# EVALUATION OF INDIVIDUAL LEVEL ACCESS TO FORMAL FINANCIAL SERVICES: A CASE STUDY OF MOROGORO REGION TANZANIA



BY

NICETUS SIMON SELUHINGA



A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTERS OF SCIENCE IN AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

2007

## ABSTRACT

This study was conducted to evaluate individual level access to formal financial services in Tanzania. The study entailed surveys conducted in three districts of Morogoro Region. Namely, Morogoro Municipality, Morogoro Rural and Kilosa. Specifically the study had four objectives which were (a) to describe the general issues as to why access to formal financial services is important to economic development and social perspectives.(b) to establish the proportion of adult population which have access to various types of formal financial services. (c) to identify socio economic factors that influence the access to formal financial services in the research area(d) to suggest the possible interventions for improvement of access to formal financial services. The study is based on 120 respondents. Multistage random sampling was employed to select interviewees in the study area. The data were coded and analyzed with the aid of Statistical Package for Social Sciences (SPSS) computer software. Data analysis entailed a number of descriptive statistics including frequencies, cross tabulations and Chi- square tests. A binary logit regression model, which tested the effects or influence of socio economic factors on access to formal financial services, was used. Results showed that socio economic factors such as age, income, education, occupation and distance to formal financial institutions affect the access and use of formal financial services ($P< 0.05$). The study has also revealed that savings services are popular therefore used by the majority of adult population, followed by transaction services, credit, then insurance services. In addition, the study found that cost of services, ignorance, low income were among the reasons mentioned by the respondents as hindering access to formal financial services in the research area. Based on the study findings, the study recommends

effective linkages between financial institutions in order to increase the proportion of people with financial access, capacity building to financial institutions, improving infrastructure, improving condition and quality of financial services and to offer finance education to the people.

## DECLARATION

I, NICETUS SIMON SELUHINGA, do hereby declare to the Senate of the Sokoine University of Agriculture that this Dissertation is my original work and has never been submitted nor concurrently being submitted for a degree at any other University.

NICETUS SIMON SELUHINGA

(MSc. Candidate)

19 November 2007

Date

This above declaration is confirmed by

Prof. A.E TEMU

(Supervisor)

19 November 2007

Date

# COPYRIGHT

## ACKNOWLDGEMENTS

First and foremost, I wish to express my profound gratitude and sincere appreciation to my supervisor Prof. A.E Temu for his tireless guidance, suggestions and comments throughout to the completion of this thesis. He played a unique role in shaping up this work. Particular thanks are also due to Dr S.T.A Mafu for reading the draft, advice and support.

I would like also to acknowledge my greatest debt to Higher Education Students Loan Board (HESLB) for providing financial support. If it were not for their assistance this work would not have been possible.

Thanks are also due to the entire staff of the Department of Agricultural Economics and Agribusiness of the Sokoine University of Agriculture for their cooperation and assistance. Their critical comments during formulation of proposal, methods for data collection and analysis, useful reading material provided, all significantly contributed to the success of the study.

I am also exceptionally indebted to my late parents, the rest of the family and relatives for their love, constant support, encouragement and inspiration during the entire period that I was undertaking this study.

I am highly grateful to the officials of Morogoro Municipality, Morogoro Rural and Kilosa Districts and the individuals interviewed for their time and cooperation.

I wish to express my sincere thanks to my fellow graduate students in the Department of Agricultural Economics and Agribusiness for their every support.

Since it is difficult to specifically mention each and every one who participated in the study, I hereby pay tribute to every one who in one way or another took part in the study. But above all I thank the Almighty God for the love he showed me through out my two years of graduate work.

## DEDICATION

This work is dedicated to Jesus Christ and my late parents Simon Seluhinga and Cecilia Alphonce. Thank you for your love. Your love has been of valuable contribution to my success in education.

# TABLE OF CONTENTS


**ABSTRACT** ..... ii

**DECLARATION** ..... iv

**COPYRIGHT** ..... v

**ACKNOWLDGEMENTS** ..... vi

**DEDICATION** ..... viii

**TABLE OF CONTENTS** ..... ix

**LIST OF TABLES** ..... xiv

**LIST OF FIGURES** ..... xvi

**LIST OF APPENDICES** ..... xvii

**LIST OF ABBREVIATIONS** ..... xviii

**CHAPTER ONE** ..... 1

**INTRODUCTION** ..... 1

1.1 Background information ..... 1

1.1.1 Financial sector reforms in Tanzania ..... 2

1.1.2 Financial markets in Tanzania ..... 5

1.2 Problem statement ..... 7

1.3 Justification of the study ..... 8

1.4 Objectives of the study ..... 9

1.4.1 General objective ..... 9

1.4.2 Specific objectives ..... 9

1.5 Hypothesis ..... 10

1.6 Research questions ..... 10

1.7 Structure of the report ..... 10

**CHAPTER TWO** .......... **11**

**LITERATURE REVIEW** .......... **11**

2.1 Overview .......... 11

2. 2 Underlying concepts on access to financial services .......... 11

2.2.1 Financial Institutions .......... 11

2.2.2 Banks and non- Bank Institutions .......... 11

2.2.3 Formal financial institutions .......... 12

2.2.4 Informal financial institutions .......... 12

2.2.5 Access and usage of financial services .......... 13

2.2.6 Individual versus household access to financial services .......... 14

2.2.7 Institutions and product access .......... 14

2.3 Indicators of financial access .......... 15

2.4 Types of financial services accessed .......... 16

2.4.1 Access to savings services .......... 17

2.4.2 Access to loan and credit services .......... 18

2.4.3 Access to payments and transactions .......... 18

2.5 The importance of access to finance .......... 19

2.6 Technological improvements and access to financial services .......... 22

2.7 Socio-economic factors and access to financial services .......... 24

2.8 Barriers to access to finance .......... 25

2.8.1 Individual financial institutions constraints .......... 25

2.8.2 Institutions environment constraints .......... 27

2.9 Assessment of Econometric models used in studies related to finance .......... 29

2.10 Logit regression and past studies on socio-economic variables .......... 32

2.11 Conclusive opinion ........ 33

**CHAPTER THREE** ........ **35**

**METHODOLOGY** ........ **35**

3.1 Overview ........ 35

3.2 Conceptual frame work ........ 35

3.2 The study area ........ 38

3.2.1 Location ........ 38

3.2.2 Demography ........ 38

3.3.3 Regional economy ........ 38

3.4 Data sources ........ 41

3.5 Sampling procedure and sample size ........ 41

3.5.1 Instrumentation and the data collection process ........ 41

3.5.2 Software for data analysis ........ 42

3.6 Data analysis ........ 42

3.6.1 Qualitative analysis ........ 42

3.6.2 Logit regression analysis ........ 43

3.6.3 The model and its techniques ........ 43

3.7 Expected signs of coefficients for logit model ........ 45

3.8 Problems of parameter estimation ........ 46

**CHAPTER FOUR** ........ **48**

**RESULTS AND DISCUSSION** ........ **48**

4.1 Overview ........ 48

4.2 Socio –economic characteristics of respondents ........ 48

4.2.1 Sex of respondents ........ 49

4.2.2 Age of respondent ........ 50

4.2.3 Education of respondents ........ 50

4.2.4 Marital status ........ 50

4.2.5 Primary occupation of respondents ........ 51

4.2.6 Income of respondents ........ 51

4.3 Access to formal financial Services ........ 52

4.3.1 Reasons of having access ........ 52

4.3.2 Reason of not having access ........ 53

4.3.3 Financial institution where people get services ........ 55

4.3.4 Location and the availability of financial services ........ 55

4.3.5 Frequency of access to financial services ........ 56

4.3.6 Consideration of quality and conditions of formal financial services .. 57

4.3.7 Formal Financial Institutions where individuals get services ........ 57

4.3.8 Financial services perception ........ 58

4.4 Kinds of formal financial services offered ........ 59

4.4.1 Transaction and payment services ........ 59

4.4.2 Savings and investment services ........ 60

4.4.3 Insurance Services ........ 60

4.4.4 Formal loans ........ 61

4.5 Agricultural information ........ 62

4.5.1 Scale and ownership of farms ........ 62

4.5.2 Agricultural Financing ........ 62

4.5.3 Livestock keeping ........ 63

4.5.4 Business activities and Payments through Formal Financial Services . 64

4.6 Interest and follow up of financial matters ........ 65

4.7 Access to modern technology facilities ........ 66

4.8 Logit regression results ........ 67

**CHAPTER FIVE** ........ **70**

**CONCLUSION AND RECOMMENDATIONS** ........ **70**

5.1 Overview ........ 70

5.1.1 Conclusion ........ 70

5.1.2 Recommendations ........ 72

5.2 Limitations of the data and implications for further research ........ 76

5.3 Areas for further research ........ 78

**REFERENCES** ........ **79**

**APPENDIX** ........ **89**

## LIST OF TABLES


Table 1 Distribution of respondents by socio-economic characteristics (%)..... 49

Table 2 Distribution of respondents by income level (%) ................................ 52

Table 3 :Distribution of respondents by access to formal financial services (%)......................................................................... 52

Table 4 Distribution of respondents by reasons of having access(%) .............. 53

Table 5 Distributions of respondents by reasons of not having access (%)....... 54

Table 6 Distribution of respondents by type of financial institution (%) .......... 55

Table 7 Distribution of respondents by distance (%)........................................ 56

Table 8 Distribution of respondents by frequency of access (%) ..................... 56

Table 9 Distribution of respondents by consideration of quality of formal financial services (%)................................................................... 57

Table 10 Distribution of respondents by formal financial institutions (%) ......... 58

Table 11 Distribution of respondents by financial perception (%)...................... 59

Table 12 Distribution of respondents by access to transaction services (%) ....... 60

Table 13 Distribution of respondents by savings services (%)............................ 60

Table 14 Distribution of respondents by access to insurance services (%) ........ 61

Table 15 Distribution of respondents by access to formal loans (%) .................. 61

Table 16 Distribution of respondents by scale and ownership of farms (%)..... 62

Table 17 Distribution of respondents by access to formal agricultural financing (%)........................................................................... 63

Table 18 Distribution of respondents by livestock keeping (%).......................... 64

Table 19 Distribution of respondents by business matters (%)............................ 65

Table 20 Distribution of respondents by interest and follow up of financial matters (%) ........................................................................................ 66

Table 21 Distribution of respondents by access to modern technology (%)........ 67

Table 22 Logit regression results ........................................................................ 68

## LIST OF FIGURES

Fig 1 Conceptual Framework........................................................................ 39

Fig 2 The study Area: Map of Morogoro Region ............................................. 40

## LIST OF APPENDICES

Appendix 1 Survey questionnaire for individual level access to formal financial service in Morogoro region. ........ 89

Appendix 2 Odds Ratio ........ 96

Appendix 3 Goodness of fit ........ 97

Appendix 4 Access to formal financial service by districts ........ 98

## LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| MDGs | - | Millennium Development Goals |
| URT | - | United Republic of Tanzania |
| HBS | - | Household Budget Survey |
| NSGRP | - | National Strategy for Growth and Reduction of Poverty |
| BoT | - | Bank of Tanzania |
| NBC | - | National Bank of Commerce |
| NMB | - | National Micro finance Bank |
| S UA | - | Sokoine University of Agriculture |
| CRDB | - | Cooperative and Rural Development Bank |
| DIF | - | Danida Investment Fund |
| Ln | - | Natural logarithm |
| SACCOs | - | Savings and Credit Cooperative Society |
| ICA | - | International College of Agriculture |
| US | - | United States |
| NGOs | - | Non-Governmental Organization |
| PPF | - | Pension Provident Fund |
| WB | - | World Bank |
| UN | - | United Nations |
| NIC | - | National Insurance Company |
| SNAL | - | Sokoine National Agricultural Library |
| SPSS | - | Statistical Package for Social Sciences |
| FINCA | - | Foundation for International Community Assistance |
| PRIDE | - | Promotion of Rural Initiative Development |
| FSDT | - | Financial Sector Deepening Trust |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background information

It is increasingly accepted that greater financial system depth and soundness contribute to economic growth and poverty reduction by enabling better selection and monitoring and diversifying risks, and encouraging the optimization of scale, time frame and technology. Strong financial systems also help absorb shocks and prevent financial crises that entail huge fiscal costs that crowd out socio spending. The financial system may also be able to accelerate the reduction of poverty through broadened distribution of financial services. The improvement of access to financial services should help consumers and producers raise their welfare and productivity. Individuals can insure themselves against periods of low income or unexpected fluctuations in income, and maintain their consumption standards through the accumulation of financial savings. Savings also provide a vehicle for future lumpy expenditure needs, whether expected (for example for special family occasions, or for the purchase of significant assets such as a home) or unexpected. Access to savings and borrowings could also have longer term welfare implications, permitting people to borrow when young, for example for education or for other physical or human capital, and then repay and save for retirement when they are older. Over the last decade, finance has been recognized as an important driver of economic growth. More recently, access to financial services has been recognized as an important aspect of development and more emphasis is being given to extending financial services to low income individuals and households.(Anne *et al.*, 2005) Yet, access to finance is limited in many developing countries like Tanzania and it reaches only a few individuals and firms. (Elizabeth *et a*l, 2003)

It has become a common view that finance can strongly affect the attainability of the Millennium Development Goals (MDGs). Finance help people to achieve a broad range of life development goals, such as education health, and necessary assets e.g. houses. Indeed, studies have found out that there are specific impacts of access to finance such as the reduction in child labour following improved access to education (Morduch *et al.*, 2002).

Studies conducted by the World Bank since 2002, show that there are different percentages on the enjoyment of access to financial services in different countries. Brazil has 83.8 % of people accessing financial services. Nearly 80 % of people in Mexico are financially served, indicating the importance accorded to financial formal services provides in the country. In South Africa there are 63% percent of financially served people. In Namibia and Botswana percentage for the same is 53 and 54 % respectively (Anne *et al,* 2005). In Tanzania, according to service provider market composition of FSDT (2006) through Finscope survey, the financially served are only 46% while the financially excluded are the majority 54%.

### 1.1.1 Financial sector reforms in Tanzania

In 1991 the government of Tanzania adopted a reform strategy that was essentially aimed at ending the former state monopoly in banking by privatizing the then existing public banks. The reform paved the way for lifting of controls on interest rates and credit operations. The policy statements of these reforms aimed at allowing banking institutions to operate on commercial basis, making business and management decisions free from outside intervention, but within the norms of prudent supervision (URT, 2000).

The major component of the financial sector reform was privatization through partial asset sale of the state owned commercial bank, The National Bank of Commerce (NBC). The NBC was unbundled into two relatively large banks. The first bank NBC (1997) Limited with the aim of letting it to specialize in commercial and cooperate lending. The second bank, National Microfinance Bank Limited (NMB) specializes in retail banking in rural and urban areas. After prolonged debate over the issue of empowerment, the privatization of NMB was done in 2005. A consortium led by Rabo bank of the Netherlands and local investors now owns 49 percent of the shares of the NMB, while the government of Tanzania owns 51 percent.

Apart from the NBC, the other state owned bank, The Cooperative and Rural Development Bank (CRDB) was wholly privatized in 1996. Shareholders include the Danida Investment Fund DIF, others are local cooperative organization, corporate companies and individuals. The CRDB excels in its efforts to extend banking services to agriculture and other poorer sectors of the economy. Another principle component of the reform adopted in 1991 was the liberalization of entry into banking. Interest rate, elimination of administrative credit allocation, strengthening the role of Bank of Tanzania in regulation and supervising. The cooperative Society Act of 1991 provided the basis for development of Savings and Credit Cooperative

Societies (SACCOs) as equity based institutions (URT 2000, Satta, 2000). The local and foreign private banks have been established. Currently there are 22 licensed banks, 5 regional unit banks and several regional level banks supervised by the Bank of Tanzania. Some Banks are making serious efforts to diversify their loan products to accommodate their own employees and other salaried persons, leasing house finance and government- guaranteed lending to small and medium scale businesses.

Financial sector reforms outside the banking sub sector have however been very uneven. The insurance market has been liberalized and privately owned insurance companies are offering much- needed to citizens. But the reform for the pension and postal savings schemes, the privatization of National Insurance Corporation and the establishment of effective development and housing finance facilities are moving at a slow pace (Kimaro, 2006). On the other hand, the financial sector reforms brought some negative impact as restructuring of the commercial banks led to closure of branches in rural areas. This reduced the services available to the majority of rural the population (Satta, 2000). Different stakeholders voiced this as a problem since financial services to the micro-level clients are deficient.

