclusion of Mobile Money Agents and Access to Better Quality of Food

The study found that among the mobile money agents who reported to own personal mobile money accounts used them for paying for daily consumption expenses such as food. Thus, the study sought to inquire if the agents who owned and used personal mobile money accounts had access to better quality of food as a result of being financially included. Quality of food was defined in terms of grade characteristics such as appearance, ingredients and other such standards of food the respondents as consumers accessed. The responses to such questions from in-depth interviews outlined that most agents did not access better quality food as they became financially included. In particular, responding agent (RA3) had this to say:

“...I love food and I will give an example of samoosas. Before I became an agent, I would buy samoosas from the market and I thought the way they packaged them was just to the quality of people without an income or low-income earners. The pricing was affordable (K2.00), so you would think the ingredients are low quality but we still would enjoy the samoosas. After I became an agent who earns money from mobile money, I would save my money in my personal mobile money account. I started using some of my money to buy my samoosas from the filling station just near my kiosk. The samoosas from the filling station were K4.50 each but did not taste better than the samoosas at the market. I went back to buying my samoosas from the market. It’s the same with vegetables and even chicken for example. I used to buy them from the market before joining the mobile money business. After getting my commission one day, I went to do my shopping and decided to try the vegetables and chickens in the supermarket that also came at a higher price compared to what I was

used to. I expected that the quality would be better since the packaging of the vegetables and chickens was really good compared to the market place. I also thought the quality was good because the vegetables and chickens were in a refrigerated area. However, after my first purchase, the vegetables and chickens were not fresh despite being relatively expensive and appearing to be of better quality through the packaging. I went back to buying the same vegetables and chickens from the market as I did before joining the mobile money agency business and earning more money through commission. So for me and I should just say most of us, quality of food we access has not changed even with our earnings from mobile money and our ownership of separate mobile money accounts...”

The narration from RA3 displayed the sentiments of many agents whose access to better quality of food did not change as they became financially included.

Financial inclusion of Mobile Money Agents and Access to Quality Education

The agents that were found to own personal mobile money accounts and regarded as financially included in the study shared how mobile money affected their access to quality education as an indicator of livelihoods. In line with the LCMS framework, quality education was associated with education that allows individuals to experience social, emotional, mental, physical and cognitive development regardless of socio-economic status, gender, geographic location, among other factors. Quality of education, therefore, identified with decent physical infrastructure, availability of classroom space, qualified instructors and other basic amenities in the learning environment. The study asked respondents if their ownership of mobile money accounts availed opportunities for them to access what they perceived to be better quality education. The majority of agents who owned personal mobile money accounts reported that they used their personal accounts to save part of their earnings for investment in better quality education. Financial inclusion of agents

through ownership of personal mobile money accounts highly encouraged access to quality education for many of the agents in the study. One respondent, RA1 shared that:

“For many of us, the commissions earned from mobile money have been generous. Zoona for instance paid me so well two years ago. I was able to send myself to study at a good university compared to me studying at an ordinary college with less qualified lecturers and poor library facilities. The income from Zoona also helped me diversify my business and reinvest proceeds into selling hair products and lingerie. I saved the profits from there in my personal mobile money account and when it is enough, I also paid for my children’s education. Recently, I was also able to take my daughter to a better school because I had saved enough of what I was earning as an agent through my personal mobile money account. This did not happen before when I worked for a certain big company where we saved through banks and the money would be consumed in bank charges. Even some other agents I recruited were also able to go to good universities also saved something from commissions earned through personal mobile money accounts. Among the tellers I also recruited to my agency network, there are some that were studying at a certain college and were able to buy application forms for a certain university by first using the MTN kongola credit facility. This facility is available to those who own personal mobile money accounts. I encouraged the tellers to save up and pay for their education or borrow through the kongola facility and invest in the mobile money business. They borrowed and invested in the business. They performed more transactions with additional money invested and earned more commission income. Part of the income was saved in their personal mobile money account and later used to pay for education. The agents and tellers I encouraged to do this later paid back what they owed to MTN and still managed to pay their tuition fees at good quality education

institutions. Mobile money certainly offers agents opportunities to access better quality education, especially if one makes saving through a personal mobile money account a priority...” (Interview held on 11th May, 2018).

