



Mobile money services and financial Inclusion in rural area of Rwanda. A case study of Nyamasheke District.

A Dissertation Submitted to the University of Rwanda, College of Business and Economics in Partial Fulfillment of the Requirements for the Award of a Master Degree of Business Administration (Finance Option)

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July, 2022

DEDICATION

This thesis is dedicated to my dearly loved husband, James HARINDINTWARI, my children Abbott Irankunda Benazir, Ishimwe Aretha Flanklin, Iganze Jones Harry, Iganze James Harrison and my parents.

DECLARATION

I confirm that this thesis is my original work and has not been presented in any other university/institution for consideration of any certification. This thesis has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics and tables have been borrowed from other sources, including the internet, the sources were specifically accredited through referencing in accordance with anti-plagiarism regulations.

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Signature

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Date

ACKNOWLEDGMENTS

This work is the outgrowth of combined efforts from different people to whom I would like to express my thanks. My thanks go to my supervisor Dr MISAGO Isaie Kadhafi, University of Rwanda, College of Business and Economics for their unwavering support and wholehearted willingness to give advice, corrections and pertinent remarks.

I am grateful to my husband for providing financial support for my Master's studies. If this support had not been available, pursuing the studies at such a level of education would have been elusive. My appreciation also extends to Prof. Bideri Ishuheri Nyamulinda and Dr. Philippe Ndikubwima for their work in assisting, guiding, and enabling me to obtain sufficient research.

My appreciation goes out to all of the lecturers in the College of Business and Economics at the University of Rwanda's RUSIZI Campus for their unwavering commitment and high standards of professionalism in teaching Rwandans in a variety of subjects, particularly in MBA-Finance.

I want to sincerely thank my entire family for all of their assistance, both financial and in other ways, during the duration of my studies and study. I want to express my gratitude to the University of Rwanda for purchasing quality resources to support master's program research.

ABSTRACT

The study found a connection between mobile money services and financial inclusion. The goals of the study were to gauge the extent of financial inclusion in the Nyamasheke district, ascertain the connection between financial inclusion and Mokash loans, and evaluate the connection between financial inclusion and mobile money e-payments in the district.

The study used correlation research design to analyze data. Seller firms in the Nyamasheke district made up the study's population. Data from a sample of 176 seller enterprises was gathered via questionnaires. Inferential statistics (Pearson product correlation moment, simple linear regression) and descriptive statistics (mean values and standard deviations), frequencies, percentages, pie charts, graphs, and percentages were utilized to examine the data in order to meet the objectives. With coefficient determination ($R^2=.065$, $p<0.05$), the study found that mobile money services were statistically significant predictors of financial inclusion. The study also revealed that level of financial inclusion rated low with mean values ranging between 1.76 and 2.50 with (Mean=2.10; SD=1.02), the study also revealed that mokash loan contribute to financial inclusion with ($R^2=.179$, $P<0.05$). The study showed that mobile money e-payment is statistically significant to financial inclusion with ($R^2=.041$, $p< \text{value } 0.05$).

The study recommends that mobile money operators should consider offering comprehensive digital financial education to avoid the need to go to an agent and hand over a PIN and allow users to make transactions themselves.

Key words

Financial: is defined as the management of money and includes activities such as depositing, transfer, investing, borrowing, lending, budgeting, saving, and forecasting.

Financial inclusion refers to the provision of relevant, timely, and adequate financial services to various segments of the population, such as privileged and low-income groups, at an accessible price (Nagadevara, 2008). Financial inclusion, according to Mohan (2006), is the availability of adequate, affordable, ethical, and secure financial products and services from well-known vendors to all income groups.

Mobile money as described by UNCTA (2012), is cash that is kept on a mobile phone's SIM (subscriber identity module) card as opposed to an account number like in traditional banking. The denomination is a value that was issued by an organization and kept in a value account on the mobile phone's SIM card, which is also used to send transfer or payment instructions, while the equivalent cash value was kept in a secure location.

Mobile money services known as mobile money that allow unbanked people to use their phones as a bank account: to deposit, save, withdraw and transfer money with their handset. People can also use mobile money services to pay utility bills and pay for goods in merchant shops.

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LIST OF ABBREVIATION AND ACRONYMS

BDF: Business Development Fund

BRD: Banque Rwandaise de developement

BNR: National Bank of Rwanda

FI: Financial Inclusion

ITC: International Trade Centre

LDCs: least development Countries

SA: South Africa

MBA: Masters of business administration

SBP: State Bank of Pakistan

SDGs: Sustainable Development Goals

TAUT: Theory of Acceptance and the Use of Technology

TVET: Technical and Vocational Education and Training

UNCTA: United Nations Conference on Trade and Development

UNESCO: United Nations Educational, Scientific and Cultural Organization

USAID: United States Agency for International Development

VC: Venture Capital

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the Study

Financial inclusion plays a vital role in the number of different countries such as the most developed and the least developed. Access to financial services improves the living standards of many people by increasing income through transactions, savings, access to credit, insurance, remittances and cash flow management, which in turn helps poor people around the world to escape poverty (Zins and Weill, 2016).

World Bank (2014) The lack of adequate infrastructure and the difficulty in gaining access to financial institutions severely restrict developing nations. As a result, more than 2.5 billion persons worldwide—roughly half of all adults—have no bank accounts. The reasons for such a high number of individuals being excluded are linked to obstacles like expenses, travel time, and documentation needs to open a bank account in developing nations. But of the seven billion people on the planet, six billion now have mobile phone subscriptions, giving more than one billion unbanked people access to mobile phone services. This result that the people from the rural communities still travel long distances to get financial services and they exhaust their very limited disposable income. Furthermore the occurrence of mobile money leads to the poverty reduction initiatives in around the world especially in Africa (David and Deng, 2017). Mobile money enhances to the access of financial service and it allows the users to make payments, money transfer, discourage the problems arouse in the use of cash transactions, access to insurance service and save money with the minimum

transaction cost. Mobile money service has reduced the dependence to the banking system and facilitated the objectives of the financial inclusion (Billas M., 2017).

In addition, mobile money services were expanded to provide financial services in rural and distant locations without access to a formal banking system. In Rwanda, mobile money plays crucial role in the development of the financial sector as mobile money services help to transfer, remittance, settle various transactions, access to loan and save money with no exclusion of people (Billas M., 2017).

The World Bank study highlighted that 63% of mobile money users save their money in their mobile phones and receive remittances through their mobile accounts. The system is used to settle transactions and store money, alongside its security and abundant availability. It also provides access to financial services for many unbanked people in Rwanda wherever they are thanks to the availability of a phone number (World Bank, 2017).

Most mobile money platforms in East African countries offer users a menu option on their SIM card. Through this menu, users can perform various transactions by issuing commands to the platform (UNCTAD, 2012).

Despite the importance of mobile money services for the whole Rwandan economy, there is very little empirical evidence on the contribution of mobile money services to financial inclusion. The purpose of this study is to assess the level of financial inclusion, to determine the relationship between Mosh credit and financial inclusion in Nyamashke district.

1.2 Problem Statement

Financial inclusion is an essential element of social inclusion, a prerequisite for fostering inclusive growth, and a significant global economic growth and development driver. It is a major concern of government authorities.

Generally speaking, commercial banks dominate Rwanda's financial industry, which has a limited role in funding development finance (Billas M., 2017). The financial industry is still in its infancy and has a low level of automation in compared to most developing countries.

By the end of March 2012, the East African Community had made some progress in integrating its inhabitants into the banking industry, with mobile money services offering new opportunities to make financial services more inclusive in the EAC and beyond, create networks that reach further and deeper into rural and urban areas that have historically been marginalized, in an effort to meet community demand. They provided a new range of financial services and a wide range of low-cost mobile phones, making them affordable to a wider population and ubiquitous across the EAC (UNCTA, 2012).

Mobile money services facilitate all types of transactions, such as minimum or maximum amounts for a single transaction, maximum value of a daily transaction as a result of either one or more transactions, maximum value of a monthly transaction at low cost, and maintaining a mobile money account balance without charges. In addition, mobile money services have an agent network of people, ATMs, branches that provide user interface through cash in and cash out functions and many people refer to

the extensive agent network that is visible on almost every street corner in Rwanda (UNCTA, 2012).

The three main divisions of the financial system are the official, semi-formal, and informal sectors. In addition to semi-formal and/or informal MFIs, SACCOs, and other financial institutions not engaged in retail banking, customers of nominally regulated financial institutions now have better access to financial services via ATMs, debit and credit cards, online banking, and mobile banking (Ndiwalana and Popov, 2015).

Mobile money services provide the services like payment of different transactions, facilitate the use of cashless, access to loan, remittance, taking insurance without a barrier like living areas, time consuming, documents required and having account into the financial sector. Therefore, the study will assess the inclusion of financial services in NYAMASHEKE region as well as the associations between Mokash loans and financial inclusion and mobile money e-payments.

1.3. Purpose of the study

The study intended to establish the influence of mobile money services and financial inclusion in Nyamasheke district, Rwanda.

1.4. Research objectives

General: This study determined the correlation between mobile money services and financial inclusion in Nyamasheke district.

Specific: This study seeks:

1. To establish the level of financial inclusion in Nyamasheke District.

2. To determine the relationship between Mokash loan and financial inclusion in NYAMASHEKE district.
3. To assess the relationship between Mobile money E-payment and financial inclusion in NYAMASHEKE district.

1.5. Research questions

1. What is the level of financial inclusion in Nyamasheke district?
2. What is the relationship between Mokash loan and financial inclusion in Nyamasheke district?
3. What is the relationship between Mobile money E-payment and financial inclusion in Nyamasheke district?

1.6. Significance of the study

The policy makers in Rwanda will find this study to be of utmost relevance because it will inform them of the effects mobile money services have on financial inclusion. The study's findings will clarify for entrepreneurs and national policy makers the contribution that mobile money services may make to financial inclusion and the growth of the national economy. As sustainable Development Goal number seventeen refers to knowledge sharing and cooperation for access to science, technology and innovation that promote sustainable growth and development of the population (OECD, 2017).

Second, by learning about the value of mobile money services as a tool for financial inclusion in communities and the nation, as well as the difficulties seller enterprises

have when using mobile money services for financial inclusion, this study will help Rwandan entrepreneurs. The research findings on mobile money services as a tool for financial inclusion and their effects on population growth and regional development will be used as empirical data by subsequent researchers.

1.2 1.7. Scope of the study

This study was conducted in Nyamasheke district and established the level of financial inclusion in Nyamasheke District, determined the relationship between Mokash loan and financial inclusion in NYAMASHEKE district and assessed the relationship between Mobile money E-payment and financial inclusion in NYAMASHEKE district.

1.8. Limitation and Delimitation of the study

1.8.1 Limitations

The followings were the limitations to the study:

The researcher was limited to explain the purpose of the study to the respondents, get all necessary information required to fulfill research, control over respondents' honesty and personal biases and the setting of the study and give recommendation accordingly.

The findings of this study focused on mobile money services as tool to financial inclusion, a case of seller businesses in Nyamasheke district. Therefore, the findings did not generalize to the national level in the study.

1.8.2 Delimitation

This study was based on mobile money services as tool to financial inclusion among seller businesses in Nyamasheke district.

1.9. Organization of the study

This research project consists of five chapters, the first of which provides a broad overview of the study, outlining its history, issue statement, purpose, research objectives, and research questions, as well as its limitations and delimitations. Chapter two discussed the introduction, theoretical framework, key concept definition, empirical review studies, research gap and conceptual framework. While the chapter three discussed the methodology used in the study. The chapter four contains data presentation, interpretation and discussion then after the chapter five summarizes the findings and draws conclusion and recommendation accordingly.

Chapter TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents theoretical framework, empirical literature, conceptual framework and the gap in the literature. The first part presents the theoretical frameworks based on theory. The second section is based on a critical examination of the literature in light of the study's goals. The research gap is where the chapter ends.

2.1 Theoretical framework

The framework of this study is based on the theory of technology acceptance and use (TAUT). The theory was developed by Venkatesh, Morris, Davis and Davis (2002) to explain how the population adopts the information system. The use of technology promotes economic inclusion through mobile money services.

George et.al (2018), tried to explain this theory on how the user of mobile money services adopts the technology. The concept of financial inclusion is influenced by several components, some of which vary from region to region.

2.2. Key concept definition

2.2.1 Financial inclusion

Globally, there are regional differences in financial inclusion (FI) (Rahman, 2009). Regardless of the variations, financial inclusion focuses on the banking, underbanking, and non-banking, rural and urban, rich and poor, Providing appropriate, adequate,

reasonable, and timely financial services, such as savings, Providing appropriate, adequate, reasonable, and timely financial services, such as savings, remittances, loans, bill payments, access to credit, and insurance services among others to a nation's small and large citizens.

Financial inclusion refers to the provision of relevant, timely, and adequate financial services to various segments of the population, such as privileged and low-income groups, at an accessible price (Nagadevara, 2008). Financial inclusion, according to Mohan (2006), is the availability of adequate, affordable, ethical, and secure financial products and services from well-known vendors to all income groups.

