ANALYSIS OF THE CONTRIBUTION OF MOBILE MONEY ON FINANCIAL INCLUSION GROWTH IN TANZANIA: A CASE OF TEMEKE MUNICIPAL

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CERTIFICATION

The undersigned certifies that he has read and here by recommends for acceptance by the Open University of Tanzania a dissertation entitled: **"Analysis of the Contribution of Mobile Money on Financial Inclusion Growth in Tanzania"** in partial fulfilment of the requirements for the award of Degree of Master of Science in Economics (MSc-Econ).

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Dr. Timothy Lyanga

(Supervisor)

……

Date

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DECLARATION

I, **Remigius Mganyizi,** declare that the work presented in this dissertation is original and mine. It has never been presented to any other university or institution. Where other people's works have been used, references have been provided. It is presented in partial fulfillment of the requirement for the Degree of Master of Science in Economics (MSc-Econ.).

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Signature

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Date

DEDICATION

I declare this work to my mother Mrs. Valentina Bamugileki who laid my educational foundation. my wife Edina Byera, my lovely daughter Clarisse, my sisters Renata Miruko and Verena Miruko, my brother Valence Miruko for their patience, support and encouragement in the course of the study.

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It is with immense pleasure and gratitude that I extend my heartfelt appreciation to all those who have contributed to the successful completion of this research and the entire study. This endeavor would not have been possible without the collective efforts, encouragement, and support of numerous individuals and organizations, to whom I owe my deepest thanks.

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ABSTRACT

Mobile phones have achieved a wide use to perform financial transactions globally and particularly in Tanzania. The introduction and use of mobile money has triggered financial operations in many parts of the world Tanzania being among. This study analyses the contribution of mobile money on financial inclusion in Tanzania by integrating two globally accepted Social resource theory and the learning theory. The relationship between the dependent variable (Financial inclusion Growth) and the independent variables was established and tested and analyzed using correlation and regression techniques. Findings reveal that the independent variables (Mobile payment, Mobile saving and Mobile credits) explain financial inclusion growth by 52.3% (R-Square = 0.523). Each independent variable was tested separately; results show that of the three variables, mobile payment (P-value (0.000) < 0.05) and mobile saving (P-value (0.048) < 0.05) have significant impact on financial inclusion growth whereas mobile credits (P-value (0.596) > 0.05) does not have significant impact on financial inclusion growth in Tanzania. Basing on these findings, the study recommends that mobile money service providers should raise awareness about of using mobile money use, financial institutions to form partnership with telecommunication companies, government to invest in conducive environment to attract more investment in the sector. Further researches can be conducted to analyze the contribution of mobile money in specific sectors like agriculture, health, gender issues.

Keywords: *Financial Inclusion, Mobile Money, Mobile Payment, Mobile Saving, Mobile Credits.*

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CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents background of the study, statement of the problem, objectives of the study, research hypothesis, significance of the study and scope of the study and limitations of the study.

1.2 Background of the Study

A good financial system accommodates all people in the community regardless of their economic social state. It is argued that financial inclusion builds a more resilient financial system of the country by reducing poverty, promoting economic growth and ensuring economic stability (Sümbül, at el., 2022). Financial deregulation in the world among others has caused innovation in financial system. The financial system's inventions have encouraged the use of mobile phones to conduct financial activities like sending, storing and receiving money. The innovation has completely changed how people conduct financial transactions (Frost at el. 2021).

About 1.7 billion adults worldwide lack traditional financial services such as savings accounts, credit, insurance, and payment services (Global Findex Database, 2017). In the recent years, governments, financial institutions, and private sector organizations have dedicated their efforts to promote financial inclusion. Financial services have been made easier and more accessible to consumers because of the programs like mobile banking, digital payment systems (Sarkar, 2019). Like in other developing countries in the world financial inclusion in Africa is lower than in other parts of the

world. It is estimated that about 350 million adults (about 57%) in Africa are still unbanked (Klapper, at el., 2017).

African countries have carried out various reforms in the past decade so as to promote innovation and competition in the financial system hence promoting financial inclusion while maintaining consumer protection (Ajide, 2016). Developments in the financial system have led to the improvement by spreading of financial literacy and the usage of mobile money. Although the expansion of mobile money has been witnessed in different countries, its impact on financial inclusion to the people seems to be heterogeneous. It is shown that in some countries expansion of mobile money has included large proportional of the population for example Kenya while in other countries like Ethiopia it has shown inverse results (Bekele, 2022).

Like other African countries, Tanzania has been striving to expand financial services to smooth transaction in the economy by enhancing accessibility of financial services to all people regardless of their economic or social status. It is shown that since financial deregulation in 2000s there has been a drastic increase on financial services (Read & Parton, 2009). It is shown that up to 2017 only 36% of adults in Tanzania had a bank accounts, only 15% had borrowed from a financial institution in the previous year and only 4% of adults had access to formal insurance (World Bank 2017).

Furthermore it is indicated that the exclusion in financial gave a room to the adoption of mobile money as the best alternative to fill a gap since mobile phones are widely used. Up to 2021 the mobile phone penetration rate in Tanzania was

84.9%, with a total of 46.8 million mobile phone subscribers therefore increasing usage of mobile money (TCRA, 2021). Various factors such as individual awareness, perceived usefulness and perceived benefit have contributed on the expansion of mobile money usage in Tanzania (Abdinoor & Mbamba, 2017). It is further noted that mobile money aids stabilization of exchange rate and price level, increases trade transparency therefore causing a rise in the real income (Mohamed & Nor, 2023).

Mobile money in Temeke municipal has grown in popularity as a method of access to finance. For underserved areas like Temeke, mobile money service providers like M-Pesa, TigoPesa, Halopesa, and Airtel Money have been crucial in providing financial access. This study intends to assess the growth of financial inclusion as the result of mobile money introduction. Previous studies conducted in Tanzania covered factors for mobile money adoption without assessing the financial inclusion in Tanzania Abdinoor & Mbamba (2017) and Peruta, (2018).

1.3 Statement of the Problem

Mobile money plays a vital role on financial accessibility on economy of any country in the world. It is important on expanding financial inclusion that plays a great role on reducing poverty, promoting economic growth and ensuring economic stability of a country (Mawejje & Lakuma 2019). In the near future, electronic money will replace the tradition physical coins and notes. The use of mobile payment for example will receive its place in more countries that it is for now (De Albuquerque, Diniz, & Cernev 2016). Despite its importance on the economy of any country, the effect of mobile money on financial inclusion is empirically less known

(Lashitew, at el., 2019). Most of studies conducted previously have assessed the usage and adoption of mobile money without assessing the extent of contribution of mobile money to financial inclusion growth in Tanzania. For example, the study by Lubua & Semlambo (2017), assessed the influence of easy to use and perceived usefulness to the adoption of mobile money in Tanzania. Therefore, this study intended to use cross section data from Temeke to assess the impact of mobile money on financial inclusion growth in Tanzania.

1.4 Objectives of the Study

The general objective of this research is to assess the contribution of mobile money on the financial inclusion growth in Tanzania. Specifically, the study intended:

i. To assess the extent of contribution of mobile payments on financial inclusion growth in Temeke
ii. To identify the influence of mobile credits on financial inclusion growth in Temeke
iii. To determine the influence of mobile saving on financial inclusion growth in Temeke

1.5 Research Hypothesis

i. **H_0:** Mobile payment has no significant effect on financial inclusion growth.

   H_1: Mobile payment has significant effect on financial inclusion growth.
ii. **H_0:** Mobile credit has no significant influence on financial inclusion growth

   H_1: Mobile credit has significant influence on financial inclusion growth.
iii. **H_0:** Mobile saving has no significant influence on financial inclusion growth.

   H_1: Mobile saving has significant influence on financial inclusion growth.

1.6 Scope of the Study

This research aimed to investigate the relationship between mobile money and financial inclusion growth in Tanzania. Specifically, the study focused on mobile payments, mobile savings, and mobile credits as key mobile money services. The research was conducted in the Temeke District, involving mobile money users who provided responses to questionnaires and participated in interviews. The study employed an empirical approach by using quantitative methods. This research was motivated by the increasing adoption of mobile phones and mobile money accounts in Tanzania, as well as the continuous growth of financial services in the region. The relationship between mobile money and financial inclusion is not yet fully understood, making this study crucial for gaining insights into this dynamic relationship.

1.7 Significance of the Study

The proper use of mobile money would increase financial inclusion and promote economic growth. The study has both empirical and managerial significance implications. The empirical significance is to avail the information gap concerning the contribution of mobile money to the financial inclusion growth in Temeke district. The findings contribute to the body of knowledge that can be used by other scholars for review to conduct related researches. For managerial purposes the finding provided insights to financial institutions managers and telecommunication companies about the role of mobile money to the avail financial services and adopt proper initiatives in Temeke so as to realize recommendable results. Moreover, the findings also facilitate formulation of new reforms and policy geared towards better

performance and assist policy makers to formulate appropriate policy and bylaws which will increase efficiency and effectiveness of the financial sector in other parts of Tanzania.

1.8 Limitations of the Study

The study encountered a number of limitations first; lack of representativeness of the sample, which is very important in order to generate meaningful results. The challenges of obtaining a representative sample were due to geographical constraints (wideness of the area). Stratified and random sampling techniques were employed to ensure that the sample represents the demographic and socioeconomic characteristics of Temeke Municipality adequately. Second; access to data required to understand the impacts of mobile money on financial inclusion growth was limited due to privacy concerns and lack of cooperation from potential interviewees. To address this challenge, the researcher had to seek permission in order to establish rapport with potential interviewees.

Interviewees were assured confidentiality of their information which encouraged open sharing of their experiences and perceptions. Third; time constraint was yet another hindrance. To accomplish the research work within a limited timeframe would lead to leaving important aspects unexplored or underrepresented. The researcher had to prioritize the research objectives and focus on key aspects of the study. Sufficient time was allocated for data collection, analysis, and interpretation. The research assistants were used to gather the intended data for analysis.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives reviews of the literature. It consists of definitions of key terms, theoretical review, empirical review, and conceptual framework.

2.2 Definitions of the Concepts

2.2.1 Mobile Money

Aron and Muellbauer 2019, define Mobile money as the financial transaction services available to all mobile phone owners without excluding the poor who cannot access banking services. From this definition Aron and Muellbauer narrowed mobile money to financial transactions only and neglected other services that can be carried out through mobile money such as savings, insurance and credits. In this study, mobile money refers to financial services provided by telecommunication companies that enables mobile phone users to settle payments, access credits and save their money in a good time.

2.2.2 Financial Inclusion

Demirguc-Kunt and Klapper (2012) define financial inclusion as existence of suitable financial products to all members of the society regardless while considering high level of transparency. As much the definition captures most of the parts of financial inclusion it still depicts come weakness as it neglects the need for financial literacy, quality of financial products offered which are of high importance around financial inclusion. In this study financial inclusion refers to the availability and accessibility of financial services such payments, saving and credits to all members

of the society at a very low cost that even the unbanked can also afford.

2.2.3 Mobile Payment

Mobile payment refers to the method that enables individual to make digital payment for goods and services by using their phones. The process involves the use of USSD or scanning the QR code, entering the required information then the text message is sent to confirm the payments.

2.2.4 Mobile Saving

Mobile saving refers to the technology based service that enables mobile phone users to store part of their income (income that is not consumed) without a need for a physical bank account (Nesse, at el., 2017).

2.2.5 Mobile Credits

Mobile credit refers to the virtual or digital currency used within or outside the mobile. Mobile money technology enables individual to obtain short term micro-loans through mobile money app or SMS-based services (Afrozo & Rista, 2022). Mobile money allows the users to borrow money, typically in small amounts, and repay it over time using mobile apps or other digital platforms.

2.3 Theories and Models of Study

The study is governed by the learning theory and Social resource theory and relied on Shaw's (1973) Monetary Model.

2.3.1 Theories of Mobile Money

This part of the review presents a number of theories that help explain mobile money activity. The theories cover the social resource theory and the learning theory.

2.3.1.1 Social Resource Theory

The social resources theory considers social network structural aspects. This theory proposes that social resources, such as wealth, socioeconomic position, authority, and so on, are entrenched in a person's social network and are thought to favourably influence information access (Song & Chang, 2012). Lin (1998) discovered that education of network members is positively associated with the frequency of accessing health information in the United States.

