

**UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES**



DEPARTMENT OF ECONOMICS

DETERMINANTS OF ACCESS TO MICROCREDIT IN KENYA

BY

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Requirements for the Award of Masters of Arts Degree in Economics.**

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CERTIFICATION

This dissertation has been examined and approved as meeting the requirement for the partial fulfilment of the Masters of Arts Degree in Economics of the University of Botswana.

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DECLARATION

The dissertation was undertaken at the University of Botswana. The study is an original work of the undersigned except where references were made to materials adopted from others.

Ruth Muthoni Mwathi

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Date: _____

DEDICATION

To my unborn baby (ies), besides my personal accomplishment, you are the reason why mama is doing this; I'm working hard so that you can have a good life in the days to come.

Together with baby Arvin, I want you to follow mama's footsteps...I'm certain that a day will come when you will read this and that's why I dedicate this research to you.

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LIST OF ACRONYMS

ASCAs	Accumulating Savings and Credit Associations
CBK	Central Bank of Kenya
CRBs	Credit Reference Bureaus
C-WES	Constituency Women Enterprise Scheme
C-YES	Constituency Youth Enterprise Scheme
DTMs	Deposit Taking MFIs
EYES	Easy Youth Enterprise Scheme
FIS	Financial Intermediaries Partners
GoK	Government of Kenya
M.E	Marginal Effects
MFBs	Microfinance Banks
MFIs	Microfinance Institutions
MRPs	Money Remittance Providers
MSMEs	Micro, Small and Medium Enterprises
NGOs	Non-Governmental Organisations
ROSCAs	Rotating Savings and Credit Associations
SACCOs	Savings and Credit Cooperative Societies
WEF	Women Enterprise Fund
YEDF	Youth Enterprise Development Fund

ABSTRACT

Access to microcredit is paramount because it gives low-income people means to advance their lives and enables them to provide for their families and themselves not only in the short run but also in the long run. It also enables them to raise their household incomes, build on assets, and decrease their vulnerability to disasters. Despite the growth in Kenya's financial sector and hence rise in the percentage of the financially included people, access to microcredit remains a challenge with only 22.6% of the populace accessing microcredit. Women, rural residents and the poor have the least access to credit facilities in Kenya. This study, therefore, sought to empirically examine the factors that determine access to microfinance credit in Kenya.

The study used the FinAccess Survey, 2013 dataset. Descriptive statistics and probit model were used for data analysis. The probit regression indicates that being female; earnings, education level (primary, secondary, technical and university education), manufacturing and trade businesses are positive and significant determinant of access to microcredit in Kenya.

Based on the findings it is recommended that; MFIs should move towards a more gender-balanced portfolio to benefit all the poor; the government should extend free education at all other levels i.e. secondary and tertiary levels to boost productive capacity. Further, it is recommended that both the county and national governments should initiate schemes that would create permanent employment for the youths, women and the poor to enable them have a permanent and reliable stream of income.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Millions of unbanked households, small-scale farmers, micro-entrepreneurs and generally the poor and vulnerable non-poor need financial services. They search for a diverse range of financial services including savings, loans, insurance and a platform for sending and receiving remittances. However, formal financial intermediaries for instance commercial banks usually fail to serve these households. They have unsuccessfully served this market because their business models are unsuitable for running microfinance businesses, characterized by high-volume, low-value transactions and also for the reason that they use traditional lending mechanisms based on collateral requirements (which the unbanked do not have access to) (Burritt, 2003). Microfinance, therefore, comes in to bridge this gap and address the concern of lack of access to financial services encountered by these households.

Microfinance is a collection of banking practices built around providing small loans normally without collateral and accepting small savings deposits (Robinson, 2001). The Asian Development Bank (ADB) (2011) further defines microfinance as “the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households and their microenterprises.” Notably, microfinance still exists in well developed financial markets. Qadir (2005) noted that lack of proper-functioning financial markets has excessively adverse effects on the poor who have credit requirements but lack assets that can act as collateral. In the light of this, microfinance has to exist in well developed financial markets where every client’s financial needs have to be taken into account.

Microfinance is divided into three broad categories which include: microcredit, micro-savings and micro-insurance (EY, 2014). This paper is going to exclusively focus on microcredit as opposed to microfinance at large. Kasim and Jayasooria (2001) defined microcredit as the process of loaning capital to the poor people so that they can invest in self-employment. It is committed to provision of small loan amounts to micro entrepreneurs to invest in their businesses, plough back the returns and enable them to grow out of impoverishment (EY, 2014). The core business of microfinance is the provision of microcredit - small loans to the working

poor. According to Deutsche Bank Research (2007), the loans typically amount to a local currency (Euros) equivalent to just below USD 100 (starting) and can, eventually increase to several times this amount subject to geographical region. For instance, in Central Asia and Eastern Europe, loans amount to approximately USD 1,600 on average while in Asia they amount to around USD 150.