Financial inclusion, according to the UN, is the process by which low-income and poor individuals have access to secure means of saving, borrowing, moving money, and paying bills (U N, 2006). Financial inclusion means that those who frequently stray from the social norms are provided with accessible financial services via the official system, such as savings, loans, and insurance coverage.

2.2.2. Mobile money services

Mobile money, as described by UNCTA (2012), is cash that is kept on a mobile phone's SIM (subscriber identity module) card as opposed to an account number like in traditional banking. The denomination is a value that was issued by an organization and kept in a value account on the mobile phone's SIM card, which is also used to send transfer or payment instructions, while the equivalent cash value was kept in a secure location. The mobile phone, which is also used to provide quick transfer or payment instructions, can be used to check the balance of the value account.

Mobile Economy Saharan Africa (2018) Promoting people's access to mobile phones is today a great means of accessing financial services and, on the same occasion, financial inclusion for a large part of the African population still excluded from traditional mechanisms of financing the economy. It is also a good indication, a laboratory to observe and an inspiration for northern countries where the growing effects of exclusion are strongly altered.

A valid passport, a letter or certificate from the village council, an identity card issued by a company or employer, an identity card issued by the government, a tax certificate, and a mobile money service are currently acceptable forms of identification in the East African Community (UNCTA 2012).

According to Subia Maria Paula (2014), the widespread usage of mobile phones for a variety of financial transactions, such as receiving and sending money transfers, has changed economic life in developing countries. In fact, banks and mobile network providers already use mobile money to give millions of unbanked people a method to keep and access money in digital form. Mobile payment, commonly referred to as "m-commerce," is a service that enables unbanked individuals to use their mobile wallet on their mobile phone rather than cash to buy or sell goods and services in a commercial store/shop (or remotely). Utility bill payments are also possible for unbanked mobile phone users through their mobile wallet.

Transactions are made easier by mobile money in the following ways: The customer first provides the business with his mobile phone number. The seller then makes a payment request via the website of the customer's phone service provider or via text message. The customer is subsequently sent a message from the telephone service

provider that includes a Bill Reference Number. By responding to the SMS with his 6-digit security code and the bill reference number, the consumer authorizes the payment. Finally, the telephone service provider notifies the customer and the merchant with the payment details via an SMS (Subia Maria Paula, 2014).

Mr. Ishan Sachdev (2015) These services, including money transfers (P2P), money transfers (domestic and/or international), bill payment and receipting, salary payment and receipting, retail payments, and money deposit and savings are often provided by mobile money services. P2P transfers are the most often provided of these. The services also provide ways to "cash-in" physical money into the customer's mobile account (also known as "cash-in") and ways to "cash-out" electronic money back into physical money (also referred to as "cash-out").

2.3. Empirical review studies

2.3.1. Level of financial inclusion in Rwanda.

Financial technology, according to Kagan (2019), refers to new devices that aim to enhance and automate the provision of financial services through the use of specialized software and algorithms on computers and phones. The use of technology by financial institutions and the change to more customer-focused services in the twenty-first century are the explanations for financial inclusion. According to the findings of the Rwanda 2020 Financial Inclusion Survey, the number of persons who have gained financial inclusion has increased significantly in both the banking sector and other

formal non-bank sectors. The informal sector nevertheless contributes significantly to the cause of financial inclusion and the expansion of the product line.

Currently, the term "financial inclusion" refers to a variety of financial transactions, typically performed without a person's assistance, such as money transfers, check deposits on smartphones, walking past a bank branch to apply for a loan, raising money to start a business, and managing investments.

(McDysan, 1998) asserts that by meeting customers' demands for cash at any time and wherever, automated teller machines help banks cut costs and improve accessibility. Initially, the use of automated teller machines (ATMs) was limited to cash withdrawals, balance checks, and the printing of mini statements. However, today, additional services such as online payment for goods and services, depositing cash, checks, and paychecks at ATMs, and withdrawing local currency at a fair exchange rate from ATMs of foreign banks are also available.

The findings of the Financial Inclusion in Rwanda, 2020 survey indicated that 26 percent of majors know about internet banking. Internet banking has been driving banks as the same report shows there has been an increase in the use of the service from 2 to 32 percent from 2016 to 2020.

Customers of MTN Mobile Money have access to MoKash, a tool that enables users to borrow money urgently and save money with MTN Mobile Money. Customers can fill out applications online without visiting a bank or needing a bank account.
<https://www.mtn.co.rw/momo/personal/momo-mokash/>

Bulumma Conrad Bwire (2017) investigated the study on the Assessment of knowledge, perception and attitude of the community towards MTN mobile savings and credit platform (MoKash). The research based to find out the social-demographic characteristics of the MOKASH users in Bwaise, Kampala District and furthermore factors (variables) that influence the use of MOKASH and employed Fisher's method of sampling was and obtaining a sample of 50 respondents. Results of the study revealed that most of the users of MOKASH use it because it is easy to use (58%) and on the other hand, the majority of the users of MOKASH in Bwaise said that MOKASH service is cheaper than traditional banking services (86%). The transfer of money using digital or electronic means is what is meant by "electronic payments." Various e-payment options are available, including mobile wallets, bank cards, mobile banking, etc. E-payments are rapid and effective, and the money usually transfers right away.<https://www.sciencedirect.com/science/article/abs/pii/S1567422309000283>. In recent years, banking has expanded in a number of ways, including telephone and online banking. M-banking provides yet another channel for banking services and may become the preferred channel in emerging markets. Banks also offer mobile banking via SMS. Even if you have a very basic mobile phone and not a smartphone, you can still access some mobile banking services via SMS. <https://www.inderscienceonline.com/doi/pdf/10.1504/IJMC.2003.003494>.

2.3.2 Measurement of financial inclusion

According to the World Bank (2014), financial inclusion is defined as having an account with a financial institution, which can include banks, microcredit institutions, savings and credit unions. Access to financial services can be achieved by providing appropriate financial products to the low-income population in society. The introduction of technological innovations reduces financial exclusion by reducing distances, cost barriers and transaction uncertainty.

World Bank (2014) Study shows that financial inclusion lead to economic growth and development, increase competition and increase demand for labor and income distribution. Sarma (2012) proposes that the best way to measure financial inclusion is to construct an index number basing on the identified dimensions such as penetration, availability and usage of financial services.

African Finscope (2020) Around 7 million older individuals live in Rwanda, and 93 percent of them have access to both formal and unofficial financial products. From 99 percent in the Gasabo area to 83 percent in the Rusizi district, financial inclusion levels fluctuate. Only 8% of women are financially excluded, compared to 7% of males, which indicates that the gender gap in financial inclusion is closing. When elderly and young people are contrasted, young people in the 16–24 age range are financially excluded at a rate of 18 percent points, which is much higher than the country's average exclusion rate of 7 percent.

Chummum (2014) focused on gaining a deeper understanding of the level of access to finance, usage of financial services, and availability of financial services in an emerging economy of a country like Zimbabwe. Mobile money services were studied as the financial inclusion strategy in rural communities. The study employed a

descriptive research design and a mixed-methods research approach, and it discovered that mobile money services have a favorable impact on financial inclusion, as demonstrated by the access to finance, usage of finance, and availability of financial services that are both affordable and accessible to all levels of the populations in their location.

2.3. 3 Mokash loan and financial inclusion in Rwanda.

In his study on the subject, Mukesh (2021) compared the effects of social and economic factors on women's economic empowerment through financial inclusion in rural India. The study's simple random sampling method and application of the logistic regression method demonstrated that the beneficiaries of social security programs and women's earning status had a substantial impact on women's empowerment through financial inclusion.

Research on mobile money and entrepreneurship in East Africa was done by Koomson et al. in 2022. They focused on the mediating functions of digital credit and access to digital savings. The goal of the study was to compare the relationship between entrepreneurship and mobile money (MoMo) in East Africa. The InterMedia Financial Inclusion Insights (FII) Program's fifth wave included representative samples from Kenya, Tanzania, and Uganda for the study. The study found that women and rural inhabitants exhibit a substantial positive correlation between MoMo and entrepreneurship, but not their male and urban counterparts. Young people and adults who use mobile money considerably increase their entrepreneurial activity, whereas

seniors do not. Digital credit and savings are two crucial avenues via which adoption of digital technologies is influenced.

Due to banks' inability to assist rural and underserved populations, Pinera and Ines (2021) conducted a study on financial inclusion: turning Mozambique into a mobile money success story with the aim of giving the Mozambican government a strategic model to improve the country's financial inclusion and, more specifically, the mobile money sector. According to the survey, Mozambique has not yet seen this sector develop fully compared to its neighboring nations. In order to implement an organized approach and make Mozambique a success story for mobile money, the country's mobile money sector had to be examined in order to comprehend the current problems.

In order to compare the effects of light touch regulation on the competitive dynamics of the mobile money market in Uganda and Tanzania, where regulation evolved from a light touch style to a more comprehensive framework as the sector developed, Macmillan et al. (2016) looked at the "evolution" of regulation in the mobile money sector in Uganda. According to the survey, Uganda's off-net fees are noticeably greater than those in Tanzania and Kenya, Uganda's neighbors.

In order to better understand the factors that influence the utilization of mobile banking services in Kenya, Purity (2012) performed a study. A sample from Nairobi's core business district was used in the study. According to the survey, the use of more complex financial services, mobile payments, and mobile banking varies by gender, level of education, and wealth, as well as by service fees and transaction volumes.

Sarma (2008) pointed out that measures used in isolation only give a partial picture of how inclusive a financial system is in an economy. As a result, the author is in favor of a comprehensive measure of FI that incorporates data on several facets (dimensions) of FI into a single number. A single-digit metric, according to him, would make it possible to compare countries, analyze trends to gauge how well a nation's policy measures are doing, and respond to scholarly queries like whether economic development and FI are correlated. With the help of the Indian Council for Research on International Economic Relations (ICRIER), Sarma (2008) developed a robust and comprehensive measure of FI that contains information on various dimensions of FI, is easy and simple to calculate, and is comparable across countries. The measure, called Index of Financial Inclusion (IFI), is similar to that used by UNDP to calculate a number of established indices such as the Human Development Index (HDI) and the Gender-related Development Index (GDI).

The IFI includes three basic dimensions of FI in its calculations, namely depth², availability³, and utilisation⁴. Other indices are the Eurobarometer survey 60.2 (European Commission 2008) and the Index of Access to Finance by Patrick Honohan (Agrawal, 2008). These indices are based on the dimension of access.

(Sarma, 2008) and FI/FE has turned into a priority for policy in several nations (Molyneux, 2007; Sarma, 2008). The realization of the importance of an inclusive financial system was sparked by the identification of finance as one of the vital components of development and growth (Agrawal, 2008). This understanding, together with the unsustainable nature of exclusive growth (Subbarao, 2009), has caused a revolution in FI among academics, policymakers, and researchers. An inclusive

financial system makes it easier to allocate productive resources effectively, which can lower the cost of capital (Sarma, 2008).

According to Subbarao (2009), financial inclusion is a strategy for integrating the poor's savings into the official system of financial intermediation and directing them toward investments.

Sarma (2008) pointed out that measures used in isolation only give a partial picture of how inclusive a financial system is in an economy. As a result, the author makes the case for a complete measure of FI that compiles data on several facets (dimensions) of FI into a single number. A single-digit metric, he contends, would allow for cross-national comparisons, trend analysis to gauge the success of national policy measures, and the resolution of academic issues like the relationship between economic development and financial stability. Sarma (2008) created a reliable and thorough measure of FI in partnership with the Indian Council of Research on International Economic Relations (ICRIER). This measure of FI comprises data on multiple FI characteristics, is simple and straightforward to calculate, and is comparable across nations. The Financial Integration Index (FI), the measure, is comparable to the one employed by UNDP.

Financial institutions, according to Subbarao (2009), shield the underprivileged from usurers' snares. According to Agrawal (2008), those who are marginalized frequently seek finance from the informal economy, usually at excessive rates. This results from the fact that those who are financially excluded have few credit options.

As a result, the person borrows money at a high cost and must pay the lenders a sizeable amount of his income, creating a vicious cycle of high financing expenses. Participation in the financial system can greatly enhance daily financial management (Sarma, 2008).

Lack of access to a bank account can imply the difference between debt and riches in cashless economies, such as those in Western Europe and North America, as well as in economies in transition. Without a bank account, people struggle to fulfill basic duties like paying their electricity bills. These folks are vulnerable to theft and instability because they rely on risky monetary transactions.

According to Subbarao (2009), because there is a bankable supply of the poor, commercial banks can benefit from economies of scale, offer low-cost deposits that make managing liquidity less risky than managing large-scale deposits, and offer opportunities for innovation in the creation of products that benefit the poor.

Depending on the monetary policy framework being employed, increasing the number of participants in the financial system improves the transmission of interest rate/money supply. All stakeholders profit from the financial sector's participation (Subbarao, 2009).