Financial inclusion of Mobile Money Agents and Access to Quality Healthcare

The mobile money agents that were found to own personal mobile money accounts and regarded as financially included in the study also shared how their use of mobile money affected their access to quality healthcare as an indicator of livelihoods. Using the LCMS framework, quality healthcare was associated with availability of good hospital infrastructure, drugs in hospitals, qualified hospital staff and an inclusive environment with professional health services. The study inquired from respondents if their ownership and usage of personal mobile money accounts availed opportunities for them to access what they perceived to be better quality healthcare. Responding agent RA2 equally shared:

“Mobile money has allowed us to save and distinguish between business accounts and personal accounts. We cannot however go to better hospitals because those would mostly be private hospitals that come at huge costs compared to what can be paid for in the money we save in personal accounts. Already, money that is saved in personal mobile money accounts goes towards paying for education of our children and family members. There is usually not much left for us to pay for hospital care that is considerably better but expensive. For instance, some hospitals charge consultation fees, nursing fees and others amounts which we don’t pay for when we see the same doctors at general hospitals. So, we keep going to the same hospitals as before we joined mobile money and accumulated personal savings. The hospitals are equally okay with the qualified staff too. This is better than paying huge sums of money at private health facilities...” (Interview held on 13th May, 2018).

This confirms that most agents accessed the same quality of healthcare even after being financially included.

Financial Inclusion of Mobile Money Agents and Accumulation of Land and Other Assets

The study further examined how financial inclusion of mobile money agents affected the respondents' access to and purchase of assets such as land. Respondents were asked if ownership of mobile money accounts allowed them to acquire assets such as land. Informant interviews revealed that being financially included did not lead to mobile money agents acquiring land. Many agents did not have the opportunity to access and purchase of land because land was considered expensive. Responding agent RA 2 explained:

“Land costs a lot of money in Kitwe and Kalulushi districts. For instance, in Kalulushi, St. Marcellin’s plots were selling for about K25 000 for big plots. In Kitwe, its more than this price because and the price would even go up to K50, 000. So for an agent who earns less than K5000 monthly and still has to invest some of the earnings back into the business, purchasing land becomes a farfetched priority. Even with our savings, we need to prioritise and realistically choose what can be paid for. So most of us chose to spend more on education after saving enough. But we hope to buy land later should our businesses grow and we have acquired better opportunities and incomes....”

Basically, the findings in the study suggest that most agents were not able to purchase land even after becoming financially included.

In summary, mobile money allowed most agents to be financially included. However, this did not lead to significant changes in the livelihoods of agents. Apart from access to better quality education, agents did not change their access to better quality of water, food, healthcare and

acquisition of assets such as land. This suggests that while financial inclusion is important for improving the livelihoods of agents, agents have to prioritise how they use savings from personal mobile money accounts. Implicitly, this creates a case of scarcity and choice in allocation of money saved on personal mobile money accounts owned by agents. This justifies why most indicators of livelihoods did not change from the perspective of key informants in the study. It is worth noting, however, that the improvements in changes in indicators of livelihoods may also be attributed to other factors not tackled in the study. For instance, factors such as wealth previously accumulated outside of mobile money while complimenting incomes from mobile money may explain improvements in livelihoods. Yet, such factors were not investigated in the study. Thus, the improvements in indicators of livelihoods of mobile money agents should be observed with such caution.

5.6 Convergence of the Quantitative and Qualitative Approaches and Results

The convergence of methods and results obtained in the study is critical in eclectic philosophy. The findings in the quantitative approach of this study indicate that mobile money, through use of personal mobile money accounts, promotes financial inclusion. On the quantitative front, descriptive analysis showed that a wide majority of respondents in the sample were youths with relatively few years in the mobile money business. These agents did not only operate transactions for clients, thereby finding the opportunity to use mobile money by virtue of their jobs. However, most of the agents were financially included and owned personal mobile money accounts that could be isolated from the ones used while serving customers. This finding was very interesting because most often, agents are thought to be people who are financially included by default. Interestingly, the results further indicated that female and single agents formed the majority of the sample. This was very different from what empirical evidence outlines about female representation

in mobile money businesses. The uniqueness of this result provides evidence for reference in empirical work that counter the expectations of female underrepresentation in financial inclusion. Descriptive analysis further revealed that mobile money, while promoting financial inclusion, also boosted savings of agents.

The results of the descriptive analysis complemented those of the logistic regression analysis. The results, in this case, supported the prediction of our conceptualised TAM that education level, number of years an agent was in business, Perceived Usefulness and Perceived Ease of Use determine adoption of mobile money accounts by agents, and thereby financial inclusion. These findings supported the descriptive analysis result that mobile money was found to be useful for saving, transactions and investment. Furthermore, the descriptive analysis of secondary data confirmed that mobile money lends itself to small transactions that are in relatively large volumes compared to other payment systems like Cheques and ATMs. Mobile money was also found to be the most affordable of payment systems in Zambia. This can also explain the descriptive analysis result that most of the agents were youths (below the age of 25 years old) and would therefore make only small value transactions. Yet, if we consider the bigger picture in isolation of agents who are young, it is reasonable to infer that mobile money is mostly used by low income earners and thus has low value transactions.