Why Access to Credit?

Economic theory argues that accessibility to credit makes individuals and firms better off and also makes it possible for economic agents to smooth consumption. Accessibility to financial institutions and markets by the poor is of particular importance to them since it influences decisions concerning accumulation of physical and human capital. If the impoverished people had access to credit, they would be capable of using the money to acquire and accumulate capital goods that may result in an increase in their wage. Equally, they could avail themselves of educational or training opportunities that would improve their skills enabling them to demand a higher wage (White, 2010).

Access to credit eliminates individuals' need for self-financing. This reduces the risk of premature liquidation of investments which may arise as a result of unpredictable future financial crises (Okurut, 2008). Additionally, the ability to save or borrow enhances consumption smoothing by individuals across time periods. Therefore, access to financial services especially credit facilities would place the poor on a higher utility curve overall.

Ghosh et al. (1999) observed that credit is essential because it is requisite in financing investments in fixed capital and working capital. It is an important tool for smoothing consumption especially in environments where large seasonal fluctuations in income are experienced. According to Mujeri (2015), access to a fully operational financial system can empower individuals economically and socially, particularly the poor people and women. This allows them to integrate better into the economy and contribute actively to development.

Bank credit is one of the most widespread sources of finance for businesses in Kenya. Extension of credit facilities have been regarded as an important and powerful tool for raising incomes, primarily through mobilization of resources to more productive uses (Kimutai and Ambrose, 2013). Over the years, Kenyans have encountered difficulties in obtaining bank credit more so

the disadvantaged in the society. This has partially been attributable to lack of physical collateral that banks normally request for, to guarantee loans (Gaitho, 2013). According to FinAccess National Survey 2013, 25.4 percent of Kenya's population is left out from access to financial services. A bulk of the financially excluded is rural residents and women. Okurut (2008), Okurut et al. (2009) and Ericson (n.d) observed that the probability of default rises with the increase in poverty and that the poor are deemed to have low repayment capacity. This explains why rural residents are excluded from credit access.

According to Kenya's Vision 2030, the vision of the financial sector is to have "A vibrant and globally competitive financial sector driving high levels of savings and financing Kenya's investment needs." This cannot be achieved without enhancing access to credit. Investments are a driver to economic growth. Therefore, since most investments in Kenya are financed by debt, constrained access to credit is an impediment to economic growth. Expanding access to bank and micro credit in Kenya may consequently lead to increase in investments and hence economic growth. This study, therefore, presents an empirical analysis of the determinants of access to microcredit in Kenya.

1.2 Statement of the Problem

Access to credit by the low-income people, women and small and medium enterprises have historically been a serious challenge in the world. This owes to the fact that this group of people have been excluded from access to credit facilities by the traditional commercial banks. However, microfinance an idea pioneered by Muhammad Yunus of Grameen Bank in 1973 is an alternative to bank credit and has come to the rescue of this group of people. Even the low income, women and SMEs need credit. This is because they need to finance their investment projects; whether start-ups or financing existing businesses. Access to credit would make them capable of using the money to acquire and accumulate capital goods (make investments) that may result to an increase in employment and income. This ultimately helps them in coming out of poverty. Kenya's vision 2030 goal for equity and poverty elimination is to reduce the number of people living in absolute poverty to the lowest possible proportion of the total population. Therefore, access to microcredit being one of the tools that aids in poverty reduction may significantly contribute to the achievement of this goal.

The financial sector in Kenya has been growing rapidly over the years and so is the Microfinance industry. This growth has seen the percentage of the financially included people rise from 60.7 % in 2006 to 74.6% in 2013. Despite the growth, access to microcredit remains a challenge with 22.6% of the populace accessing microcredit (FinAccess National Survey, 2013). According to the survey, female clients, rural residents and the poor had the least access to credit facilities. These facts form the basis of the motivation for this study: what bars people from access to microcredit? An understanding of the individual socioeconomic and demographic factors that influence access to microcredit could help in filling the information gap on why most people in Kenya still remain excluded from microcredit access.