This is supported by a number of theoretical and empirical research that contend that increased financial access is crucial for fostering more rapid and equitable economic growth and lowering income inequality (Beck and Demirguc-Kunt, 2008; Honohan, 2004). This is so that those who are impoverished can participate more actively in the

economy and contribute more directly to their own personal economic progress (United Nations, 2006; Ramji, 2007).

2.3. 4 Mobile money E-payment and financial inclusion.

With the aim of understanding how regulative, normative, and cognitive institutions affect e-payment entrepreneurship in developing countries, Effah (2016) conducted a study on the institutional Effects on E-payment Entrepreneurship in a Developing Country using case study methodology. According to the report, various national and international organizations promoted the idea of using electronic payments for all transactions.

In a study on e-payment adoption in Vietnam and Taiwan, Chinho & Nguyen (2011) examined the influences of associated factors on consumers' e-payment acceptance in the two countries. The study included a sample of 676 Vietnamese and Taiwanese banking service users who were contacted by survey. It showed the influence of the factors on customers' decisions to use e-payments as well as the function of personal innovativeness as a moderator.

In a study on how mobile money agents might increase financial inclusion, Shalini et al. (2019) found that 1.7 billion people worldwide lack access to fundamental financial services like a bank account or mobile money account. With the ability to deposit and withdraw money using mobile phone numbers, digital financial services offer the potential to integrate this population, which is primarily found in developing nations, into the financial system, giving them greater financial stability and resilience to economic setbacks.

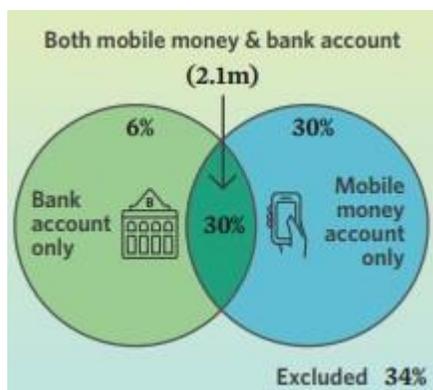
According to NISR (2012), there are 1.26 million economically excluded adults in Rwanda, representing 8% of the adult population. They have no access to formal or informal financial products or services. Financial exclusion can be caused by poverty and multiple deprivations, but in other cases it can be due to barriers to access and/or use or lack of choice.

Transition of Rwanda towards a cashless economy requires digitizing the backend payment processing and reconciliation infrastructure, increasing the footprint of transaction infrastructure; leveraging government payment streams to facilitate growth in electronic payment volumes, innovation in the retail payment space; leveraging government and private sector initiatives to increase awareness and education of e-payments; and providing payments products and services that meet consumers' needs. The adoption of e-payments by citizens can help: Build a transaction history to enable improved access to a suite of customized financial products, thus deepening financial inclusion; Reduce the risks and costs of carrying cash; Reduce the costs of managing cash in the economy (RNPS,2018-2024)

According to Rwanda Finscope (2020), which looked into financial inclusion in the country, 87 percent (6.2 million adults) in Rwanda have access to a mobile phone, with women having less access than men (84 percent) (90 percent). About 61 percent of persons use mobile money, and males are more likely than women to have accounts (68 percent) (56 percent). Lack of product understanding and lack of interest are the main obstacles to the adoption of mobile money.

In a survey on financial inclusion, Rwanda Finscope (2020) discovered that around a third of persons only use mobile money accounts, as can be seen in the chart below.

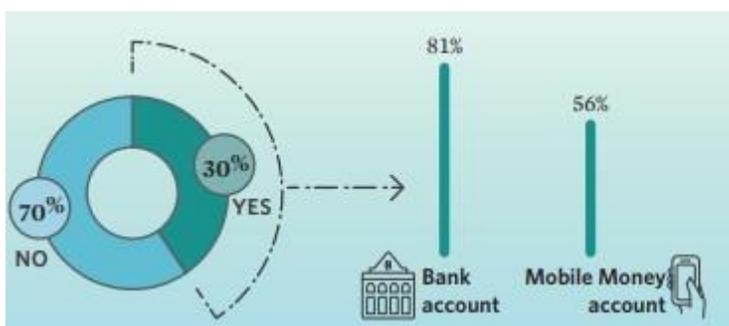
This means that about 30% of adults in Rwanda utilize both mobile money and bank accounts to handle their financial services.



Showed the different barriers for Rwandan population to open bank account in using financial services:



And the population used E-payment in their financial transactions in Rwanda



Source: Rwanda Finscope (2020)

The diagram seems that 30% of the Rwandan population able to employ digital finance in their transactions, 81% used mobile banking from the bank accounts holder and 56% used money phones from phones holder.

N'dri Lasme & Kakinaka (2020) conducted a study on financial inclusion, mobile money and individual well-being: The Case of Burkina Faso. The study used a correlational research design and showed the role of financial inclusion in alleviating poverty, individual access to financial services through mobile money and all these favoured impacts on poverty reduction becoming significant. The study recommended that the government should enhance financial inclusion with mobile money to ensure improvement in individual welfare while alleviating poverty.

Fang & Supriya (2014) conducted a study to examine the impact of mobile services on marketing interactions related to consumer well-being in subsistence markets in rural Cambodia. The study showed the impact of mobile services on marketing interactions in relation to consumer wellbeing and recommended that the government and stakeholders develop strategies and innovative service offerings using mobile technology to improve consumer wellbeing in subsistence markets.

Gahapa & Tengeh (2019) conducted a study on impact of mobile money and financial performance of small and medium enterprises in Doula, Cameroun. 285 respondents have been used as sample size and 12 managing directors; SPSS has been used to analyze data. The study showed that the mobile money payments and receipts services contributed of the order of 73% of total variance in the turnover of small and medium enterprises in Doula after they begun to use technology.

The study showed that there is a positive link between the use of mobile money services and the financial performance of businesses. The study recommended that stakeholders take it up as a response to the financial challenges faced by small and medium-sized enterprises in emerging economies.

Nyaga (2013) did a study on the impact of mobile money services on the performance of small and medium enterprises in urban town in Kenya, the study showed that mobile money has made a significant contribution to the SMEs sector, and also have positive impact on sales, the study also showed that efficiency and reliability contribute more to mobile money utility and SMEs growth. The study showed that mobile money users are not familiar with mobile banking transactions when applying for and repaying a loan and that they prefer the regular banking system to mobile banking when granting loans and advances.

Otieno et al. (2016) conducted a study on the challenges of using and adopting mobile money services. The study involved 48 participants and used an ethnographic research design. The study found that mobile money users and potential users come from communities.

Auma et al (2017) investigated on mobile financial services and financial inclusion focused to the adoption of mobile telephony to provide financial services in Africa and employed descriptive research design. The study showed that the availability and usage of mobile phones to provide financial services promotes the likelihood of saving at the household level.

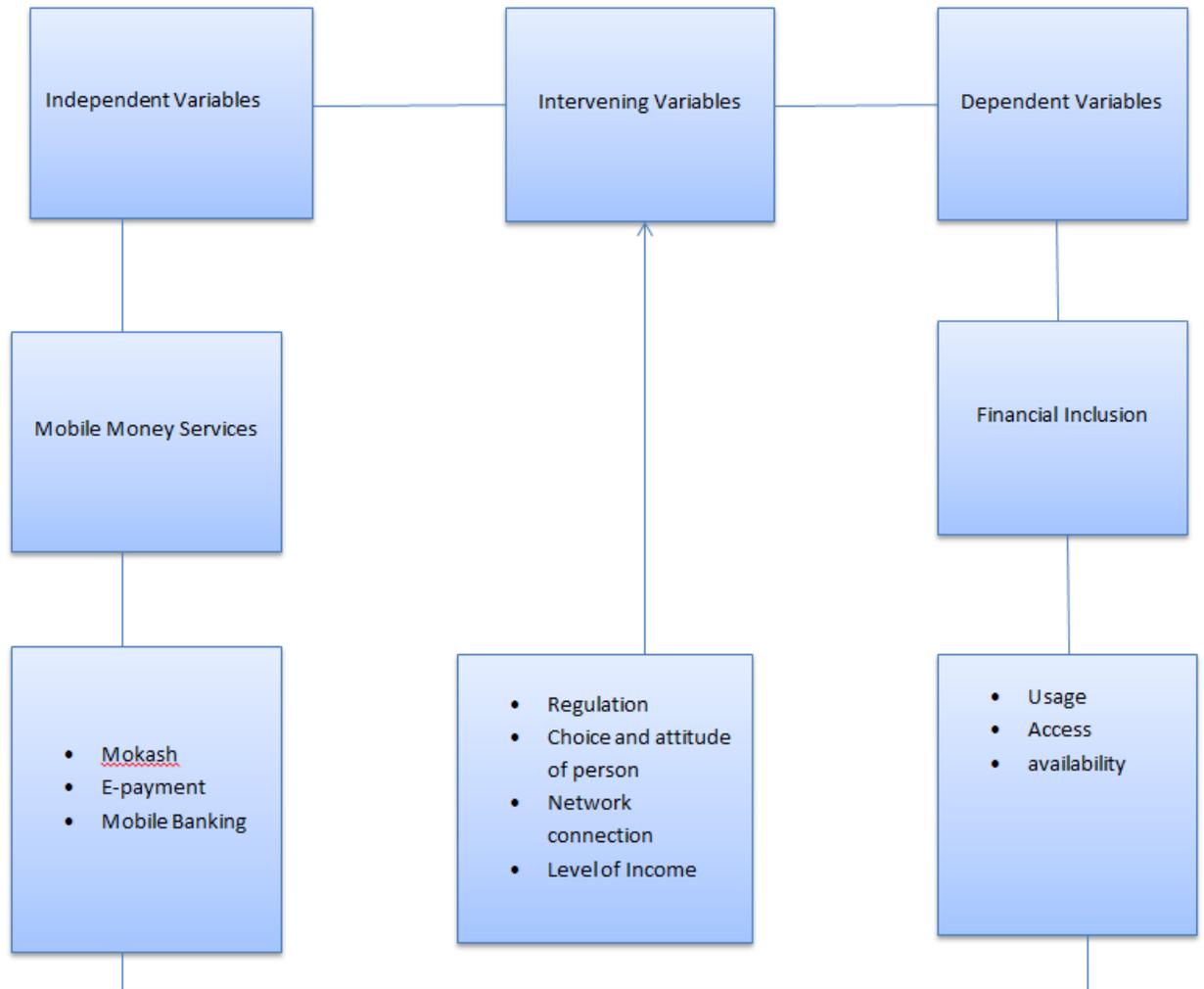
2.4. Research Gap

A review of the literature has been done about the study's variables. According to many study findings and academic opinions, there is a connection between financial inclusion and mobile money services.

Prior studies on the stability of the financial sector, financial inclusion, the role of financial inclusion in economic development, and factors influencing the use of financial services simply did not pay attention to business activities in rural areas and did not use Pearson correlation and regression to analyze data. The main goals of this study were to measure the degree of financial inclusion in the NYAMASHEKE district, as well as the associations between Mokash loans and financial inclusion and mobile money e-payments.

2.5. Conceptual Framework

Figure 1: conceptual framework



Source: Researcher (2022)

Figure1 Conceptual framework of mobile money services as tool to financial inclusion.

The conceptual framework in Figure 2.1 establishes the interrelation between mobile money services as the independent variables that employ the elements as mokash loan, E-payment, e-commerce, internet banking, mobile banking to influence dependent

variable (DV) which is the financial inclusion through the access to the finance for all types of the society , usage of finance as everyone enjoy financial services in different activities such in savings, purchasing, payment, loan, transferring , depositing of finance and availability of finance and finance providers that lead to the economic growth and development the community as well as the country.

The conceptual framework also presents the intervening variables to the study namely regulations, attitude and choice and network connection. The intervening variables did not consider having impact on financial inclusion and therefore they had not been measured in the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the research strategy and methodology that were employed to examine the phenomena that mobile money services were being used as a development tool for financial inclusion in Rwanda. The research design, target population, sampling strategies and sample sizes, research tools, pilot testing, data collection, and analysis are all covered in this chapter. The logistical, ethical, legal, and interpersonal issues are covered in the chapter's conclusion.

3.2. Research design

Research design is a plan that guides the organisation of the conditions for data collection and analysis in a way that aims to combine relevance to the research purpose with economy of procedures (Sellitz and Johoda 1965).

Aaker et al (2008) explain a research design as the detailed blue print that used to guide a Researcher in the study to achieve its goals or objectives. In the achieving the objectives of this study the researcher used a case study design.

In order to obtain reliable and representative study results within the limited time, this study employed descriptive research design and correlational research design. Quantitative research approach was used. The primary data were used as the main data need for analysis and collected using questionnaires from 172 respondents of seller businesses.

3.3. Study Population

The target population for this study were population that include 779 all the seller businesses with 324 shop keepers, 191 market vendors, 108 internet sellers and 156 service providers of Nyamasheke district and national report form National Bank of Rwanda (BNR) report (2020) as well as RDB report (2022).