Finally, indicators of livelihoods such as access to water, shelter, food, education, health and assets were qualitatively examined. Perceptions on how agents considered their livelihoods to improve after using mobile money were obtained through in-depth interviews. The outcome of the results was that except for education level, all other indicators of livelihoods did not change after the mobile money agents started using personal mobile money accounts. This finding was interesting and confirmed that even if agents were financially included and saved enough money on their

mobile money accounts, the money was limited to expenses that were a high priority. Therefore, amidst scarcity of funds, agents used more of their savings for improving their access to quality education. To some extent, this supports the empirical predictions of the TAM in our study.

5.7 Conclusion

This chapter displayed the findings of the study which were presented using econometric and descriptive analysis on the one hand. On the other hand, high content and transcription analyses were used in explaining mobile money, financial inclusion and livelihoods of agents in Zambia. A discussion of the research findings was also given to amplify the clarification of results in relation to empirical explanations from similar studies. The chapter has largely endeavoured to answer the research questions by modelling determinants of mobile money adoption through a logistic estimation of the TAM model; descriptive analysis of the influence of mobile money on savings of agents; macro level descriptive analysis of mobile money in comparison with other payment systems in Zambia; and ethnographic analysis of the influence of mobile money on livelihoods of sampled agents in the study.

CHAPTER SIX: CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 Introduction

This final chapter of the study presents the summary of the findings, conclusions and recommendations on major outcomes of our study on mobile money, financial inclusion and livelihoods of agents in Zambia. In the summary of the study, we succinctly present findings of the study with conclusions on the overall outcomes observed. Specifically, we focus on a brief overview of the statement of the problem, research questions, objectives, methodology, results and share policy implications. Finally, we share the limitations of the study as well as proposed areas for further research.

6.2 Summary of the Study

The study recognised that mobile money is a relatively new phenomenon especially in the Zambian context. While mobile money was argued to contribute to financial inclusion, little was known about how it affected a unique category of users such as mobile money agents. Agents were mainly considered as passive intermediaries of mobile money services and almost always assumed to already be financially included. Further, empirical evidence presented in the study suggested that mobile money, by being affordable, contributes to the welfare of users. Without such evidence on our unit of analysis, this was an inquiry that had to be made in the context of agents as mobile money users in Zambia. Therefore, the aim of this study was to establish the influence of mobile money on financial inclusion and livelihoods of mobile money agents in Zambia.

The study carried four objectives. First, it aimed to investigate the determinants of mobile money adoption among mobile money agents. Secondly, the examine whether or mobile money boosts the savings of agents. Thirdly, the study went on to establish how mobile money affects the livelihoods of agents. Finally, the study intended to assess how mobile money compares with other payment systems on a macroeconomic level in Zambia.

The study was grounded in Davis' (1989) Technology Acceptance Model (TAM) which emphasises the Perceived Ease of Use and Perceived Usefulness as preconditions of acceptance of emerging technologies such as mobile money.

Leapfrogging on the eclectic or mixed methods philosophy, the study employed a cross-sectional descriptive survey research design. The study targeted mobile money agents operating Airtel, MTN and Zoono services in Kitwe and Kalulushi districts of the Copperbelt. The unit of analysis was mobile money agents because on the one hand, mobile money has been hailed to encourage financial inclusion and improve livelihoods of users. On the other hand, little is known about the actual inclusion of individual agents in the use of financial services outside the boundaries of their businesses. Using the sample determination techniques for unknown population (the population of mobile money agents is unknown), the study scientifically selected 97 mobile money agents through a mix of purposive and stratified random sampling.

The study used primary and secondary data. Primary data was collected from the mobile money agents using structured questionnaires. To ensure validity, the study maintained high levels of data cleaning and management. Descriptive statistical analysis gave quantitative meaning to the data and largely involved the presentation of results in tables and graphs with explanation to amplify understanding. Logistic regression analysis was also performed to explain the determinants of mobile money adoption among agents in Kitwe and Kalulushi districts. The study also used

ethnographic content analysis to explain how mobile money, defined by agents use of personal mobile money accounts influences selected indicators of livelihoods. Indicators of livelihoods were selected based on the Living Conditions Monitoring Survey (LCMS) framework.

6.3 Summary of Key Findings

In this section, we present the summary of findings of the study as they relate to the objectives of the research.

6.3.1 Determinants of Mobile Money Adoption among Agents in Kitwe and Kalulushi

In achieving the first objective, the study employed econometric modelling of the TAM using a logit regression. The results from the regression analysis, while defining financial inclusion as ownership and usage of a personal mobile money account were consistent with the actual prediction of the TAM. Education level, number of years an agent had been in business, Perceived Usefulness of mobile money and Perceived Ease of Use of mobile money were statistically significant in determining financial inclusion of agents.