Households with more links to network members who have abundant socioeconomic resources are more engaged in seeking financial information. In this study access to social resources like education, experience of use and income level can influence the access to information about associated gains of mobile money services. Individuals within strong social networks are more likely to adopt and benefit from mobile money services, leveraging their connections for financial support, guidance, and trust, ultimately improving their financial well-being.

2.3.1.2 The Social Learning Theory

According to the social learning theory, social networks must be linked to the exchange of information, goods, and services (Bandiera & Rasul, 2006). Despite knowing someone in their social network circle, households may not always talk to them about using mobile money. Knowing someone in a social network may not be enough to establish learning externalities of social networks without information transmission, especially for mobile money (Maertens & Barrett, 2013). This means that imitating the behavior of someone else is the highest level after learning the behaviour. The extent to which an individual will imitate a particular behavior

depends on factors such as the perceived relevance of the model, the model's status and competence, and the rewards or consequences associated with the behavior.

Basing on this, this study insists that individuals to observe and learn related operations of mobile money becomes complete when such individuals actually apply the knowledge. At the core of social learning theory is the idea that people can learn by simply observing the actions and behaviors of others. If they observe someone being rewarded for a particular behavior, they are more likely to imitate that behavior. Conversely, if they see someone being punished for a behavior, they are less likely to engage in it (Granovetter, 2005). This study therefore, shall investigate whether the perceived rewards or benefits associated with using mobile money, such as convenience, cost savings, or access to financial services, influences individuals' decisions to adopt mobile money and therefore enjoy financial inclusion.

2.3.2 Shaw's (1973) Monetary Model

McKinnon's complementary theory is predicated on two key assumptions. One, restriction on the economy's units is self-financing. Two, investments have a high degree of indivisibility (Eschenbach, 2004). This means that savers and investors are the same. Therefore, investors should accumulate financial resources or bank deposits prior to investment. As a result, bank deposits and physical capital complement one another. McKinnon's model is seen as a model of outside money because investors cannot borrow money to fund their ventures. In Shaw's model, however, this complementary relationship between bank deposits and physical capital is not necessary because investors are also restrained by other factors. His concept is predicated on insider money instead.

According to Shaw (1973), growth and financial development are positively correlated. He claimed that in order to encourage saving, financial liberalisation and the abolition of nominal interest rate ceilings are necessary. By accepting deposits from savers and lending it to potential investors, financial institutions boost investment and economic growth. As a result, financial intermediaries play a vital role in resource mobilization and capital accumulation. Basing on this model; mobile money services play a significant role in the financial sector therefore act as financial intermediary.

Shaw's Debt-Intermediation Model can be presented as follows:

$$Md/_p = \varphi\{Y, \quad R_i, \omega^{\circ}, T^{\circ}\}$$

$$R_i = \{N_i - \pi^{\alpha}\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

Where:

ω ° = Real opportunity cost of holding money.

T ° = Technological development in the financial system.

From the function above, it is observed that technological development in financial system has is among the factors that can affect deposits and consequently affect level of investment and growth of the economy. Mobile money service in this case can be regarded as the financial technology referred to in the model which can affect investment and growth. Mobile money, by extending financial services through mobile technology, can be seen as a modern manifestation of financial intermediation and resource mobilization. It aligns with some of the principles discussed in Shaw's model, even though the traditional banking sector and mobile money services have their differences. Mobile money contributes to financial

development by increasing access to financial services, enabling saving, and facilitating investment opportunities, which ultimately supports economic growth.

2.4 Empirical Literature Review

2.4.1 Global Studies

Lee et al (2020) examined the effects of financial innovation on financial inclusion and firm's sales growth in developing countries. A large dataset was collected from 47 developing countries and analyzed using two step system (GMM estimation). The result revealed that the expansion of mobile money increases financial inclusion which leads to firm's sales growth. This study implies that the use of mobile money can contribute to financial inclusion in developing countries. Basing on these findings the study will be conducted in Tanzania in order to assess if mobile money has any significant contribution on financial inclusion as reported in the study of Natile (2020).

De Albuquerque, Diniz, & Cernev (2016) conducted the study about mobile payment services by analyzing 12 primary case studies on existing mobile payment schemes. The study employed the systematic review, meta-analysis, narrative review and structured review to obtain the data to be analyzed. Theories utilized in the studied papers include TAM, TRA, UTAUT, TPB and DTB. The general findings revealed that there exists a huge potential by using mobile technology to conduct payment transactions. The gaps that this study intends to fill is to identify whether the identified potential contribution of mobile technology to the financial inclusion in Tanzania as found is as reported in this paper about Kenya, China and Philippines.

Thilakarathne, & Abeysekara (2016) conducted the study about Influencing factors for customer satisfaction of mobile-money services in Sri Lanka referring to mCash services in the region. The study was drawn upon the Expectancy Disconfirmation Theory. The established hypothesis was evaluated based on correlation analysis. The findings underscore the importance of competitive pricing and strong security measures in influencing customer satisfaction within the mobile-money industry, suggesting potential strategies for improving service attractiveness and retention. The relationship between competitive pricing, strong security measures, and customer satisfaction in mobile-money services can contribute to financial inclusion by making digital financial services more affordable, accessible, and trustworthy. This, in turn, can extend the reach of financial services to underserved populations, improving their financial well-being and overall economic participation.

2.4.2 Studies in the Sub-Saharan African countries

Natile (2020) in Kenya conducted the study on digital financial inclusion and mobile money. The philanthrocapitalism theory was adopted in the study to revealing that the use of mobile money bring not only financial gain but also address social problems. Various ways were used to obtain the data including observation, focus group discussion and interviews to financial institutions. The findings of the study reveal that the use of mobile money services particularly mobile payments is beneficial to mobile money service providers as well as benefits the uses especially the unbanked poor. In the study Natile recommend further researches in the same field to determine the usefulness of Mobile money services and their possible social and financial benefit in different areas in Africa and the world at large.

Mawejje & Lakuma (2019) in Uganda, conducted a study about the effects of mobile money on financial sector, economic activities and other macroeconomic variables. By using structural vector autoregressive (SVAR) methods, findings show that in the short run mobile money influences money supply, consumer price index, private-sector credit, and aggregate economic activity. Results show that in the long run transactional motives has stronger macroeconomic effects than savings motives.

Skogqvist (2019), conducted an investigation of whether the use of mobile money affects the savings patterns of financially excluded individuals in Kenya. The study was rooted in the social theory of money which regarded money saved on mobile for social value transform. Logistic model and the two stage least square regression was used for empirical estimations. The findings revealed that the propensity to save among mobile money users is 1.44 and 1.27 higher than those who do not use mobile money. From the findings, mobile money users consider mobile money as the safe and reliable store for their money. The study recommends further research because it was found out that mobile saving differs among different social groups.

Nampewo et al., (2016) conducted the study on the role of mobile money on private sector credit in Uganda. The study employed vector error correction (VEC) model and Granger causality analysis to the data obtained from Ugandan data from March 2009 to February 2016. The results revealed that there exist a positive long run relationship between mobile money and private sector credits. According to the tis study, mobile money is essential for financial intermediation because it draws resources from both the banked and unbanked populations into the established financial system, promoting the expansion of private sector lending.

Lwanga, et al, (2016) conducted the study titled ‘a pathway to financial inclusion: Mobile money and individual savings in Uganda’ the study employed TMA theory and utilized the secondary data analysis from the 2013 Uganda FinScope III survey as the research methodology. It was found out that registration with Mobile money increased the likelihood of adopting mobile payment. Rural dwellers since they have low propensity to save, it was found to make less use of mobile saving than the urban dwellers. Overall results revealed that saving through mobile phone was still low majorly due to legal limitations and lack of interest which discourage mobile saving.

2.4.3 Studies in Tanzania

In 2022, Abiona & Koppensteiner conducted a study to estimate the effect of mobile money adoption on financial inclusion, consumption smoothing, poverty, and human capital investments in Tanzania. Secondary data were obtained from the Word Bank where rainfall was used as the shock which might affect consumption patterns. The findings reveal that mobile money helps low income households affected by rainfall shocks to meet their consumption and prevent them falling into poverty.

Mswahili (2022), carried out the study about the factors for acceptance and use of mobile money interoperability in Tanzania which allows users to operate mobile money services across telecommunication companies. In the study TMA and TTF theories guided the study. Survey was conducted to gather primary quantitative data by using 500 questionnaire given to mobile money users from telecom and banks. It was found out that interoperability of mobile money services, is largely influenced by easiness to use, price value; Network coverage, safety and quality of the service.

The study provides a reliable basis to design strategies that promote financial inclusion. The results form a fundamental base for future refinement of technology acceptance models, mobile money service models and financial inclusion model.

Lema (2017) in Dodoma, Tanzania adopted the Technology Acceptance Model to conduct a study on the factors influencing the adoption of mobile financial services. Purposive sampling was used to obtain the sample of 250 mobile financial service user respondents in Chamwino who were issued with self-administered questionnaires. In the study it was found out that perceived usefulness, perceived cost and social influence had a significant influence on the adoption of mobile financial services whereas perceived ease to use, perceived risk and perceived trust had insignificant influence. In the study, Lema recommended for a longitudinal researches to explain the influence of the adoption behavior.

Dyer, Mazer, & Ravichandar (2017) in their study of the influence of interactive SMS on digital saving and borrowing in Tanzania. The study observed the response to mobile saving and mobile borrowing before and after the training to Arifu and M-PAWA users. The study found out that after the training, famers who used Arifu had a higher saving and borrowing on M-PAWA than farmers who did not. The study concluded that; SMS based training programs benefits both consumers by proving timely information and financial service providers by improving financial sustainability. The study invited further research studies by running randomized trial to evaluate the impacts of SMS and USDD on borrowing and saving.

In Morogoro and Dar es Salaam-Tanzania, Lwoga & Lwoga (2017), relying Technology Acceptance Model, conducted an investigation about the influence of

gender, user-centric, security on behavioral intention to use mobile payments. Survey that involved 292 respondents who provided data in the questionnaire were distributed in Ilala and Morogoro town. It was found out that user-centric aspects indicated by social influence, m-payment knowledge, have a higher influence on the adoption of mobile payment. It was also found out that security doubts and gender differences had insignificant impact on the use of mobile payment. Basing on the findings Lwoga and Lwoga urged banks, service providers, merchants and investors to enhance security and expand knowledge in order to attract more mobile payment users.

Anthony & Mutalemwa (2014) in Dar es Salaam conducted a study on the Factors influencing the use of Mobile Payments in Tanzania using Z-pesa as a case study. The study collected the data by using questionnaire from 120 respondents and 10 respondents were interviewed on the phone. The findings revealed that mobile payment services in Tanzania has not taken off as fast as expected due to perceived ease of use, perceived usefulness, perceived cost, perceived mobility, perceived trust and perceived expressiveness. The study recommended the recruitment of more agents, connecting Z-pesa services with ATMs, investment in the state of technology to avoid frequent failure.

2.4.4 Summary of Previous Studies

The reviewed studies explore the transformative influence caused by mobile money and mobile financial services in many developing countries. The studies reveal positive effects on financial inclusion, economic growth, and eradication of poverty as associated with the use of mobile technology. They highlight factors such as user-

centric considerations and call for more comprehensive studies to explain the full spectrum of impacts on diverse socio-economic groups. This body of work collectively reveals the promising future of mobile money in reforming the financial sector and bridging access gaps and encourage refinement of strategies to harness its benefits effectively. However from all the findings there is no clear specific description about the contribution of mobile money product service(s) to the growth and to what extent in Temeke municipal. This study therefore was conducted to fill the existing knowledge gap by obtaining data from Temeke municipal.

2.5 Conceptual Framework

According to Ahmad et al. (2019), the conceptual framework refers to the layout of the research that enables the researcher to describe the phenomenon at hand. It is a set of interconnected concepts, assumptions, and ideas which are organized in a logical and coherent manner to help researchers or the audience to understand a complex problem or situation better. It links the concepts among variables (independent and dependent variables). In this study, Mobile payments, Mobile savings and mobile credits while financial inclusion is the dependent variable. The relationship is presented in Figure 2.1.