Table 1: Target Population

Seller Businesses	Male	Female	Total
Shop keepers	145	179	324
Internet sellers	46	62	108
Market vendors	109	190	299
Internet sellers	64	92	156
Total	318	461	779

Source: RDB, Nyamasheke district 2022

3.4 Sampling Techniques and Sample Size

3.4.1 Sampling Techniques

When a researcher is particularly interested in a certain group within the population, stratified sampling is used. Subjects are chosen for the sample from each stratum,

which are subpopulations of the population that are each more homogeneous than the population as a whole (also known as strata or groups). The stratified sample is actually a conglomeration of several smaller samples because the entire sample is made up of individuals from each strata.

The strata equal to $N_i = n_i = n * p_i$, while $P_i =$ represents the proportion of population included in stratum "i", $n =$ Represents the total sample size and the number of elements selected from stratum "i" is $n * P_i$. Proportionate stratified sample was used as the method in sampling procedures where the number of respondents in each stratum based on the proportion of the numbers of the population (Springer, 2006).

3.4.2 Sample size

The total sample size for this study was 172 respondents. In 779 of seller businesses that include shop keepers 324 with 145 male and 179 female, then male $(N_1) = n_1 = 64(145/324) = 29$ and the female were $N_2 = n_2 = 64(179/324) = 35$; market vendors are 191 with male 63 and female 128 we get male $(N_1) = n_1 = 50(63/191) = 16$ and the female were $N_2 = n_2 = 50(128/191) = 34$; internet sellers 108 with 46 male and 62 female, then male $(N_1) = n_1 = 42(46/108) = 18$ and the female were $N_2 = n_2 = 42(62/108) = 24$ and service providers 156 with 64 male and 92 female, then male $(N_1) = n_1 = 16(64/156) = 9$ and the female were $N_2 = n_2 = 16(92/156) = 7$

Table 2: Sample Size

Seller Businesses	Male	Female	Total
Shop keepers	29	35	64
Internet sellers	18	24	42
Market vendors	16	34	50
Service providers	9	7	16
Total	70	101	172

Table 2 shows the sample size per each respondent category namely shop keepers, market vendors, road vendors and service providers of Nyamasheke district.

3.5. Research instruments

It introduces first-time researchers to the various instruments used in social research. It assesses a wide range of research instruments - from the well-established to the innovative - and enables readers to decide which are particularly suitable for their research (Wilkinson, 2003). The researcher has used questionnaires and documents.

3.6. Data gathering procedures

During the research period, the researcher asked the authorization to conduct study from district. The questionnaires distributed and the records collected for data collection. After collecting data, the researcher proceeded with editing, coding and

tabulation for better data analysis which was end up with writing and defending final report.

3.7 Data Collection and Analysis

The data analysis process was controlled by the adopted correlational research design. Quantitative data were collected through questionnaires on financial inclusion, mokash lending and electronic mobile money payments, as well as document analysis. Quantitative data collection was followed by analysis of these data to obtain quantitative trends in the magnitude of mokash lending and its influence on financial inclusion and also the relationship between mobile money e-payments on financial inclusion.

The statistical tools to be used in the analysis of likert scale quantitative data was the descriptive statistics (mean values and standard deviations) and inferential statistics (Simple Linear Regression analysis) (Amin, 2005; Ockert, 2005; Boone & Boone, 2012) to address the research objectives. Mean real limits (3.26-4.00= More than enough, 2.51-3.25= enough, 1.76-2.50= few and 1.00-1.75 = very few) will be used to arrive at the interpretation of means on the four-point Likert scale scores (Amin, 2005; Bizimana & Orodho, 2014).

3.8. Validity and Reliability of Instruments

3.8.1 Validity

The measure of validity was based on content (Amin, 2005). To ascertain the content is valid, the instruments were presented to two lecturers in the Business and Development studies, Kibogora Polytechnic to comment and suggest improvement where necessary. The reason to choose content validity enabled to ensure that instruments contain everything they should and do not include anything that they should not (Cohen at al., 2011).

3.8.2 Reliability

Internal consistency dependability (Amin, 2005) was used as the study's criterion for reliability because the questionnaires' sets of items were designed to assess several facets of the same idea. The Cronbach's coefficient alpha was calculated to determine internal consistency reliability based on the results of the pilot study. To confirm the internal consistency dependability of questionnaires, an alpha score of 0.70 was established and regarded as high (Amin, 2005).

Based on the findings of the pilot study, the Cronbach's alpha coefficients for the various instruments were calculated. Using Microsoft Excel, the Cronbach's coefficient alpha was calculated, and the results are shown in table 3 below.

Table 3 the distribution of Cronbach's alpha coefficient for instrument.

Type of instrument	Number of items	Cronbach's alpha coefficient
Seller businesses	49	0.73

Source: Researcher's (2022) calculation

Table 3 indicates the result of the Cronbach's alpha coefficient calculation for the research instrument. The table e indicates that the instrument of the Cronbach's alpha reliability was above the critical value of 0.70. Therefore the research instrument was reliable and adapted.

3.9. Ethical consideration

To ensure the confidentiality of the information provided by respondents and to ensure that ethical principles were followed in this study, the researcher took the following steps, including requesting permission to accept the subject standard questionnaire forms through written communication, Respondents' vendors were coded instead of recording their names, requested permission in writing to the relevant office.

Authors cited in the survey and the author of the standardized instruments was acknowledged through citations and references (Keith S, 2017).

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATIONS AND DISCUSSION

4.1 Introduction

This chapter presents the results, interpretation and discussion in line with the objectives and research questions of this study. The study aims to achieve the following objectives:

1. To establish the level of financial inclusion in Nyamasheke District.
2. To determine the relationship between Mokash loan and financial inclusion in Nyamasheke district.
3. To establish the relationship between Mobile money E-payment and financial inclusion in Nyamasheke district.

The findings were presented according to the above research objectives using textual and tabular data and graphics, Pearson correlation, regression analysis and percentages to analyze the data. The chapter comprises five main sections. The first section is the introduction to the chapter. This section provides an overview of the chapter and recalls the research objectives. The second section deals with general and demographic data. The third section presents descriptive findings on the level of financial participation in the Nyamasheke region as reported by the selling firms.

Section four presents the results on establishment of relationship between mokash loan and financial inclusion and establishing the relationship between mobile money E-payment and financial inclusion in Nyamasheke district.

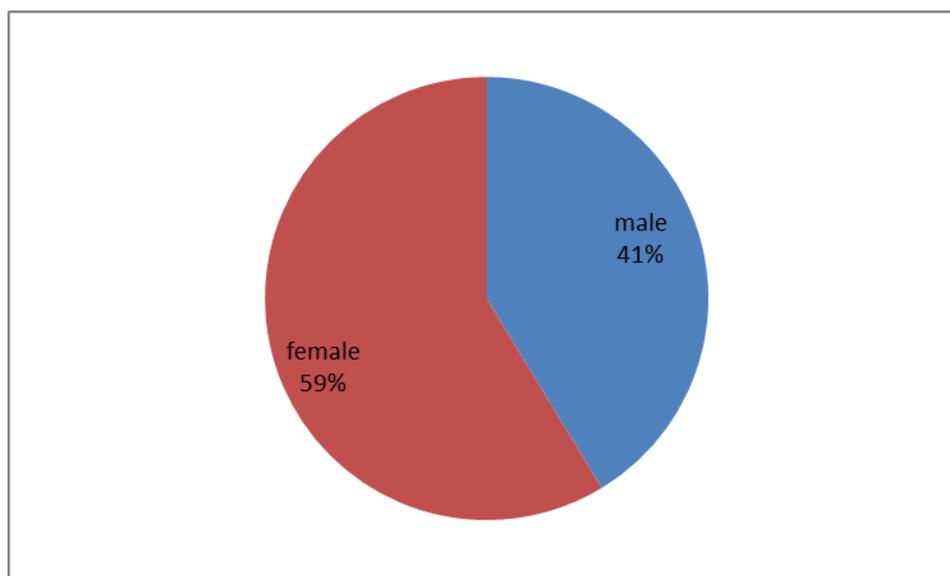
4.2 General and demographic information

Seller businesses were asked to provide general and demographic information about them on the use of mobile money service: the results are the following:

4.2.1 Sex of the respondents

This study is focusing at analyzing the relationship between mobile money services as tool for financial inclusion in rural area of Rwanda, A case of Nyamasheke district. It was found very important to describe the sex of seller businesses under this study.

Figure 2: Presents the gender of respondents



From figure 4.1, the proportion of male and female is not equal. To be specific figure 4.1 shows that 59% of female seller businesses and 41% were male. These efforts are

due to effort made by the government of Rwanda to encourage women to power them not relying on their husbands.

According to a report on the 2020 population and EICV results from the National Institute of Statistics of Rwanda (NISR 2019), women outnumber men. According to the report, women make up 51.8% of the Rwandan population, while men make up 48.2%.

Rwanda's Finscope (2020) shows a narrowing gender gap in financial inclusion, with only 8% of women marginalized compared to 7% of men on the opposite side. Comparing seniors and youth, young people aged 16-24 are financially excluded at 18%, significantly higher compared to the national average of 7% exclusion.

As shown above, women play an important role as income earners in their households. However, after using mobile money, women reported that they can pay their bills anytime using mobile money. Therefore, the secure and private storage of mobile money and the easy money transfer function to pay bills became the main motivation for using mobile money, especially for women. This is confirmed by survey results (Ellis et al., 2017; Kiriti-Nganga, 2015).

4.2.2 Respondents education level

This study aims to determine the relationship between mobile money services as tool to financial inclusion in Nyamasheke district and can not leave out level of education of respondents. Therefore, it was important to describe the level of education as it possesses impact on mobile money services as tool to financial inclusion. The role of

education level is very important as tool to transform any country as expounded by many research, they revealed that when in a country there is a big number educated at high level the country will be more developed compared to a country with population not educated at high level (RCA, 2020)

Table 3: gives an overview of seller businesses education level

Education level	Frequency	Percentage
Informal education	15	9%
Primary education	81	49%
Secondary education	66	40%
Tertiary	5	3%
Total	167	100%

Table 4.1 reveals that 9% of seller businesses have not attended any educational level; this means that still in Rwanda we have population without basic skills in numeracy and literacy. According to the report of MINEDUC (2015), census conducted by NISR (2012) showed that only 65% of the population of Rwanda has basic knowledge in literacy and numeracy but the remaining percentage which 35% are not. Although 49% of seller businesses finished their primary schools, this result is supported by the decision of government of Rwanda in introducing free primary education where every

citizen has to attend primary school even if parents are poor. According to MINEDUC report (2019) showed that 98% of students are attending primary school.

The table also indicated that 40% of seller business completed their secondary schools, this results are supported by the introduction of nine and 12 year basic education in Rwanda where every student who finished primary school has to enter in secondary school and also go in senior four based on establishment of many schools near homes without going in boarding schools requiring much money to them and those students don't pay school fees.

From the findings in table 4.1 it is also apparent that 3% of seller businesses attended tertiary level of education, this is because the Rwanda introduced a target of knowledge based economy where people have to study but not looking for a job from the government, it is to be noted that the seller businesses found that working as entrepreneurs will bring to them much money than waiting for a job from the government (RCA, 2020)

Therefore, this implies that all these categories of seller businesses educational level will have influence on mobile money services and financial inclusion.

4.2.3 Seller businesses' working Experience

Generally, the seller business experience is supposed to have a significant influence on financial inclusion because the seller business' experience is to consider increasing his capital in different ways such as loan, credits, remittance, money transfer and saving in

using mobile money services as tool to financial inclusion. Therefore, this study describes the experience of seller businesses under investigation.

Table 4: gives an overview of the seller businesses' experience.

Experience	Frequency	Percentage
Between 1 and 3 years	45	27%
Between 4 and 7 years	66	40%
Between 8 and 11 years	26	16%
More than 11 years	30	18%
Total	167	100

The findings in table 4.2 indicate that more one third of sellers businesses in Nyamasheke district 66 (40) have the experience in business between 4 and 7 years. This implies that most of seller businesses in Nyamasheke district have experience in their activities. As the experience increases in the business, the business persons increase care that lead to customer motivation, increase sales and income generation which resulted to business growth and development.

It is clear that 45 (27%) of seller businesses in Nyamasheke district have working experience in business between one and three years. This means that they are not more experienced in business activities. The results presented in table 4.2 indicate 30 (18%)

of seller businesses under the study has the working experience more than 11 years. This indicated that they are more experienced in business activities and working better than the new ones and generate more income to the government as their income are sufficient and many time of the contribution to the state (Mercyline W.,2021)

The results also indicate that 26 (16) of seller businesses in Nyamasheke district have working experience in business between 8 and t11 years. This means that they are not more enough to influence business activities in industry.

4.2.4 Mobile telecommunication operators

The study examined the telecommunication operators in Nyamasheke district that affect financial inclusion as the seller businesses use MTN mobile money , airtel-tigo mobile money and Mobicash mobile money in the their business transactions where everyone can enjoy financial services without transport cost, time spent on queue and other additional document required to fill.