Specifically, the logits or log odds of a mobile money agent having a personal mobile money account changed by 0.309 for a one-unit change in the education level, holding other factors constant. Equivalently, the odds of having a personal mobile money account changed by a factor of approximately 1.362 for a one-unit increase in the education level, when all other predictors were held constant. This meant that mobile money agents with higher levels of education were more likely to own and use a personal mobile money account and vice versa.

The study also found that the logits or log odds of having a personal mobile money account changed by 0.977 for a one-unit change in the number of years a mobile money agent had been in

business, holding other factors constant. Unswervingly, the odds of having a personal mobile money account changed by approximately 2.657 for a one-unit increase in the number of years a mobile money agent had been in business, holding other variables constant. By implication, mobile money agents who had been in business for a longer period of time were more likely to have a personal mobile money account and be financially included, and vice versa.

The study further found that the logits or log odds of having a personal mobile money account changed by 0.707 for a one-unit change in Perceived Usefulness, holding other factors constant. Similarly, the odds of having a personal mobile money account changed by a factor of approximately 2.027 for a one-unit increase in Perceived Usefulness, holding other predictors constant. This meant that mobile money agents were more likely to be financially included if they perceived that having a personal mobile money account would be useful, and vice versa. Mobile money was therefore found to be more likely accepted by agents who perceived it to be a useful technology.

Finally, in the logistic regression, the study found that the logits or log odds of a mobile money agent having a personal mobile money account changed by 0.784 for a one-unit change in the Perceived Ease of Use, holding other factors constant. Equivalently, the odds of having a personal mobile money account changed by a factor of approximately 2.191 for a one-unit increase in the Perceived Ease of Use, when all other predictors were held constant. Implicitly, mobile money agents were more likely to be financially included if they perceived that a personal mobile money account would be easy to use without technical difficulties, and vice versa.

6.3.2 Mobile Money and the Savings of Agents in Kitwe and Kalulushi

The second objective of study was to examine whether mobile money boosts the savings of agents in Kitwe and Kalulushi districts. The descriptive analysis of the results in the study revealed that mobile money encourages agents to save. About 64 percent of the agents in the study were found to own personal mobile money accounts that were separate from those used in their businesses. Of the agents who owned personal mobile money accounts, a large majority of them used their personal mobile money accounts for the purpose of saving money only. A good number of agents were also found to own accounts for the combined purpose of saving and investing in different needs. This verified that mobile money is a technology that encouraged agents to boost their savings.

6.3.3 Mobile Money and Livelihoods of Agents

The third objective of the study involved the investigation of how mobile money affected the livelihoods of agents in Kitwe and Kalulushi. The study used ethnographic and high content qualitative analysis to determine the extent to which mobile money agents felt that their livelihoods changed after being financially included.

The study narrowed down the indicators of livelihoods to access to better quality water, access to better quality shelter, access to better quality of food, access to better quality education and access to assets such as land. The findings in the study were that apart from access to better quality education, agents did not experience improvements in other indicators of livelihoods. The study found that while financial inclusion was an important factor in improving the livelihoods of agents, agents prioritised how they spent their savings from personal mobile money accounts. This built a case of scarcity and choice in allocation of limited amounts of money saved on personal mobile

money accounts owned by agents. It also explained why most indicators of livelihoods did not change from the perspective of informant agents that participated in the study.

Notwithstanding, the improvements in indicators of livelihoods that could have been observed may also be attributed to other factors not tackled in the study. For instance, factors such as wealth previously accumulated before agents obtained income from mobile money may have been complimenting incomes from mobile money, thereby supporting the reported improvements in livelihoods. Such factors were not investigated in the study. Thus, the improvements in indicators of livelihoods of mobile money agents should be observed with such caution.

6.3.4 Comparison of Mobile Money and Other Payment Systems

The fourth and final objective in the study was associated with finding out how mobile money compared with other payment systems such as electronic funds transfers, ATM, points of sale (POS), cheques and remittances on a macro-level context. The findings based on descriptive analysis of secondary data suggested that mobile money was not a popular technology between 2010 and 2017. Mobile money however grew rapidly between 2017 and 2021. Despite this growth, mobile money only occupied a very tiny share of the portfolio of mobile money payments. In terms of the monetary value of transactions, between January 2012 and December 2021, the study found that mobile money was the cheapest payment system with an average cost of K100 per transaction. This is compared to the average cost of a transaction by cheque of about K9,522 and K6,475 for electronic funds transfer as the most expensive payment systems. These findings suggested that while mobile money was indicatively popular for small value transactions, it remained the most affordable payment system at the macro level.