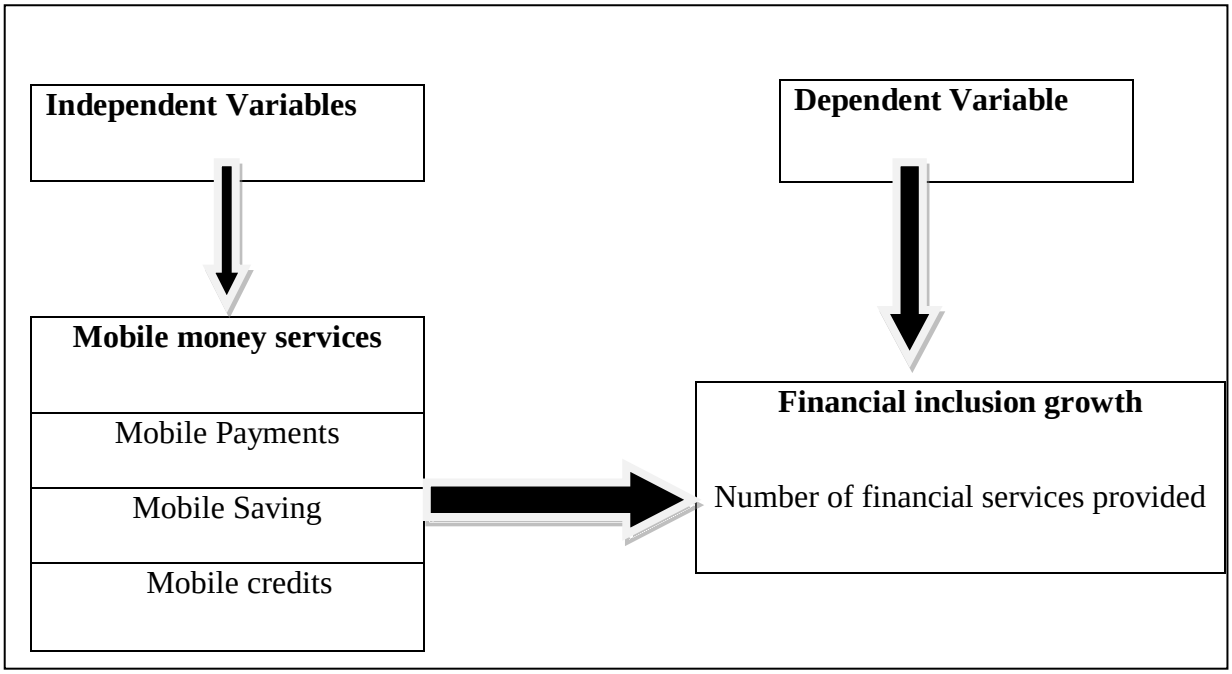


Figure 2.1: Conceptual Framework

2.6.1 Description measurement of the variables

Variable	Means of measurement	Expected Sign
Financial inclusion growth	Accessibility to financial services	Positive
Mobile Payment	Perception and attitude towards mobile payment	Positive
Mobile Saving	Changes in saving behavior and attitude	Positive
Mobile Credits	Regularity of borrowing.	Positive

Table 2.1: Measurement of variables

2.7. Research Gap

Various studies have been conducted to explain the effect of mobile money on financial inclusion. However, of all these studies there is no clear specific documentation showing the trends and growth of financial inclusion in Temeke municipal caused by a specified mobile money service(s). Additionally, many of the studies such as Mswahili (2022) and Lema (2017) employed Technology acceptance theory and transaction costs theory to guide their studies. This research on the other hand will make use of Social resource theory and the learning theory to fill the information gap and increase the awareness about mobile money in relation to financial inclusion growth in Temeke municipal.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter displays the methodology used in conducting this research. It includes the research design, study area, population, types and data sources, sampling techniques, and sample size, methods of data collection, data analysis procedures, reliability, and validity of data.

3.2 Research Design

A research design shows how the information to fill the gap is gathered in this study (Creswell, 2009). In this research, descriptive research design was used to describe the growth of financial inclusion as a result mobile money services. The descriptive research design used, allowed the researcher to systematically analyze the relationships between variables related to mobile money services and financial inclusion. It provided a structured framework for presenting the collected data and addressing the research objectives in an objective and informative manner.

3.3 Research Approach

The quantitative research approach was used in this study which enabled the researcher to gain a deeper knowledge of the complexity of human experiences and behaviours (Brewer & Hunter, 1989). Through this approach the researcher collected the data that enabled hypothesis testing so as to establish as cause-effect relationship between mobile money and financial inclusion in Temeke and Tanzania.

3.4 Study Area

The study was conducted in Temeke municipal which is one of the five districts of

Dar es Salaam with 23 wards. The area was chosen because; of the five districts of Dar Salaam, Temeke has the largest concentration of low income earners yet no study on the impact of mobile money on availing financial services has been conducted in the area. More so, statistics show that Temeke municipal lags below the national average of financial inclusion yet it is located in Dar es Salaam where mobile money facilities are found all over the places (NBS, 2018). From this research therefore the researcher was interested in assessing the influence mobile money has to the growth of financial inclusion in the area.

3.5 Unit of Analysis

The unit of analysis in this research is the mobile money users in Temeke who participated in the study. The research aimed at explaining the impact of mobile money on the financial inclusion growth in Tanzania. The researchers collected data about demographic characteristics, attitudes, experience and perceptions related to mobile money services and financial inclusion. The researchers examined the relationship and strength of mobile payments, mobile credits, and saving on financial inclusion growth using statistical techniques of correlation analysis and multiple regression analysis.

3.6 Study Population

According to Saunders et al. (2002), a population is a complete group of cases from which a sample is drawn. Therefore, a population refers to the individuals that the researcher has in mind and can collect data from. In this study, the population involved the users of mobile money services; specifically M-pesa, Tigopesa and Airtel money in the two wards of Temeke district (Kijichi and Miburani)

3.6.1 Sampling Procedure

Temeke districts consists of 23 wards. Since the wards in Temeke are homogenous, in this study, cluster sampling was used to sample 10% of the wards in Temeke due to limited finance and short time frame (Sharma, 2017). 10% of the wards were selected randomly whereby pieces of papers containing names of all the wards were folded and a three year ignorant child was allowed to pick two pieces which on unfolding the ward were Kijichi and Miburani. It was from these wards that questionnaires were distributed to obtain data from the mobile money user respondents.

3.6.2 Sample Size

Since the targeted population (users of Mobile money services in Kijichi and Miburan) is unknown to the researcher, the study adopted the formula proposed by Green in 1991 ($N \geq 50 + 8m$) which is designed to determine the sample size when the analysis system involves the multiple regression analysis.

Where;

N - A minimum number of subjects (sample size) and

m- A number of variables.

$N= 50 + 8(4) = 82$

For the purpose of this research, primary data were collected through survey by using self- administered questionnaires. The sample size of 82 participants from mobile money users in Kijichi and Miburani wards of Temeke was used in the study.

3.7 Data source

The study included cross section primary data that were collected from mobile

money users. The study intended to make use of primary data because it is more reliable, accurate, and it comes from a direct source and can be easily updated.

3.8 Type of Data and Data Collection Procedures

This study relied on cross section survey from primary sources of data by using questionnaire and observation. The use of questionnaire in this study allowed participants time to think and fill some gaps while maintaining their privacy. The many facets and dimensions of financial inclusion, such as financial services, usage, accessibility, affordability, etc., were captured using the Likert scale questions. The researcher was able to quantify the respondents' subjective evaluations of their experiences, perceptions, attitudes, and views by using the Likert scale.

3.8.1 Data Analysis

The data were analysed by using Statistical Package for the Social Sciences (SPSS) where both inferential and descriptive analysis were used. Before the analysis, entry, editing, and cleaning was conducted. Correlation was utilised to test the hypotheses while analysis of variance (ANOVA) was used to test the goodness of the model. The three objectives were addressed using the regression method. The regression model specified as the multiple regression model function which will be given as: -

$$Y= \beta_0+\beta_1 \times_1+\beta_2 \times_2+\beta_3 \times_3+ \mu$$

Where;

The regression model based on four assumptions of normality, multi-collinearity and homoscedasticity of variance an autocorrelation.

3.8.2 Specification Model

3.8.2.1 Specification of Economic Theory

The model based on the economic theory which depicts that mobile money through its services, it acts as a financial intermediary and affects access to financial services to all individuals in the society. This means that; increased use of mobile money services leads to financial inclusion growth. In this study financial inclusion growth will be measured by considering the contribution of mobile money wallets to the accessibility to financial services specifically; Payments, credits and saving.

3.8.2.2 Specification of Mathematical Model

The mathematical function is given as

FI = f (Mobile payment, mobile saving and mobile credits)

Y= $Y= \beta_0+\beta_1 \times_1+\beta_2 \times_2+\beta_3 \times_3$, **$0< (\beta_1, \beta_2, \beta_3) <1$**

3.8.2.3 Specification of Econometric model

$FI_{growth} = \beta_0 + \beta_1 MOB_{pay} + \beta_2 MOB_{sav} + \beta_3 MOB_{cre} + \mu$

Where:

FI_{growth} – Financial growth (Which is determine by increased access to financial services provided through mobile money platforms)

β_0 – Is a constant

β_1, β_2 and β_3 - Coefficients

MOB_{pay} – Mobile payment

MOB_{sav} –Mobile saving

MOB_{cre} – Mobile credits

μ- Error term

3.9 Estimation of Diagnostic Tests

Some of the estimation diagnostic tests performed included;

3.9.1 Normality Tests

Being one of the assumptions of the regression, normality was tested in this study to determine if the residuals were normally distributed. This assumption should be met to arrive at correct inferences about the variables. A Quantile-Quantle Plot will be used to compare the quartiles of the data against expected normal variables and observe the line drawn through the points.

3.9.2 Multi-Collinearity Test

When independent variables are highly correlated, multicollinearity occurs, leading to a paradoxical situation in which the regression model accurately fits the data yet none of the independent factors significantly affects the prediction of the dependent variable (Gujarati, 2004). It was therefore important to take into account the correlation between the variables. In order to determine two or more variables that may change together and their magnitude, this study examined correlation measurements. The Multicollinarity was tested by using the tolerance values and Values of Inflation Factor (VIF)

3.9.3 Homoskedasticity Test

According to the homoskedasticity assumption of linear regression, the error term should have a constant variance at every level of x (Hayes, & Cai, 2007). When this is not met, the model suffers from heteroskedasticity which exists when the error

term does not have constants variance. When heteroskedasticity exists, the results of the analysis become hard to trust because the error term will seem to have statistical significance in the model when it is not. To test for heteroskedasticity fitted values were plotted with residual.

3.9.4 Correlation Test

It is known as Pearson's correlation coefficient and denoted by R. Pearson's R is the statistical measure for the association among the quantitative data. The values of the Pearson's correlation coefficient are always between −1 and +1. A value of R = +1 indicates that two variables are perfectly related in a positive linear sense. R = −1 means that the two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. Durbin Watson test was also performed to test the existence of autocorrelation of the residuals.

3.10 Reliability and Validity of Data

3.10.1 Reliability

Reliability refers to the ability of the data collection tool to provide consistent outcomes (Saunders at. El 2007). To assure reliability of the tools, published data from reputable sources were be used to obtain relevant information. The findings were to meet thumb rules for Cronbach's Alpha values in order to analyse the degree to which the Likert scale items represented the same underlying character (Pallant & Lae, 2002). The researcher maintained the reliability of the study by ensuring the confidentiality of the information from the respondent so that they can be capable and free to provide information that will be used strictly for the research aim.

3.10.2 Validity

In order to confirm the validity of the instrument for used to collect data, the triangulated the data collection methods where questionnaire and observation were used, and theory triangulations in which the study was guided by learning theory and social resource theory. A pilot study enabled the study to correct errors or omissions noted before the process of data collection starts. But also, the instrument of data collection (questionnaire) was presented to the supervisor for approval before the process thus the validity of instruments of data collection was assured.