Table 5: Gives an overview of the Mobile telecommunication operators.

Mobile telecommunication operators	Frequency	Percentage
MTN	101	60%
Airtel tigo	62	37%
Mobicash Rwanda	4	2%
Total	167	100%

From the table 4.3 it is evident that the majority of seller businesses use MTN mobile money in their business transactions as 60% of respondents are the customers of MTN mobile money and they can get loans, payments, deposit money, money transfer due to the availability of MTN.

As many seller businesses are the customers of MTN mobile money, this leads to financial inclusion as the poor people can get loans from Mobicash and pay back after a period of time with no transport cost and waiting time on queue.

In the above study, Airtel-tigo contributes to financial inclusion as also in Nyamasheke district, the researcher found that 37% of seller businesses operate their business transactions using Airtel tigo financial services. While Mobicash mobile money contributes at the low level of 2%. This means that the majority of seller businesses enjoy financial services from MTN while the minority in seller business that enjoy financial services from Mobicash.

Mobile money was initially made available in Rwanda by MTN in 2010, then by Tigo in 2011 and Airtel in 2013. The National Bank of Rwanda (BNR) is in charge of overseeing and controlling both banks and non-bank financial companies today thanks to the Payment Systems Act of 2010, which makes financial services generally available to everyone (Mercyline, 2021).

4.3. Users of mobile money and bank account.

The study examined the users of mobile money and bank account in Nyamasheke district that affect financial inclusion as the seller businesses can do transactions through mobile money only or through using bank account only or through both mobile money transactions and bank account.

Table 6: Users of mobile money and bank account

Users	Frequency	Percent
Users of mobile money	104	62.3
Users of bank account	38	22.8
Users of both mobile phone and bank account	25	15.0
Total	167	100

From the table 4.6 shows that the majority of seller businesses of Nyamasheke district use mobile money in business transactions as 62.3% of respondents do their business activities through their mobile money.

As the many business sellers using the mobile money to pay, receive, saving and transfer of the finance help them to do their business transactions without moving , waste their time on queue to the financial institutions and other additional cost to get finance so they can get capital without moving from one area to the other.

In the table 4.6 the business sellers of Nyamasheke district 22.8% of respondents use bank account to do their business transactions such as paying, receiving, saving and transferring the finance. While the seller businesses of Nyamasheke district 15% of respondents use both mobile money and bank account in their business activities such

as paying goods and services, receiving cash, saving money, depositing and transfer money in different account.

High education and entrepreneurship improve living standards in rural areas and influence the probability to get money. As the rate to use mobile money increase in rural areas lead to the positive living standards and accelerate entrepreneurship activities where many people can create their own business that increase creativity and technological development (Myeni et al., 2020).

4.3 Level of financial inclusion and mobile money services

The first objective of this study was to establish the level of financial inclusion in Nyamasheke district. In line with the objective the following research question was formulated: what is the level of financial inclusion in Nyamasheke District? The findings were presented, interpreted and discussed.

4.3.1 Level of financial inclusion

Financial inclusion is the factor of development of the region as well as the country which plays an important role in poverty alleviation and lead to the social health, as different authors and literature review revealed that financial inclusion lead to the technology and consumer-oriented services (Kagana, 2019). A table 4.4 describes the financial inclusion level in Nyamasheke district.

Table 6: Mean values and standard deviations of the measures of financial inclusion level

Level of financial inclusion	Mean	Std. Deviation
	Statistic	Statistic
Usage of ease cash to get finance	1.63	.847
Usage of mobile money to get credit	1.65	.963
Usage of money Transfer with mobile phone only	1.69	.937
Usage of Money transfer with both mobile phone and mobile banking	1.86	1.052

Availability of many microfinance institutions	1.92	.863
Availability of SACCOs	1.97	.842
Transport cost to get finance on telephone	2.04	.856
Usage of mobile money to get loan	2.13	1.112
Usage of mobile money in payment of bills	2.13	1.205
Usage of mobile money in saving	2.17	1.134
Availability of many MTN agents	2.19	1.160
Usage of money transfer with mobile banking only	2.28	1.216
Availability of many Airtel Tigo agents	2.28	.774
Availability of commercial banks	2.51	1.046
Usage of Remittance at high level	2.51	1.102
Usage of mobile money purchase of goods and services	2.70	1.205
Average mean	2.10	1.02

Table 4.4 indicated that the mean values for the scores of the usage and availability of mobile money contribute to financial inclusion where all people can access to the financial services in Nyamasheke district. Respondents showed that usage of ease cash

to get finance were very low (Mean=1.63, SD=0.847). Usage of mobile money in financial inclusion contribute to get credit services through mobile money services at very low level (Mean=1.63, SD=0.935). The usage of mobile money transfer with mobile phone only was at the very low level (Mean=1.69, SD=0.937).

The usage of mobile money transfer with both mobile phone and mobile banking were (Mean=1.86, SD=1.052), the availability of many microfinance institutions was (Mean=1.92, SD=0.863), the availability of savings and credit cooperatives was (Mean=1.97, SD=0.842), to pay the transport cost in getting finance on the telephone was (Mean=2.04, SD=0.856), the usage of mobile money to get loan was (Mean=2.13, SD=1.112), the usage of mobile money in payment of bills (Mean=2.13, SD=1.205), the usage of mobile money in savings was (Mean=2.17, SD=1.134), the availability of many MTN agents was (Mean=2.19, SD=1.160), the usage of money transfer with mobile banking only was (Mean=2.28, SD=1.216) and availability of many Airtel Tigo agents was (Mean=2.28, SD=.774) they contribute to the financial inclusion at low level (Mean=1.86, SD=1.052).

The availability of commercial banks in Nyamasheke district was (Mean=2.51, SD=1.046), usage of remittance at the high level was (Mean=51, SD=1.102) and the Usage of mobile money purchase of goods and services was (Mean=2.70, SD=1.205); they contribute to the financial inclusion at enough (Mean=2.51, SD=1.046 and 1.102 respectively). Usage of mobile money in the purchasing of goods and services reduced the problem of mistakes and errors in counting of much money and increase the way of getting quality services where many customers can pay simultaneously without moving

from different commercial banks and different location to withdraw money in order to pay (Mercyline, 2021).

Finally, the results indicated the table 4.4 revealed that the average mean of financial inclusion in Nyamasheke district rated as low with (Mean=2.10, SD=1.02). In accordance with the study conducted by Zins and Weill (2016) showed that low level of financial inclusion delay the economy within the country. While financial inclusion enhance the living standard of many people by increasing income through business transactions, savings, access to loan, remittance and cash follow management with those in return assist poor population around the world to escape from the poverty.

4.3.2 Level of Mobile money services

Mobile money services extended to the financial inclusion where the rural and remote areas the infrastructures are not yet developed, mobile money services help this society to have the access on the financial services. A table 4.5 describes the level of mobile money services in Nyamasheke district.

Table 7: Mean values and standard deviations of the measures of mobile money services level.

Mobile money services	Mean	Std. Deviation

I use mobile money to pay taxes	1.71	.964
I use mobile money in saving	1.74	.898
I pay suppliers using mobile money services	1.76	.983
I pay different services using mobile money	1.77	.969
I use mobile money in money transfer	1.84	1.026
I deposit to bank account using mobile money	2.02	.957
I pay loan to financial institution using mobile money	2.28	1.144
I receive cash through mobile money	2.72	1.261
I purchase different goods and services by using mobile money	2.81	1.195
I use mobile money in paying the cost of transport and accommodation	2.90	1.073
Average mean	2.1	1.02

Table 4.4 indicated that the mean values for the scores of mobile money contribute to financial inclusion where people can do the financial transactions using mobile money services. Respondents showed that the usage of mobile money services to pay taxes

was (Mean=1.71, SD=.964), the use of mobile money services to save finance was (Mean=1.74, SD=.898); they contributed to financial inclusion at the very low level in Nyamasheke district. The results revealed that usage of mobile money in money transfer was (Mean=1.84, SD=1.026), and to pay suppliers using mobile money services was (Mean=1.76, SD=0.983), to pay different services using mobile money was (Mean=1.77, SD=.969), to make deposit on bank account using mobile money services was (Mean=2.02, SD=.957), to pay loan to the financial institutions using mobile money was (Mean=2.28, SD=1.144); they contributed to the financial inclusion at low level in Nyamasheke district. Mobile money in the receiving of cash was (Mean=2.72, SD=1.261) and mobile money in t purchasing of different goods and services was (Mean=2.81, SD=1.195); they contribute to the financial inclusion at the enough level (Mean=2.8, SD=1.1). The results from table 4.5 indicated that mobile money services in Nyamasheke district rated at low level (Mean=2.1, SD=1.02).

This finding is in line with David (2017) result that the people from the rural communities still travel long distances to get financial services and they exhaust their very limited disposable income. Moreover the occurrence of mobile money services leads to the poverty reduction initiatives around the world especially in least developed countries. The mobile money services revolution, which not only provides communication but also access to basic financial services through phone-based money transfer, payment of commercial transactions, and storage of finance, has revolutionized the many lives, especially of the rural poor households.

4.3.3 Level of mokash loan

Mokash loan services led to the financial inclusion where the formal and the informal sectors help many populations to enjoy financial services without necessarily having account from financial institutions. A table 4.5 describes the level of mokash loan services in Nyamasheke district.

Table 8: Mean values and standard deviations of the measures of mokash loan services level

Level of mokash loan	Mean	Std. Deviation
I save my money using mobile phone	1.54	.827
I get long term credit due to to mokash	1.57	.854
I pay transport using mokash loan	1.62	.812
I get quick loan from mokash	1.74	.900

I get a loan using mobile phone	1.78	.908
I get overdraft using mobile money	1.81	.986
I pay loan from mokash	2.01	.847
Average mean	1.7	0.9

The table 4.6 shows mean values for the scores of mokash loan in the contribution to the financial inclusion in Nyamasheke district. The respondents showed that using mobile phone to save was (Mean=1.54, SD=.827), to get long term loan due to the mokash was (Mean=1.57, SD=.854), to pay transport using mokash loan was (Mean=1.62, SD=.812) and get quick loan from mokash (Mean=1.74, SD=.9); they contribute to the financial inclusion at the very low level. The results revealed that to get a loan using mobile phone was (Mean=1.78, SD=.908), to get overdraft using mobile money was (Mean=1.81, SD=.986) and to pay loan from mokash (Mean=2.01, SD=.847); contribute to financial inclusion at the low level.

The results from table 4.6 indicated that mokash loan services in Nyamasheke district rated at the very low level (Mean=1.7, SD=0.9). Our results in the case of Nyamasheke district as rural area coincide with the argument of Suri and Jack (2016), who found that the inability of using Mokash services in some circumstances periods delay the development and technology and affect negatively the health standard of the people especially in least developed countries.

4.3.4 Level of Mobile money e- payment

Mobile money e-payment services lead to the financial inclusion where the effects of the determinants on customers 'choices for e-payment use and revealed the role of personal innovativeness as a moderator in all business transactions. A table 4.7 describes the level of mobile money e-payment services in Nyamasheke district.

Table 9: Mean values and standard deviations of the measures of mobile money e-payment level.

Level of mobile money E- payment	Mean	Std.
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		Deviation
I use e-payment to pay transport and accommodation	1.65	.88
I use e-payment to pay taxes	1.72	.96
I pay insurance using e-payment	1.74	.90
I pay suppliers using e-payment	1.95	1.09
I pay loan to financial institution using e-payment	1.98	1.11
I use e-payment to transfer money	2.10	.92
I receive cash through e-payment	2.15	1.11
I pay different services using e-payment	2.17	1.24
I use e-payment in saving	2.19	.94
I deposit money to bank account using e-payment	2.25	1.06
I pay loan using e-payment	2.44	1.20
I purchase different products and services using e-payment	2.56	1.24
Average mean	2.08	1.05

The table 4.7 shows mean values for the scores of mobile money e-payment in the contribution to the financial inclusion in Nyamasheke district. The respondents showed that to use e-payment in the payment transport and accommodation was (Mean=1.65, SD=.88), to use e-payment to pay taxes was (Mean=1.72, SD=.96), to pay insurance by using e-payment was (Mean=1.74, SD=.90); they contribute to the financial inclusion at the very low level. The results revealed that pay loan to financial institution using e-payment was (Mean=1.98, SD=1.11), to pay suppliers using e-payment was (Mean=1.95, SD=1.09), to use e-payment to transfer money was (Mean=2.10, SD=.92), to receive cash through e-payment was (Mean=1.15, SD=1.11), to pay different services using e-payment was (Mean=2.17, SD=1.24), to use e-payment in saving was (Mean=2.19, SD=.94) , to make deposit of money to bank account using e-payment (Mean=2.25, SD=1.06), to pay loan using e-payment was (Mean=2.44, SD=1.20); they contribute to the financial inclusion at the low level. The results revealed also purchasing of different products and services using e-payment contributed to the financial inclusion at enough (Mean=2.56, SD=1.24). The results from table 4.7 indicated that mobile money e-payment services in Nyamasheke district rated at the low level (Mean=2.08, SD=1.05).