Generally, the reforms have changed the direction and the manner in which financial institutions in Tanzania used to operate and deliver services to their customers. Entry of new banks and financial institutions has enhanced competition, resulting in improvement of the quality and quantity of financial services and products. However, despite the mentioned competition and provision of high quality formal financial services, these services are largely confined to few people. According to

FSDT (2006) through Finscope Survey currently only 11 percent of the populations have an account in Formal Financial institutions. Thus, the gap in provision of formal financial services to the poor persists.

### 1.1.2 Financial markets in Tanzania

Financial markets are the facilities and mechanism through which money moves from idle holders to productive uses, or between productive users themselves depending on the benefits or advantages to be delivered from each particular transaction. The financial market is a vital component of a modern economy. Beck, Demirguc-Kunt and Levine (2004) show that countries with better developed financial markets experience faster reductions in income inequality and in poverty levels. Honohan (2004) reported that even for the same average income, societies with deeper financial markets have lower levels of poverty.

The availability of financial services is an essential element of a healthy community. Several benefits are derived from holding a deposit account and establishing a credit relationship with a formal financial institution. People are shielded from risks associated with holding for example uninsured cash reserve. Participation in a mainstream financial markets help ensure that consumers are safeguarded from unfair, discriminatory, or predatory lending practices in formal financial markets. Financial markets involve the process of transferring funds from savers (lenders) to borrowers. Certain characteristics of modern financial markets result in a highly competitive market place. These characteristics include a large number of participants and an extensive communication networks capable of rapid gathering and dissemination of information. Such an environment makes possible so called market efficiency that facilitates effective access to financial services. The financial markets are classified in to money and capital markets

The money markets provide the means for short term lending and borrowing and thus play a key role in the management of liquidity by business, government, and house holds economic units. The money market in Tanzania is yet to be fully developed. Treasury bills are sold in the primary market through auctions that started in August 1993, to commercial banks, other financial institutions, official entities, business and individuals. However the secondary market is still at an early stage of development with little activity and is therefore not yet fully effective (BoT, 2003).

Capital markets are facilities, which channel money (inventible funds) at market prices into productive activities. There are a number of reasons why governments have found necessary to develop capital markets in their countries. With regard to Tanzania, the underlying reason for the development of capital markets is the switch of the country's economy from a "planned" economy, dominated by parastatal enterprises towards a "market economy" where the private sector is expected to play an increasingly importance role. The government is considering capital markets development an importance component of the Economic Recovery Programme (ERP). Consequently the capital markets and security act was prepared. The Act that became effective on October 1994 provided for the establishment of Capital Markets and Security Authorities (CMSA) that is responsible for developing the necessary institutions and regulatory framework (BoT, 2000). Individuals, both as lenders and borrowers, play a much more significant role in the capital market.

## 1.2 Problem statement

There are over 2 billion low-income people in the developing world without access to formal financial services (World Bank 2005). This lack of access can significantly hold back progress of the Millennium Development Goals and restrict the degree to which poor people can benefit from economic growth currently being enjoyed by many developing countries.

In Tanzania, despite all policy efforts that have been undertaken during the last decade and increase in the number of financial institutions, access has remained limited. According to the national survey on demand for and barriers to accessing financial services data shows that 89% of the people in Tanzania did not have a formal bank account that means only 11% of the population in Tanzania has access to formal financial institutions. This rate is very small and cannot speed up the growth of Tanzanians economy towards meeting the Millennium Development Goals (FSDT, 2006).

The majority of Tanzanians are still unable to use financial services. Many are forced to rely instead on a narrow range of informal financial services providers, which are often very expensive and risky. This constrains the ability of the people to participate full in financial markets to increase their income and to contribute to economic growth. Stand alone micro finance institutions cannot by themselves fill the gap in financial services provision due to frequent difficulties with mobilizing funds on a large scale and pooling risks over large number (Anne *et al.*, 2005).

In the non-banking area, there are also serious drawbacks. The majority of retirees have to manage on miniscule pension while the pension schemes are focusing on development and policy directed lending. Furthermore many Tanzanians have been financially or commercially ruined by the state sponsored general insurance schemes following their inability to come through with anticipated payments. The limited access to long term financial arrangement for development, the weak financial market in the country partly explains the current poverty trap that reproduces itself overtime depressing the rate of low income group growth and distorts income distribution.

The above reasoning and argument are the motivation of this study. The study tries to evaluate the degree at which individuals have access to formal financial services; therefore the goal is to see whether individuals have enough access to formal financial services in the research area.

### 1.3 Justification of the study

While there is much information on financial sector development, however, there is limited data on usage and access to financial services. There is surprisingly little knowledge on access to finance to formal financial services. (Anjali, 2005). This study will contribute only on how to improve access to formal financial services to the desirable level, through provision of comprehensive information on the demand for financial services of the population in Morogoro Region. This will support to build inclusive information on financial markets essential for the government, donors, financial institutions and academics partnership in pursuit of the Tanzania Millennium Development Goals and Development Vision 2025 of reducing Poverty line from 48% to 24% in 2010. Furthermore the study aims to contribute on strategies to achieving the National Strategy for Growth and Reduction of poverty in reducing the prevalence of income poverty in Tanzania of which according to the household budget survey of 2000/01 the proportion of population below the national basic needs such as food, shelter and water is 35.7 % (URT, 2004).Reduction of income poverty can be attained through improved access to financial services.

## 1.4 Objectives of the study

### 1.4.1 General objective

Main objective of this study is to evaluate the individual level access to formal financial services in Morogoro Region.

### 1.4.2 Specific objectives

(i) To describe the general issues as to why access to financial services is important to economic development and social perspectives.

(ii) To identify socio- economic factors that influence individual access to formal financial services in the study area.

(iii) To establish the proportion of adult population which have access to various types of formal financial services

(iv) To suggest possible interventions for the improvement of the access to formal financial services.

## 1.5 Hypothesis

(i) Socio-economic factors of individuals have no influence on the access to formal financial services.

(ii) There is no significant difference in proportion of adult populations who use formal financial services in the research area.

## 1.6 Research questions

(i) What are the different types of formal financial services commonly used in the study area?

(ii) Which formal financial institution is accessed by majority of the respondents in the research area?

(iii) What are the barriers to access to formal financial services in the research area?

(iv) In what ways access to formal financial services may be improved with the aim of poverty reduction in the research area?

## 1.7 Structure of the report

The report is organized into five chapters. The first chapter presents background information for the study; problem statement and justification; objectives of the study; and hypothesis. The second chapter reviews literature on aspects that relate to financial access. The third chapter presents methodology used in the study. The fourth chapter presents results of the study and discussion. The last chapter presents conclusion and recommendation emanating from the major findings of the study

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Overview

This section reviews global literature on access to formal financial services and their applicability, mostly, on the development of financial institutions in developing countries. This focus intends to stimulate situations to enhance proper analysis of the key outstanding issue under this study.

## 2. 2 Underlying concepts on access to financial services

### 2.2.1 Financial institutions

In their role as the creator and trader of financial instruments, financial institutions are important participants in the financial markets and perform a variety of vital functions in the financial system. The most important role is the financial intermediation. Financial intermediation greatly facilitates the process by which savings is channeled to investment. The most familiar financial intermediary are the commercial banks. They are the largest group of the intermediary whose principal source of funds is the deposit of individual's business firms and other organizations

### 2.2.2 Banks and non- Bank institutions

These are financial institutions authorized to provide multiple financial services to their clients, including at least deposits, payments facilities, and loans. These entities operate on relatively standard terms and typically have access to the national payments network. . They are normally registered under Banking or under Financial Service legislation and as such are subject to formal prudential surveillance. This include a broad spectrum of formal financial institutions such as commercial banks, post banks, where these are allowed credit functions and loan banks, whether established as corporations or mutual .Non Bank Financial Institution is any institution which is not a bank but is involved in financial services They play a significant role in meeting the diverse financial needs of various sectors of the economy and thus contribute to the economic development of a country as well as to deepening of country's financial system(.Anjali *et al.,* 2005).

### 2.2.3 Formal financial institutions

Formal financial institutions are registered financial institutions licensed to provide a range of financial services. Most of these institutions are registered under financial services legislation such as financial services Act. Microfinance Act, Insurance Act, Postal bank Act or Credit Cooperative act. Most are subject to some form of reporting to a financial surveillance authority usually Central Bank of the country. In Tanzania, The Bank of Tanzania (BoT) is the Central Bank, which controls other Banks or financial Institutions. Therefore, formal financial institutions have a legal status, a large number of membership and their loans tend to be short, medium and long term. Examples of formal financial institution in Tanzania are The National Bank of Commerce (NBC), The National Microfinance Bank (NMB) The Tanzania Postal Bank (TPB), The National Insurance company and pension funds such as Parastatal Pension Fund (PPF) and housing finance companies (BoT, 2003).

### 2.2.4 Informal financial institutions

These are civil, commercial on non –profit providers of finance not financially licensed to provide financial intermediation services. They are not required to report their financial services activities to a financial surveillance authority. The institutions could be registered as commercial entities under the commercial code or other forms of civil society organization offering financial services or NGOs providing financial services and other entities not registered, providing financial services the financial transactions, loans and deposits occurring outside the regulations of Central Market Authority, thus do not have legal status regulated by Central Bank. They are markets made up of friends, relatives of local merchant for example shopkeepers and individual moneylenders, small in membership and volume of funds (World Bank, 2005).

### 2.2.5 Access and usage of financial services

Access is not easy to measure. It is important to distinguish access – the possibility to use and actual use of financial services. Access to finance, in turn has many dimensions: services need to be available when desired, and products need to be tailored to specific needs; the prices for these services need to be affordable, including all non-price transactions costs such as information processing or physical distance. In addition, credit resources should not be limited to borrowers with connections, and collaterals. The provision of these services should also translate into profits for providers, thereby be available on continuous and sustainable basis. In terms of usage, one has also to distinguish between different services (deposit, credit, payments and insurance) from different financial institutions such as commercial banks, and bank-like institutions such as postal savings banks or MFIs informal providers. According to World Bank (2005) people may have access to financial services but may not wish to use them. These should be included in financial access even if they do not use financial services. Claessens (2005) defines access as the availability of the supply of financial services at reasonable costs, where quality and reasonable must be defined in some objective standard and costs reflect all financial and non-financial costs. Access thus only refers to the actual consumption of financial services. In a standard demand-supply (at a "Reasonable costs)" and usage is the intersection of the supply and demand schedule (UN, 2005).

### 2.2.6 Individual versus household access to financial services

While much theory and practice on income and expenditures is only centered on the households as a unit, the intra household power structure can often be complex and access cannot be assumed for all in the household if any one member has access. Using only the household as respondents leads to loosing valuable demographic data on the users of financial services (World Bank, 2005). Even if the individual is the unit of response, it is desirable to measure both direct as well as indirect access to financial services through other family members. The enumeration of financial access in terms of adult individuals is a desirable measure of access for many reasons, including the need to capture differentials based on personal characteristics the opacity of intra family transaction etc.

### 2.2.7 Institutions and product access

Anjali *et al.* (2005) found that access to financial services can be measured it terms of access to certain institutions such as banks, insurance, companies or microfinance institutions; or in terms of access to functions (services) that such institutions provide such as payments services, savings or loans and credit. Yet another approach would be to look at details on the uses of specific financial products e.g. debit cards, credit cards, life insurance, house mortgages etc. but these are highly specific (Karen *et al.*, 2005). For this study access to financial services can be measured in terms of access to Formal Financial Institutions.

## 2.3 Indicators of financial access

This section presents indicators to and use of financial services. Until recently , there has been little systematic information on who is served by the financial sector in developing countries such as Tanzania, which financial institutions or services are the most effective at supporting access to financial services for the poor households and small enterprises. While much literature has developed an array of financial access indicators (Liquid Liabilities to GDP, Private Credit to GDP, Stock Market Capitalization to GDP), until recently indicators of financial access were not systematically available. As part of International Year of Micro credit, spearheaded by UNCDF many organizations have been reviewing the policy and research agenda surrounding access to financial services of low-income households and enterprises. According to Anjali (2005), access to finance can be measured in terms of access to certain institutions such as banks, insurance companies, or micro finance institutions or in terms of access to the functions that such institutions perform or the services that they provide such as payments services, savings or loans and credit. There are indicators proposed to give a broad overview of who has access to what financial services. These places a given population along a profile of access, depending on its usage of formal, semi- formal, and informal financial services, and those excluded from the use of financial services World Bank (2005) itemized these indicators into four segments.

(i) The proportion of the adult population that uses a bank or bank likes institutions.

(ii) The proportion of adult population which uses services from non- bank "other formal" financial institutions but not use bank services.

(iii) The proportion of the adult population which only uses informal financial service providers. The proportion of adult population which uses no financial services.

Another group of indicators looks in a greater detail at the kind of financial services offered. This functional perspective enables a focus on specific service needs and their gradation in order of priority from less to more developed financial environments. The financial services functions identified to be used as the basis for indicators are (i) transaction and payment, services (ii) savings (Deposit) and investment services (iii) loans or credit services and (iv) insurance services (World Bank, 2005).

**2.4 Types of financial services accessed**

Based on traditional constructs of demand for money, moving away from barter economy, the transactions demand for money (to be able to draw funds, cash cheques and make receive payments) is usually accepted to be its first and most important use, demanded by virtually all persons including the very poor. Following transactions demand, the next functions of money is as a store of value; i.e. for the preservation and argumentations of wealth, through savings and investment. Realization is growing that demand for a safe store of value may be the most valuable formal financial service needed. Finally, credit services are used by a smaller proportion of the population than savings services, especially among the poor, but are important in the first place for meeting needs for emergency shocks, and beyond this, for borrowing for productive investments, i.e. as a factor of production, whether in human or physical capital-education, homes or productive enterprises.

### 2.4.1 Access to savings services

Savings services are among the most beneficial financial services for low income people. Nearly all households need to save to protect themselves against periods of low income or specific emergencies and to cover large anticipated expenses (like school fees). Enterprises also need to store the value they accumulate from their profits until they can invest them to earn a higher return. Moreover, savings in financial forms provides funds for investment by others whether through transactions accounts, savings accounts, time deposit, bonds, stocks and pension (Horowtzz and Wang, 2004).

The lowest form of cash savings is having a safe store of value, abstracting from savings in the form of goods such as gold or cattle. Any person who has a bank or bank line account would enjoy this service, together with those who have accounts in deposits taking micro finance institutions and credit cooperatives.

Higher degrees of access would involve examining whether people are able to earn returns on the savings either through (remunerated) transactions, from a savings account or from financial investment.

### 2.4.2 Access to loan and credit services

According to the World Bank (2005) credit assumes a special importance as it provides a means to smooth consumption protects against shocks and is some cases, makes productive investments that lead to high future income. Credit offers the means to make temporal financial decisions. For example, spending money productively now in order to be able to get better earning later. In addition to loans, credit facilities such as overdrafts or lines of credit are increasing in importance.

According to URT (2000) credit services can perform some of the services as savings and can allow enterprises and families to make some important investments. Enterprises use credit as a source of short-term working capital and long-term investment capital. Individuals and households use it to meet consumption needs, particularly during periods when income flows are low, such as during off- seasons, before crops are harvested, and to make investments such as housing improvements.

### 2.4.3 Access to payments and transactions

That is whether it is possible to make or receive simple (non-barter) payments- constitute the first service of financial access to the people. Looking first at the simplest transaction need, if a person has a bank account at a bank, s/he also has the capacity of converting checks into cash, draw money and send money. This type of service is valuable to low income people, residents and institutions. Payments services can play an important role in supporting the overall profitability of the financial institutions that offer them (URT, 2000).

### 2.5 The importance of access to finance

To understand better issues surrounding access to financial services, it is important to keep in mind what access to finance refers to. Access to finance refers to the availability of the supply of financial services at "reasonable cost". Access thus only refers to the presence of financial services (UN, 2005). For the majority of Tanzanians, whose income are very low, access to financial services offers the possibility of managing scarce resources more efficiently, protection against risks, provision for the future and taking advantage of investment opportunities. For economic returns for individuals and households, financial services allow higher standards of living to be achieved with the same resource base while for enterprises and farmers, financial services can facilitate the pursuit of income growth (URT, 2000).