3.11 Ethical Considerations

Ethics are the norms or standards that guide conduct. Ethics in research refers to conducting research while upholding high moral standards and guaranteeing the accuracy of the data and outcomes (Hair, Black, Babin, Anderson, 2009). The researcher obtained a permission letter for data collection from the Open University of Tanzania and presented to the relevant authorities in Temeke district and the two wards involved in the study. Additionally, the researcher ensured that the respondents gave their verbal agreement to fill questionnaire voluntarily. Respondents were guaranteed confidentiality of their responses as the research was academic. In this research paper, acknowledging authors' contributions and abiding by the law were also taken into account.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the results per the objectives. The general objective of the research is to assess the impact of mobile money on the financial inclusion growth in Tanzania. Specifically, the research aimed to assess the extent of mobile payments on financial inclusion in Temeke; to identify the influence of mobile credits on financial inclusion in Temeke; to determine the influence of mobile saving on financial inclusion in Temeke. Moreover, this chapter presents background information on the respondents, such as gender, age, education, and experience of using mobile money services.

4.2 Demographic Information of the Respondents

The respondents' demographic makeup is shown in this section. The respondents responded to questions on their personal information, including their gender, age, level of education, and prior use of mobile money services, are shown in the following table. Table 4.1.

The study examined the respondents' gender. The gender attribute helped in the understanding of the gender distribution in the target population. Results in Table 4.1 show that most of the respondents 68.3% (56) were males and 31.7% (26) were females. Results showed that males were more prevalent than females. These findings imply that the study was dominated by more males than females. These findings may also suggest that males were more likely to participate in mobile services than females in Temeke.

Table 4.1: Demographic Information of the Respondents (n=82)

Demographic	Category	Frequency	Percentages (%)
Gender	Male	56	68.3
	Female	26	31.7
	Total	**82**	**100**
Age	18-30 years	42	51.2
	31-40 years	28	34.2
	41-50 years	12	14.6
	51 years +	-	-
	Total	**82**	**100**
Education Level	Primary	13	15.9
	Secondary	40	48.8
	Tertiary	29	35.4
	Total	**82**	**100**
Service Experience	< 5 years	16	19.5
	Between 5-10 years	28	34.2
	More than 10 years	38	46.3
	Total	**82**	**100**

Source: Field Data, (2023).

Also, Table 4.1 shows the respondents' ages. Results revealed that many respondents 51.2% (42) fall in the age group of between 18-30 years, followed by 34.1% (28) in the age group of between 31-40 years, and 14.6% (12) in the age group of between 41-50 years. Thus, respondents who had the age group of between 18-30 years extensively dominated the study. Younger individuals, who are typically more technologically adept, may exhibit higher rates of adoption and usage of mobile money services. They are more likely to be comfortable with digital transactions and have grown up with smartphones and mobile applications. In contrast, older individuals may face barriers related to digital literacy, trust in technology, and resistance to change.

Moreover, Table 4.1 shows the respondents' education level. Results revealed that many respondents fall into the secondary education level with 48.8% (40), followed by the tertiary education level with 35.4% (29) respondents, and the primary education level with 15.9% (13) respondents. Thus, respondents who attained a

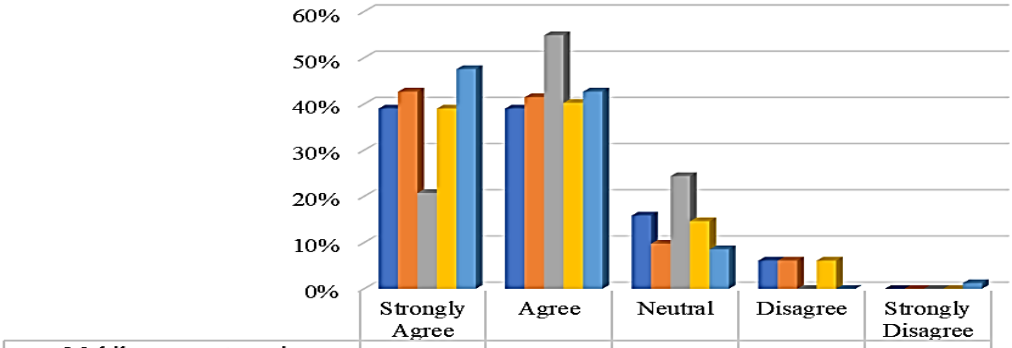
secondary education level extensively dominated the study. The level of education was an important attribute to ensure the study got accurate responses from the respondents. Education plays a pivotal role in determining individuals' access to mobile money services. Higher levels of education often correlate with increased digital literacy and technological awareness, enabling individuals to understand and access mobile money platforms. Educated individuals are more likely to possess the necessary skills to navigate mobile applications, understand financial terminologies, and interpret complex financial transactions.

Moreover, the results in Table 4.1 show the experience of respondents using mobile money services. Findings indicate that 46.3% (38) of the respondents claimed that they had service experience of more than 10 years, 34.1% (28) of the respondents stated that they had service experience between 5-10 years, and 19.5% (16) of the respondents claimed that they had service experience of less than 5 years. Results revealed that the majority of the respondents in the study had service experience of more than 10 years. These findings imply that the majority of the respondents had at least some service experience, which assisted in getting accurate responses from them.

4.3 The Extent of Contribution of Mobile Payments on Financial Inclusion Growth in Temeke (n=82)

The study aimed to determine the extent of mobile payments on financial inclusion in Temeke. Therefore, respondents were asked to indicate whether mobile payment services contribute to financial inclusion; Mobile payment services are accessible regardless of socio-economic status; Mobile payment enables users without bank

accounts to participate in financial matters; Mobile payment services help individuals manage their finances; and Mobile payment services are convenient and easy to use. Results are indicated in Figure 4.1.



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Mobile payment services contribute to financial inclusion	39.0	39.0	15.9	6.1	0.0
Mobile payment services are accessible regardless of socio-economic status	42.7	41.5	9.8	6.1	0.0
Mobile payment enables users without bank accounts to participate in financial matters	20.7	54.9	24.4	0.0	0.0
Mobile payment services help individuals to manage their finances	39.0	40.2	14.6	6.1	0.0
Mobile payment services are convenient and easy to use	47.6	42.7	8.5	0.0	1.2

Figure 1.1: The Extent of Mobile Payments on Financial Inclusion
Source: Field Data, (2023).

The study aimed to determine whether mobile payment services contributes to financial inclusion growth. Findings in Figure 4.1 show that 39% (32) of respondents strongly agreed, 39% (32) of the respondents agreed, 15.9% (13) of respondents neither agreed nor disagreed, and 6.1% (5) of the respondents disagreed that mobile payment services contribute to financial inclusion. Therefore, findings reveal that most respondents indicated that mobile payment services such as Tigo-pesa, M-pesa, and Airtel money contribute to financial inclusion. These findings also show that mobile payment systems can allow users to settle payments digitally, giving them greater control over their finances. This can be especially important because of limited use debit and credit cards in Tanzania.

The study aimed to determine whether mobile payment services are accessible regardless of socio-economic status. Findings in Figure 4.1 show that 42.7% (35) of respondents strongly agreed, 41.5% (34) of the respondents agreed, 9.8% (8) of respondents neither agreed nor disagreed, and 6.1% (5) of the respondents disagreed that mobile payment services are accessible regardless of socio-economic status. Therefore, results show that many of respondents (84.2%) believe that mobile payment services are accessible regardless of socio-economic status. This is a positive finding which implies that many people perceive these payment methods as inclusive and available to diverse socio-economic groups. It indicates that the widespread adoption of mobile payment technologies has likely made them more accessible and user-friendly for a broader range of users.

Traditional banking systems unlike mobile payment often impose substantial barriers to entry, such as high account opening fees, minimum balance requirements, and lengthy documentation processes, mobile payment services have lowered these barriers, enabling individuals with limited financial resources or lacking formal identification to participate in the financial system. Mobile accounts can be opened with minimal documentation, and payments can be conducted with low or no fees, making financial services more inclusive and affordable.

The study aimed to determine whether mobile payment enables users without bank accounts to participate in financial matters. Findings in Figure 4.1 show that 54.9% (45) of respondents agreed, 24.4% (20) of the respondents neither agreed nor disagreed, and 20.7% (17) of respondents strongly agreed that mobile payment enables users without bank accounts to participate in financial matters. Therefore,

findings reveal that most respondents indicated that mobile payment enables users without bank accounts to participate in financial matters. Also, these results show that mobile payment services have played a crucial role in empowering the unbanked population, which has historically been excluded from formal financial systems.

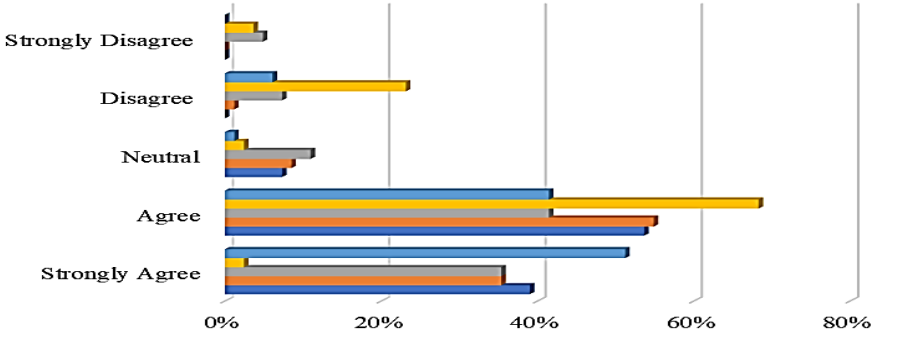
The study aimed to determine whether mobile payment services help individuals manage their finances. Findings in Figure 4.1 show that 40.2% (33) of respondents agreed, 39% (32) of the respondents strongly agreed, 14.6% (12) of respondents neither agreed nor disagreed, and 6.1% (5) of the respondents disagreed that mobile payment services help individuals manage their finances. Therefore, findings reveal that most respondents indicated that mobile payment services help individuals manage their finances. Through mobile wallets, Tigo pesa, M-pesa, and Airtel money individuals can store and transfer money securely, eliminating the need for physical cash and reducing the risks associated with carrying large amounts of money. This newfound financial empowerment allows individuals to save money, build assets, and protect themselves against unexpected economic shocks.

The study aimed to determine whether mobile payment services are convenient and easy to use. Findings in Figure 4.1 show that 47.6% (39) of respondents strongly agreed, 42.7% (35) of the respondents agreed, 8.5% (7) of respondents neither agreed nor disagreed, and 1.2% (1) of the respondents disagreed that mobile payment services are convenient and easy to use. Therefore, findings reveal that most respondents indicated that mobile payment services are convenient and easy to use. Mobile devices have become ubiquitous, creating a platform for individuals to access financial services regardless of their geographical location. The convenience

offered by mobile payment services allows users to conduct transactions, save money, and access credit quickly and securely, without the need for traditional brick-and-mortar banks.

4.4 The Influence of Mobile Credits on Financial Inclusion in Temeke (n=82)

The study aimed to identify the influence of mobile credits on financial inclusion growth in Temeke. Therefore, respondents were asked to indicate whether mobile credits (e.g., Songesha, Timiza, Nipige Tafu) have made it easier for users to access financial services; Mobile credits help to complete financial transactions when short of funds; Mobile credits have increased access to financial services for the unbanked; Mobile credits have no limit on the amount users can borrow; and Mobile credits are affordable, therefore reducing transaction costs. Results are indicated in Figure 4.2.



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Mobile credits are affordable, therefore reducing transaction costs	51.2	41.5	1.2	6.1	0.0
Mobile credits have limit on the amount users can borrow	2.4	68.3	2.4	23.2	3.7
Mobile credits have increased access to financial services for the unbanked	35.4	41.5	11.0	7.3	4.9
Mobile credits help to complete financial transactions when short on funds	35.4	54.9	8.5	1.2	0.0
Mobile credits have made it easier for users to access financial services	39.0	53.7	7.3	0.0	0.0

Figure 2.2: The Influence of Mobile Credits on Financial Inclusion
Source: Field Data, (2023).

The study aimed to identify whether mobile credits (e.g., Songesha, Timiza, Nipige Tafu) have made it easier for users to access financial services. Findings in Figure 4.2 show that 39% (32) of respondents strongly agreed, 53.7% (44) of the respondents agreed, and 7.3% (6) of respondents neither agreed nor disagreed that mobile credits have made it easier for users to access financial services. Therefore, findings reveal that most respondents indicated that mobile credits have made it easier for users to access financial services.