According to Nguyen (2011) the low level of mobile money e-payment in economy reduces the daily business transactions and customers within the business activities as well as customer care.

While the adoption of e-payments by business activities can help to build a transaction history to enable improved access to a suite of customized financial products, thus

deepening financial inclusion; reduce the risks and costs of carrying cash; reduce the costs of managing cash in the business transactions.

4.4 The Relationship between Mokash loan and financial inclusion

In order to indicate the extent to which mokash loan services contribute to financial inclusion in Nyamasheke district, simple multiple linear regressions was computed. The table 4.8 indicates the summary of the correlation coefficient as well as coefficient of determination.

Table 10: Mokash loan and financial inclusion

Independent variables	R	R²	P value
I save my money using mobile	.332	.11	.001*
I get a loan using mobile money	.479	.229	.200
I get overdraft using mobile money	.027	.000	.936
I get quick loan from mokash	.251	.063	.000*
I get long term credit due to mokash	.247	.061	.001*
I pay loan using mokash	.398	.158	.801
I pay goods and services using mokash	.631	.398	.050*
I pay transport using mokash	.778	.605	.063
I pay food from mokash loan	.308	.094	.002*

a. Dependent variable: financial inclusion

b. * $p < .05$

The results showed that in table 4.8 reveal that there is correlation between saving money using mobile money services and financial inclusion in Nyamasheke district where ($R = .332$, $p < .05$). The coefficient of determination is $R^2 = .11$ indicating that only 11% of financial inclusion is accounted for by the saving finance using mobile money services. The same table indicated that there is no significant correlation between getting a loan using mobile money services and financial inclusion in Nyamasheke district where ($R = .479$, $p > .05$). The coefficient of determination is $R^2 = .229$ indicating that only 22.9% of financial inclusion is accounted for by the saving money using mobile money services. The same table also indicated that there is no significant correlation between getting an overdraft using mobile money services and financial inclusion in Nyamasheke district where ($R = .027$, $p > .05$). The coefficient of determination was $R^2 = 0$ indicating that there is no variation in financial inclusion was accounted for by getting an overdraft using mobile money services.

On the other hand, the table 4.8 reveal that there is there is correlation between getting quick loan from mokash services and financial inclusion in Nyamasheke district where ($R = .0251$, $p < .05$). The coefficient of determination is $R^2 = .063$ indicating that only 6.3% of financial inclusion variation was explained by getting quick loan from mokash services.

The findings from table 4.8 indicates that to get long term credit due to mokash services correlate with financial inclusion in Nyamasheke district of business sellers where ($R = .247$, $p < .05$). The coefficient of determination is $R^2 = .061$ indicating that

only 6.1% of financial inclusion variation was explained by getting long term loan from mokash services.

The results presented in table 4.8 further shows that to pay loan using mokash, pay goods and services using mokash and paying transport using mokash services correlates with financial inclusion in Nyamasheke district with ($R = .398$, $R = 631$ and $R = 778$; $P = 05$).

The coefficients of determination are $R^2 = .158$, $R^2 = .398$ and $R^2 = .605$ indicating that the 15.8% of financial inclusion variation was explained by paying loan using mokash services, 39.8% explained by paying goods and services by using mokash and 60.5% explained by paying transport using mokash in business transactions.

The final glance at a table 4.8 indicated that there is significant correlation between paying food using mobile money services and financial inclusion in Nyamasheke district where ($R = .308$, $p < 0.05$). The coefficient of determination is $R^2 = .094$ indicating that only 9.4% of financial inclusion variation is accounted for by paying food using mobile money services.

Mokash loan services correlates with the financial inclusion as the seller businesses in Nyamasheke district get quick loan, save their money, have access to the long term loan, they pay goods and services as well as paying food due to mokash loan services.

This matches with the Farah Qureshi (2020) emphasized on that the mokash loan services are the predictors of financial inclusion. Due to the removal of transaction fees during and after the Covid-19 lock down period in Rwanda mobile money services increased financial inclusion as the majority of people have required making business

transactions through mobile money services. When mokash loan are at the enough level contribute to the growth of all sectors and sustainable development as well as contribute to the satisfaction of the users.

Table 11: Model summary of mokash loan

Model Summary

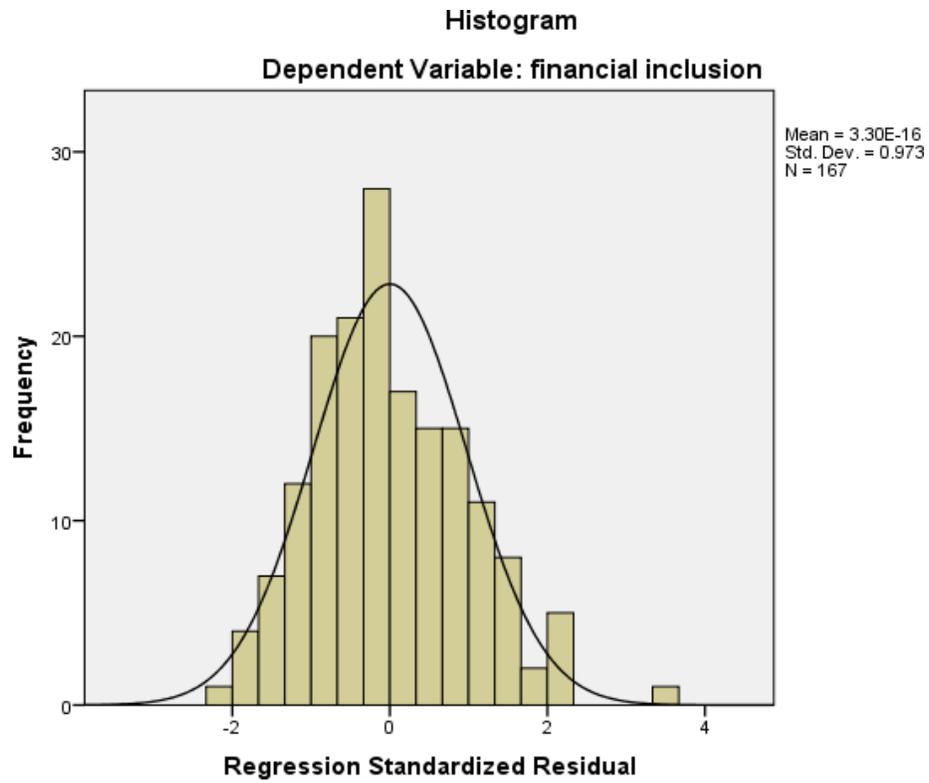
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.423	.179	.132	4.20668	.179	3.794	9	157	.000	1.599

a. Predictors: (Constant), I pay food using mokash, I save my money using mobile phone , I get overdraft using mobile money, I pay transport using mokash , I get a loan using mobile phone , I get quick loan from mokash, I pay loan from mokash, I get long term credit due to mokash , I pay goods and services using mokash services.

b. Dependent Variable: financial inclusion

The determination coefficient (R square) from the table above which is .179 implies that 17.9% of the total variance in financial inclusion has been explained by mokash loan services. In addition, the adjusted R square is positive .132; this shows that the

explanation towards response is low. So there is a significance of explanatory variable, Mokash loan services contribute to financial inclusion.



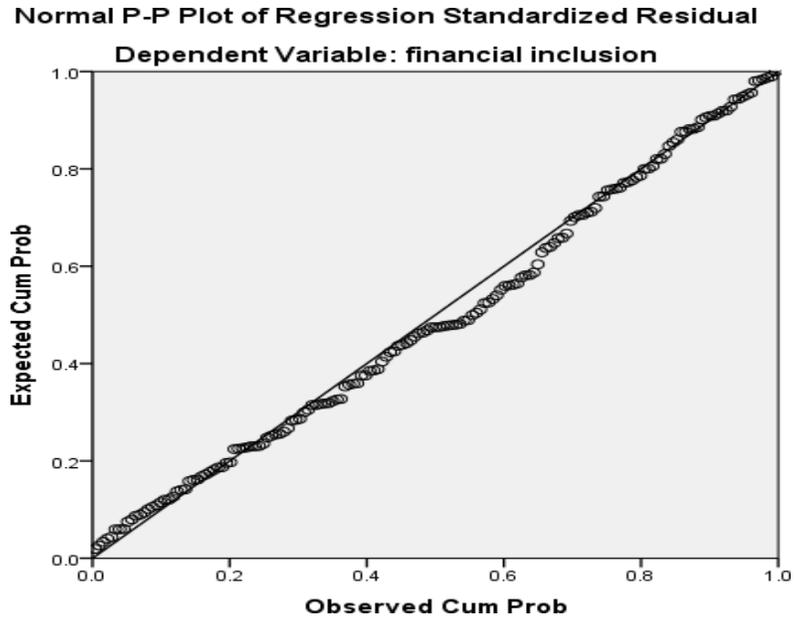


Figure 3: Histogram of Mokash Loan

Based on above, it is noted that mokash loan is very low in business activities from Nyamasheke district, as it is very important for mokash loan services to contribute to the financial inclusion. According to Pinera and Ines (2021) financial inclusion has been influenced by Mokash loan products offered by NCBA bank Rwanda that allowing saving, support cashless payment without moving or any other requirements of additional documents.

4.5 The relationship between Mobile money E-payment and financial inclusion

Mobile money e-payment services are very important in technological development and innovative services take as response to the financial challenges that small and medium businesses face in daily transactions (Gahapa and Tengeh, 2019).

Mobile money e-payment services adoption influence customers' satisfaction and increase quality services. In the business industry e-payment system influence purchases and sales where many transactions can be undertaken simultaneously. Table 4.11 shows the results stepwise multiple regressions for each measure of mobile money e-payment.

Table 12: Mobile money E-payment and financial inclusion

Independent variables	R	R2	P value
I use e- payment in my business	.166	.027	.032*
I use e-payment to transfer money	.152	.023	.051
I pay loan to financial institution using e-payment	.084	.007	.280
I deposit money to bank accounting using e-payment	.235	.055	.002*
I pay insurance using e-payment	.136	.018	.080
I pay suppliers using e-payment	.231	.053	.003*
I pay loan using e-payment	.241	.058	.002*
I pay different services using e-payment	.153	.023	.048*
I purchase different products and services using e-payment	.189	.035	.015*

I receive cash through e-payment	.276	.076	.000*
I use e-payment to pay transport and accommodation	.245	.060	.001*
I use e-payment to pay taxes	.153	.023	.049*

a. Dependent variable: financial inclusion

b. *p<.05

The results from table 4.10 indicates that usage of e-payment in business significantly correlates with financial inclusion in Nyamasheke district ($R = .166, p < .05$). The coefficient of determination ($R^2 = .027$) indicates that 2.7% of financial inclusion was accounted for by the usage of e-payment in business. Another look at table 4.10 reveals that usage of e-payment in money transfer does not correlate with financial inclusion in Nyamasheke district. ($R = .152, p > .05$). The coefficient of determination ($R^2 = .023$) indicates that 2.3% of financial inclusion was accounted for by the usage of e-payment in the transfer of money.

As a table 4.10 indicates that to pay loan to financial institutions using e-payment does not correlate with financial inclusion in Nyamasheke district ($R = .084, p < .05$). The coefficient of determination ($R^2 = .007$) indicates that .7% of financial inclusion was accounted for by the payment of loan to financial institutions through e-payment.

The results from table 4.10 indicates that the deposit of money to bank account through e-payment significantly correlates with financial inclusion in Nyamasheke district ($R = .235, p < .05$). The coefficient of determination ($R^2 = .055$) indicates that 5.5% of

financial inclusion variations was accounted for by the deposit of money to bank account.

As it can be revealed in the table 4.10 there is no correlation between the payment of insurance using e-payment and financial inclusion as ($R = .136$, $p > .05$). The coefficient of determination ($R^2 = .018$) indicates that paying insurance using e-payment is accounted for 1.8% of variations in financial inclusion from the sellers' business.

The results from table 4.10 indicates that the payment to the suppliers, the payment of loan, paying different services, purchasing goods and services, receiving cash the payment of transport and accommodation and the using e-payment to pay taxes correlate with financial inclusion in Nyamasheke district as ($p < .05$). The coefficient of determination ($R^2 = .053$) indicates that 5.3% of financial inclusion variations was accounted for by the payment to the suppliers using e-payment, The coefficient of determination ($R^2 = .058$) indicates that 5.8% of financial inclusion variations was accounted for by the payment of loan using e-payment, the coefficient of determination ($R^2 = .023$) indicates that 2.3% of financial inclusion variations was accounted for by the payment of different services using e-payment, the coefficient of determination ($R^2 = .035$) indicates that 3.5% of financial inclusion variations was accounted for by the purchasing of goods and services using e-payment, the coefficient of determination ($R^2 = .076$) indicates that 7.6% of financial inclusion variations was accounted for by the receiving of cash through e-payment services while the coefficient of determination ($R^2 = .060$) indicates that 6% of financial inclusion variations was accounted for by the payment of transport and accommodation through using e-payment and the coefficient

of determination ($R^2=.023$) indicates that 2.3% of financial inclusion variations was accounted for by the payment of the taxes use e-payment.