Access to financial services has received more attention lately and has become the most important part of the overall development agenda. This is likely for a number of reasons: for one, evidence that "finance" as in financial development matters for growth has been accumulating over the last decade. Second, based on changes in economies and economic production, finance may have moved up in the ranking of barriers to economic growth. Third, there is an increasing perception that access to financial services has been skewed for household and enterprises.

There is much more evidence today that access to finance causes economic growth. The empirical evidence is very robust and available at the level of country, sector, and individual firms and household and using various statistical techniques. Financial access has been said to "cause" growth (Rajan and Zingales, 1998; Demirguc-kunt and Maksimovic 1998; Beck, Demirguc and Vojislav, 2005). Finance help growth through raising and poling funds, thereby allowing more and more risky investments to be undertaken by allocating resources to their most productive use, by monitoring the raising of funds, and providing instruments for risk mitigation. Interesting, it is less the fact in which these financial services come whether from banks or capital markets but more the fact that they are being provided in an efficient manner, i.e. being supported by a properly institutional and competitive environment, which matters for growth (Jalilian and Kirkpatric, 2001). As such, it is difficult to assert that particular types of financial system are more or less conducive to growth, and possibly neither which type of the system is more or less conducive to facilitate access to financial services.

Finance access also helps with improving income distribution and poverty reduction through several channels. Foremost financial access helps through economic growth, thus raising overall income levels. Finance can more specifically help by distributing opportunities fairly. There is evidence that financial access matters especially for poor household's ad small firms. Studies on the link between finance and poverty include Levine (2004a) who found that financial access development causes less income inequality, also found that inequality decreases as finance developed and since the more concentrated income to higher poverty finance thus helps reduce poverty.

Honohan (2004 a, b) specifically shows that financial depth and access explain poverty line (number of people with income less than $1 or $2 a day) but, he also finds that across countries the degree of microfinance penetrations, often though to be specifically useful for the poor, has no special effect on poverty (Morduch and Hayley, 2002). Specific ways in which financial sector development has been found to help reduce poverty is by alleviating credit constraints that reduce child labour and increase education, including the opportunity cost of foregone child labour services and by insuring shock (Mordurch, 1999). More generally, with one or two exception, it is argued that direct access to financial services can strongly affect the attainability of each of the Millennium Development Goals (MDGs). Including those that chiefly require public services in health and education etc. as these also require people be able to afford these services, which in turn is facilitated by their access to financial services. While financial access in general is beneficial for growth and poverty, does not mean that financial services are available on an equal basis. Finance can be allocated skewed or even perversely. While hard to "prove" for a large sample of countries increasingly there is evidence that finance often benefits the few, especially in developing countries. In normal times, this has meant that not all have been given a fair chance of getting financial services. Loans are being allocated on the basis of connections of non-market criteria. In the context of crises, this has meant that the costs of financial crisis have been allocated unevenly, with the brunt borne by the poor. Halac and Shmukler (2004) show that financial transfers during crises are large and expected to increase income inequality.

There are studies that show the importance of access to financc. Using household data from Peru, Jacoby (1994) found that lack of access to finance reduce the likelihood that poor household send their children to school. Similarly Jacoby and Skoufias (1997) show that household from India villages without access to finance such as credit market tend to reduce their children's schooling when they suffer transitory shocks than households with greater access to financial services. Beegle, (2000) use a household panel survey in Tanzania to show that transitory shocks (Crop shocks) lead to greater increase in child labour in household with fewer assets (which are used both as buffer stocks and collateral for borrowing). Guarcello and Rosati (2003) used data from Guatemala and show that child labour increases in response to broadly defined income shocks and self reported credit rationing. The importance of access to finance in innovation and technology diffusions is shown by Guarcello and Rosati (2005) in southern India. They found that investment in the absence of credit market can only be afforded by wealthier people. The shortcomings with most of these studies, however, are the difficulties associated with deriving a satisfactory proxy for access to finance. Most authors used variables like ownership of fixed assets to proxy for access to finance. Using a recent randomized consumer credit expansion in South Africa and thus direct indicator of access to credit, Zinman and Karlan (2006) show that access to credit helps to reduce hunger and poverty and increases employment.

### 2.6 Technological improvements and access to financial services

Besides the removal of barriers and improvements in the institutional environments, a number of recent experiences have shown that through some specific technological intervention access to financial services can be enhanced. In India, for example, the use of the existing networks (e.g., the postal system) allows the delivery of new financial services by other public and private providers. The idea is that technology and information is the backbone of the access to financial services. Many developed countries have large networks of financial institutions already connected to electronics where various financial institutions can offer their services online for customers to choose. In South Africa, using electronic financial services has been developed to allow customers to apply for loans from any bank.(Zeldes,2002)

New technology, including the internet, smart cards, and the use of mobile phones can generally help broaden access. In Vienna for example payments for parking fees and in Finland payments at vending machines can be made by mobile phones. In many developed countries, mobile payments can now be made through voice access messaging, and also customers pay using the pre paid value stored on their mobile phones where payments for goods and services are placed as additional items on the customer's phone bills. The use of mobile phones for financial services provision might also facilitate access in low income developing countries. In some developing and transition countries, Banks have offered pre-paid cards, example Brazil, Ghana Malawi, and Nigeria. The use of pre-paid cards can facilitate payments services for low-income households and individuals (Guarcello and Rosati 2003).

Paulson and Townsend (2003) provide a case study of how Standard Bank of South Africa tried a new way of addressing an un-banked population. It was a simple savings product offering card of access but supported by dedicated staff speaking a mix of relevant local languages and operating out of dedicated outlets to help overcome problems of illiteracy. It had high start up costs, but provided financial services to a low-income segment. Since then the E- bank has been absorbed in banks more general provision of financial services to low-income households.

**2.7 Socio-economic factors and access to financial services**

Information on socio-economic characteristics especially income, education and wealth are important in determining access to financial services. Anjali (2005) found that such information could be used by financial institutions as proxy of creditworthiness. For example, income could be a proxy for cash flows that can service loans, and assets or wealth. Banks sometimes desire such information for opening an account, or even to accept a deposit. Other characteristics could include position in household, gender or employment. Income is the most important of the socio-economic characteristics and it has a strong positive relation with access to a variety of financial services, including having a bank account, deposit and credit services. For most measures of financial access, virtually all socio- economic characteristics included in the analysis turn out to be highly significant discriminators in determining access to financial services.

Regarding location and financial access, the finding is that, persons in less well off and more remote areas do face low levels of access. Location, defined in terms of neighborhoods with service expansion targeted at areas with specific micro-economic characters (e.g. high concentration of low income housing), may be more appropriate. Therefore location is important in determining access, but location in terms of neighborhood can be as important as discriminator for access.

### 2.8 Barriers to access to finance

Explanation of the lack of access falls into two dimensions; financial institutions constraints and barriers arising from the overall institutional environment. According to Beck and de la torre (2005) this means that one can classify options to expand access in two groups: individual financial institutions and institutional environmental constraints.

### 2.8.1 Individual financial institutions constraints

Consumers household and individuals often state that they restrain their demand because financial services being provided were not of the right types often they mention problems of high minimum deposits, and high administrative burden and fees. Getting a loan can be especially cumbersome and too costly for many borrowers the high fixed costs of applying and the often high rejection rates. Financial institutions may further more demand collateral, which poor borrowers typically lack. Formal financial services provision may also entail other, non-pecuniary barriers, such as requiring (greater) literacy. Instead, household and individual will not seek financial services from formal financial institutions and rely on informal forms of finance. This applies to deposits, lending, and payment services. Individual's needs funds for investment may rely on family and friends. People wanting to transmit payments to the relatives, whether domestic or international, may rely on informal networks, although at high costs. (Solo *et al.*, 2004).

Thus, lack of demand is very important reasons why access to financial services is not universal: many households and individual may not use financial services, although they do have access to some financial services. And banks may consider some households and individuals less attractive as customers, and are therefore not willing to extended financial services. When demand is there, though and the environment is sufficiently competitive, banks can be expected to try to provide financial service. Still, one common reaction of financial services providers why they do not serve poor household and individuals is that these are too high- risk, too high costs- propositions. In other words, financial institutions find it not profitable enough to offer appropriate financial services to some segment (Ryme and Otero, 1997).

There may be variety of reasons for the lack of provision of appropriate financial products and services. Banks may have problems of providing financial services to the people e.g. it may be too costly to provide the physical infrastructure in rural areas, or in some areas there may be a lack of security in cash transfers and branches cannot be operated profitably (Beegle, 2000). High transactions costs for small volumes are often mentioned as constraining financial service providers from broadening access. For example, to open a cheque account in a commercial bank in Cameroon, the minimum deposit requirement is over 700 dollars, an amount higher than the average GDP per capita of that country, while there are no minimum amounts required in South Africa or Swaziland. Annual fees to maintain a checking account exceed 25 percent of GDP per capita in Sierra Leone, while there are no such fees in Philippines. Small borrowers borrow frequently, for example, and repay small installment. They consequently do not want financial products with high percent costs (Levine, 1997).

Household and individuals in developing countries may seek financing or insurance for specific purpose such as major life events such as marriage, health or specific crops insurance, for which contracts are difficult to design (Berger and Humphrey, 1997).

### 2.8.2 Institutions environment constraints

While there is much analysis on what affects financial sector development and the role of the institutional environment there is no evidence on what is affecting access to financial services (World Bank, 2001).

It appears that access to finance for the poor or near- poor is better in countries with higher GDP per capita and countries with better "institutional" quality and a larger market size (Honohan, 2004a, b). This suggests that there are some elements of overall general development, including a greater usage of advanced technology allowing developed countries to offer financial services profitably in income group . The lower segment in these more developed countries represents a higher income level, so it does not mean that the same technology can reach the lower segments in developing countries like Tanzania. Specifically, countries with higher spreads and higher profitability in their main banking system have fewer micro-finance institutions.

It also appears that access to savings can be a function of the distribution networks, including that of postal saving banks and other more specialized financial institutions. In Brazil, for example, the size and scope of the some branch networks, as well the relationship between public/private banks and domestic/foreign banks plays a role in the degree of access (Anjali *et al.*, 2004; and World Bank, 2005). In other markets more specialised financial institutions such as savings banks and proximity banks that have become profitability an objective of providing financial services, have had some impact on broadening access (Peachy and Roe, 2004). These findings suggest that what is driving access to finance is not purely a function of the scope for profitable banking, but the overall institutional environment and level of development do play a role.

In addition to hindering the activity of existing financial service providers, regulations can also hinder the emergence of financial institutions more suited to the needs of low-income household or individuals (Morduch, 1999). Rigidity in rules, high minimum balance requirements, and limited degrees in funding structure, too heavy regulations and supervisions, too strict account opening requirements hinder financial institutions from emerging. In South Africa, for example, regulations and supervision for banks were being extended to micro finance- institutions, which reduced their capacity to offer financial services profitably to the lower segments of the populations (Glaessner *et al.*, 2004).

## 2.9 Assessment of Econometric models used in studies related to finance

Proper analysis leads to rightful decision making in any endeavor. Analytical methods are nonetheless a function of previous methodologies and procedures for which improvements can be made to enhance new findings and/or strengthen reliability of old findings. More recently, access to financial services has been recognized as an important aspect of development and more emphasis is being given to extending financial services to low income individuals. Basing on the individual level access to formal financial services as a subject, analytical works has been very few. Different methodologies have been suggested and adopted for studies related to finance. For example different researches have assessed the relationship between financial development, income inequality and poverty using the general equilibrium models.

Many of the studies have made use of a rich Thai house hold panel dataset collected by Townsend. Gine and Townsend (2004) provide complementary evidence on the financial growth inequality relationship. Fitting Thai household data model first developed by Lloyd-Ellis and Bernad (2000) found that access to finance such as credit services increases the GDP per capita and increase income inequality. Jeong and Townsend (2000) compared the fit of Llody-Ellis and Bernad Model with the Greenwood and Javanovic (1990) model and that both models fit the data well, but both models exaggerate the movement between low and high income groups and underestimate movements within different income groups. Townsend and Ueda (2003) compared a general equilibrium model with fixed financial transaction costs. While the calibrated model is broadly consistent with the growth-inequality relationship, it does not explain well this relationship. Paulson and Townsend (2003) explain the source of households financing constraints, comparing a limited commitment model and moral hazard model. Using Thai household data, they found that for poorer households, limited commitment is the major constraint, while moral hazard gains importance as wealth increases. While these structural models are promising in improving the understanding of issues pertaining to finance growth it is always not clear how much the insights from the stylized models rely on specific details, on how the imperfections were modeled and whether the results are robust to these choice. Anjali (2005) used regression analysis in an evaluation of the relative importance of socio-economic factors affecting access to financial services in Brazil. The analysis used a series of different measures of access and a range of different explanatory variables related to location as well as individual characteristics. Thus for example, with the probability of having a bank account as a measure of access, geographical location, type of building, income and education level were all significant. Some studies have used linear regression analysis where a credit demand equation was established. Maumbe (1993) used regression analysis to investigate household's factors affecting demand for institutional credit. Difficulties in regression interpretation arose, because some variables were not measured or recorded with accuracy example farmers' attitude.

Bosch and Collins (2003) used regression on their study of financial sector development and economic growth. The authors did not find a statistically significant relationship between these two aspects. Of course these and other regression results depend on what else is included as explanatory variables. Difficulties in regression interpretation arose, because some variables were not measured or recorded with accuracy e.g. attitude. Other difficulties in regression analysis are the violation of ordinary least square assumptions, when the assumptions are violated the validity of the model is questionable (Kashuliza, 1986; Maumbe, 1993). The basic assumptions include autocorrelation, homoskedasticity and multicollinearity. It is important therefore for an analyst to perform relevant tests to see whether these assumptions have been seriously violated (Gujarati, 1995).

Discriminant analysis has also been used in some studies to evaluate accessibility to formal credit where a multivariate discriminate function was used to establish characteristics between farmers who get access to seasonal farm credit and those who do not for example the study of Kashuliza and Kydd (1996). In their study, the authors observed that variables which best separate borrowers of formal credit and non-borrowers were: awareness, history of having used formal loans before; farm size, expected farm income and education level.

Temu (1994) used Disriminant analysis to discriminate between users and non users of financial institutions. The analysis was used to statistically determine variables that differentiate account and non-account holders. The author found that family size, distance, and local commercial centers were not different between account and non-account holders. Further variables such as cash income from crops, age, total non-farm income and education were different between the binary groups. In addition, account and non-account holders differed in the means of land ownership and years in formal education.

## 2.10 Logit regression and past studies on socio-economic variables

Some studies have used Probit regression such as that of Madeira (2002). In this study the author used the model to evaluate the effects of a financial crisis on occupational choice by estimating the probability of being an entrepreneur as a function of education, wealth, income and experience. The results show that wealth measure constructed has some explanatory power over occupation choices and are consistent with the existence of credit constraints.

In a study on assessment of smallholder dairy farmers and processors in Morogoro and Dar es Salaam, Chimilila (2006) used logit regression to examine the influence of socio-economic factors on processors access to supermarkets. The author found that, socio-economic factors had a positive effect on access to supermarkets.

This same technique was also used in a study conducted by Sango (2003) in Dar es Salaam and Morogoro Municipality to see the impact of socio-capital in the reduction of food vulnerability. The author was interested in the relationship between household level of socio capital and food security.

A binary logit model was also used by Chomba (2004) in Zambia to determine quantitatively how the relevant socio-economic factors interact to influence farmers in their choice of farming system. The results indicated a number of factors such as income, incentives, level of education and age significantly influenced farmers to choose intercropping as their ideal system of farming. Skaggs (2001) used the same technique of logit regression to determine how socio-economic variables (age, education, and farm size, income and off-farm employment) could help predict growers use of high technology irrigation system on their farms. The results showed that, socio-economic factors had a positive effect on the attitude towards increasing the use of high technology irrigation system.

The above mentioned studies were a bit more scientific in that they used some statistical means like percentages in determining the magnitude of various variables. Among the variables under reference were related to socio-economic variables such as age, education, income, occupation and awareness. Proper sampling methods namely simple random sampling, systematic sampling and stratified sampling were all used in these different studies. Data analysis methods varied depending on the nature of the study. Descriptive statistics and Logit regression model was adopted because past studies have found these formulations adequate in explaining the relationship sought by this study.