Mobile credits have undeniably transformed access to financial services, making it easier and more inclusive for users. Through enhanced accessibility, convenience, and financial empowerment, mobile credits have revolutionized the way individuals manage their finances, particularly in underserved communities. As technology continues to evolve, mobile credits can likely continue to play a significant role in fostering financial inclusion, supporting economic growth, and empowering users to take control of their financial lives.

The study aimed to identify whether mobile credits help complete financial transactions when short on funds. Findings in Figure 4.2 show that 54.9% (45) of respondents agreed, 35.4% (29) of the respondents strongly agreed, 8.5% (7) of respondents neither agreed nor disagreed, and 1.2% (1) of the respondents disagreed that mobile credits help to complete financial transactions when short of funds. Therefore, findings reveal that most respondents indicated that mobile credits help complete financial transactions when short on funds. This indicates that a significant proportion of participants consider mobile credits as a reliable means to access funds and conduct financial transactions. The positive sentiment towards mobile credits

idicates high level of confidence in the effectiveness and usefulness of the service during financial shortages. The positive attitude towards mobile credits implies that it promotes financial inclusion by providing a practical solution for conducting transactions even when funds are low and empowers individuals to participate actively in the economy. Moreover, mobile credits often allow for small transactions, catering to the needs of individuals who require immediate access to small amounts of money.

The study aimed to identify whether mobile credits have increased access to financial services for the unbanked. Findings in Figure 4.2 show that 41.5% (34) of respondents agreed, 35.4% (29) of the respondents strongly agreed, 11% (9) of respondents neither agreed nor disagreed, 7.3% (6) of the respondents disagreed, and 4.9% (4) of the respondents strongly disagreed that mobile credits have increased access to financial services for the unbanked. Therefore, findings reveal that most respondents indicated that mobile credits have increased access to financial services for the unbanked. These findings show that mobile credits play a vital role in promoting financial inclusion by bridging the gap between the unbanked or under banked population and formal financial services.

This flexibility enables individuals to quickly access the funds they need, bypassing the limitations imposed by traditional banking systems, such as working hours and geographical constraints. With mobile credits the unbanked have been able to enjoy financial services that were previously inaccessible such as saving, cashless payments for goods and services, insurance services and remittances. These findings imply that mobile credits act as a promising tool promoting financial inclusion

particularly for individuals who do not have access to traditional banking facilities.

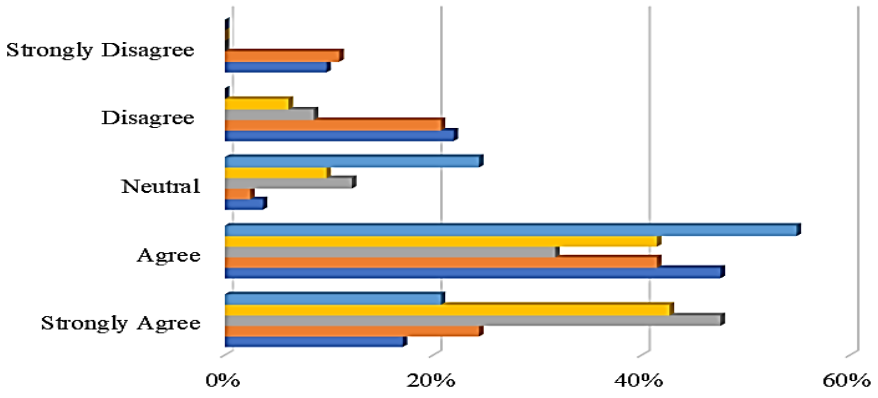
The study aimed to identify whether mobile credits have limit on the amount users can borrow. Findings in Figure 4.2 show that 68.3% (56) of respondents agreed, 23.2% (19) of the respondents disagreed, 3.7% (3) of respondents strongly disagreed, and 2.4% (2) of the respondents strongly agreed, and 2.4% (2) of the respondents neither agreed nor disagreed that mobile credits have limit on the amount users can borrow. Therefore, findings reveal that most respondents indicated that mobile credits have a limit on the amount users can borrow. Implementing borrowing limits for mobile credits is a necessary practice to safeguard both financial institutions and borrowers. These limits help mitigate risks, promote responsible borrowing, ensure affordability, and prevent misuse of the system.

The study aimed to identify whether mobile credits are affordable, therefore reducing transaction costs. Findings in Figure 4.2 show that 51.2% (42) of respondents strongly agreed, 41.5% (34) of the respondents strongly agreed, 6.1% (5) of respondents disagreed, and 1.2% (1) of the respondents neither agreed nor disagreed that mobile credits are affordable, therefore reducing transaction costs. Therefore, findings reveal that most respondents indicated that mobile credits are affordable, reducing transaction costs. Mobile credit providers leverage digital platforms, minimizing the costs associated with brick-and-mortar operations. Without the need for physical branches, extensive staff, and other overhead expenses, mobile credit providers can pass on these cost savings to consumers in the form of lower interest rates and fees. As a result, individuals who may have been excluded from traditional banking services due to high costs can now access

affordable credit through their mobile devices.

4.5 The Influence of Mobile Saving on Financial Inclusion in Temeke (n=82)

The study aimed to determine the influence of mobile savings on financial inclusion in Temeke. Therefore, respondents were asked to indicate whether mobile saving has increased the savings habits of individuals who cannot access banking services; Mobile saving has helped individuals meet financial emergences; Mobile saving is safer than keeping cash; Mobile savings is more convenient and easier to use for all people; and Mobile saving promotes financial discipline. Results are indicated in Figure 4.3.



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Mobile saving promotes financial discipline	20.7	54.9	24.4	0.0	0.0
Mobile savings is more convenient and easier to use by all people	42.7	41.5	9.8	6.1	0.0
Mobile saving is safer than keeping cash	47.6	31.7	12.2	8.5	0.0
Mobile saving has helped individuals meet financial emergences	24.4	41.5	2.4	20.7	11.0
Mobile saving has increased the savings habits of individuals who cannot access banking services	17.1	47.6	3.7	22.0	9.8

Figure 3.3: The Influence of Mobile Saving on Financial Inclusion
Source: Field Data, (2023).

The study aimed to determine whether mobile saving has increased the savings habits of individuals who cannot access banking services. Findings in Figure 4.3 show that 47.6% (39) of respondents agreed, 22% (18) of the respondents disagreed, 17.1% (14) of respondents strongly agreed, 9.8% (8) of the respondents strongly disagreed, and 3.7% (3) of the respondents neither agreed nor disagreed that mobile saving has increased the savings habits of individuals who cannot access banking services.

Therefore, findings reveal that most respondents indicated that mobile saving has increased the savings habits of individuals who cannot access banking services. Now mobile service users can save their money through mobile digital platforms like Tigo-pesa, M-pesa, and Airtel money. Mobile saving provides regular and immediate feedback to the users which enable users to monitor their mobile accounts easily. The micro savings via mobile money account helps the unbanked population to save for emergence needs which is quickly accessed when needed.

The study aimed to determine whether mobile saving has helped individuals meet financial emergences. Findings in Figure 4.3 show that 41.5% (34) of respondents agreed, 24.4% (20) of the respondents strongly agreed, 20.7% (17) of respondents disagreed, 11% (9) of the respondents strongly disagreed, and 2.4% (2) of the respondents neither agreed nor disagreed that mobile saving has helped individuals meet financial emergences. Therefore, findings reveal that most respondents indicated that mobile saving has helped individuals meet financial emergences. These findings show that mobile saving platforms offer a range of flexible financial solutions that assist individuals in managing financial emergencies effectively.

Mobile saving can help individuals in unforeseen financial crises, providing immediate access to funds.

The study aimed to determine whether mobile saving is safer than keeping cash. Findings in Figure 4.3 show that 47.6% (39) of respondents strongly agreed, 31.7% (26) of the respondents agreed, 12.2% (10) of respondents neither agreed nor disagreed, and 8.5% (7) of the respondents disagreed that mobile saving is safer than keeping cash. Therefore, findings reveal that most respondents indicated that mobile saving is safer than keeping cash. One of the primary advantages of mobile saving is the reduced risk of theft. Physical cash is vulnerable to various threats, such as pickpocketing, burglary, or misplacement. In contrast, mobile saving platforms employ robust security measures, including encryption, biometric authentication, and secure servers, to protect users' funds. These measures significantly reduce the risk of theft, providing users with peace of mind and enhanced financial security.

The study aimed to determine whether mobile savings are more convenient and easier to use for all people. Findings in Figure 4.3 show that 42.7% (35) of respondents strongly agreed, 41.5% (34) of the respondents agreed, 9.8% (8) of respondents neither agreed nor disagreed, and 6.1% (5) of the respondents disagreed that mobile savings are more convenient and easier to use for all people. Therefore, findings reveal that most respondents indicated that mobile savings are more convenient and easier to use for all people. Mobile savings are more convenient because they can be accessed from anywhere at any time. With traditional savings methods, such as visiting a bank or depositing funds via check, individuals are limited by the location and hours of operation of the institution. However, mobile

savings allow people to manage their accounts from their mobile devices, meaning they can do so from the comfort of their own homes, during their commute, or even while on vacation. This convenience factor is important, especially for individuals who have busy schedules and limited time to make these types of transactions.

The study aimed to determine whether mobile saving promotes financial discipline. Findings in Figure 4.3 show that 54.9% (45) of respondents agreed, 24.4% (20) of the respondents neither agreed nor disagreed, and 20.7% (17) of respondents strongly agreed that mobile saving promotes financial discipline. Therefore, findings reveal that most respondents indicated that mobile saving promotes financial discipline. Mobile saving apps often allow users to set specific savings goals and track progress towards those goals. This goal-oriented approach helps users visualize what users are saving for, whether it's a vacation, emergency fund, or down payment on a home.

4.6 Inferential Analysis

The study performed multiple regression analysis to study the impact of mobile money on the financial inclusion growth in Tanzania. Before doing the multiple regression analysis, the researcher ran basic diagnostic tests such as normality, reliability, multi-collinearity, and autocorrelation to ensure that the data was fit. Furthermore, a Pearson correlation was used to identify the extent of the relationship between variables.

4.6.1 Diagnostic Test

4.6.1.1 Reliability

Cronbach's Alpha Coefficient was used to test the study's instrument's capacity to

provide the expected results. Cronbach's alpha was used to determine how closely the Likert scale items reflected the same underlying trait (Pallant & Lae, 2002). The Cronbach coefficient's Alpha was examined using Likert scales. The recommended coefficient standard is 0.7, indicating that the scale's amount is related to similar situations and things. This means that the scale is considered reliable at 0.7 and higher. The following are several Cronbach Alpha guidelines, according to Mallery (2003).

> 0.9 = excellent, _> 0.8 = good, _> 0.7 = acceptable, _> 0.6 = questionable, _> 0.5 = Bad, and <0.5 = unacceptable.

Table 4.2: Reliability Statistics

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Mobile Payment	0.802	0.808	5
Mobile Credit	0.733	0.783	5
Mobile Saving	0.730	0.791	5
Financial Inclusion	0.781	0.819	4
Over all mean reliability	**0.7615**	**0.8003**	**5**

Source: Field data, (2023).

Table 4.2 shows that Cronbach's Alpha for mobile payment, mobile credit, mobile saving and financial inclusion are 0.802, 0.733, 0.730, and 0.781 respectively. Therefore, items for mobile payment, mobile credit, mobile saving and financial inclusion are considered reliable because Cronbach's Alpha Coefficient is greater than 0.7. Therefore, Cronbach's alpha reliability results for this study is 0.7615. Therefore, these results show that the instruments are consistent with the objectives of the study.

4.6.1.2 Normality Test

Regression is a parametric test that assumes data are normally distributed. As a result, a normality test was employed in this study to determine if the data distribution was normally distributed or not. Figure 4.4 shows that dots are located closer to the diagonal line. The closer the dots are to the diagonal line, the more regularly distributed the residuals are. As a result, the dotted line trend indicates that the data are regularly distributed, and the normality assumption is accepted.