The results seem that the Rwandan population is at low level to employ digital finance in their business transactions while mobile money e-payment contribute in the alleviating of poverty, individual wellbeing through the access financial services and mobile money; the furthermore all these favored effects on poverty alleviation where participants becoming substantial. The mobile money e-payment in business industry improves financial inclusion with mobile money services to ensure the improvement of individual welfare and financial security which lead to the poverty reduction (N’dri Lasme, 2020).

Table 13: Model summary of mobile money e-payment and financial inclusion

Model Summary

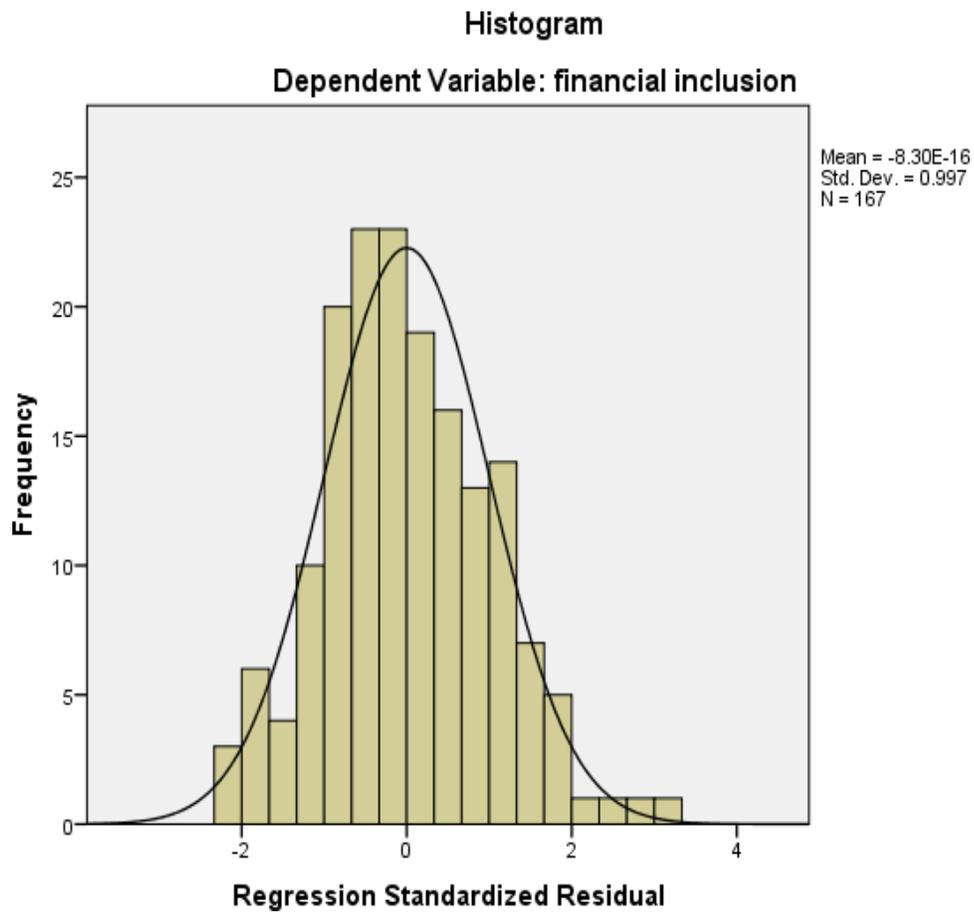
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.202	.041	.035	4.43449	.041	7.008	1	165	.009

a. Predictors: (Constant), i pay loan to financial institution using e-payment

b. Dependent Variable: financial inclusion

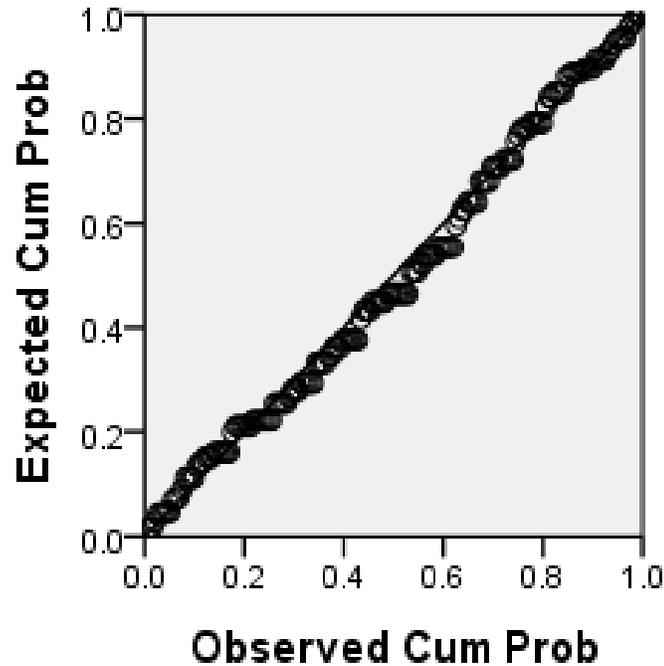
The determination coefficient (R square) from the table above which is .041 implies that 4.1% of the total variance in financial inclusion has been explained by e-payment

services. In addition, the adjusted R square is positive .035; this shows that the explanation towards response is very low. So there is a significance of explanatory variable, E-payment services contribute to financial inclusion in business activities.



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: financial inclusion



4.6 Relationship between mobile money services and financial inclusion

Mobile money services facilitate all types of transactions, such as minimum or maximum amounts that can be used per transaction; maximum daily transaction values resulting from one or more transactions; maximum monthly transaction values at low cost; and keeping a mobile money account balance free of charge.

Table 14: Mobile money services and financial inclusion

Independent variables /Mobile money services	R	R ²	P value
Usage of mobile money to get loan	.208	.043	.004*
Usage of mobile money to purchase goods and services	.205	.042	.003*
Usage of mobile money in saving	.191	.036	.009
Usage of mobile money to get credit	.281	.078	.000*
Availability of many Airtel tigo agents	.356	.126	.000*
Usage of ease cash to get finance	.171	.029	.000*
Usage of remittance at high level	.340	.115	.000*
Usage of mobile money in payment of bills	.328	.107	.000*
Usage of money transfer with both mobile phone and mobile banking	.157	.025	.012*
Usage of mobile transfer with mobile banking only	.360	.013	.000*
Usage of money transfer with mobile phone only	.156	.024	.031*
Availability of many microfinance institutions	.225	.016	.002*
Availability of commercial banks	.196	.038	.006*

Availability of SACCOs	.312	.097	.000*
Involve transport cost to get finance on telephone	.255	.065	.000*

a. Dependent variable: Financial inclusion

b. $p < .05$

The results from table 4.12 indicates that the usage of mobile money to get loan significantly correlates with financial inclusion in business transactions ($R = .208$, $p < .05$). The coefficient of determination ($R^2 = .043$) indicates that 4.3% of financial inclusion variations was accounted for by the usage of mobile money to get loan. A table indicates that the usage of mobile money to purchase goods and services correlates with financial inclusion in Nyamasheke district. The coefficient of determination ($R^2 = .042$) indicates that 4.2% of financial inclusion variations was accounted for by the usage of mobile money to purchase goods and services.

As a table 4.12 indicates that the usage of mobile money in saving correlates with financial inclusion in business transactions done in Nyamasheke district as ($R = .191$, $p < .05$). The coefficient of determination ($R^2 = .036$) indicates that 3.6% of financial inclusion variations was accounted for by the usage of mobile money in saving. The results from the table 4.12 indicates that the usage of mobile money to get credit significantly correlates with financial inclusion in business activities where ($R = .281$, $p < .05$). The coefficient of determination ($R^2 = .078$) indicates that 7.8% of financial

inclusion variations was accounted for by the usage of mobile money to the usage of mobile money to get credit.

As a table 4.12 indicates that the availability of many Airtel-tigo agents correlates with financial inclusion in business industry from Nyamasheke district ($R=.356$, $p<.05$). The coefficient of determination ($R^2=.126$) indicates that 12.6% of financial inclusion variations was accounted for by the availability of many Airtel-tigo agents. The results from the table 4.12 indicates also that the usage of ease cash to get finance correlates with financial inclusion in business activities where ($R=.171$, $p<.05$). The coefficient of determination ($R^2=.029$) indicates that 2.9% of financial inclusion variations was accounted for by the usage of ease cash to get finance.

As it can be revealed that a table 4.12 the usage of mobile money in remittance correlates with financial inclusion in business transactions ($R=.340$, $p<.05$). The coefficient of determination ($R^2=.115$) indicates that 11.5% of financial inclusion variations was accounted for by the usage of mobile money in remittance. The results showed that the table 4.12 indicates that the usage of mobile money in payment of bills significantly correlates with financial inclusion in business activities where ($R=.328$, $p<.05$). The coefficient of determination ($R^2=.107$) indicates that 10.7% of financial inclusion variations was accounted for by the usage of mobile money to pay bills.

As a table 4.12 indicates that the usage of money transfer with both mobile phone and mobile banking correlates with financial inclusion in business transactions ($R=.157$, $p<.05$). The coefficient of determination ($R^2=.024$) indicates that 2.4% of financial

inclusion variations was accounted for by the usage of money transfer with both mobile phone and mobile banking. The results from the table 4.12 also indicates that the usage of money transfer with only mobile banking correlates with financial inclusion in business where ($R=.360$, $p<.05$). The coefficient of determination ($R^2=.013$) indicates that 1.3% of financial inclusion variations was accounted for by the usage of money transfer with only mobile banking.

The results from table 4.12 indicates that the usage of money transfer with mobile phone only significantly correlates with financial inclusion in Nyamasheke district ($R=.156$, $p<.05$). The coefficient of determination ($R^2=.024$) indicates that 2.4% of financial inclusion variations was accounted for by the usage of money transfer with mobile phone only. A table indicates also that the availability of many microfinance institutions correlates with financial inclusion in Nyamasheke district ($R=.225$, $p<.05$). The coefficient of determination ($R^2=.016$) indicates that 1.6% of financial inclusion variations was accounted for by the availability of many microfinance institutions.

A table indicates also that the availability of commercial banks correlates with financial inclusion in business industry from Nyamasheke district ($R=.196$, $p<.05$). The coefficient of determination ($R^2=.038$) indicates that 3.8% of financial inclusion variations was accounted for by the availability of commercial banks.

The results from table 4.12 indicates that the availability of savings and credit cooperatives

Significantly correlates with financial inclusion in business transactions ($R=.312$, $p<.05$). The coefficient of determination ($R^2=.097$) indicates that 9.7% of financial inclusion variations was accounted for by the availability of savings and credit cooperatives. A table also indicates that there is transport cost to get finance on mobile correlates with financial inclusion in Nyamasheke distric ($R=.255$, $p<.05$).The coefficient of determination ($R^2=.065$) indicates that 6.5% of financial inclusion variations was accounted for by the availability of transport cost to get finance on mobile phone.

Table 15: Model summary of Mobile money services

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.996	.992	.991	.42217	.992	1141.362	16	145	.000	1.445

a. Predictors: (Constant), transport cost to get finance on telephone, usage of money Transfer with mobile phone only, usage of Remittance at high level, usage of mobile money purchase of goods and services, availability of many microfinance institutions , usage of mobile money

to get credit, availability of SACCOs, usage of ease cash to get finance , usage of mobile money to get loan, availability of commercial banks , availability of many MTN agents, usage of money transfer with mobile banking only , usage of mobile money in saving, usage of Money transfer with both mobile phone and mobile banking , usage of mobile money in payment of bills, availability of many airtel tigo agents.