**2.11 Conclusive opinion**

Given the descriptions of the previous related studies on the subject of access to finance and logistic regression model in relation to socio -economic variables, this study adopted a more positive research approach by making individual respondents assessors of some variables according to their own perceptions. The quantitative method employed was logistic regression analysis. This method was employed to test the most important hypothesis of this study that, socio-economic factors influence the individual level access to formal financial services. Literature has it that while much theory and practice on household income and expenditure is centered on household as a unit, access to finance cannot be assumed for all in the household if growers use of high technology irrigation system on their farms. The results showed that, socio-economic factors had a positive effect on the attitude towards increasing the use of high technology irrigation system.

The above mentioned studies were a bit more scientific in that they used some statistical means like percentages in determining the magnitude of various variables. Among the variables under reference were related to socio-economic variables such as age, education, income, occupation and awareness. Proper sampling methods namely simple random sampling, systematic sampling and stratified sampling were all used in these different studies. Data analysis methods varied depending on the nature of the study. Descriptive statistics and Logit regression model was adopted because past studies have found these formulations adequate in explaining the relationship sought by this study.

**2.11 Conclusive opinion**

Given the descriptions of the previous related studies on the subject of access to finance and logistic regression model in relation to socio -economic variables, this study adopted a more positive research approach by making individual respondents assessors of some variables according to their own perceptions. The quantitative method employed was logistic regression analysis. This method was employed to test the most important hypothesis of this study that, socio-economic factors influence the individual level access to formal financial services. Literature has it that while much theory and practice on household income and expenditure is centered on household as a unit, access to finance cannot be assumed for all in the household if any one member has access. Using only the household as a respondent leads to the risk of loosing valuable demographic data on the users of financial services. Therefore this study used the enumeration of financial access in terms of adult individual as a desirable measure of access with the aim of capturing differentials based on personal characteristics and the capacity of intra family transactions. Logit regression analysis was employed to evaluate the influence of socio-economic factors in access to formal financial services in the study area. The model building was based on the fact that the dependent variable was dichotomous (dummy variable). Normally, in such functions the disturbance term is always heteroscedastic (Guarjarat , 1995). Thus maximum likelihood estimation procedures were employed instead of Ordinary Least Squares estimation. Binary logit regression model was thus employed. Level of education, income, interest, distance, and occupation were taken as independent variables of the regression equation. Logic dictates that age of a person is always a factor in decision-making. Respondent's age was thus included as another independent variable to the equation. The details of methodology used in this study are covered in the following chapter.

# CHAPTER THREE

# METHODOLOGY

## 3.1 Overview

This chapter presents the methodology used in the study. It covers conceptual framework governing the study, description of the study area, type and sources of data used, sampling procedure and sample size, and tools of data analysis. Qualitative, non –parametric descriptive analysis are estimated.

## 3.2 Conceptual frame work

The framework (Fig 1) as adopted from Navas *et al.* (2002) displays a pictorial representation of the relationship existing between access to formal financial services, socio-economic factors and constraint to access. The conceptualization holds that, access to formal financial services is influenced by socio economic factors and the absence of constraint such as technology, quality of services, competition, banking regulations, cost of services and demand constraint. The framework relates to the study objectives as evidenced by the depicted variable interrelationships. The framework provides a general set-up so that the objectives are fully represented. For example; objective one was just about describing the general issue around why access to formal financial services is important to economic development and social perspectives. Objective two required to identify socio-economic factors that influence the access to formal financial services that is, access to formal financial services is influenced by age, gender, education employment status (occupation), and location. This implies that younger persons will have lower demand for savings and a population with a high proportion of young person would likely to have a different profile of access from one with a more narrow based age distribution. Equally male and female profiles of access would be expected to differ. Education and literacy affect not only awareness and hence voluntary exclusion but also provider discrimination. Individuals with higher levels of education are expected to have a better knowledge about the role of financial access, appreciate the benefits and understand the procedures of getting services from formal financial institutions. Respondents with formal education are expected to be capable of making better decisions in matters pertaining to finance Employment status has an important discrimination for access, especially to those respondents who are employed have regular income through salaries therefore more likely to meet financial institution regulations for instance in terms of opening an account at a bank. Geographical location ion terms of neighborhood to and from financial institutions determined the degree of access to formal financial services respondents living in urban areas have different profile of access than those living in rural areas. Financial access can be hindered by constraint, which can be grouped into financial institutions constraints and institutional environment constraints. Financial institutions constraints includes types of financial services accessed, costs of services and demand of access, while institutional environment constraints include technology used, quality of services offered, competition with other financial institutions and banking regulations.

The types of financial services accessed such as savings, transaction, provision of loans and insurance services are important to enable participation of low-income individuals to formal financial services because the demand to use these services will be increased. An increase in demand will attract banks to extend financial services. High costs such as transaction costs and high minimum deposit of financial services may hinder low-income individuals to seek those services from formal financial institutions.

When the institution environment is not conducive, access to financial services will not be guaranteed even if the former factors that influence access (i.e. age, education, gender, occupation, location and income) are all met. Financial institutions, which offer high quality services, will have larger market size of customers compared to an institution, which offer poor quality services. The use of low technology in financial institutions narrows the degree of access, while improvement in technology can help broaden access for income individuals and households.

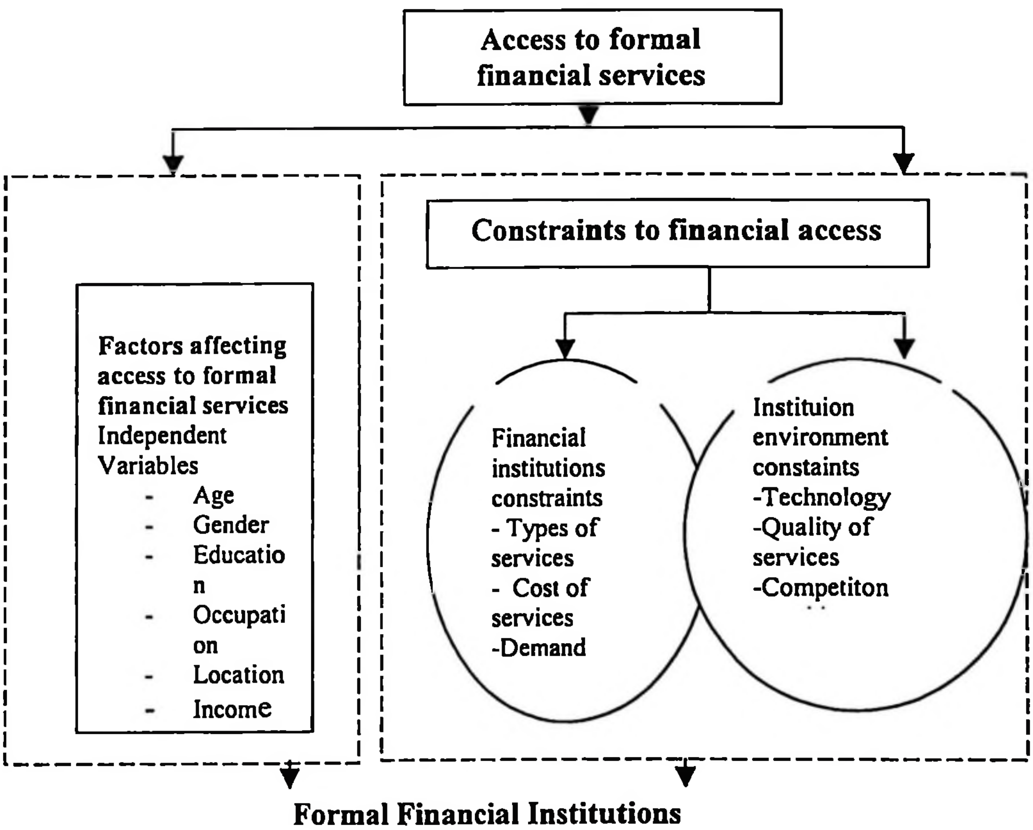


**Fig 1 Conceptual Framework**

### 3.2 The study area

#### 3.2.1 Location

The study was conducted in Morogoro region which is located in the eastern part of Tanzania Mainland. The Region lies between latitudes $35^0 25"$ and $10^0 0"$ south of the equator and between the longitudes $35^0 25"$ and 380 301 east of Greenwhich. Seven neighbouring regions border it: to the north are Tanga and Arusha, to the east Coast Region. On the western border are Dodoma and Iringa while Ruvuma boarders it to the south. The southeastern border is bounded by Lindi Region. Administratively the region has six districts namely Morogoro urban, Morogoro rural, Kilosa, Kilombero, Ulanga and Mvomero.

#### 3.2.2 Demography

According to 2002 census, the regions population size is 1 783 664 people equal to 5% of the total population of Tanzania which was 34 671 453 people. Population growth rate is estimated to be 2.6 (URT, 2002). Population density is 25 people per sq km. In the 2002 population census Morogoro urban recorded 228 863 people. There were 263 920 people in Morogoro Rural, 489 513 people in Kilosa 322 799 people in Kilombero, Ulanga and Mvomero recorded 194 209 and 260 525 people respectively (URT 2003).

#### 3.3.3 Regional economy

The economy of the region has no exception. Like other regions in Tanzania, more than 90% of its population depends on agriculture for their livelihood. Livestock keeping and fishing are also undertaken. Other economic activities include mining, small and medium industries. Other important sectors in the regional economy are forestry and wildlife. The region recorded per capita income of Ths 375 467 in 2005 and gross domestic produce of Tshs 706 296. Million in the year 2005. Rank wise the region maintained its seventh position over the period. in the case of GDP, thirteenth position for the case of Per Capita GDP.

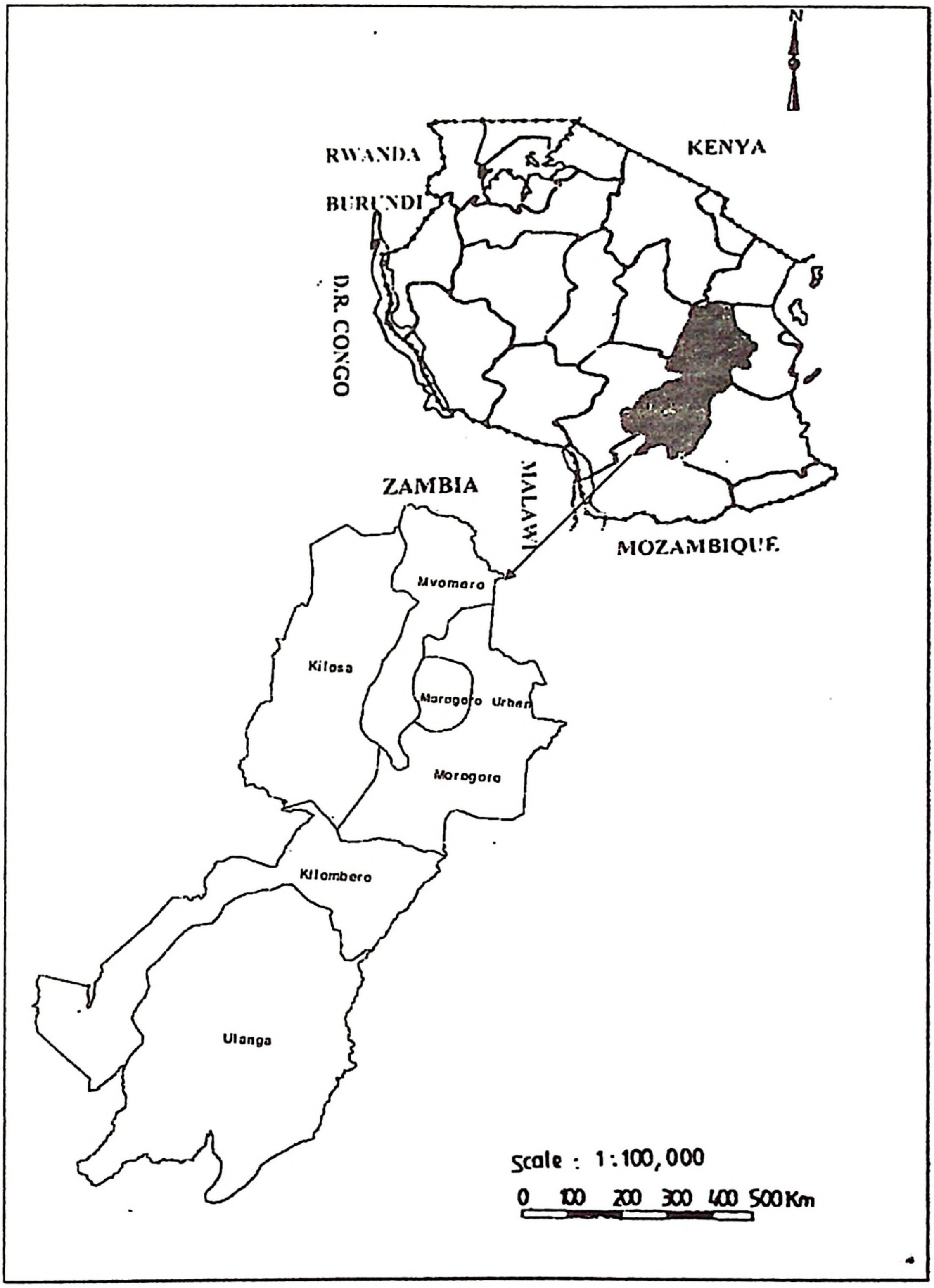


**Fig 2 The study area: Map of Morogoro Region**

### 3.4 Data sources

Both primary and secondary data were used in this study. The survey covered collection of both qualitative and quantitative information. Secondary data collected for this study were from various reports and publications such as BoT bulletins, Household Budget Surveys, NMB and NIC. Most of the publications were found at the Sokoine National Library (SNAL). Primary data were sought from residents in surveyed areas. The study collected information regarding issues pertaining to access to formal financial services.

### 3.5 Sampling procedure and sample size

A multistage random sampling technique was employed to select the study areas as it covers large area. Three districts out of six were selected from the region namely Morogoro Municipality, Morogoro rural and Kilosa. The divisions of Morogoro Municipality, Mikese and Kilosa town were selected from each district respectively. From each division two wards were selected as follows, for Morogoro Municipality the wards were Kihonda and Sabasaba while for Mikese division the selected wards were Mikese and Fulwe.For Kilosa Town division, Kasiki and Mbumi wards were selected. Simple random sampling was used to select respondents for interview from the selected village/ streets in each ward depending on the location.

#### 3.5.1 Instrumentation and the data collection process

The major survey instrument used in the collection of primary information was a structured questionnaire (See Appendix 1). The questionnaire was designed to collect sufficient data intended to address the objectives of the study. In this regard, the questionnaire included questions properly set to collect information required in running all the anticipated statistical and econometric analyses for testing hypotheses and answering research questions. Data collection process was conducted in December 2006. The actual process of data collection was preceded by two weeks of pre- survey and adjustments of the questionnaire. Data collection exercise was done by the researcher assisted by two enumerators. Prior to their active involvement in data collection the enumerators received thorough training on how to administer the questionnaire.

### 3.5.2 Software for data analysis

Data were analyzed using SPSS Computer Program. Both qualitative and quantitative analyses were carried out.

## 3.6 Data analysis

### 3.6.1 Qualitative analysis

Qualitative analysis involved computation of descriptive statistics such as percentage, frequencies, averages, and cross tabulation analysis. Descriptive analysis undertaken in this study involved a number of descriptive statistics and parametric tests. It was used to present characteristics and distribution of individuals in various aspects studied such as socio- economic characteristics and types of formal financial services offered. The principal non-parametric tests employed in this study were chi- square statistics. Chi–square tests have been employed in testing the significance of the model.

### 3.6.2 Logit regression analysis

The study employed a logit regression model to examine the influence of socio-economic factors on access to formal financial services. Individuals with access were the only category of respondents used in this analysis.