6.4 Conclusions

Based on the results of the study, we conclude that mobile money facilitates financial inclusion among agents in Zambia. Therefore, it would be necessary to continue promoting the use of mobile money technology in the country. The existence of agents who have served long years in the business of mobile money avails an opportunity for extending mobile money to more unbanked people. Agents who have long years of experience in the business would be more likely to take the risk of business expansion and benefit from pecuniary and non-pecuniary gains that this technology has to offer. This is fair consideration given that mobile money is largely perceived to be a useful and convenient technology with benefits such as reducing the transaction costs associated with paying bills, savings and investments. Mobile money is also easy to use and would therefore be useful for agents and other users in the country.

The study also concludes that since mobile money is used for savings purposes, it critically encourages the boosting of savings. The convenience of saving money at any time through mobile money makes it an easy but appropriate technology for boosting savings among agents and other users.

Furthermore, the study concludes that mobile money plays a role in improving livelihoods of agents. This is given the consideration that agents save their money for investment in aspects of livelihoods such access to quality education. Yet, the economic problem of scarcity, in view of the money saved by agents being limited and facing many needs for improved livelihoods is a reality for majority of agents in the study.

Finally, the study concludes that mobile money is the most affordable payment system in Zambia. It is mostly useful for the low-income earners, poor and vulnerable population in the country.

6.5 Policy Recommendations

Having considered the findings and conclusions in the study, it is recommended that mobile money should be scaled further to rural areas where the majority of the Zambian poor people reside. This will be key in ensuring that access to affordable financial services also benefits the poor people. Since mobile money thrives in high traffic locations that are in urban areas, mobile network operators (MNOs) should award incentives such as additional commission income to agents who operate from rural areas that are characterised as low traffic locations. This will ensure that more agents do not only spread services of MNOs but sustainably serve the unbanked and underserved poor in rural areas.

MNOs should also create awareness campaigns about the affordability of mobile money. This would enable more people to use mobile money as a channel to remit funds and reduce on transaction costs that may emanate from the use of other relatively costly payment systems. Furthermore, individuals from low income groups would be more aware on the cost effective advantages that mobile money has to offer them, including, boosting some of their savings. The savings would be enhanced and eventually become useful for addressing investment and poverty alleviation priorities of low income earners and the unbanked population.

At the national level, the government should support mobile money by reducing the taxation burden on incomes of mobile money agents. For agents operating in rural areas, government should offer tax incentives to agents who decide to offer services in these locations. More people, including agents would benefit from this intrinsic support of ensuring mobile money availability and business continuity. This would enhance the contribution of mobile money to financial inclusion at a macro level.

6.6 Limitations of the Study

A major limitation of this study is associated with its unique nature. There is very limited literature on mobile money, financial inclusion and livelihoods of agents in a developing country context and Zambia in particular. This presents limitations in relation to the comparison of the findings of this study with similar studies especially where use of mobile money agents as a unit of analysis is concerned. This leaves the research with limited access to relative comparative case studies both in local and developing country contexts. These case studies or sources of literature on related studies could have certainly been core to the foundation of this study.

Moreover, the study was conducted in two districts of Zambia, adopting a cross sectional design which provides a snapshot at a particular time period. Ideally, one may want this study to be replicated in other districts of Zambia as well. This may be justifiable because the study provides a valid foundation for further empirical research. However, the two districts that were chosen for this study were also not statistically representative at national level as they were conveniently selected based on budgetary considerations.

The study was limited to only three mobile money service providers, namely, Airtel, MTN and Zoono. Yet, there are many players like Zamtel in the highly dynamic mobile money ecosystem of Zambia. Many players also enter and exit the mobile money ecosystem. For instance, at the time the study was undertaken, Zoono was one of the players in the mobile money system. Today, Zoono is almost extinct in both Kitwe and Kalulushi. This proves to be very difficult in the event that one decided to replicate this research or conduct a follow up study.

Additionally, the study was mainly focused on agents in Kitwe and Kalulushi as the key informants in the qualitative approach or component of the study. Undoubtedly, the views of agents in Kitwe

and Kalulushi, may not be necessarily be representative of the views of all agents in Zambia. The rationale for this limitation is that Zambia has got diverse regions and settings. The urban setting in Kitwe and Kalulushi may be different from the urban setting in Lusaka and Livingstone, for instance. All these areas have agents that advance financial inclusion through mobile money. Thus, the results of this study especially in relation to perceptions on livelihoods of agents cannot be generalized to the population of agents in Zambia.