Further, although a vast amount of research has been carried out on the determinants of access to microfinance in various African countries; few similar studies have been conducted in Kenya. Most studies in Kenya have studied the depth of outreach from the point of view of who gets the credit, that is, a particular household group thereby emphasizing either on gender or poverty element. (See, Akoten et al., 2006; Mwangi and Ouma, 2012; Mwongera, 2014). Few, if any comprehensive studies have been done. This study is aimed at finding the determining factors of access to microfinance regardless of the type of borrower.

1.3 Objectives of the Study

The general objective of this research study is to examine empirically the factors that determine access to microfinance credit in Kenya. Specifically, the study will:

1. Examine the socio-economic and demographic characteristics of microfinance borrowers in Kenya.
2. Estimate the key determinants of access to microfinance in Kenya.
3. Draw policy implications from the findings generated.

1.4 Hypothesis

The study will test the following hypothesis:

- ❖ Women are discriminated in access to microcredit.
- ❖ Rural residents are discriminated in access to microcredit.
- ❖ Education level of individuals has a positive and significant effect on access to microcredit.

- ❖ Income of individuals has a positive and significant effect on access to microcredit.

1.5 Significance of the Study

Access to credit has received much attention from both policymakers and academicians. This is because of its significant as a source of finance to investments which contribute to economic growth. Scholars have established that access to microcredit serves to improve the livelihood of the poor and also place small businesses at a position where they are able to take advantage of investment opportunities.

This study will add into the pool of available literature concerning determinants of access to microcredit. Literature is an important tool of research since without it; research would probably not be possible. It will also draw policy implications which will help to inform policymakers on policy options that will enhance access to microcredit in Kenya.

CHAPTER TWO

OVERVIEW OF THE FINANCIAL SECTOR IN KENYA

2.1 Introduction

Kenya is a diverse economy with different sectors that drive economic growth. The financial sector is one of the crucial sectors that highly contribute to economic growth and welfare in the economy. The vision of the financial sector in Kenya is to have “A vibrant and globally competitive financial sector driving high-levels of savings and financing Kenya’s investment needs”. According to Kenya’s Vision 2030, the financial sector is ranked as the sixth priority sector, which is believed to play a very critical role in mobilising ample savings to finance the envisioned rise in investments (Republic of Kenya, 2007). In essence, the financial system is seen as a nerve center of economic development. It offers the essential service of financial intermediation, which by large involve enabling surplus spending economic units to save, and deficit spending economic units to raise funds for both consumption and investment (Beck et. al, 2010).

The financial sector in Kenya, as in other developing countries, has dualistic features. It is made up of both the formal and informal financial institutions.

2.2 The Formal financial Sector in Kenya

The formal financial institutions are set up legally and they engage in mobilization of savings and provision of credit. Germidis, Kessler, and Meghir (1991) defined formal financial sector on the basis of its constitution. According to them, formal financial sector comprises the central bank, non-banking (building societies, social security schemes, insurance companies, provident funds, savings banks and specialized financial institutions) and banking (commercial banks, development banks, merchant banks and postal savings networks) financial intermediaries and capital markets. In the Kenyan context, the formal financial sector consists of the banking, capital markets, insurance, Savings and Credit Cooperative societies (SACCOs), pension funds and Development Finance Institutions. It also includes the financial institutions that expedite payments, trading, and settlement systems.

Kenya’s formal financial sector is dominated by the banking industry with commercial banks dominating the banking industry. The Bank Supervision Annual Report 2014 revealed that, as at 31st December, 2014, the institutions supervised by the Central Bank of Kenya (CBK) included;