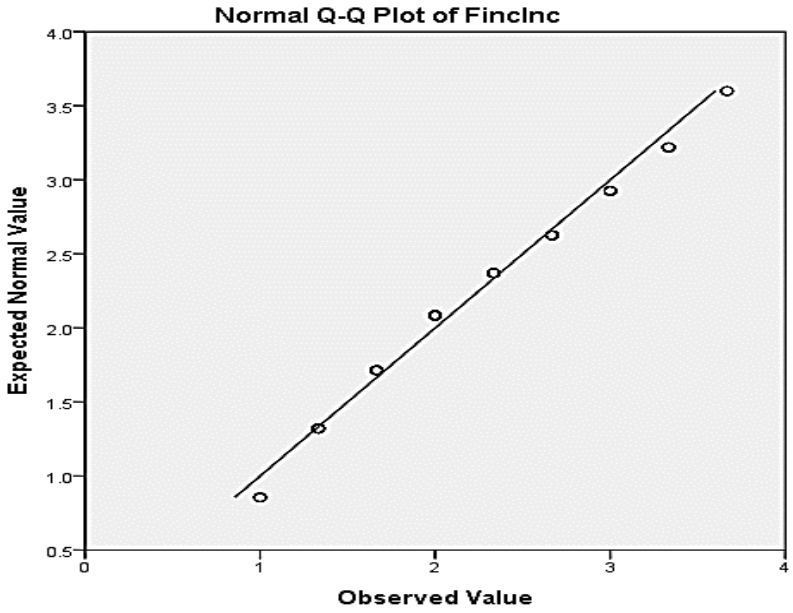


Figure 4.4: Normal Q - Q plot of regression Standardized Residual
Source: Field data, (2023).

4.6.1.3 Multi-Collinearity Test

The problem of high multicollinearity increases the variance of parameter estimation, and the estimation results are very sensitive to small changes in the model, that is, weak and difficult to explain. The high multicollinearity problem was diagnosed, and the results are shown in Table 4.3, which includes the Tolerance values (1/VIF) and Values of Inflation Factor (VIF). When 1/VIF is less than 0.10

and the VIF is greater than 10, there is a problem of multicollinearity. The results in Table 4.3 depicts that there is no significant high correlation between the explanatory variables, that is, there is no multicollinearity problem, because VIF is less than 10 and 1/VIF is higher than 0.10.

Table 4.3: Collinearity Diagnosis

Model	Collinearity Statistics	
	Tolerance	VIF
Mobile Payment	.646	1.548
Mobile Credit	.840	1.191
Mobile Saving	.599	1.671

Dependent variable: Financial Inclusion
Source: Field data, (2023).

4.6.1.4 Homokedasticity Test

The residuals should have a constant variance to meet the regression assumptions and be able to trust the results. Since, the point in Figure 4.5 are scattered then, data have homoscedasticity condition.

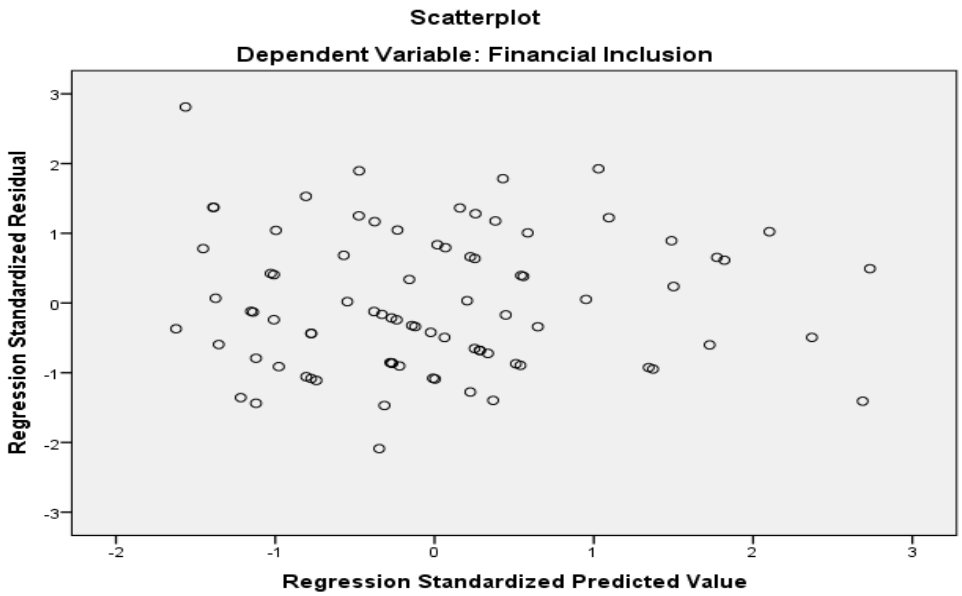


Figure 4.5: Homoskedasticity Test
Source: Field data, (2023).

4.6.2 Correlation Analysis

The correlation test was applied to determine the extent of the relationship and statistically significant between the independent and dependent variables. Table 4.4 shows that Mobile Payment is statistically significant at p-value = 0.000 with R = 0.619; Mobile Credit is statistically significant at p-value = 0.012 with R = 0.277; Mobile Saving is statistically significant at p-value = 0.000 with R = 0.522; as shown in Table 4.4. Results reveal that Mobile Payment (R= 0.619) and Mobile Saving (R= 0.522) have a moderate positive correlation with a Financial Inclusion, while, Mobile Credit (R= 0.277) has a weak correlation with a Financial Inclusion. These results also reveal Mobile Payment and Mobile Saving have a great impact on influencing financial inclusion than Mobile Credit.

Table 4.4: Correlation Matrix

Variables		Mobile Payments	Mobile Credits	Mobile Savings	Financial Inclusion
Mobile Payment	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	82			
Mobile Credits	Pearson Correlation	.295**	1		
	Sig. (2-tailed)	.007			
	N	82	82		
Mobile Savings	Pearson Correlation	.591**	.393**	1	
	Sig. (2-tailed)	.000	.000		
	N	82	82	82	
Financial Inclusion	Pearson Correlation	.619**	.277*	.522**	1
	Sig. (2-tailed)	.000	.012	.000	
	N	82	82	82	82

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data, (2023).

4.6.3 Multiple Regression Results

Multiple regression analysis was used to assess the impact of mobile money on the financial inclusion growth in Tanzania. Findings in Table 4.5 indicate the overall

Pearson correlation coefficient (R) of 0.651 for all independent variables. This level of R indicates that the independent variables and the dependent variable have a moderate positive relationship. Moreover, finding in Table 4.5 depict that Mobile money services (Mobile payments, mobile credits and mobile saving) indicated by R-square (determination coefficient) explain about 52.3% (0.523) of the proportional change (variation) in the Financial Inclusion growth. The rest of the variation of 0.477 (47.7%) is explained by other factors not studied in this research. This value of the R-squared percentage indicates that the model is effective in explaining fluctuations in the dependent variable caused by fluctuations in the independent variables.

In addition, the Durbin-Watson test was used to see if there was any autocorrelation in Table 4.5. The observations (residuals) should be independent, which is one of the regression assumptions. When observations are made over a period of time, they are very likely connected. Durbin-Watson statistics should be between 1.5 and 2.5 in the absence of autocorrelation (related to subsequent observations). Because the statistic value of the Durbin-Watson test (i.e. 1.792) from Table 4.5 is within the specified range, it indicates that there is no autocorrelation and so the data is fit.

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.651[a]	.523	.501	.51579	1.792

a. Predictors: (Constant), Mobile Payment, Mobile Credit, and Mobile Saving
b. Financial Inclusion
Source: Field data, (2023).

Furthermore, the goodness of the model was tested by using ANOVA as shown in the Table 4.6. Since p-value (0.000) is less than 0.005, then, the null hypothesis

(There is no goodness of fit) is rejected. Therefore, findings show that the goodness of fit is significant at (F= 19.073, P<0.05, n=82). Statistically, the findings reveal that the model is good to forecast the impact of Mobile Payment, Mobile Credit, and Mobile Saving on Financial Inclusion.

Table 4.6: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.222	3	5.074	19.073	.000[b]
	Residual	20.751	78	.266		
	Total	35.973	81			

a. Dependent Variable: Financial Inclusion growth
b. Predictors: (Constant), Mobile Payment, Mobile Credit, Mobile Saving
Source: Field data, (2023).

Results in Table 4.7 point out that Mobile Payment, and Mobile Saving are statistically significant at (t=4.414, p<0.05, n=82), and (t=2.013, p<0.05, n=82) respectively. Also, findings show that Mobile Credit is not statistically significant. Moreover, results in Table 4.7 likewise express Unstandardized Coefficients where Mobile Payment shows a higher positive impact on Financial Inclusion at $\beta = 0.582$ followed by Mobile Saving at $\beta = 0.240$. This reveals that every change of one unit in Mobile Payment, and Mobile Saving resulting in a change in Financial Inclusion by 0.582, and 0.240 respectively. Thus, an increase in Mobile Payment by one unit leads to an increase in Financial Inclusion by 0.582, while an increase in Mobile Saving by one unit also contributes to an increase in Financial Inclusion by 0.240.

For instance, mobile payment platforms increase financial inclusion by allowing people to access financial services using their mobile phones, enabling them to conduct various transactions such as sending and receiving money, paying bills, and making purchases. This accessibility eliminates the need for physical branches and

expands financial services to remote areas where traditional banks may not have a presence. Similarly, mobile savings accounts increase financial inclusion by providing users with the convenience of anytime, anywhere access. People can deposit and withdraw money, check balances, and conduct transactions using their mobile phones (Tigo-pesa, M-pesa, and Airtel money platforms), eliminating the need to travel long distances or wait in queues at physical bank branches.

By applying Unstandardized Coefficients from Table 4.7, the estimated model becomes; Financial Inclusion Growth = 0.499 + 0.582 (Mobile Payment) + 0.071 (Mobile Credit) + 0.240 (Mobile Saving).

Table 4.7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.499	.281		1.777	.079
	Mobile Payment	.582	.132	.472	4.414	.000
	Mobile Credit	.071	.133	.050	.533	.596
	Mobile Saving	.240	.119	.224	2.013	.048

a. Dependent Variable: Financial Inclusion growth

Source: Field data, (2023).

4.6.4 Hypothesis Testing

The study aimed to assess the impact of mobile money on the financial inclusion growth in Tanzania per the following alternative hypotheses;

Table 4.8: Summary of the Hypothesis Tested

Alternative Hypothesis	Comparison	Decision
$H_{1:}$ Mobile Payment has significant effect on Financial Inclusion	P-value (0.000) < 0.05	Null hypothesis is Rejected
$H_{2:}$ Mobile Credit has significant effect on Financial Inclusion	P-value (0.596) > 0.05	Null hypothesis is not Rejected
$H_{3:}$ Mobile Saving has significant effect on Financial Inclusion	P-value (0.048) < 0.05	Null hypothesis is Rejected

Source: Researcher data (2023).

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This study evaluated the effect of mobile money on Tanzania's expansion of financial inclusion in Tazania. This section based on specific objectives to discuss the study's findings that were analysed in chapter four.

5.2 The Extent of Mobile Payments on Financial Inclusion in Temeke

The study aimed to determine the extent of mobile payments on financial inclusion in Temeke. Findings showed that mobile payment services contribute to financial inclusion. Mobile payments are able to cut down expenses on transaction, making financial services more affordable and accessible. Traditional banking services often involve high fees, minimum balance requirements, and hidden charges, which can deter individuals with limited financial resources. Mobile payment platforms offer lower transaction costs, enabling individuals to access basic financial services at a fraction of the cost compared to traditional banking methods. This affordability encourages more individuals take part in formal financial system, fostering financial inclusion.

These findings match with those of Lee et al. (2020) who showed that the expansion of mobile money increases financial inclusion which leads to firm’s sales growth. One of the primary reasons for the success of mobile money is its ability to provide financial services to populations previously excluded from the formal banking sector. The access to traditional banking services is limited due to geographical constraints, lack of infrastructure, or high costs associated with maintaining physical

branches. Mobile money services bridge this gap by enabling individuals to enjoy basic financial services via their mobile phones. Whether it is conducting transactions, making payments, or sending and receiving money, mobile money offers a convenient and accessible platform for financial inclusion, reaching even the most remote areas.