Finally, financial inclusion cannot be only perceived through mobile money studies alone. Banks and other non-bank financial firms are also important in providing financial services. Given this fact and coupled with qualitative approaches mainly used in this study, the actual contribution of mobile money to financial inclusion cannot be established.

The shortcomings of this study would be improved if undertaken using a more longitudinal context (over a long period of time rather than at one point in time). The constraints of the study could be less pronounced if it is carried out on a much larger population of agents from various parts of the Copperbelt or even at country level.

6.7 Areas for Future Research

The implications and limitations that are identified based on the findings and conclusions of this study prompt some directions for further research. The study used qualitative analysis to understand how mobile money affects livelihoods of agents in Zambia. The focus of the emerging research in the future should be on the use of positivist approaches and quantitative research designs to empirically determining the impact of mobile money on livelihoods of agents in Zambia. In addition, further research can focus on extending this study to other districts in Zambia where mobile money is equally important. Future studies can also focus on incorporating additional

mobile money players like Zamtel. Research could equally consider investigating the relationship between mobile money and livelihoods of agents in the digital finance service landscape of Zambia as opposed to only the mobile money ecosystem.

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APPENDICES

APPENDIX I: STATA Outputs

Table A1: Logit Regression: Determinants of Mobile Money Adoption Among Mobile Money Agents

```

Logistic regression                Number of obs    =          97
                                   LR chi2(10)       =         20.30
                                   Prob > chi2        =         0.0266
Log likelihood = -53.279281        Pseudo R2       =         0.1600
    
```

Personal_MM_Acc	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Edu_Level	.308914	.1414391	2.18	0.029	.0316984	.5861296
Employ_Status	.4874171	.3282195	1.49	0.138	-.1558812	1.130715
Years_Businss	.9773718	.4833022	2.02	0.043	.0301169	1.924627
Name_Service	.0657797	.1950655	0.34	0.736	-.3165416	.448101
No_Booths	-.0615983	.159877	-0.39	0.700	-.3749514	.2517548
No_Employees	-.1624535	.5813576	-0.28	0.780	-1.301893	.9769863
IV_PU	.7066014	.3612229	1.96	0.050	-.0013825	1.414585
IV_Trust	-.1567283	.2889858	-0.54	0.588	-.72313	.4096734
IV_Risk	.3710251	.2946304	1.26	0.208	-.2064399	.9484901
IV_PEU	.7843836	.3622115	2.17	0.030	.0744621	1.494305
_cons	-8.633271	2.706002	-3.19	0.001	-13.93694	-3.329605

Table A2: Logistic Regression: Determinants of Mobile Money Adoption Among Mobile Money Agents

Logistic regression		Number of obs	=	97		
		LR chi2(10)	=	20.30		
		Prob > chi2	=	0.0266		
Log likelihood = -53.279281		Pseudo R2	=	0.1600		
Personal_MM_Acc	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Edu_Level	1.361945	.1926323	2.18	0.029	1.032206	1.79702
Employ_Status	1.628106	.534376	1.49	0.138	.8556608	3.097872
Years_Businss	2.657463	1.284358	2.02	0.043	1.030575	6.85259
Name_Service	1.067991	.2083282	0.34	0.736	.7286647	1.565337
No_Booths	.9402605	.150326	-0.39	0.700	.6873226	1.286281
No_Employees	.8500556	.4941862	-0.28	0.780	.2720163	2.656439
IV_PU	2.02709	.7322314	1.96	0.050	.9986185	4.114779
IV_Trust	.8549363	.2470644	-0.54	0.588	.4852311	1.506326
IV_Risk	1.449219	.4269841	1.26	0.208	.8134752	2.581808
IV_PEU	2.191056	.7936257	2.17	0.030	1.077304	4.456239
_cons	.0001781	.0004819	-3.19	0.001	8.86e-07	.0358073

Note: _cons estimates baseline odds.