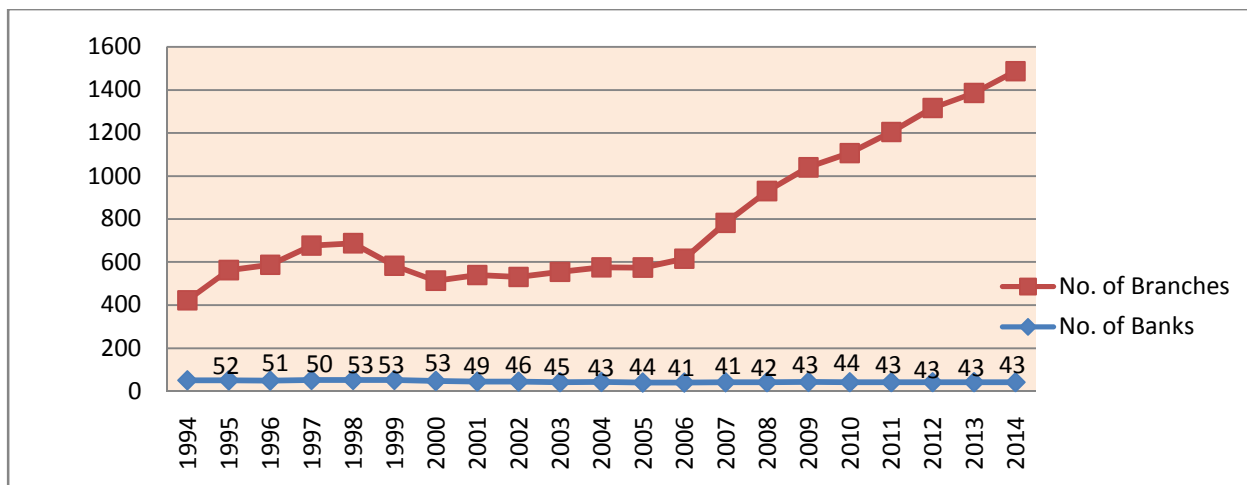
43 commercial banks, 2 Credit Reference Bureaus (CRBs), 9 Microfinance Banks (MFBs), 13 Money Remittance Providers (MRPs) and 87 Forex Bureaus.

2.3 The Banking Industry in Kenya

Over the past two decades, the banking sector in Kenya has recorded tremendous growth and significant transformation attributable to the reforms in the financial sector, technological progress and globalization. The industry has experienced exceptional growth which has been accompanied by remarkable performance over the same period. Despite the number of banks decreasing over the years due to liquidation, mergers and acquisitions and licence revocation by the central bank, the number of bank branches, assets, customer deposits and the volume of loans extended have increased significantly. The volume of loans and volume of customer deposits have increased by approximately 2,242% and 1,521% respectively over the past two decades. The progressive growth in these aspects of the banking industry is shown graphically below (Figure 1 and 2).

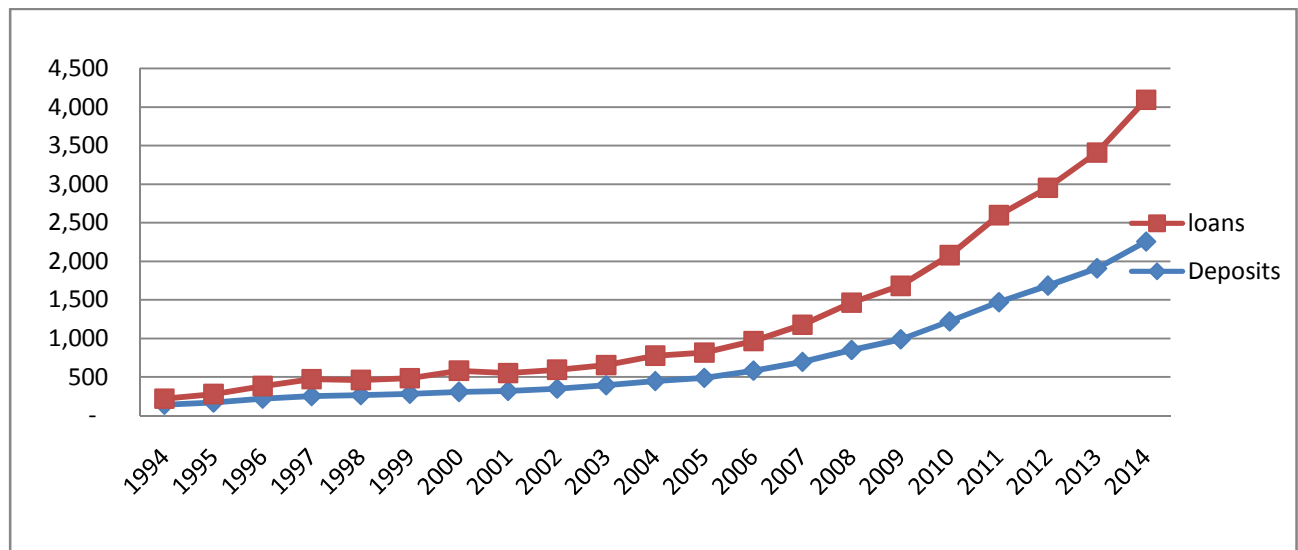
Albeit poor performance of the economy in some of the years and woeful effects of the global financial crisis of 2008, the industry still remains largely profitable with profits growing by close to 400%, rendering it the most profitable sector in the economy (Kamau and Were, 2013).