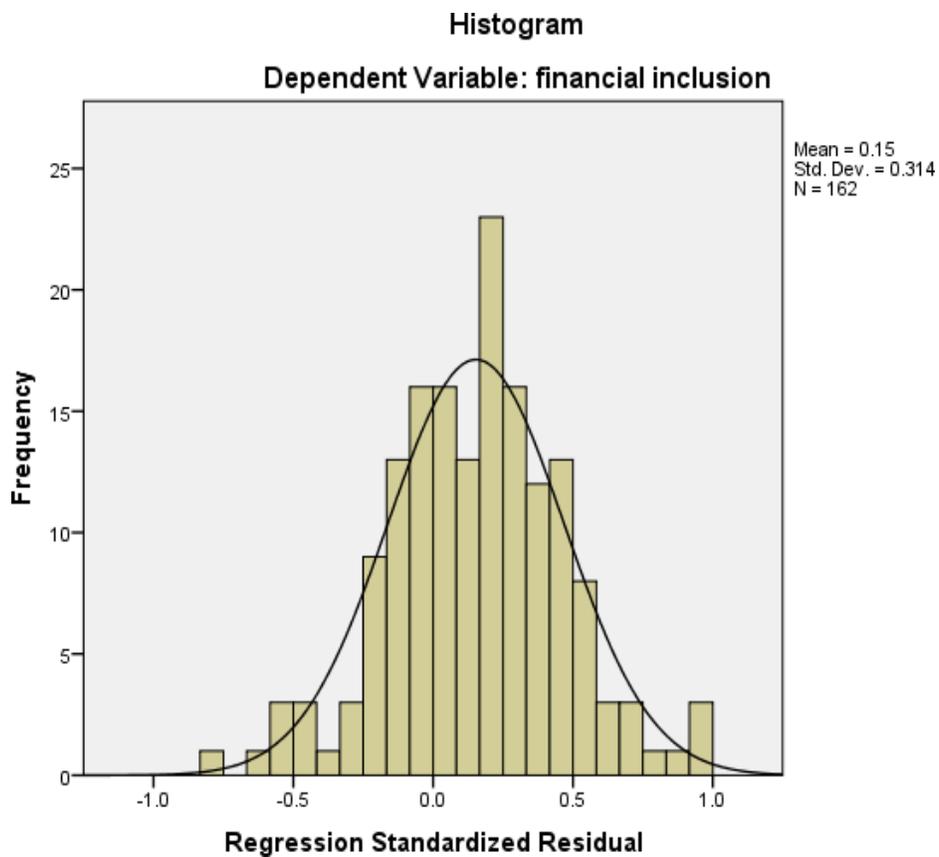
b. Dependent Variable: financial inclusion

The determination coefficient (R square) from the table above which is .992 implies that 99.2% of the total variance in financial inclusion has been explained by mobile money services. In addition, the adjusted R square is positive .991; this shows that the explanation towards response is very high. So there is a significance of explanatory variable that mobile money services contribute to financial inclusion.

Participants mentioned how time-saving mobile money services allow people to transmit money to distant locations without having to travel there. When they had money in their mobile wallets, some merchants could be paid directly from their phones, while others could pay for power, school fees, government taxes and fees (including those for IREMBO services), and health insurance.

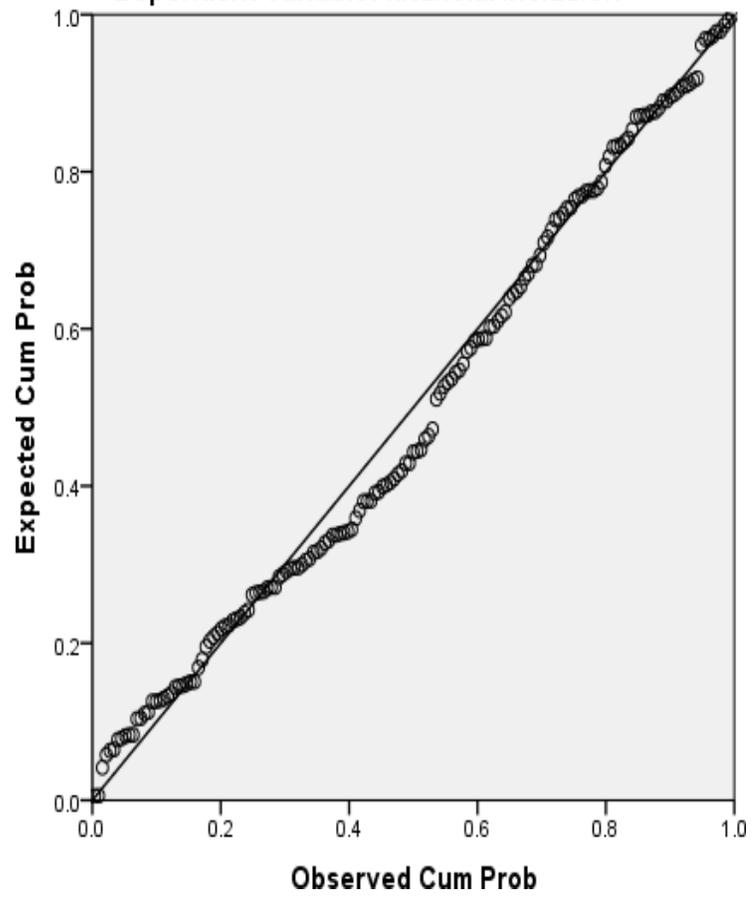
In addition to saving time, utilizing mobile money to pay for these services also avoids the expense of cash withdrawals and paperwork since some of these transactions are free or have a modest cost. There was an increase in the usage of mobile money for some of these other transactions during and after the COVID-19 embargo, even though some respondents

preferred cash for other services like hospital bills and other everyday expenses like meals at restaurants. The respondents opted to withdraw cash from the ATM to make purchases because they were concerned that not many businesses could take mobile money as payment for products and services.



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: financial inclusion



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings and recommendations. The purpose of the study was to establish the relationship between mobile money services and financial inclusion. A case of Nyamasheke district. From general purpose three objectives were stated as follows.

- (i) To establish the level of financial inclusion in Nyamasheke District.
- (ii) To determine the relationship between Mokash loan and financial inclusion in NYAMASHEKE district.
- (iii) To assess the relationship between Mobile money E-payment and financial inclusion in NYAMASHEKE district.

These objectives were further presented into three research questions to guide the study:

- (i) What is the level of financial inclusion in Nyamasheke district?
- (ii) What is the relationship between Mokash loan and financial inclusion in Nyamasheke district?

(iii) What is the relationship between Mobile money E-payment and financial inclusion in Nyamasheke district?

In order to answer to these questions presented according to the above objectives, correlation research designs were used. The population of the study was seller businesses in Nyamasheke district. Questionnaires were used to collect data from a sample consisting of 176 seller businesses. Pilot study, descriptive statistics (mean values and standard deviations) frequencies, percentages, pie chart, graphs and inferential statistics (Pearson product correlation moment, simple linear regression) were used to analyze data in order to achieve the objectives. Therefore the findings are summarized and conclusions as well as recommendations are provided.

5.2 Summary of the findings

5.2.1 Level of Financial inclusion

The study showed that level of financial inclusion is low as confirmed by seller businesses. The availability of commercial banks in Nyamasheke district was (Mean=2.51, SD=1.046), usage of remittance at the high level was (Mean=51, SD=1.102) and the Usage of mobile money purchase of goods and services was (Mean=2.70, SD=1.205); they contribute to the financial inclusion at enough (Mean=2.51, SD=1.046 and 1.102 respectively). The results from table 4.5 indicated that mobile money services rated at low level (Mean=2.1, SD=1.02). The results from table 4.6 indicated that mokash loan services in Nyamasheke district rated at the very low level (Mean=1.7, SD=0.9). The results from table 4.7 indicated that mobile money

e-payment services in Nyamasheke district rated at the low level (Mean=2.08, SD=1.05).

Finally, the results indicated the table 4.4 revealed that the average mean of mobile money in financial inclusion rated as low with (Mean=2.10, SD=1.02).

5.2.2 Relationship between mokash loan and financial inclusion

Based on findings \, the study generally indicated that, mokash loan correlates with financial inclusion. With respect to mokash loan, the findings revealed that to save money using mobile, to get quick loan from mokash, to get long term credit due to mokash and to pay food from mokash loan correlate with financial inclusion. Where as to get a loan using mobile money, to get overdraft using mobile money, to pay loan using mokash, to pay transport using mokash are not correlated with financial inclusion.

Finally, the findings revealed that the determination coefficient (R square) from the table 4.9 which is .179 implies that 17.9% of the total variance in financial inclusion has been explained by mokash loan services. In addition, the adjusted R square is positive .132; this shows that the explanation towards response is low. So there is a significance of explanatory variable that mokash loan services contribute to financial inclusion.

5.2.3 Relationship between mobile money E- payment and financial inclusion

The results showed that use of e-payment in business, to deposit money to bank accounting using e-payment, to pay suppliers using e-payment, to pay loan using e payment, to pay different services using e-payment, to purchase different products and services using e-payment and to receive cash through e-payment correlate with financial inclusion. Whereas use e-payment to transfer money, to pay loan to financial institutions using e-payment and to pay insurance using e-payment are not correlated with financial inclusion.

Finally, based on findings it revealed that the determination coefficient (R square) from the table 4.11 which is .041 implies that 4.1% of the total variance in financial inclusion has been explained by e-payment services. In addition, the adjusted R square is positive .035; this shows that the explanation towards response is very low. So there is low significance of explanatory variable that mobile money e-payment services contribute to financial inclusion in business activities.

5.2.4 Relationship between Mobile money services and financial inclusion

The study showed that usage of mobile money to get loan ,usage of mobile money to purchase goods and services ,usage of mobile money in saving ,usage of mobile money to get credit ,availability of many airtel tigo agents ,usage of ease cash to get finance ,usage of remittance at high level ,usage of mobile money in payment of bills ,usage of money transfer with both mobile phone and mobile banking ,usage of mobile transfer with mobile banking only ,usage of money transfer with mobile phone only ,availability

of many microfinance institutions ,availability of commercial banks ,availability of SACCOs and involvement of transport cost to get finance on telephone correlate with financial inclusion.

Finally, the determination coefficient (R square) from the table above which is .992 implies that 99.2% of the total variance in financial inclusion has been explained by mobile money services. In addition, the adjusted R square is positive .991; this shows that the explanation towards response is very high. So there is a significance of explanatory variable that mobile money services contribute to financial inclusion.

5.3 conclusions

From this study it is to be noted that some items of financial inclusions are achieved at high, low and very low among seller businesses in Nyamasheke district. Furthermore, the correlation coefficient showed that mokash loan, mobile money services and mobile money e-payment are statistically significant to financial inclusion but others are not.

The study also showed that usage of ease cash to get finance, usage of mobile money phone only rated at lower level; use of money transfer with both mobile phone and mobile banking, availability of many microfinance institutions, availability of SACCOs, transport cost to get finance on the telephone, usage of mobile money to get loan, usage of mobile money in payment of bills, usage of mobile money in saving, availability of many MTN agents, usage of money transfer with mobile banking only and availability of many Airtel Tigo agents rated at low level whereas availability of commercial banks, usage of remittance at high level and usage of mobile money to purchase goods and services rated at high level.

The study also revealed that to save money using mobile, to get quick loan from mokash, to get long term credit due to mokash and to pay food from mokash loan correlate with financial inclusion. Whereas as to get a loan using mobile money, to get overdraft using mobile money, to pay loan using mokash, to pay transport using mokash are not correlated with financial inclusion.

The study also showed that use of e-payment in business, to deposit money to bank accounting using e-payment, to pay suppliers using e-payment, to pay loan using e payment, to pay different services using e-payment, to purchase different products and services using e-payment and to receive cash through e-payment correlate with financial inclusion. Whereas use e-payment to transfer money, to pay loan to financial institutions using e-payment and to pay insurance using e-payment are not correlated with financial inclusion.

Finally, the study concluded that mokash loan, mobile money services and mobile money e-payment contribute significantly to financial inclusion in Nyamasheke district.

5.4 Recommendations

This section concentrated on the recommendations drawn from the data in accordance with the study's goals. The proposals fall under two major categories: suggestions for additional policy development and suggestions for further action.

.5.4.1 Recommendations for Immediate action

Since the study indicated that mobile money services are statistically significant to financial inclusion in Nyamasheke district, the following recommendations were made.

Ministry of industry and commerce with its stakeholders should come up with new measures in providing different strategies to enhance financial inclusion through mobile money services.

Obtaining financing Rwanda and other parties can think about providing automation services to companies operating in different industries and places. This will make it easier to comprehend a larger range of experiences with mobile money use and access. Additionally, it is crucial to take into account development assistance for enhancing network infrastructure in outlying locations.

Given that both mobile phones and mobile money have a respectable penetration, testing various targeted functionality through incentive schemes to boost the benefits of mobile money users beyond the conventional functions may be a valuable consideration for AFR and other actors.

The expansion of the use and accessibility of mobile money among rural populations will be aided by the incorporation of the use of super agents as franchises into their business models.

To eliminate the need for consumers to visit an agent in order to obtain a PIN and to enable them to complete transactions on their own, mobile money providers should think about providing thorough digital finance training. Training in digital money management must be linked with literacy instruction. AFR and other players in this space should think about assisting such a thorough training program on mobile money services to address concerns with digital literacy in the corporate sector.

Actors in the mobile money industry must also keep an eye on network availability and coverage irregularities, particularly in the Nyamasheke district. Many respondents observed that the service was frequently down and that it took some time to fix it, which prevented them from using mobile money services when the service was down.

5.4.2 Recommendations for Further Research

The findings of this study are not exhaustive to implement financial inclusion in Rwanda. Therefore, the following were made for further research.

This study focused on mobile money services as tool to financial inclusion in Nyamasheke district. Since the study focused on seller businesses, another study can be conducted on the side of health, education, farmers to determine whether they have the same implications on financial inclusion

Since this study focused on mobile money services and financial inclusion, mobile banking, e-payment and internet banking should be investigated to establish whether they have the same implications on financial inclusion.

This study focused mobile money services as tool to financial inclusion in Nyamasheke district, therefore a nationwide study should be carried out to establish the mobile money services have the same implications for financial inclusion.

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