Figure A1: Cumulative Density Function

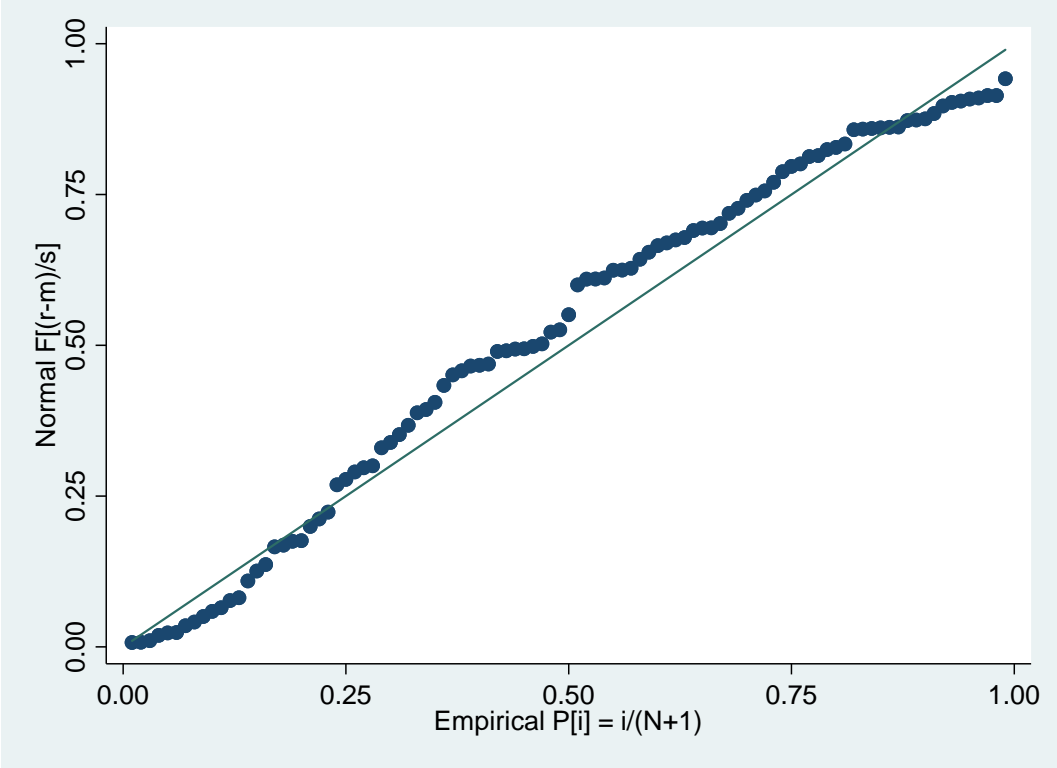
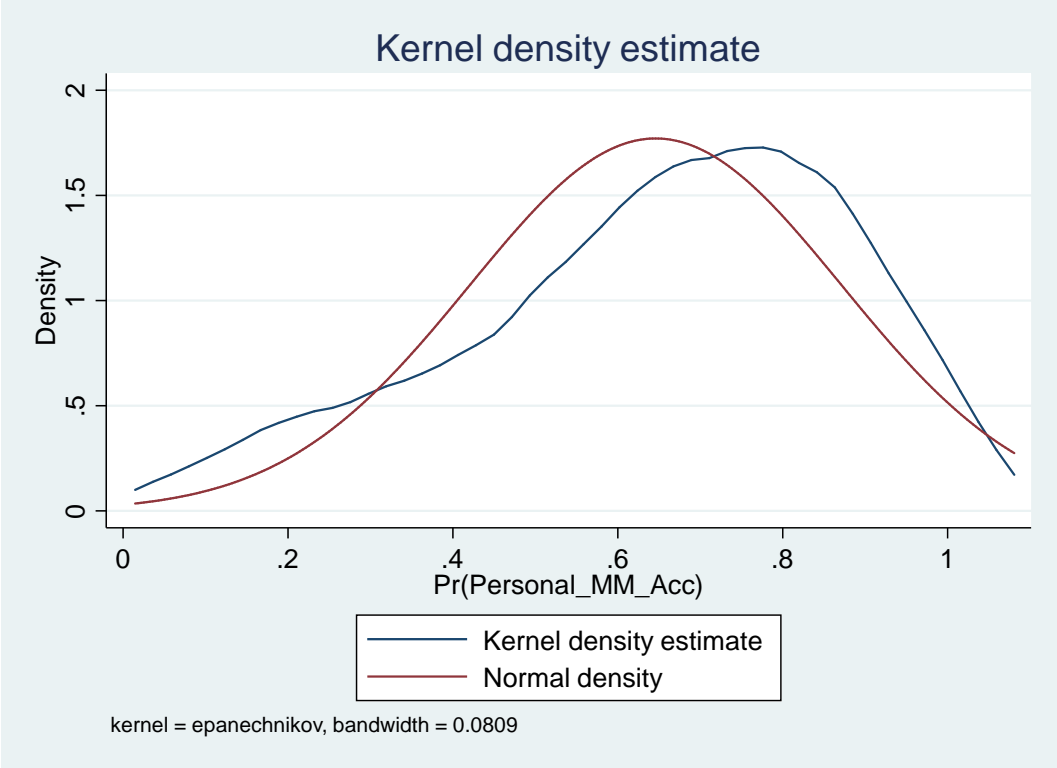


Figure A2: Kernel Density Estimate



Appendix II: Questionnaire

THE UNIVERSITY OF ZAMBIA
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS

Dear Respondent,

My name is **EDNA KABALA**, I am a student at the University of Zambia conducting research for the fulfilment of the requirements for the degree of Doctor of Philosophy in Economics. The research I am conducting is titled '**MOBILE MONEY, FINANCIAL INCLUSION AND LIVELIHOODS OF AGENTS IN ZAMBIA**'. You are kindly requested to participate in this study by filling out this questionnaire. Your contribution to this research will be used only for academic purposes and all information provided in this questionnaire will remain confidential. Thank you very much for your cooperation and help.