### 3.6.3 The model and its techniques

The binary logit regression model using maximum likelihood methods was used to estimate the probability of having access to formal financial services. The purpose of qualitative choice model is to determine the probability and individual with a given attribute will make one choice rather than one or more alternative choices (Gujarati, 1995). Choice models predict the likelihood that an individual will choose an option that will have some relationship to their attributes of socio-economic factors. The binary logit qualitative choice model is based on the cumulative distribution and is specified as;

$$P_i = E(Y_i = 1/X_i) = \frac{1}{1+e^{-zi}} \quad \text{.....(i)}$$

Where

e is the base of nature logarithm ms, for choice 1 (success and Y= 0 (otherwise) P is the probability that an individual will make a certain choice when faced with two choices: given x; individual characteristics (Brown, 1991)

$$1- P_i = \frac{1}{1+e^{zi}} \quad \text{.....(ii)}$$

The probability of making one choice relative to the other is calculated by;

$$\frac{P_i}{1-P_i} = \frac{1+e^{zi}}{1+e^{-zi}} = e^{zi} \text{ ......................................................... (iii)}$$

Taking the natural log of Eq (iii) will give the values of the logit ($Ld$) as illustrated in the equation used in this study as follows;

$$Ln\frac{P}{1-P} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \text{ ............(iv)}$$

Where;

$Ln\frac{P}{1-P}$ = Is the dependent variable which is the natural logarithm of the Probability of having access to formal financial services ($P$) divided by the probability of not having access to those services ($1-P$). It takes the values of 1 for access and 0 for no access

$X_2$ = Age of respondents in years

$X_2$ = Dummy of sex ($X_2$ = 1 if male; $X_2$ = 0 otherwise).

$X_3$ = School age in years

$X_4$ =Occupation of respondent

$X_5$ =Dummy of income ($X_5$ = 1 if high)

($X_5$ = 0 if low)

$X_6$ = Dummy of distance measured in km ($X_6$ = 1 if closer to 21km)

($X_6$ = 0 if longer than 21km)

$\alpha$ = Intercept (constant)

$\beta_1$ = Parameters to be estimated using maximum likelihood techniques

$\mu_i$ = is the stochastic disturbance term $\mu \sim N\ (O,\ P_i\ 1-P_i)$

### 3.7 Expected signs of coefficients for logit model

The coefficient $\beta_1$ in the model represent marginal change in odd ratio due to unit change in age. It is expected that as age increases the probability of respondent to have access to financial services increase. The odd ratio will therefore be positive and thus the expected sign of $\beta_1$ will be positive.

Coefficient $\beta_2$ in the model stand for gender of respondent. It is expected that gender influence access to financial services Males was expected to have more chance of access than females and therefore the sign of coefficient is expected to be positive Coefficient $\beta_3$ in the model stand for marginal change in the odd ratio resulting from a unit change in level of education. Theory assumes that level of education increases the probability of the respondent to be familiar to issues concerning financial matters. Thus it is expected that as level of education increases the odd ratio becomes positive thus the expected sign will be positive

Coefficient for occupation of respondent $\beta_4$ in the model ought to have positive effect on access to financial services because more productive occupation leads to an increased income, which creates more chance to save and borrow in formal financial institutions. Therefore the sign of coefficient $\beta_4$ is expected to be positive.

Coefficient $\beta_5$ in the model stands for incremental change in odd ratio resulting from a unit change of income. It is expected that as the income of the respondent increase, the probability of access to financial services increase and therefore the sign of coefficient $\beta_5$ is expected to be positive. Coefficient $\beta_6$ in the model represent marginal change in odd ratio due to a unit change in distance to/from formal financial services. It is expected that as the distance to financial institution increase the probability of respondent to have access will decrease therefore the odd ratio will be negative.

### 3.8 Problems of parameter estimation

Problems of parameter estimation often emanate from violation of the assumption of the linear regression model. The common problems encountered in the regression analysis include multicollinearity, hetrosckedasticity, and autocorrelation. How ever the commonest problem in the logistic regression models is heteroscedasticity (Gujarat 1995). Heteroskedasticity occurs when variance of the error term is not constant and in turn results into large standard errors of parameter estimates, depressed t – value and hence rejection of many hypothesis unnecessary. Glaser test was conducted to test for heteroskedasticity by regression of absolute of the residual on the explanatory variable and the testing the significance of t-test suggests heteroskedasticity. The model was found to suffer from heteroscedasticity.

Gujarat (1995) suggested solution to heteroscedasticity problem in a logistic model. The solutions involve estimation of a transformed logistic regression model. This was done by transformation of all variables followed by re-estimation of the model by using maximum likelihood estimation of the coefficients. The interpretation of the coefficients is not as straight forward as in ordinary least square regression analysis. The coefficients on their own do not tell much but the coefficients can be used to compute marginal effects, which are useful in interpreting the effect of predictors on the change of probability. Also the signs of coefficients can be used to indicate the direction of the change of the predicated probability arising from a change in the predictor, (Mukherjee, *et al.*, 1998).

The estimated logistic model is expressed as follows

$\sqrt{wL_i} = \beta_1\sqrt{w} + \beta_2\sqrt{w}\,X_1 + \sqrt{\ }\,w\mu$ ……………………………………………… (v)

The equation can be written as

$L_i{*} = \beta_1\sqrt{w} + \beta_2 X_i{*} + v_i$ ……………………………………………………………………(vi)

Where

$L_i{*}$ = Transformed or weighted $L_i$

The equation can be written as

$L_i{*} = \beta_1\sqrt{w_i} + \beta_2\, x_i{*} + v_i$ ………………………………………………………………(vii)

Where

$L_i{*}$ = Transformed or weighted $L_i$

$X_i{*}$ = Transformed or weighted $X_i$

$w_i = P_i = (1 - P_i)$

$v_i$ = Transformed error term

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.1 Overview

This chapter presents results and discussion of the study. The findings are presented in six sections. Section 4.2 begins by describing individual's Socio – economic characteristics. Section 4.3 deals with describing different aspects concerning access to formal financial services. Section 4.4 provides an account of different types of financial services accessed. Section 4.5 tries to explain the financial perception of the respondents followed by section 4.7 which account for the production Information. The last section provides logistic regression results.

## 4.2 Socio –economic characteristics of respondents

Socio-economic characteristics have important implications on access to financial services. They have important attributes to any society as they reflect its behavior in decision making and its probable expected responses to many stimuli exposed to it. Socio-economic characteristics of sampled respondents are summarized in Table 1

**Table 1 Distribution of respondents by socio-economic characteristics (%)**

| Variable measured | Morogoro urban n = 40 | Morogoro rural n = 40 | Kilosa n = 40 | Total N = 120 |
|---|---|---|---|---|
| **Age** | | | | |
| 15 – 29 | 3.3 | 7.5 | 4.2 | 15.0 |
| 30 – 44 | 18.3 | 11.7 | 19.2 | 49.2 |
| 45 – 64 | 10.8 | 14.2 | 9.2 | 34.2 |
| 65 + | 0.8 | 0 | 0.8 | 1.7 |
| **Gender** | | | | |
| Male | 15.8 | 18.3 | 19.2 | 53.3 |
| Female | 17.5 | 15 | 14.2 | 46.7 |
| **Education levels** | | | | |
| Primary education | 15.8 | 21.7 | 21.7 | 59.2 |
| Secondary education | 12.5 | 10.8 | 10.0 | 33.3 |
| College | 2.5 | 0 | 0 | 2.5 |
| University | 1.7 | 0.8 | 0.8 | 3.3 |
| None | 0.8 | 0 | 0.8 | 1.7 |
| **Married status** | 10.0 | 14.2 | 10.0 | 34.2 |
| Single | 20.8 | 17.5 | 21.7 | 60.0 |
| Married | 0 | 1.7 | 0 | 1.7 |
| Widowed | 2.5 | 1.7 | 0 | 4.2 |
| **Occupation** | | | | |
| Farming | 9.2 | 14.2 | 12.5 | 35.8 |
| Business | 17.5 | 14.2 | 12.5 | 44.2 |
| Locally employed | 1.7 | 1.7 | 3.3 | 6.7 |
| Civil servant | 5.0 | 3.3 | 5.0 | 13.3 |

### 4.2.1 Sex of respondents

The results summarized in Table 1 above show that males dominated access to formal financial services than females. Males account for 53.3% of respondents while females form only 46.7%. Males dominance in these type financial services isan indication that females have no power and decisions on most issues pertaining to financial matters. Therefore a challenge ahead is in female focus in order to omit gender disparity in the access to formal financial services. The results are in line to the findings of Anjali (2005) which showed that half of the men had access to financial services compared to a third of women.

### 4.2.2 Age of respondent

Table 1 above show that most of the sampled respondents were between 15-64 years, implying that the majority of them were within the active working age. The cohort of 30-44 years, which was about 49.2%, indicates the most active category in production activities and hence their level of access to financial services is high compared to other groups. Further the results reveal to insist income general skills especially for younger people.

### 4.2.3 Education of respondents

Education is one of the long term strategies that may be used to improve access to financial services. Among the significance difference the findings in Table 1 show that, majority of the sampled individuals have attained primary education (59.2%). About 33.3% attained secondary education and only 2.5% attained higher learning education. This indicates that access to formal financial services is high to knowledgeable persons, good at following financial matters thereby improving their access. In addition education should be considered as an important tool in contributing towards financial literacy.

### 4.2.4 Marital status

In this study respondents were also requested to state their marital status. Results in Table 1 show that 60% of respondents are married, 34.2% are single while divorced and windowed are 1.7 % and 4.2% respectively. Marriage increases household's size and therefore venture in increased production as a way of finding means of solving financial problems, rising income and increasing the possibility of financial access.

### 4.2.5 Primary occupation of respondents

Survey results further indicate that majority of respondents 44.2% rely on agriculture as their primary source of income generation. Amani (1992) reported that about 85% of people in Tanzania depend on agriculture as their source of income. The findings suggest that improving farming activities, means helping more to raise their income hence accelerating access to formal financial services. Small business ranked as second major primary occupation in the study area (35.8%) as compared to only 13.3% employed as civil servants and 6.7% employed locally. These findings also imply that people have interest and readiness in entrepreneurship activities through taking initiatives and accepting risks of failure in their small businesses Furthermore improvement of business skills to people, accessing relevant business information and management practices through advisory and business tracking is of great importance.

### 4.2.6 Income of respondents

Table 2, shows the patterns of income level categories. According to this study 55 % of the respondents fall under the category of those earning an income between Tshs 0-50 000 per month, whereas 36.7% of people earn an income between Tshs 5001-200 000 per month. Only 8.3% fall in the category of those earning more than Tshs 200 000 per month. These results suggest that majority of people have low income. In this situation people cannot have effective participation to access and use formal financial services as they cannot meet bank regulations or cannot open bank accounts because they cannot meet minimum balance requirement, service fees and interest rates. According to World Bank (2005) access to financial services rises with per capita income. The relatively poor, low and irregular income people have limited ability to afford bank charges.

**Table 2 Distribution of respondents by income level (%)**

| Income | Morogoro urban n = 40 | Morogoro rural n = 40 | Kilosa n = 40 | Total N = 120 |
|---|---|---|---|---|
| 0 – 50,000 | 16.7 | 23.3 | 15 | 55.0 |
| 51,000 – 200,000 | 13.3 | 7.5 | 15.8 | 36.7 |
| > 200,000 | 3.3 | 2.5 | 2.5 | 8.3 |

### 4.3 Access to formal financial Services

According to survey results Table 3 shows that 63.3% of respondents never had an access, while 36.7% currently have access to formal financial services. These results are in conformity with that of Financial Sector Deepening Trust (2006) which shows that majority of people in Tanzania have no access to formal financial services.

**Table 3:Distribution of respondents by access to formal financial services (%)**

| Access to formal financial services | Morogoro urban n = 40 | Morogoro rural n = 40 | Kilosa n = 40 | Total N = 120 |
|---|---|---|---|---|
| Yes | 15.0 | 10.0 | 11.7 | 36.7 |
| No | 18.3 | 23.3 | 21.7 | 63.3 |

#### 4.3.1 Reasons of having access

Regarding reasons of having access to formal financial services results show that, large proportion of respondents, 48.1%, have access on their own decision, while 30.4% have access due to service conditions. Similarly only 21.5% have access due to job conditions due to the placement of deposit and payment of salaries toward locally owned banks Respondents further presented reasons that led them to use services from selected institutions The major reported reasons as shown by Table 4, Individuals who use the services due to the nature of services required are in the majority 47.6% while other reasons such good services was recorded 26.2% and 26.2% they have no option. These results appear to suggest that people are obliged to have access due to nature of services required, for instance savings, money transfer, payments and loans. Further, results give challenges to financial institution to improve services accordingly in order to attract and convince people use these institutions especially those having no option.

**Table 4 Distribution of respondents by reasons of having access(%)**

| Reason | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 19 | n = 12 | n = 13 | N= 44 |
| Own decision | 16.5 | 13.9 | 17.7 | 48.1 |
| Service condition | '3.9 | 8.9 | 7.6 | 30.4 |
| Job condition | 5.1 | 5.1 | 11.4 | 21.5 |
| You no option | 2.4 | 13.1 | 10.7 | 26.2 |
| Good services | 14.3 | 6.0 | 6.0 | 26.2 |
| Nature of services | 19.0 | 10.7 | 17.9 | 47.6 |

### 4.3.2 Reason of not having access

The survey was also able to explore the reasons for financial exclusion i.e. not having access. Table 5 shows that 7% of the respondents were not accessing due to not qualifying. Nine percent prefer dealing in cash, 15% not trust banks. Further 16% said it is expensive to have access, whereas 20% specified that the bank is too far, 18% claimed that minimum balance in the bank is too high, similarly 22% mentioned that they do not know how to open an account. Not having a job is among the reasons, which were reported by 24% of the respondents. Thirty percent said they don't have money to put into a bank while the large proportion of people (60%) said that they don't have regular income. The results attested to the findings of FSDT (2006) that majority of the population in Tanzania do not have access because of lacking regular income. The results also appear to be suggesting that, the lower the cost of services from formal financial services, the larger the proportion of individuals accessing to these services. Low-income people are largely restricted to cash based transactions and do not experience the benefits that various types of financial services can bring. Furthermore the results are in line with that of Anjali *et al.* (2004) suggesting that demand limitation (such as no need, no savings and no awareness) and supply limitations (such as high costs minimum balance and documentations) affect access to formal financial services. Large proportion of those who do not have access may not easily be able to afford to maintain a bank account therefore simplified but low- cost accounts may be valuable to low income individuals (Anjali, 2005).

**Table 5 Distributions of respondents by reasons of not having access (%)**

| Variable measured | Morogoro urban n = 40 | Morogoro rural n = 40 | Kilosa n = 40 | Total N = 120 |
|---|---|---|---|---|
| Don't qualify | 1.5 | 3.4 | 2.1 | 7.0 |
| Prefer dealing | | | | |
| in cash | 2.3 | 4 | 2.5 | 9.0 |
| Don't trust | 4.0 | .2 | 6.0 | 15.0 |
| banks | | 5.0 | | |
| Expensive to | 5.0 | | 5.6 | 16.0 |
| have access | 3.2 | 5.4 | 6.9 | 20.1 |
| Bank is too far | | 10.0 | | |
| High minimum | 4.2 | | 6.8 | 18.0 |
| balance | | 7.0 | | |
| Don't know to | 5.4 | | 6. | 22.2 |
| open account | 6.9 | 10.3 | 5 | 24.4 |
| No job | | 9.1 | 8. | |
| Don't have | 9.3 | | 4 | 30.0 |
| money to put in | | 10.0 | | |
| bank | | | | |
| No regular | 18.2 | | | 60.0 |
| income | | 22.8 | | |
| | | | 19.0 | |

Note: Figures have multiple responses

### 4.3.3 Financial institution where people get services

Regarding the type of financial institutions where people get services Table 6 Shows that 9.2% of the respondents get their services from banks, 13.2% get their services from non bank financial institutions, and 47.1% get services from informal financial institution while 30.3% are not involved in any of the three types of financial institutions mentioned above. The results suggest that informal financial services are mainly dominated and there is low diversification in access to formal financial services in the research area. According to Daily news Reporter (2007) only 11% of the population in Tanzania has access to formal financial services.

**Table 6 Distribution of respondents by type of financial institution (%)**

| Institution | Morogoro urban n = 40 | Morogoro rural n =40 | Kilosa n =40 | Total n = 120 |
|---|---|---|---|---|
| Bank | 4.2 | 2.5 | 2.5 | 9.2 |
| Non bank financial Institution | 6.7 | 2.5 | 2.5 | 13.4 |
| Informational financial institution | 18.5 | 16.0 | 12.6 | 47.1 |
| None | 8.4 | 14.3 | 7.6 | 30.3 |

### 4.3.4 Location and the availability of financial services

Distance plays an important role in access to formal financial services. One of the study's interests was to find out if distance to financial institutions influences the degree of access and use of formal financial services. The findings, according to Table 7 show that a distance of 0-20km to the financial institution, which was taken as a closer distance, had a large proportion of respondents with access compared to a distance of 21-40km away from the institution. The results seem to be consistent with suggestion of the World Bank (2005) that access to formal financial services only refer to the presence of financial services nearby, and demand varies depending on easy of access and degree of exposure. The results further suggest that although there are indeed differences between availability of financial services with regard to location, placing financial institutions within neighborhoods is important. However, it should be taken in to consideration that the presence of financial institution in a given location it may happen that its clients may be biased towards better off persons.