Also, findings reveal mobile payment services are accessible regardless of socio-economic status. Mobile payment services have the potential to reach individuals who lack access to traditional banking services. As indicated by Hamdan (2019) in many developing countries, the physical infrastructure required for establishing brick-and-mortar banks is inadequate. However, mobile phones have become ubiquitous even in remote areas. Mobile payment services leverage this widespread mobile penetration to provide financial services to the unbanked or under banked population. This accessibility empowers individuals to participate in the digital economy, regardless of their socio-economic status.

The findings of the study are in line with those of Natile (2020) who reveal that the use of mobile money services particularly mobile payments is beneficial to mobile money service providers as well as benefits the uses especially the unbanked poor. Mobile payment services offer a cost-effective alternative to traditional banking services. Opening and maintaining a bank account often involves various fees, such as account maintenance charges, minimum balance requirements, and transaction fees. These fees can be prohibitive for individuals with limited financial resources. In contrast, mobile payment services typically offer low-cost or no-cost options, allowing users to carry out transactions at minimal or no additional charges. This

affordability makes mobile payment services accessible to individuals across different socio-economic strata. Also, by utilizing basic feature phones or smartphones, individuals can initiate payments, receive funds, and access various financial services. Mobile payment services overcome the need for physical infrastructure, enabling users to participate in the digital economy, regardless of their socio-economic status.

Moreover, the findings reveal that mobile payment enables users without bank accounts to participate in financial matters. Also, these results show that mobile payment services have played a crucial role in empowering the unbanked population, which has historically been excluded from formal financial systems. With mobile payment solutions, individuals without bank accounts can actively participate in economic activities. By facilitating secure and convenient transactions, mobile payments open up new opportunities for small businesses and entrepreneurs who were previously left out of the formal financial system. Mobile payment platforms also enable the unbanked to engage in online marketplaces, expand their customer base, and access a wider range of products and services.

The findings of the study are in line with those of Nampewo et al., (2016) who reveal that there was a positive long run relationship between mobile money and private sector credits. It was observed that mobile money is critical for financial intermediation because it attracts resources from both the banked and the unbanked populations into the formal financial system, facilitating private sector credit growth. Furthermore, findings reveal that mobile payment services are convenient and easy to use. Thus, findings reveal that mobile payment services help individuals manage

their finances.

Mobile payment services have made financial transactions more accessible and convenient than ever before. Individuals can now make payments or transfer funds anytime, anywhere, using their smartphones. Whether it's paying utility bills, purchasing goods and services, or sending money to family and friends, the process can be completed with just a few taps on a mobile app or buttons. This accessibility and ease-of-use save valuable time and effort for individuals who no longer need to visit physical banks or ATMs.

Similarly, the emergence of mobile payment services has undoubtedly transformed the way individuals manage their finances. These services have made financial transactions more accessible, provided real-time expense tracking, facilitated budgeting and financial planning, enhanced security measures, and offered integration and personalization. As the world becomes increasingly digitized, the power of mobile payment services in empowering individuals to take control of their finances will continue to grow.

The findings of the study are in line with those of Ahmad et al. (2020) who indicated that mobile services help individuals to manage their finances because of the accessibility and ease-of-use of the mobile services. Thus, the accessibility and ease-of-use of the mobile services contribute to financial inclusion. Mobile payment services often integrate with other financial applications, allowing individuals to consolidate their financial information in one place. With the widespread adoption of smartphones and the convenience of mobile applications, people can now easily

carry out financial transactions, track expenses, and gain better control over their money.

Additionally, findings from the multiple regression analysis show that mobile payment has a statistical positive significant impact on financial inclusion. The findings of the study are in line with those of Winn (2016), Kirana and Havidz (2020) and Alrabei, et al., (2022) who indicated that mobile payment services such as the quality of the service, service price, the ease of using service, and service security had a significant impact on financial inclusion. Mobile payment usage has particularly empowered micro-entrepreneurs and small businesses. In developing economies, many small-scale businesses operate in cash-driven environments, limiting their growth potential.

Mobile payments enable these businesses to accept digital payments, expanding their customer base and fostering economic growth. Furthermore, mobile payment platforms often integrate with other financial services, such as micro-loans and insurance products, providing small businesses with access to additional resources and opportunities for expansion. By facilitating financial transactions and extending financial services to micro-entrepreneurs, mobile payments contribute to financial inclusion and economic development.

5.3 The Influence of Mobile Credits on Financial Inclusion in Temeke

The study aimed to identify the influence of mobile credits on financial inclusion in Temeke. Findings reveal that most respondents indicated that mobile credits (e.g., Songesha, Timiza, Nipige Tafu) have made it easier for users to access financial

services. These findings imply that mobile credits have significantly increased accessibility to financial services for individuals in Tanzania. With a mobile phone and a SIM card, users can easily access mobile credit services provided by various mobile network operators. This accessibility is particularly crucial in rural and remote areas where traditional banking infrastructure is limited. Mobile credits have effectively bridged the gap, allowing individuals to access financial services without the need for physical bank branches.

Also, obtaining credits through mobile credits is generally a straightforward and simplified process. Users can apply for mobile credits directly through their mobile phones by following simple steps. Traditional banking institutions often require extensive paperwork and face-to-face interactions, making it challenging for individuals, especially those in remote areas, to access credit facilities. Mobile credits have significantly reduced these barriers, making credit applications more accessible and convenient for Tanzanian mobile users.

The findings of the study are in line with those of Óskarsdóttir et al. (2019) who indicated that mobile credits have allowed microfinance institutions and mobile network operators to collaborate, offering microcredit facilities to individuals through mobile platforms. This has enabled entrepreneurs and small business owners to access much-needed capital for business expansion, purchasing inventory, and improving livelihoods. Also, findings reveal that mobile credits help complete financial transactions when short on funds. The advent of mobile credits has emerged as a practical and convenient solution, enabling individuals to complete financial transactions even when faced with limited funds.

Therefore, these findings imply that mobile credits prove particularly beneficial during emergency situations when individuals face unexpected expenses or urgently need to transfer funds. For instance, in the event of a medical emergency, mobile credits can be used to pay hospital bills or purchase necessary medications. In such cases, where time is of the essence, the ability to complete transactions swiftly becomes crucial. Thus, mobile credits bridge the gap between limited funds and the urgency of financial transactions, ensuring that individuals can address emergencies promptly, even when faced with financial constraints.

The findings of the study are in line with those of Bayar et al. (2021) who indicated that mobile credits bridge the gap between limited funds. In situations where, traditional payment methods are impractical or inconvenient due to small transaction amounts, mobile credits provide a flexible solution. Whether it's purchasing a single item at a store, paying for public transportation, or even contributing to charitable causes, mobile credits enable individuals to complete these transactions effortlessly.

Also, findings reveal that mobile credits have increased access to financial services for the unbanked. Traditional banking requires a network of brick-and-mortar branches, making it difficult to reach remote or rural areas. Mobile credits enable individuals to access financial services through their mobile phones, eliminating the need for physical infrastructure and expanding the reach of financial services. Moreover, opening a traditional bank account often involves high costs, minimum balance requirements, and extensive paperwork, which can be deterrents for the unbanked. Mobile credit accounts can be created with minimal documentation and at a lower cost, making them more accessible to the financially underserved.

The findings of the study are in line with those of Pénicaud and Katakam (2019) who showed that mobile credits have been instrumental in disbursing social welfare payments and facilitating remittances for unbanked individuals. By streamlining these processes, mobile credits ensure that funds reach the intended recipients efficiently, promoting social development.

Moreover, findings reveal that mobile credits have limit on the amount users can borrow. Determining appropriate borrowing limits helps service providers assess the affordability of their customers. By considering factors such as a user's credit history, spending patterns, and income level, they can establish a limit that aligns with the user's ability to repay the borrowed amount. The findings of the study are in line with those of Buku and Meredith (2012) who indicated that Safaricom and M-pesa in Kenya have limit on the amount users can borrow. Limiting the amount users can borrow helps protect them from excessive debt burdens. It encourages responsible borrowing behavior and prevents customers from getting trapped in a cycle of borrowing and struggling to repay.

Furthermore, findings reveal that mobile credits are affordable, therefore reducing transaction costs. As indicated by Suri (2017), one of the primary factors contributing to the affordability of mobile credits is the intense competition within the telecommunications industry. Numerous mobile service providers exist, each vying for a larger market share. This competition drives providers to offer attractive pricing plans, discounts, and promotional offers to entice customers. As a result, users can choose from a wide range of packages that suit their communication needs and financial capabilities. This competitive landscape fosters affordability and

benefits consumers by creating a market environment where they have the freedom to select the most cost-effective options.

Additionally, findings from the multiple regression analysis show that mobile credit is not statistically significant on financial inclusion. These findings show that mobile credit has no significant impact on financial inclusion. Mobile credit relies on access to mobile devices and network coverage. In areas with limited infrastructure or where mobile technology penetration is low, the impact on financial inclusion may be less significant. Also, the extent to which individuals and businesses utilize mobile credit can impact its statistical significance. Factors like repayment behavior, creditworthiness assessment, and adoption rates can influence the overall impact on financial inclusion.

The findings of the study are different from those of Alrabei et al. (2022) and Lenka and Barik (2018) who indicated that mobile credit has significant impact on financial inclusion. Mobile credit has a significant impact on financial inclusion as it provides opportunities for people who do not have access to traditional banking services to participate in the financial system. With mobile credit, individuals can access loans, savings, and other financial services using their mobile phones, even without a bank account. People living in remote areas or those without formal identification can easily access and use mobile credit services, making them an essential tool for financial inclusion. Furthermore, it provides access to credit to people who may not have a credit history, which can help them build a credit profile. Mobile credit also eliminates barriers to financial services such as transportation, time and distance, language barriers, and security risks associated with carrying cash. This, in turn,

increases financial literacy and financial inclusion.

5.4 The Influence of Mobile Savings on Financial Inclusion in Temeke

The study aimed to determine the influence of mobile saving on financial inclusion in Temeke. Findings show that mobile saving has increased the savings habits of individuals who cannot access banking services. Now mobile service users can save their money through mobile digital platforms like Tigo-pesa, M-pesa, and Airtel money. Mobile savings platforms have made it possible for individuals without access to brick-and-mortar banks to save money conveniently. With just a mobile phone and an internet connection, people can open savings accounts, deposit money, and track their savings progress anytime, anywhere.

The findings of the study are supported by Skogqvist (2019) who indicated that mobile savings platforms offer a user-friendly interface that simplifies the savings process. They allow individuals to set savings goals, automate regular deposits, and receive reminders and notifications, making it easier to develop consistent savings habits. Mobile savings platforms, on the other hand, typically have lower fees or no fees at all, making it more affordable for people to save and avoid unnecessary expenses.

Also, findings reveal that mobile saving has helped individuals meet financial emergences. One of the most significant advantages of mobile saving is the immediate access to funds during financial emergencies. Unlike traditional savings accounts that may require physical visits to banks or ATMs, mobile saving platforms allow users to withdraw their savings instantly through their smartphones. This quick access to funds can be a lifesaver during unexpected situations such as medical

emergencies, car repairs, or home repairs, where time is of the essence. The findings of the study are in line with those of Dyer et al. (2017) who indicated that with a smartphone and an internet connection, individuals can access a range of mobile banking applications, allowing them to save money effortlessly. Unlike traditional banking methods that often involve long queues and time-consuming procedures, mobile saving enables users to initiate transactions with just a few taps on their screens. This convenience empowers individuals to save regularly, building a financial safety net that can be accessed swiftly during emergencies.

Moreover, findings reveal that mobile saving is safer than keeping cash. One of the primary advantages of mobile saving is that it is more secure than keeping cash. Unlike cash, which can be stolen, lost, or misplaced, mobile wallets are protected by passwords, PINs, or biometric authentication systems. These security measures make it almost impossible for anyone to access funds without proper authorization. Moreover, in case a phone is lost, the funds stored can still be protected remotely since all transactions can be tracked and the wallet can easily be deactivated. The findings of the study are supported by Nandhi (2012) who indicated that mobile banking applications and digital wallets often employ robust security measures to protect users' financial information. These can include encryption, secure login protocols, transaction verification, and fraud monitoring systems. These layers of security make it difficult for unauthorized individuals to gain access to and misuse users' funds.