Proceed / Do not Proceed

INSTRUCTIONS	<ol style="list-style-type: none">1. Tick (√) the appropriate answer.2. For confidentiality, do not indicate your name in this questionnaire.
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Email: ednackabz@gmail.com

Phone: +260973713314, +260961014490

Part A: Demographic Information

Please indicate the answer of your choice by ticking (✓) in the box next to your preferred answer.

1. What is your Gender?

Male Female

2. What is your Age range?

Under 25 26 – 35 years 36 – 45 years 46 years and above

3. Marital Status

Married Single Divorced Widowed

4. What is your highest level of education?

Certificate Diploma Undergraduate degree Post graduate degree

PhD Others

5. Employment status?

Formal employment Contingent worker Self employment

6. Number of years in business?

Less than 3 Years 4 to 6 Years 7 to 10 Years Over 10 Years

7. Name of Service agent is representing

Airtel MTN Zoona Others

8. Does the name of the mobile money service you subscribe to matter to you?

Yes No

9. Number of booths?

Less than 3 4 to 6 7 to 10 More than 10

10. Number of employees?

Less than 3 4 to 6 7 to 10 More than 10

11. Do you have a mobile money account?

Yes No

12. Purpose of mobile money account? (Choose all that apply)

Savings Investments Money transfer/remittances

Day to day transactions (Bill payments, deposits and withdraws)

Part B: Perceived Usefulness

Please indicate by a tick (✓) your level of agreement with the following statements on ‘Perceived Usefulness’ a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

	1	2	3	4	5
a) I would use the Mobile Money to do banking because it offers the services that I need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Banking using Mobile Money helps me to do things that I already do, but better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Banking using Mobile Money allows me quick access to banking services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Mobile money service is a good value for money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I often use mobile money service to pay my bills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I prefer using mobile money to make payments as compared to using hard cash.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part C: Trust

Please indicate by a tick (✓) your level of agreement with the following statements on ‘Trust’, on a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

	1	2	3	4	5
a) I think Mobile money is a reliable banking service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Mobile money services are an acceptable mode of payment for some insurance companies and other private/public institutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) People use mobile money as an acceptable form of general funds transfer to their friends and loved ones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I trust that mobile money service providers are honest and keep their promises to users.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I believe that the transactions I make using mobile money are safe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Many things may not go wrong with my mobile money transactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part D: Perceived Risk

Please indicate by a tick (✓) your level of agreement with the following statements on ‘Perceived Risk’ on a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

	1	2	3	4	5
a) Mobile money services provide valid transfer information during transactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The mobile money service providers ensure that their agents feel secure in their jobs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The money service providers do not unfairly terminate their Mobile money agent’s contracts without proper notice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Mobile money services are less susceptible to fraud and theft.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- e) Cash retractions in mobile money are performed in a satisfactory manner.
- f) The mobile money transaction costs are well defined and are clear to the public.

Part B: Perceived Ease of Use

Please indicate by a tick (✓) your level of agreement with the following statements on 'Perceived Ease of Use' a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

- | | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Mobile Money banking products are easy to understand. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Mobile Money makes banking easier | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) People trust Mobile Money for their banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Banking through Mobile Money is easy to use | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Banking through Mobile Money is quicker than at normal banks | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) The use of mobile money provides immediate financial support whenever needed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part C: Behavioural Intention

Please indicate by a tick (✓) your level of agreement with the following statements on 'Behavioural Intention', on a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

- | | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) I am very likely to adopt mobile money for all my financial transactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) I plan on adopting mobile money as a form of mobile banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) I believe it is worthwhile for me to adopt mobile banking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) I intend on providing mobile money services as source of my monthly income. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part D: Livelihood of the Mobile Money Agents

Please indicate by a tick (✓) your level of agreement with the following statements on Employee Motivation, on a scale between 1 and 5, where 1=strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5=strongly agree.

- | | 1 | 2 | 3 | 4 | 5 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Because of Mobile money I have access to basic income. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Because of Mobile money I have better access to food. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Because of Mobile money I have better access to health services. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Because of Mobile money I have access to education/skills advancement opportunities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Thank you for your cooperation and time.