**Table 7 Distribution of respondents by distance (%)**

| Distance | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 19 | n = 12 | n = 13 | N = 44 |
| 0- 20 km | 34.8 | - | 33.7 | 68.5 |
| 21 – 40km | - | 31.5 | 0 | 31.5 |
| > 41 km | 0 | 0 | 0 | - |

### 4.3.5 Frequency of access to financial services

The results in Table 8, indicate that 94% the respondents fall in the frequency of 1-5 per month while a frequency of 5-10 per month was recorded by only 3.6% compared to a frequency of >10 times per month which was stated by only 2.4% .The result suggest that the lower the income the lower the frequency of access to formal financial services and the vice-versa. The large proportion of respondents in 1-5 times category was caused by high level of respondents with low income in the study areas.

**Table 8 Distribution of respondents by frequency of access (%)**

| Frequency | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n=19 | n=12 | n=13 | N=44 |
| 1 – 5 times per month | 32.1 | 27.4 | 34.5 | 94.0 |
| 5 – 10 times per month | 2.4 | 0 | 1.2 | 3.6 |
| > 10 times per month | 2.4 | 0 | 0 | 2.4 |

### 4.3.6 Consideration of quality and conditions of formal financial services

Realizing that the quality and condition of formal financial services offered as one of the factor influencing access, it was felt important to explore the ideas from the respondents. The results in Table 9 show that, 57.8% of the respondents mentioned that the services offered are moderate and fair while 39.8% said the services were simple and good and only 2.4%indicated that the services were complicated and bad. This suggests that there is a need for financial institutions to improve their services and deliver them in high standards and simple ways to the customers in order to attract as may clients as possible.

**Table 9 Distribution of respondents by consideration of quality of formal financial services (%)**

| Reason | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n =19 | n =12 | n =13 | N=44 |
| Simple | 13.3 | 13.3 | 13.3 | 39.8 |
| Moderate | 21.7 | 14.5 | 21.7 | 57.8 |
| Complicated | 1.2 | 0 | 1.2 | 2.4 |

### 4.3.7 Formal financial institutions where individuals get services

Regarding financial institutions where individuals get services, the results in Table 10 show that majority of respondents obtain services from National Microfinance Bank (NMB) (62.7%), whereas SACCOs recorded 17.5%. Similarly Tanzania Postal Banks recorded 12%, compared to 5.3% of CRDB, while only 2.7% was recorded for NBC. is an indication that NMB is the major formal financial institution provider of services and SACCOs as a semi-formal provider of services to low income people who are the majority of population. From the output point of view, results show the need of capacity building in microfinance institutions to enable them deliver high quality and efficient services to as many as possible clients majority of whom live below the poverty lire of less than one dollar per day. However, a range of different financial institutions may provide microfinance services, which involve with the provision of loans, savings and other basic financial services to the poor. It has been established that the informal finance is more important than formal finance (Chipeta and Mkandawire, 1991).

**Table 10 Distribution of respondents by formal financial institutions (%)**

| Financial institution | Morogoro urban n = 19 | Morogoro rural n = 12 | Kilosa n = 13 | Total N = 44 |
|---|---|---|---|---|
| NBC | 2.7 | 0 | NA | 2.7 |
| NMB | 2.4 | 14 | 15 | 62.7 |
| CRDB | 4 | 1.3 | NA | 5.3 |
| TPB | 2.7 | 0 | 9.3 | 12.0 |
| SACCOs | 6.7 | 6.7 | 4.0 | 17.3 |

Note; NA means not applicable

### 4.3.8 Financial services perception

With respect to financial perception basing to respondents who have no access, a higher proportion of respondents (82.2%) indicated that if they were to receive what they consider a large sum of money and did not spend it immediately they would open a bank account. An average of 2.2% stated that they would give it to someone for keeping. 15.6% said they could hide the money at home. These results seem to reveal that people are ready to have access to formal financial services by opening a bank account but inadequate money is their major problem. Table 11 also indicates a higher proportion of respondents who have no access that could consider minimum balance requirement as the most important factor if they were to open bank account (38.5%). Interest rate was the second most important factor (33.3%), while only

17.9% of the respondents consider an accessibility to loans as their main factor prior to opening a bank account. In addition, respondents were asked their perception on financial basing on events which are most likely to happen causing unplanned financial matters decisions for instance fire, destruction of agricultural crops or failure of business. According to the survey it was observed that 41.2%of the respondents could deal with the events by borrowing money from friends, where as 29.8% borrow money from banks, and also noted 22.8% of the respondents asking donation, 4.4% sell their assets, and a small proportion of 18. % could claim for insurance.

**Table 11 Distribution of respondents by financial perception (%)**

| | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 19 | n = 12 | n = 13 | N= 44 |
| Item | | | | |
| If your were to receive a large sum of money | | | | |
| Open a bank account | 24.4 | 40.0 | 17.8 | 82.2 |
| Give to some one for keeping | 2.2 | 0.0 | 0.0 | 0.0 |
| Hide it at home | 2.2 | 8.9 | 4.4 | 15.6 |
| If you were to pen a bank account what factors to consider | | | | |
| Interest rate | 7.7 | 15.4 | 10.3 | 33.3 |
| Minimum balance | 17.9 | 15.4 | 5.1 | 38.5 |
| Accessibility to loans | 5.1 | 10.3 | 2.6 | 17.9 |
| Location of the bank | 0.0 | 7.7 | 2.6 | 10.3 |

## 4.4 Kinds of formal financial services offered

### 4.4.1 Transaction and payment services

The results in Table 12 show that 75.9% of respondents under the named services above use to money transfer while only 17.2% pay or receive bills and about 6.9% receive or make pension transactions. This could be suggesting that the transaction services (demand) for money such as making and receiving payments or remittances, drawing funds, and cashing cheques is are the most important services used by virtually all persons including individuals with low income.

**Table 12 Distribution of respondents by access to transaction services (%)**

| Item | Morogoro urban n = 19 | Morogoro rural n = 12 | Kilosa n = 13 | Total N = 44 |
|---|---|---|---|---|
| Money transfer | 48.3 | 10.3 | 17.2 | 75.9 |
| Pension | 3.4 | 3.4 | 0 | 6.9 |
| Paying/receiving bills | 10.3 | 3.4 | 3.4 | 17.2 |

### 4.4.2 Savings and investment services

Regarding savings and investment as a formal financial service, the results in Table13 show that 98.4% of the respondents receiving these services have savings account 1.6 % have current account, while there were no fixed accounts. The results suggest that demand for a safe store of value should be the most valuable formal financial services needed by the poor as an important function of money.

**Table 13 Distribution of respondents by savings services (%)**

| Item | Morogoro urban n = 19 | Morogoro rural n = 12 | Kilosa n = 13 | Total N= 44 |
|---|---|---|---|---|
| Fixed | 0 | 0 | 0 | 0 |
| Current account | 1.6 | 0 | 0 | 1.6 |
| Savings account | 34.9 | 30.2 | 23.3 | 98.4 |
| Bonds | 0 | 0 | 0 | 0 |
| Others | - | - | - | - |

### 4.4.3 Insurance Services

The percentage of respondents specifying that they have access to insurance services differed. As shown in Table 14 on the respondents who did not have access to these services were the majority (92.0%) whereas only 8% specified that they had access to Insurance services. These results appear to suggest that people do not have enough knowledge on the presence and advantages of risk transformation services such as insurance. Insurance to farmers to protect them against climate and other shocks have proven costly ( Gine *et al.,* 2004)

**Table 14 Distribution of respondents by access to insurance services (%)**

| Item | Morogoro urban<br>n = 40 | Morogoro rural<br>n = 40 | Kilosa<br>n = 40 | Total<br>N = 120 |
|---|---|---|---|---|
| Accident insurance | 4.6 | 1.1 | 2.3 | 8.0 |
| Life insurance | 0.0 | 0.0 | 0.0 | 0.0 |
| Agricultural insurance | 0.0 | 0.0 | 0.0 | 0.0 |
| Money insurance | 0.0 | 0.0 | 0.0 | 0.0 |
| None | 41.4 | 27.6 | 23.0 | 92.0 |

### 4.4.4 Formal loans

As may be noted in Table 15 only 9.9% of the respondents in the study area secured loans. This is a very small proportion implying that this service is used by a minority of the population than savings and transactions among the poor despite the fact that this service is important for meeting needs in emergency shocks, and borrowing for productive investment (World Bank, 2005). These results are similar to those of Akyoo (2004) indicating that bank borrowing was astonishingly low. The small percentage in these services can also be contributed by the notion of financial institutions that traditionally the poor have been considered as high risk. Also the regulation that members must demonstrate that they are able to deposit a small amount into their accounts consistently for a certain period or demonstrate regular income through deposit before applying for a formal loan.

**Table 15 Distribution of respondents by access to formal loans (%)**

| Securing loans | Morogoro urban<br>n = 40 | Morogoro rural<br>n = 40 | Kilosa<br>n = 40 | Total<br>N= 120 |
|---|---|---|---|---|
| Yes | 5.4 | 0.9 | 3.6 | 9.9 |
| No | 22.5 | 35.1 | 32.4 | 90.1 |

## 4.5 Agricultural information

### 4.5.1 Scale and ownership of farms

Most of the respondents dealing with agriculture in the study area are small scale farmers (98.6%), while only 1.4% are commercial farmers. This indicates that most of the respondents have low income due to small scale farming. This in turn affects the access to formal financial services. The survey results also show that 61.4% of respondents who are farmers hire their small farms and only 38.6% own their farms. Obviously the costs of hiring these farms, which range from 5000 Tshs to 15000 Tshs per acre may hinder the expansion of agricultural production as most of them have low income and therefore unable to hire large areas for increased production. As a result they are subjected to formal financial institutions regulations when opening bank accounts.

**Table 16 Distribution of respondents by scale and ownership of farms (%)**

| Item | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 18 | n = 30 | n =21 | N = 70 |
| Scale of farming | 25.7 | 42.9 | 30.0 | 98.6 |
| Small scale | | | | |
| Commercial | 0.0 | 0.0 | 1.4 | 1.4 |
| Whether the farm | | | | |
| Rented | 15.7 | 22.9 | 22.9 | 61.4 |
| Owned by you | 10.0 | 20.0 | 8.6 | 38.6 |
| Title deed | | | | |
| Yes | 11.6 | 4.7 | 11.6 | 27.9 |
| No | 27.9 | 32.6 | 11.6 | 72.1 |

### 4.5.2 Agricultural financing

The results show that 92 .8% of the respondents who deal with agriculture indicated that they do not get finances from formal financial institutions to purchase their agricultural inputs. For those receiving finances (7.2% ) reported that they are given funds by relatives and family friends rather than from financial institutions This finding seems to be consistent with that of Daily News reporter (2007) that nearly 38% choose source of credit from family or friends. Formal credit to agriculture has been hampered by high price and yield volatility in agricultural production (Gine *et al.*, 2004). Furthermore among those receiving finances from the source stated above, all make repayment through cash money rather than harvested crops, livestock productions or labour. Since agriculture is the dominant sector in the study area it is logical to argue that meaningful access to formal financial services can be attained if agricultural sector get enough funds. Amani, (1992) have noted that informal finance through friends and relatives in Tanzania was a significant source of agricultural financing.

**Table 17 Distribution of respondents by access to formal agricultural financing (%)**

| Agricultural financing | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 18 | n =30 | n = 21 | N =70 |
| Do you receive agricultural financing for your inputs | | | | |
| Yes | 0.0 | 2.9 | 4.3 | 7.2 |
| No | 24.6 | 40.6 | 27.5 | 92.8 |
| If yes through whom | | | | |
| Family/ Friend | 13.0 | 4.3 | 13.0 | 30.4 |
| Self | 60.9 | 8.7 | 0.0 | 69.6 |
| Bank loan | 0.0 | 0.0 | 0.0 | 0.0 |
| In what form do you repay for the financing. | | | | |
| In cash | 63.6 | 9.1 | 27.3 | 100 |
| In kind | 0.0 | 0.0 | 0.0 | 0.0 |
| Labour | 0.0 | 0.0 | 0.0 | 0.0 |
| None | 0.0 | 0.0 | 0.0 | 0.0 |

### 4.5.3 Livestock keeping

Similarly, the study was interested to know the proportion of respondents who keep animals. The results show that a small proportion of individuals (16.4%) keep animals, while majority (83.6%) do not keep animals. The main types of animals kept are indigenous poultry (82.4%), pigs (11.8%) and sheep and goat (5.9%). All types of animals are kept under traditional method.

**Table 18 Distribution of respondents by livestock keeping (%)**

| Item | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 40 | n = 40 | n = 40 | N = 120 |
| Whether keeping animals | | | | |
| Yes | 6.4 | 7.3 | 2.7 | 16.4 |
| No | 30.0 | 28.2 | 25.5 | 83.6 |
| Method of keeping | | | | |
| Traditional | 38.9 | 44.4 | 16.7 | 100 |
| Commercial | 0.0 | 0.0 | 0.0 | 0.0 |
| Types of animals | | | | |
| Sheep/goal | 0.0 | 0.0 | 5.9 | 5.9 |
| Poultry | 35.3 | 41.2 | 5.9 | 82.4 |
| Pigs | 5.9 | 5.9 | 0.0 | 11.8 |
| Cattle | 0.0 | 0.0 | 0.0 | 0.0 |

### 4.5.4 Business activities and payments through formal financial services

The other aim of the study was to see if respondents conducting small business activities facilitate it through formal financial institutions services such as banks, for instance when paying their employees (if any) through banks. The profile in Table 19 shows that 63.2% of the respondents have their business activities unregistered. Among those few dealing with business activities all of them pay their employees in cash. This is an indication that bank deposits and cheques as a mode of payment system are not applicable and not well known.

**Table 19 Distribution of respondents by business matters (%)**

| Business matters | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 24 | n = 6 | n = 8 | N = 38 |
| Is you business registered | | | | |
| Yes | 18.4 | 10.5 | 7.9 | 36.8 |
| No | 44.7 | 5.3 | 13.2 | 63.2 |
| Do you have people who work for you? | | | | |
| Yes | 18.4 | 5.3 | 10.5 | 34.2 |
| No | 44.7 | 10.5 | 10.5 | 65.8 |
| If yes how do you pay them | | | | |
| In cash | 58.3 | 8.3 | 33.3 | 100 |
| In kind | 0.0 | 0.0 | 0.0 | 0.0 |
| Both | - | - | - | - |
| Don't pay | - | - | - | - |
| If in cash how do you do | | | | |
| Bank deposit | 0.0 | 0.0 | 0.0 | 0.0 |
| Direct cash | 63.6 | 9.1 | 27.3 | 100 |
| Cheque | 0 | 0 | 0 | 0 |

## 4.6 Interest and follow up of financial matters

In spite of the factors such as low income, high costs of financial services, high interest rate and distance to financial institutions which hinder access to formal financial services, considerable percentage of individuals (71.7%) appear to be interested in financial matters while 28.3% are not interested. These findings indicated the willingness of people for any strategies for overall reduction of poverty through increasing the people's access to financial services provided deliberate measures are taken through capacity building by financial institutions especially micro finance institutions which deliver financial services to the poor people.

As shown by Table 20 the proportion of respondents stating that they never and/or rarely following what is written or said about financial matter are in the majority 44.2% and39.2% respectively. The distribution of respondents recorded that they often and /or always follow what is said or written about financial matters were 10% and 6% respectively. These results appear to suggest some gaps in knowledge or potential misunderstanding about financial services access and therefore calling a need to improve financial literacy through educating people only when people can fully understand what financial Institutions offer and the trade off if financial decisions are time people can actively engage in financial system hence improved access.