Furthermore, findings reveal that mobile savings are more convenient and easier to use for all people. Mobile savings are more convenient because they can be accessed

from anywhere at any time. With traditional savings methods, such as visiting a bank or depositing funds via check, individuals are limited by the location and hours of operation of the institution. The findings of the study are in line with those of Mago and Chitokwindo (2014) who indicated that the convenience offered by mobile savings is unmatched. With a few taps on a smartphone, users can access a wide range of banking services. Whether it's depositing funds, transferring money, paying bills, or reviewing transactions, mobile savings provide a one-stop solution that eliminates the need for multiple visits to a bank. This saves time, reduces paperwork, and simplifies financial management, making it a convenient option for busy individuals who value efficiency.

Mobile savings offer unparalleled accessibility that transcends geographical and time constraints. Traditional banking requires individuals to physically visit a branch during limited operating hours. In contrast, mobile savings enable users to manage their accounts anytime, anywhere, as long as they have a smartphone and internet connectivity. This accessibility empowers individuals with greater control over their finances, allowing them to perform transactions, check balances, and monitor their savings effortlessly. Additionally, findings from the multiple regression analysis show that mobile saving is statistically significant on financial inclusion. With the rise of mobile technology, individuals can now have access to savings accounts that can be managed via mobile phones. This has made it easier for people to save money and gain access to financial services that were previously inaccessible to them.

The findings of the study are in line with those of Zins and Weill (2016) and Mawejje and Lakuma (2019) who indicated that one of the most significant ways

that mobile saving has impacted financial inclusion is by reducing the cost of financial services. Traditional banking services require customers to physically visit the bank to open an account, make deposits, and withdraw money. This can be a significant barrier to access for people who live in rural areas or don't have access to transportation. Mobile saving eliminates the need for physical visits to the bank, allowing customers to manage their savings from anywhere at any time. This has made it easier for people to save money and have access to financial services, even if they live in remote areas.

Also, mobile saving has expanded financial inclusion by providing banking services to individuals who previously did not have access to them. This is particularly true for people who are unbanked, meaning they do not have a bank account. Mobile saving allows people to set up a savings account using only their mobile phone, providing access to essential financial services such as savings, deposits, and transfers. This has enabled individuals to save money, build credit, and access financial services that were previously out of reach.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Chapter Overview

The research summary, conclusions, and recommendation are presented in this chapter. Additionally, this final section of the report offers specific recommendations to financial institutions, mobile money service providers, the Tanzanian government, and areas for future research studies.

6.2 Summary of the Study

The study mainly aimed at investigating the impacts of mobile money on financial inclusion growth in Tanzania using the case of Temeke municipal. Cross-sectional study design was adopted in the study and a sample of 82 respondents. In addition to using questionnaires and observations, the study also used theory triangulation, with the learning and social resource theories serving as its guiding principles. The quantitative data was gathered by closed-ended surveys and presented as numbers, percentages, frequency distribution tables, and figures while the qualitative data was gathered through observation and open-ended questions were utilised to acquire descriptive data.

The finding of this research were presented in line with the specific objectives of the study. The first was to ssess the extent of contribution of mobile payments on financial inclusion in Temeke. Findings show that mobile payment via Tigo-pesa, M-pesa, and Airtel money, have a significant positive impact on financial inclusion, accessibility, participation, and financial management in Tanzania. Most of the respondents affirmed that these digital wallets, are accessible regardless of socio-

economic status, enable users without bank accounts to participate in financial matters, and help individuals manage their finances. Additionally, most respondents found mobile payment services convenient and easy to use. Overall, mobile payment technologies play a crucial role in empowering individuals and expanding financial services to previously underserved populations in Tanzania.

The second specific objective was to identify the influence of mobile credits on financial inclusion in Temeke. Findings reveal that mobile credits affect financial inclusion positively thereby expanding the availability of financial service products by enabling users to complete financial transactions during shortage of funds. Furthermore, mobile credits bridge a gap between the unbanked individual and formal financial systems. It was also found out that mobile credits have borrowing limits in order to safeguard both borrowers and lenders. However mobile credits were found not to be statistically significant in this research.

The third specific objective was to determine the influence of mobile saving on financial inclusion in Temeke. Findings show that mobile saving platforms such as M-Pesa, Tigo-pesa and Airtel Money have had a positive impact on individuals who cannot access banking services. Majority of the respondents agreed that mobile saving encouraged saving habits and help individual to meet financial emergencies. It was also reported that mobile saving is safer than keeping cash yet easy to operate and accessible any time anywhere. The users of mobile saving can track the record of their transactions which may cause financial discipline and planning for proper management of their finances.

6.3 Conclusions

From the findings, the general conclusion can be drawn that mobile payment services and mobile savings play a vital part in promoting financial inclusion in Temeke and in Tanzania at large. Mobile payment services are affordable and accessible therefore enable individuals especially those with limited financial resources and living in remote areas, to access basic financial services. These services empower the unbanked and under banked individuals by bridging the gap between them and the formal financial system. Mobile payments also have a positive impact on micro-entrepreneurs and small businesses by simplifying payment hence fostering economic growth and development.

Similarly, mobile savings platforms have proven to be a convenient and secure way for individuals to save money, particularly those who cannot access traditional banking services. Mobile savings encourage regular saving habits, offer quick access to funds during emergencies, and provide a safer alternative to cash. They also promote financial literacy and enable individuals to build a financial safety net. The impact of mobile payment services and mobile savings on financial inclusion is further supported by the correlation with other research studies, which show similar positive outcomes in various regions and countries.

However, the influence of mobile credits on financial inclusion was not statistically significant in this specific study, possibly due to limited mobile technology penetration in certain areas or other factors affecting its adoption. Overall, the evidence suggests that mobile payment services and mobile savings are have raised the financial inclusion through accessible, affordable, and convenient financial

services to a wider population, especially those who were previously left out of the traditional financial system. As mobile technology continues to advance and reach more people, the impact on financial inclusion is likely to grow even further in the future.

6.4 Recommendations

On the basis of the findings from this study, a number of recommendations are put forward to relevant stakeholders and decision-makers in Tanzania's financial and mobile money industry.

6.4.1 Recommendations to the Mobile Money Service Providers

The service providers of mobile money service such as Tigo-pesa, M-pesa, and Airtel money should spread awareness about the benefits and safe usage of mobile money services to all especially the unbanked and the under banked individuals. As it was observed that some users of mobile money services share their passwords to the agents when withdrawing or family members. Service providers should also form partnership with financial institutions like commercial banks and microfinances so as to integrate usage of mobile money in the traditional financial services therefore widen accessibility of financial products. More investment on security of mobile money should be made in order to instill more confidence to the users and prevent fraud.

6.4.2 Recommendations to the Financial Institutions

Traditional financial institutions such as banks and microfinance institutions should form partnership with telecommunication companies and other mobile money

service providers to leverage financial services through mobile phones. Small and Medium enterprises (SMEs) should also adopt the usage of mobile money in their operations such as accepting and settling payments, transferring funds and savings. This will enable SMEs monitor their bank accounts easily by few click on their mobile phones. While there was weak correlation between mobile credit and financial inclusion, mobile credit nevertheless contributes to greater financial access for some populations. The accessibility and cost of mobile credit products should be improved by financial institutions. The unbanked and under banked population can be encouraged to use mobile platforms to access credit by ensuring appropriate lending practices and customized credit options.

6.4.3 Recommendations to the Government and Policy Makers

Tanzania's government has a big part to play so as to promote financial inclusion through mobile money. The regulatory authorities in Tanzania, such as the Bank of Tanzania (BOT) and the Tanzania Communications Regulatory Authority (TCRA) should provide fovourable environment that encourages innovation, adoption and growth of mobile money services. The government can also support initiatives that increase digital literacy and awareness of mobile money services by encouraging competition among service providers.

6.4.4 Recommendations for Further Research

Finding reveal that mobile money services, particularly mobile payment and mobile saving have a significant impact on financial inclusion in Tanzania. In the area of research, further studies can be conducted in the sector to explain various issues related to mobile money which includes: One, finding out the specific barriers and

challenges faced by women in accessing and using mobile money so as to promote gender-inclusive financial inclusion strategies. Two, examination of the effects of mobile money services on the development and economic growth of various Tanzanian regions in order to pinpoint certain areas that require more improvement. Three, to explore the potential for integrating mobile money services with other sectors, such as agriculture and health, to realize financial inclusion and support socio-economic development.

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APPENDIX

Appendix 1: Questionnaire to mobile money users

Dear respondent,

I am Remigius Mganyizi, a student of **Masters of Science in Economics** at the Open University of Tanzania. This questionnaire is designed to collect information on the "***effects of mobile money on financial inclusion growth***" The information obtained will be used for academic purposes only and shall be treated with the utmost confidentiality. You are requested to complete this questionnaire as honest and objective as possible. Note that you are not required to indicate your name anywhere on the questionnaire.

Questionnaire No. [ ]

Please tick the name of the mobile money service (s) used.

M-pesa ( ) Tigo-pesa ( ) Airtel money ( )

SECTION A: DEMOGRAPHIC DETAILS

Please tick (✓) the appropriate below:-

i. Gender of the respondent:
   Male ( )
   Female ( )

ii. Age range of the respondent (years)

Age group (Years)	18-30	31-40	41-50	51+

iii. Education level

Primary	Secondary	Tertiary

iv. How long have you used mobile money services?
   a) Less than 5 years ( )
   b) Between 5 – 10 years ( )
   c) More than 10 years ( )

SECTION B: EXTENT OF MOBILE PAYMENT ON FINANCIAL INCLUSION

Tick the service you normally pay for by using mobile money

a) Public utilities (E.g. Electricity, water, parks etc) ( )
b) Insurance services ( )

c) Air time ( )
d) Daily purchases ( )

No	Statement	Greater extent	Extent	Some extent	Small extent	Not at all
a.	Mobile payment services contribute to financial inclusion					
b.	Mobile payment services are accessible regardless of socio-economic status					
c.	Mobile payment enables without bank accounts to participate in financial matters.					
d.	Mobile payment services help individuals to manage their finances					
e.	Mobile payment services are convenient and easy to use.					

For each statement below put a tick (✓) to state your level of agreement

SECTION C: INFLUENCE OF MOBILE CREDITS ON FINANCIAL INCLUSION

For each statement below put a tick (✓) to state your level of agreement or disagreement

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a.	Mobile credits (e.g., Songesha, Timiza, Nipige Tafu etc) has made it easier for me to access financial services.					
b.	Mobile credits help to complete the financial transactions when short of funds.					
c.	Mobile credits have increased access to financial services to the unbanked people.					
d.	Mobile credits have no limit of the amount to borrow.					
e.	Mobile credits are affordable therefore reduce transaction costs.					

SECTION D: INFLUENCE OF MOBILE SAVING ON FINANCIAL INCLUSION

No	Statement	Highly Effective	Effective	Neutral	Ineffective	Highly Ineffective
a.	Mobile saving has increased savings habits of individuals who cannot access to banking services.					
b.	Mobile saving has helped individuals to meet financial emergences.					
c.	Mobile saving is safer than keeping cash					
d.	Mobile savings is more convenient and easy to use by all people					
e.	Mobile saving promotes financial discipline					

For each statement below put a tick (✓) to indicate the level of effectiveness

THANK YOU FOR YOUR TIME AND COOPERATION

Appendix ii: Research Clearance Letter

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ PG202100580 **3rd August, 2023**

District Executive Director (DED),
Temeke District Council,
P.O.Box 46343,
DAR ES SALAAM.

Dear Director,

RE: RESEARCH CLEARANCE FOR MR. REMIGIUS MGANYIZI, REG NO: PG202100580

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Remigius Mganyizi,**

Reg. No: PG202100580) pursuing **Master of Science in Economics (MSc-ECONOMICS).** We here by grant this clearance to conduct a research titled **": Impact of Mobile Money on Financial Inclusion Growth in Tanzania: A Case of Temeke Municipal".** He will collect his data at Kijichi and Miburani wards from 4th August to 4th September 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,
THE OPEN UNIVERSITY OF TANZANIA
Prof. Magreth S.Bushesha
For: VICE CHANCELLOR