**Table 20 Distribution of respondents by interest and follow up of financial matters (%)**

| Item | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| | n = 40 | n = 40 | n = 40 | N= 120 |
| Interested | 17.5 | 25.8 | 28.3 | 71.7 |
| Not interested | 15.8 | 7.5 | 5.0 | 28.3 |
| How closely follow What is written or said about financial matters? | | | | |
| Never | 13.3 | 14.2 | 11.7 | 39.2 |
| Rarely | 14.2 | 14.2 | 15.8 | 44.2 |
| Often | 3.3 | 2.5 | 4.2 | 10.0 |
| Always | 2.5 | 2.5 | 1.7 | 6.7 |

### 4.7 Access to modern technology facilities

New technology, including Internet and mobile phones can generally help broaden financial access. Survey results further indicate that large numbers of respondents (58.3%) have no access to modern technology facilities. Only 36.7% indicated that they have access to phones, while 1.7% has access to computer, compared to 3.3% who can access to E-mail. The study is in conformity with findings of Financial Sector Deepening Trust Tanzania indicating that people have limited access to modern technology facilities which is a challenge to provision of financial services especially in rural areas.(FSDT, 2006).The use of mobile phones for financial services provision might facilitate access in lower-income.

**Table 21 Distribution of respondents by access to modern technology (%)**

| | Morogoro urban | Morogoro rural | Kilosa | Total |
|---|---|---|---|---|
| Item | n = 40 | n = 40 | n = 40 | N = 120 |
| Cell phone | 13.3 | 10.8 | 12.5 | 36.7 |
| Computer | 1.7 | 0 | 0 | 1.7 |
| e-mail | 2.5 | 0 | 0.8 | 3.3 |
| none | 15.8 | 22.5 | 20.0 | 58.3 |

## 4.8 Logit regression results

A binary logit analysis was undertaken to determine qualitatively how the relevant factors interact to influence individuals in accessing formal financial services in the study are. Access to formal financial services was thus the dependent variable and the regressors were income, age, sex, education level, primary occupation, income, distance to financial institutions and interest in financial matters. After several running of the model, independent variable such as interest was dropped. This factor was dropped because its inclusion was rendering the model insignificant. The results show that the model was significant as indicated by the significance of F Value (P< 0.05). Moreover, adjusted $R^2$- Value of 0.667 indicate that the model explained about 66.7% of the variation in the odds ratio. The higher $R^2$ values suggest that the Model fitted well to the data. i.e. have high explanation power of the joint association of the factors influencing access to formal financial services. According to these results only 33.3% of variations is attributed to other factors that are not included in the Model. Final results of parameters are summarized in Table 22.

**Table 22 Logit regression results**

| Variables | Coefficients | Std error | T- value | Significance |
|---|---|---|---|---|
| Constant | 5.334 | 3.548 | 1.503 | 0.133 |
| Age in years | 0.044 | 0.29 | 1.517 | 0.129 |
| Sex | 0.160 | 0.606 | 0.264 | 0.792 |
| Schoolage in years | 14.653 | 4.377 | 3.347** | 0.001 |
| Primary occupation | 0.932 | 1.860 | 0.501 | 0.616 |
| Income | 3.333 | 0.692 | 4.816** | 0.000 |
| Distance | 4.946 | 2.179 | 2.269* | 0.023 |

* Means significant at 5% Level
** Means significant at 1% Level
- 2 log likelihood = 73.511 Adjusted $R^{2}$= 0.667
F – Value =38.31

The results show that all six coefficients were positively related to access to formal financial services. Although all parameters were found to be positive there are some, which were found to be statistically insignificant. The positive relationship between age and access to formal financial services can be attributed to the fact that demand for access depends on age, that is younger persons will have a lower demand of financial access than adult individuals in the population. School age in years was expected to have positive effect to access to formal financial services. This is in agreement with a *priori* sign implying that educated individuals are much familiar and interested in issues pertaining to access to financial services than illiterate individuals.

The coefficient for distance has exhibited a *priori* sign and is statically significant (P< 0.05), this can be attributed to the fact that individuals dwelling closer to formal financial institutions may have greater chance of accessing to those institutions. The parameter attached to primary occupation of respondents was expected to have a positive effect. This was in agreement with the *priori* expectations indicating that individuals with more productive occupations have more chance of increasing income, high rate of saving and borrowing from formal financial services. However, the insignificance of this parameter can be attributed to the fact that majority of the interviewed individuals were farmers practicing small scale arable farming producing little for their consumption therefore saving very small amount unable to meet the requirements of formal financial services. Sex was expected to have a positive effect on access to formal financial services. As expected the results showed a positive effect. This may be caused by males being the head of most of the household in the study area have more power and chance of access to formal financial services than females. The insignificance of parameter attached to sex can be attributed to the reason that females have more alternative chance of accessing to informal financial institutions for instance FINCA and PRIDE. The coefficient for income was expected to have a positive effect on access to formal financial services. The earlier expectations is in agreement with the expected results and statistically significant ($P < 0.01$), This means that individuals with high income are more intense in opening a bank account thereby increasing their access and usage of formal financial services.

# CHAPTER FIVE

# CONCLUSION AND RECOMMENDATIONS

## 5.1 Overview

The major objective of this study was to evaluate individual level access to formal financial services. Specifically the study aimed (i) to describe the general issue around why access to formal financial services is important to economic development and socio perspectives. (ii) to identify socio- economic factors that determine the access to formal financial services to individuals,(iii) To identify and establishing the proportion of the population which have access to various types of formal financial services (iii) to suggest possible interventions for the improvement of access and usage of formal financial services. This chapter presents conclusions and recommendations emanating from the major findings of the study and the subsequent discussion.

### 5.1.1 Conclusion

The first objective was to describe general issues around why access to formal financial services is important to economic development and social perspectives. While a large literature has investigated the relationship between the depth of financial sector and economic development, much less is known about the relationship between broader access to formal financial services and poverty alleviation. Section 2.5 supports the conclusion that access to formal financial services is important to economic growth. It also shows that access to financial services helps to alleviate poverty in such a way that a well developed financial sector reduces income inequality between the poor at a faster rate. In addition to facilitating overall economic growth, access to financial services can help individuals smooth their income, insure against risks, and broaden investment opportunities

The second objective was to determine the factors that influence access to formal financial services amongst individuals in the research area. It was hypothesized that socio economic factors has no influence on access to formal financial services (see section 1.5 of this report). The hypothesis was tested on a regression model using binary logit model. The results suggest that all six factors affect positively on individual level access to formal financial services. However in low income populations, these results are quite natural given that access to financial services is normally influenced by age, education, income, distance and occupation of an individual.

The third objective was to establish the proportion of adult population that has access to various types of formal financial services in the research area. To address this objective, it was hypothesized that there is no significant difference in proportion of adult populations between various types of financial services such as transactions and payments, savings and investment credit, and insurance services in the research area. The testing of this hypothesis was based on descriptive statistics and tabular analysis. The results of descriptive statistics suggested that there is significant difference in proportion of population of various types of formal financial services. Therefore the hypothesis on similarity in proportion of adult population in different types of formal financial services was rejected. The rejection criterion was that, Chi-square statistical test was highly significant at $P< 0.01$. In general, the results suggest that the most common formal financial service is savings, transactions, loans and insurance. However, among these services, savings was found to be used by majority of respondents followed by transactions, loans and lastly by insurance.

This study was also governed by research question that asked the reasons for not using a bank account and barriers to access. The major barriers mentioned include price barriers such as costs of supply, financial literacy and information barriers, product and service barriers such as repayment terms, and physical barriers which involve convenience of station of services thus reducing the frequency of access.

Furthermore, several reasons were associated with lack of access in the research area. The major reasons mentioned were such as not having regular income, lack of money to put into the bank, not having a job, lack of know how on opening a bank account, too high minimum balance, expensiveness of having a bank account, preferring dealing in cash while some of the respondents claimed that they don't qualify to open a bank account.

### 5.1.2 Recommendations

Giving conclusive recommendations in respect of access to formal financial services in Tanzania basing on this single study, which covers an insignificant portion of this vast country, is tricky and less effective. However, the study has highlighted some very important clues which are worth noting.

(i) There should be a more widespread and effective links between the formal and Semi -formal financial institutions and semi -formal and informal sectors in order to increase the proportion of people accessing formal financial services. Links between the financial sub- sectors allow for both broadening and deepening financial services by giving people access to cheaper and a wider range of financial products. However, this process has a long way to go when the majority of people can have, in effect, access to bank, even if they are not directly account holders. The government should continue to ensure that the link evolves spontaneously between commercial banks and the rest of the financial service providers. This is the most crucial ingredient required in the course of performing its promotional role on programs focused on access to financial services and poverty alleviation.

(ii) Another aspect is capacity building. It is obvious that information and analysis from researches are necessary but not sufficient to promote greater access. The issue of capacity building has to be a priority as the critical weakness in developing so many of economic sectors in Tanzania is lack of adequate trained human capital to provide technical and management expertise. Unless SACCOs and MFIs are seen as credible and credit worthy counterparts to commercial and other formal financial institutions the latter are going to be reluctant to engage with former, especially in providing credit. Therefore capacity building needs a much more effort.

The term capacity –building covers more than training of staff in any particular financial institutions. There is a need to improve financial literacy of the people i.e to educate and sensitize potential users of formal financial institutions. Only when people can fully understand what financial institutions offer and the trade-offs in any financial decisions, only then there should be a population that can actively engage in the financial system to improve their livelihood. Furthermore, this same step shall go together with improvements of modern technology by providing reliable sources of facilities such as internet services.

Technology -based services have the potential to improve access to financial services in two ways: first, by offering services that are better and by conducting services that are much more cheaply, thus making them more widely available to the un banked Indeed; technology is likely to change the face of financial institution in general, not just for the poor, by making branches and personal services improved.

(iii) The study also embarked at looking on the effects of distance on access to formal financial services. The findings show that distance appears to affect this aspect. The road infrastructure, more especially the feeder roads consistently emerging as an important factor. They should be developed to facilitate easy access and shorten the effective distance to urban areas where most of the forma financial institutions are found. This would increase the likelihood of using the services. Furthermore, infrastructure enables relatively easy flow of information that could improve and facilitate well informed production and financial decisions. Improving rural infrastructure will allow access to remote areas thereby building a healthy credit culture public awareness programmes, providing high quality and independent banking supervision, improving legal framework supporting of formal financial institutions operations; and building institutional capacity should be prioritized.

(iv) Improved conditions and quality of services offered is of paramount importance as majority of respondents in the research area specified that the quality of services offered are moderate and fair rather than being simple and good. This is a challenge to those institutions to provide high quality services that is supportive in motivating people's access to diversified types of financial services. Seeking technical advice and support from similar institutions elsewhere especially from other developing countries should be done in order to improve the quality of services offered.

(v) The study found that majority of population has low income. This envisages recommendations to enhance the people's income through the following;

(a) People should create ability and habit of learning how to save. They must know that saving is the responsibility of everybody both the poor and rich.

(b) There should be better utilization of the available resources, including loans. They are obliged to change and start investing in different productive sectors in order to increase income as well as contributing to economic growth.

(c) People have to change their minds, towards becoming creative and confident in order to discover new sources of investment through entrepreneurship, which if properly used will help to raise their income hence improved access to formal financial service

## 5.2 Limitations of the data and implications for further research

Limitations of the study emanated from areas of budget, data availability and inadequate reference materials. Each component is discussed further below

(i) **Budget constraint**

The budget made available for this research was not enough to suit coverage of a significant portion of the regions position in this aspect given the above constraints; the scope of findings is limited to only one region, three districts, few wards and a sample of 120 respondents. Ideally at least one more region and a few more districts would have generated more conclusive results. However it is the contention of the author that recommendations emanating from the study apply also to other regions and financial institutions. The data collected were at the individual level rather than household level; hence it was more time consuming and potentially difficult.

(ii) **Data availability**

Access to formal financial services potential could be well evaluated where enough data are available. Moreover, most data were collected from low income individuals who do not keep records thus their responses depended on their memories of respective issues. Such data can hardly be fully reliable. Individuals under this study had the same shortcomings thus reliability of the collected data could somehow be carrying the same weakness. Some of the formal financial institutions, such as NBC, CRDB, and Tanzania Postal Bank branch office in the study area were not in position to assist the researcher. Therefore no enough information was collected form these institutions. Hence it was not possible to determine the effectiveness of some key information such as distribution of customers according to specification of the types of services offered. Moreover, there were inadequate findings pertaining to how these financial institutions help the customers to overcome apparent obstacles such as transaction costs, information on borrowers and incentives. It is basically not appropriate to use the findings from one institution to conclude about financial services offered by other institutions.

(iii) **Inadequate reference material**

Access to formal financial services has not been operated effectively in Tanzania. Research on it has also limited not only in Tanzania but also the global scale. It was thus very difficult to access relevant materials pertaining to the theme of the study.

### 5.3 Areas for further research

Currently, access to formal financial services has both private and social benefits. Extending the breadth of financial services in a population stimulates economic growth and can improve income distribution. Measures of access fall into two broad categories, those based on the provider's information, such as banks, and other service providers and those based on users information – individuals and households. Monitoring and measuring levels of access to formal financial services can therefore contribute achieving goals of growth and poverty alleviation.

# REFERENCES

Akyoo, A.M. (2004). Agricultural Production Natural Hazards and Risks. An analysis of the coping mechanisms and the potential for crop insurance. Dissertation for Award of MSc Degree at Sokoine University of Agriculture ,Morogoro, Tanzania .49-58pp.

Amani, H.R (1992). .Agriculture Market Reforms in Tanzania: Evolution Performance and Future Policy Issues. In Market Reforms and Parastatal Restructuring in Tanzania.(Edited by Bagachwa,M.,A.V. Mbele and V. A.Brian), 11-13 April 1992, Economics Department, University of Dar es salaam. 116 - 132 pp.

Anjali, K. (2005). Measuring Financial Access through users surveys: core Concepts, questions and indicators. Mimeo World Bank, Washington D.C. 21pp.

Anne, M.C. Karen, E. and Anjali, K. (2005). Measuring Financial Access for people: Internationally comparable Core Indicators, Paris June, 3pp.

Bank of Tanzania (2003). *Economic bulletin for the quarter ended 31 December 2003*. Bank of Tanzania XXIV (4): 105.

Beck, T.;and Torre, A. (2005). *Broadening Access to Financial Serves*: Risks and costs, World Bank, Washington, D. C., 85pp.

Beck,T.; Demirguc-Kunt and Vojislav, M. (2005). Financial and Legal Constraints to Firm growth: Does Firm size matter? *Journal of Finance, 60*(2): 137-177.

Beegle, D.M.(2000*).Small business Access to Trade Credit: Some evidence of Ethnic differences.* Proceeding of Federal Reserve Bank of Chicago, 27 May 1998. 451pp.

Berger, A. N., and Humphrey D. B. (1997). Efficiency of Financial Institutions. International survey and directions for future research, *European Journal of operational research. 98 (3):* 175-212.

Bosch, D. D; and Collin M.(2003). Financial Sector Development and Economic Growth. *Journal of Economic Literature*. 38(2): 332-882.

Brown, W. (1991).*Introducing Econometrics.* West Publishing, St. Paul MN, USA.125pp.

Chiduo, C.M.P.(2001). Macro Enterprise Finance in Tanzania: Case study and Policy Design Analysis. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro,Tanzania. 42pp.

Chimilila, C,(2006). Assessment of Smallholder Dairy Farmers and Processors access to emerging niche markets. Cost of Supermarkets in Morogoro and Dar es-Salaam. Dissertation for Award of MSc Degree at Sokoine University of Agriculture,Morogoro, Tanzania. 36pp.

Chipeta, C.M. and Mkandawire A.S. (2001).The Impact of Micro Finance Enterprises on the Efficiency of Micro Enterprise in Cape Coast. IFLIP Research Paper 01-5.

Chomba, N.C. (2004).Factors Affecting Smallholder Farmers Adoption of Soil and Water Conservation Practices in Zambia. Dissertation for the Award of MSc Degree at Michigan State University. USA.118pp.

Claessens S. (2005). *Access to Financial services*: A Review of the Issue and Public Policy Objectives. World Bank. 29pp.

Daily News Reporter, (2007). Eighty nine percent of the Population in Tanzania has no access to financial services Daily News. Issue No. 9258. 1pp.

Demirguc, K. A.; and Maksimovic V. (1998). Law, Finance and Firm Growth, *Journal of Finance* 53(6): 2107 – 213.

Elizabeth, L. Jonathan M. and Syed, H. (2003). *Is Micro Finance an effective strategy to reach the Millennium Development Goal?* Proceeding of CGAP Workshop Washington, USA 24, November 2001.260pp.

FSDT, Financial Sector Deepening Trust (2006).Demand for Financial Services and Barriers to Access. Finscope Survey Tanzania.1-33pp.

Gine, X., and Townsend R. M.,(2004). Evaluation of Financial Liberalization: A general equilibrium Model with constrained Occupation Choice. *Journal of Development Economics.* 74(4): 269-307.

Glaessner, T., Nagavelli, a.; Claessens S.; Karen F.; Klingebiel, D.; Klapper L.; and Schware R. (2004). South Africa: *Technology and Access to Financial Services*; Lesson from Experience, Mimeo, Washington, D. C., The World Bank. 254pp.

Greenwood, J. and Javanovic, B. (1990). Financial Development, Growth, and The Distribution of Income.In: *Proceedings of The Centre for the Study International Economic Relations Conference.* Edited by Beck T 6-7 May 1990 Ontario ,Canada 29-56pp.

Guacello,D. and Rosati, N.(2003).How has Economic Inequality evolved over the Past two Decades? *A look at Italian Experience Research in Economics*..57 (4):93-122p .

Gujarati ,D.N.(1995*).Basic Econometrics*. McGraw- Hill International editors. 705pp.

Halac, M., and Schumakler S. L. (2004). *Distributional Effects of Crises*: The Financial Channel, World Bank, Working Paper 3173.

Honhan, P. (2004a). Financial Sector Policy and the Poor selected findings and issues, Working Paper No 43 Washington, D. C.; The World Bank.

Honohan P (2004b). Financial Sector Policy and the poor selected findings and issues, Washington D.C. The World Bank,. 42pp.

Honohan, P. (2004). Financial Development, Growth and Poverty: *How close Are the Links? World Bank Policy Research Working Paper 3203.*

Horowttz, A. and Wang J. (2004). "Favorite Son" Specialized Child Labourers and Students in Poor LDC Household *Journal of Development Economics.* 73(5): 631-642.

Jacob, H. (1994). Borrowing Constraints and Progress through school: Evidence from Peru "*The Review of Economics and Statistics.*76 (7): 151-160.

Jacob, H. and Skoufias M. (19991). The role of Socio-economic Development and Poverty Reduction in Vietnam University of Washington. *The Journal of Development Economics.* 84(1): 188-214.

Jalilian, H. and Kirkpatrick C. (2001). *Financial Development and Poverty Reduction in Developing Countries.* IDPM, Manchester University Working Paper no 30. [http://info.worldbank.org/etools] site visited on 09.7.2006].

Jeong, H., and Townsend, R; (2000). *An Evaluation of Models of Growth and Inequality*, Mimeo, University of Chicago, 128pp.

Kashuliza, A.K. (1986). Financing Small farmers in Tanzania. An Evaluation of institution Credit allocation and Borrowers Repayment Trends .Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania 219pp.

Kashuliza, A.K.;and Kydd,J.D .(1996). Determinants of Bank Credit Access for Smaller Farmers in Tanzania. A Discriminant analysis Application. Savings and Development (3): 285-304pp.

Kimaro, S. (2006). Our financial system needs urgent reform. The guardian, Issue No. 6234. 5pp.

Levine, R. (2004). Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation. *Journal of Money Credit Banking. Blackwell Publishing, 36* (3): 539-622.

Levine,R. (1997). Financial Development and Economic Growth: Views and Agenda *Journal of Economic Literature .35( 2):* 688-726.

Lioyd, E., and Bernad, D., (2000). Enterprise, Inequality and Economic Development. *"Review of Economic Studies.* 67(4): 147-168.

Madeira,A.L. (2002).Financial Intermediation and Endogenous Growth. *Journal of Economic Studies. Blackwell Publishing.*58 (2):195-209.

Maumbe, B.M. (1993). Credit delivery to Communal farmers in Zimbabwe. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania , 49-58pp.

Morduch, J. (1999). The Microfinance Promise. *Journal of Economic Literature*. 37 (4): 1569-1614.

Morduch, J., (1994). Poverty and Vulnerability, *Journal of American Economics.* 84 (3): 222-225.

Morduch, J. and Hayley B. (2002). *Analysis of the Effects of Microfinance on Poverty Reduction.* Wagner Workers L td., Ontario 342pp.

Mukherjee, C.H. While and M. Wuyts (1998). *Econometrics and data analysis for developing countries.* London, New York, Routledge, 111pp.

Navas Sabaster, J., A. Dymond and N. Juntumen (2002). *Telecommunications and information services for the poor toward a strategy for universal access.* World Bank. Washington DC. USA, 430pp.

Paulson, A. L. and Townsend, R. M. (2003). Distinguishing Limited Commitment from Moral Hazards in Models of Growth and Inequality. Working Paper Series WP-03-06.

Peachey, S. and Roe A (2004). *Access to Finance*: A study for the World Savings Banks Institute, Oxford. 94 pp.

Rajan, R. G. and Zingales, L. (1998). Financial Development and Growth. *Journal of American Economic.* 88(6): 559-586.

Ryme, E and Otero, M. (1997). Financial Services for Micro-Enterprises *The Tanzania Bankers Journal. A new view of micro-enterprise finance*. 9 (5): 33-42.

Sango,D.(2003). The role of Socio-Capital in Coping with Households Food Insecurity in Urban Areas of Tanzania. The case of Dar es salaam and Morogoro Municipality. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania. 134pp.

Satta, T.A. (2000). Rural and Micro-enterprise financing in Tanzania. Lesson form other Developing Countries. *African Journal of Finance and Management*. 8 (3): 54-64.

Solo, T. M., Caskey J.; and Duran C. (2004). The Unbanked in Mexico and the USA: Five questions Addressed, World Bank, Swarthmore College, Universidad National Autonoma de Mexico, 167pp.

Temu, A.E. (1994). A study of the rural financial market in Tanzania. .Thesis for Award of PhD Degree at Wyne College, University of London . UK, 349 pp.

Townsend, R. M. and Ueda; K. (2003). Financial Deepening, Inequality, and Growth; A. model based Quantitative Evaluation. *Review of Economic Studies.* 71 (7): 123-128.

United Nations,(2005). Agricultural Subsidies, Market Access Support for Small Farmers. [http://www. Unorg./News/pres/doc.htm] site visited on 8 April 2006.

United Republic of Tanzania (2000). *National Microfinance Policy.* Government printers DSM, 27pp.

United Republic of Tanzania (2003). *Morogoro Regional Socio Economic profile.* National Bureau of Statistics Presidents Office DSM, 39pp.

United Republic of Tanzania.(2005). *National Strategy for Growth and Reduction of Poverty.* Government Printer DSM , 4pp.

Word Bank, (2005). Indicators of Financial Access [http: //www. World Bank .Org/ Finance]. Site visited on 10. 7. 2006.

World Bank (1996). *The challenge for reforms, growth, Income and Welfare.* Washington DC, 114pp.

World Bank, (2001). *Finance for Growth, Policy choice in a Volatile World.* Oxford University Press and Washington D.C, 230pp.

Zeldes, S. (2002).Consumption and Liquidity Constraints. An Empirical Investigation," *Journal of Political Economy.*45 (5): 305-346.

Zinman, J. and Karlan, D. (2006). *Expanding Credit Access*. Johnson Howell Ltd., Oxford. 456pp.

# APPENDIX

**Appendix 1: Survey questionnaire for individual level access to formal financial service in Morogoro region.**

**QUESTIONNAIRE NO............**

**SECTION A: BACKGROUND INFORMATION**

A1: Background

| Sex | Age | Level of Education | Marital status | District | Division | Ward |
|---|---|---|---|---|---|---|
| | | | | | | |

A2: Occupation

1. Farming
2. Business
3. Locally employed
4. Civil servant

A3: What is your income per month?

| 0 – 50,000 Tshs | 50,000 – 200,000 | 200,000 and above |
|---|---|---|
| [ ] | [ ] | [ ] |

A4: Type of house

| Mud and thatched roof | Cement and thatched roof | Very modern house |
|---|---|---|
| [ ] | [ ] | [ ] |

A: 5 Socio-status

| Chief family member | Political/church leader | Traditional leader | None |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

## SECTION B: ACCESS TO FINANCIAL INSTITUTIONS

B1: Do you have access to financial services? (Yes/No)

B2: There are many reasons why people often don't have bank account thinking about you why is this?

| | Yes | No |
|---|---|---|
| I do not have a regular income | | |
| I do not have money to put into a bank | | |
| I don't have a job | | |
| I don't qualify to open an account | | |
| I don't know how to open an account | | |
| The bank is too far | | |
| It is expensive to have a bank account | | |
| Bank charges/service are too high | | |
| I prefer dealing in cash | | |
| Have too little, not worthwile | | |

B4 Do you use some body else's Bank account (Yes/No)

B5: Where do you normally get services?

| Bank | Non-bank financial institutions | Informal Financial Institutions | None |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

B6: If using services from one of the institutions mentioned above what is the reason?

| You have no option | Good services | Nature of services required | Others specify |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

B7: If you have access, what is the distance to a place where you are getting financial services

| 0- 20 km | 21 – 40 km | > 40 km |
|---|---|---|
| [ ] | [ ] | [ ] |

B 8: How frequently do you access the services

| 1 – 5 times per month | 5 – 10 times per month | > 10 times per month |
|---|---|---|
| [ ] | [ ] | [ ] |

B 9: How do you consider conditions of institution in which you are getting services

| Simple | Moderate | Complicated | Very complicated |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

B10: What about the quality of services offered by the institution in which you are getting services

1. Good
2. Fair
3. Bad

B12: What area barriers to access

| | |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

## SECTION C: TYPES OF SERVICES ACCESSED

C1: Which financial institution do you personally currently have any form of financial services

| | **Institution** | | | | | |
|---|---|---|---|---|---|---|
| **Service** | **NBC** | **NMB** | **CRDB** | **TPB** | **NIC** | **SACCOs** |
| Savings | | | | | | |
| Transaction | | | | | | |
| Loans/credit | | | | | | |
| Insurance | | | | | | |

C2:

| If transaction or payment | If savings and investment services | If insurance |
|---|---|---|
| | | |

Coding for question $C_2$ above

If transaction or payment services

1. Money transfer
2. Pension
3. Paying/receiving bills
4. Others specify

If savings and investment

1. Fixed deposit
2. Current account
3. Savings account
4. Bonds
5. Other (specify)

If insurance

1. Life insurance
2. accident insurance
3. Money insurance
4. Agricultural insurance
5. None

C3: Have you ever – secured loan from formal financial institution of your choice? (Yes/No).

C4: If yes when was it

| Within past 6 months | Within past 12 months | Within past 18 months | Past 2 years |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

C5: There are a number of factors people take into account when deciding where to get a loan from. Thinking about yourself what factors (s) you considered whose to get a loan?.

| Getting money immediately | Low interest rate | Quality of services provided | Repayment period | Familiarity with loan provider | Others specify |
|---|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |

C6: If the individual has never had loan why?

| Does not know | Applied and unsuccessful | Difficult procedure | Never attempted | No bank account |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

C7: If you get loan, name the institution from which you get loan

| Institution | Year applied | Amount applied | Purpose | Nature |
|---|---|---|---|---|
| 1. NBC<br>2. CRDB<br>3. NMB<br>4. TPB<br>5. Others specify | | | 1. Consumption<br>2. Protection<br>3 Agriculture<br>4. Business | 1. Short term<br>2. Medium<br>3. Long term |

## SECTION D: FINANCIAL PERCEPTION

D1: If you were to receive what you consider to be a fairly large sum of money and did not spend it immediately what would you do for it.?

| Put it in bank/open bank account | Give it some one for keeping | Hide it at home | Carry it with you always | Others specify |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

D2: If you were to open an account and decide which Bank to have an account what are the factors that you would take in to account?

| | |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |

D3: Do you know the benefits of formal financial services? (Yes/No)

D4: If yes please mention at least one

| | |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

D5: Which event (s) if any, do you think are most likely to happen to you causing unplanned financial decisions?

| Theft/fire | Destruction of agricultural crops | Failure of business | Others specify |
|---|---|---|---|
| [ ] | [ ] | [ ] | |

D6: If you did experience one of the events above how would you deal with it financially?.

| Sell assets | Borrow money from Bank | Claim insurance | Borrow money from friends | Ask for donation | Others specify |
|---|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] | |

## SECTION E: PRODUCTION INFORMATION

### (i) Agriculture

E1: If you are dealing with agriculture is it
1. Small scale
2. Large scale

E2: Whether the farm is

| Rented | Owned by you | Owned by save body else | Others specify |
|---|---|---|---|
| [ ] | [ ] | [ ] | |

E3: What is the total farm size do you have (in acres) ......

E4: If you are the owner do you have title deeds? (Yes/No)

E5: Do you receive financing for your agricultural inputs? (Yes/No).

E6: If yes through whom do you receive this financing?

| Bank loans | Family/friend/neigbour | Self | Others specify |
|---|---|---|---|
| [ ] | [ ] | [ ] | |

E7: In what form (s) do you make the repayment for the financing that you receive

| Cash | Harvested crops | Livestock products | Labour | None | Others specify |
|---|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] | |

E8: What are the major crops you grow?

| | |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

E9: Do you keep animals? (Yes/No)

E10: If yes

| Type | Total | Method of keeping |
|---|---|---|
| Cattle | | |
| Sheep/goats | | |
| Poultry | | |
| Pigs | | |
| Others specify | | |

**(ii) Business**

E11: If business is your main occupation how many business activities do you have?

E12: Is your business activity registered? (Yes/No)

E13: In your business do you have people who work for you? (Yes/No).

E14: If yes how do you pay your employees?

| In cash | In kind | Both | Do not pay |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

E15: If you pay your employees in cash, how do you do that ?

| Bank deposit | Cash | Cheque |
|---|---|---|
| [ ] | [ ] | [ ] |

**SECTION F: MISCELLANEOUS**

F1: Generally how interested are you in financial matters

1. Interested
2. not interested

F2: How closely do you follow what is written or said about financial matters

| Never | Rarely | Often | Always |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

F3 Different people have different products and services available to them. Please tell me which of the following you have access to now.?

| Cell phone | Computer | Internet | E-mail | None |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

*THANK YOU FOR YOUR COOPERATION*

**Appendix 2 Odds Ratio**

The odds ratio is a statistical measure defined as the ratio of the odds of an event occurring in one group to an event occurring in another group, for instance a dichotomous classification. It is a summary measure of the relationship between two variables or dichotomous classification and it tells us how better the odds are for the occurrence of a certain event. The odds ratios are particularly useful when dealing with dummy variables to answer some questions such as how likely is it for an individual owning a bank account access to formal financial services compared to an individual not having a bank account how likely would it be for an individual living a more distant are use formal financial services.

Mathematically the odds ratio may be expressed as follows;

Assume the odds for group one = odds 1=*p/p* and odds for group two odds = q/q: where p and q are probabilities for group one and two respectively.

Odds ratio = odds 1/odds 2, but considering that ln/*p/p*= logit (p) and In/q/q= logit q, it follows that the log odds ratio = logit (p) logit (q) or alternatively as the antilogarithm of the slope of the logit regression, one unit apart of two different value of the predictor (Makherjee *et al.*, 1998).

**Appendix 3 Goodness of fit**

The likelihood ratio test is used to see if the model including regressors provides extra explanatory power over the model with only an intercept. The likelihood ratio statistic is computed based on the premise that there are two models. Assuming that the unrestricted model has the log-likelihood function denoted as $L_1$ and restricted model has the log likelihood function denoted $L_2$, the likelihood ratio test of the hypothesis of dropping all regressors is defined as 2 ($L_1$-$L_2$). The degree of freedom is equal to the number of estimated coefficients less than one (i.e. the intercept in excluded). The computed likelihood ratio statistics has an asymptotic chi-square distribution. Therefore, the computed statistic is compared with the critical value in the chi-square table. If the estimated statistic is greater than the table chi-square, the variables in the estimated model jointly explain the response effect. It mans that the hypothesis to drop all variables apart from the constant term is rejected (Murkherjel *et al.,* 1998).

**Appendix 4 Access to formal financial service by districts**

| District | Mean | N | Std.Deviation |
|---|---|---|---|
| Morogoro Urban | 1.3000 | 40 | 0.46410 |
| Morogoro Rural | 1.4500 | 40 | 0.50383 |
| Kilosa | 1.3500 | 40 | 0.48305 |
| Total | 1.3667 | 120 | 0.48391 |