Figure 1: Number of Banks and Branches: 1994-2014



Source: Author's Compilation from Various CBK Bank Supervision Annual Reports, 1994-2014

Figure 2: Volume of Deposits and Loans: 1994-2014 (Figures in billion KES)



Source: Author's Compilation from Various CBK Bank Supervision Annual Reports, 1994-20

2.3.1 The Regulatory Framework for Banking in Kenya

Primarily, governments regulate industries with an aim of protecting consumers. However, in the financial sector, an additional motivation for regulation is spurred by maintenance of financial stability, soundness and efficiency of the financial system. This is normally done through financial sector supervision which requires a more ostentatious framework, laboriousness and intensity in supervision than in other sectors of the economy (Mutuku, 2008).

Banking business in Kenya is regulated by CBK whose regulatory powers are limited to the Banking Act, Cap 488. Prior to the enactment of the Act, banking in Kenya was regulated under the Banking Ordinance which was a part of the colonial legislation in Kenya inherited by the government at independence. The Central Bank of Kenya has the mandate to regulate all commercial banks in Kenya. This entails issuance of licences to commercial banks and supervision thereof. The Capital Markets Authority has additional oversight over the listed banks. All banks are required to adhere to certain prudential regulations such as minimum liquidity ratios and cash reserve ratios with the Central Bank.

According to the Banking Act, Cap 488 of the laws of Kenya, transacting of a banking business or a financial business in Kenya is restricted to licensed financial institutions or duly approved agencies already conducting business on behalf of licensed institutions. Conducting such

business is also restricted to banks, financial institutions or mortgage finance which has obtained consent from CBK to transact banking or financial business. This does not apply to investment banks and MFIs which are licensed under Capital Markets Act and Microfinance Act, 2006 respectively.

The Banking Act, Cap 488 specifies the conditions which should be met before a licence is granted. In order for a licence to be granted to an institution, the institution has to meet the minimum capital requirements. In 2000, the Central Bank implemented the Basel I accord standards on capital adequacy by introduction of additional capital adequacy ratios of 12% and 8% for total capital to risk weighted assets and core capital respectively. Further, the Act specifies that the financial institutions should maintain a core capital of at least Kenya shillings¹ 250 million in the case of a mortgage finance company or a bank and a core capital of not less than Kenya shillings² 200 million in the case of any other financial institution. According to KPMG³ (2012) the CBK still regulates banks primarily based on Basel I Accord but was in the course of formulating a policy to adopt and implement Basel II Accord.

2.4 The Microfinance Industry

The concept of microfinance is not new in Kenya. However, as an industry, microfinance is a comparatively new phenomenon in Kenya, with a few institutions starting up about 30 years ago with the sector acquiring the status of an industry in the last 20 years. In the past 15 years, microfinance has garnered massive support from both the international donors and the Government of Kenya (GoK). An estimated USD 80 Million has been received by the industry from donors and GoK this far (Foundation for Sustainable Development, n.d).

Kenya's microfinance sector is made up of a large and assorted group of institutions which can be categorised into formal subsidised, formal non-subsidised and informal groups. The formal subsidised category consists of formally registered organisations whose financial activities are unregulated. The main institutional players in this group are MFIs registered as non-governmental organisations (NGOs), companies limited by guarantee and limited liability companies. Formal non-subsidised MFIs constitute of formally registered, licensed and regulated

¹ 1 USD = 101.31 Kenya Shillings

² 1 USD = 101.31 Kenya Shillings

³ KPMG is an accounting firm whose initials stand for Klynveld Peat Marwick Goerdeler.

institutions. It comprises of the traditional MFIs, microfinance banks, Savings and Credit Co-operative Societies (SACCOs), savings bank (post bank) and commercial banks downscaling to offer MF services.

The informal MFIs encompass grassroots organisations which include Accumulating Savings and Credit Associations (ASCAs), Rotating Savings and Credit Associations (ROSCAs), money lenders and friends and relatives. They remain unregulated and have two striking features; in that most of them engage in savings transactions and are member based. This implies that non-members can neither borrow nor save in these particular institutions. The informal microfinance sector is said to be large but due to the informality, the number of informal organizations is not known with certainty and therefore, the amount of money transacted is unknown; but it amounts into billions of Kenya shillings annually (Dondo, 2007). Further, the deposit-taking MFIs can be categorized into two: nationwide MFIs and the community MFIs with a minimum capital requirement of Kenya Shillings sixty million and Kenya Shillings twenty million respectively. The nationwide MFIs operate countrywide while the community MFIs operate with one government administrative division or district in case of operation within a City (Mwatela, 2008).

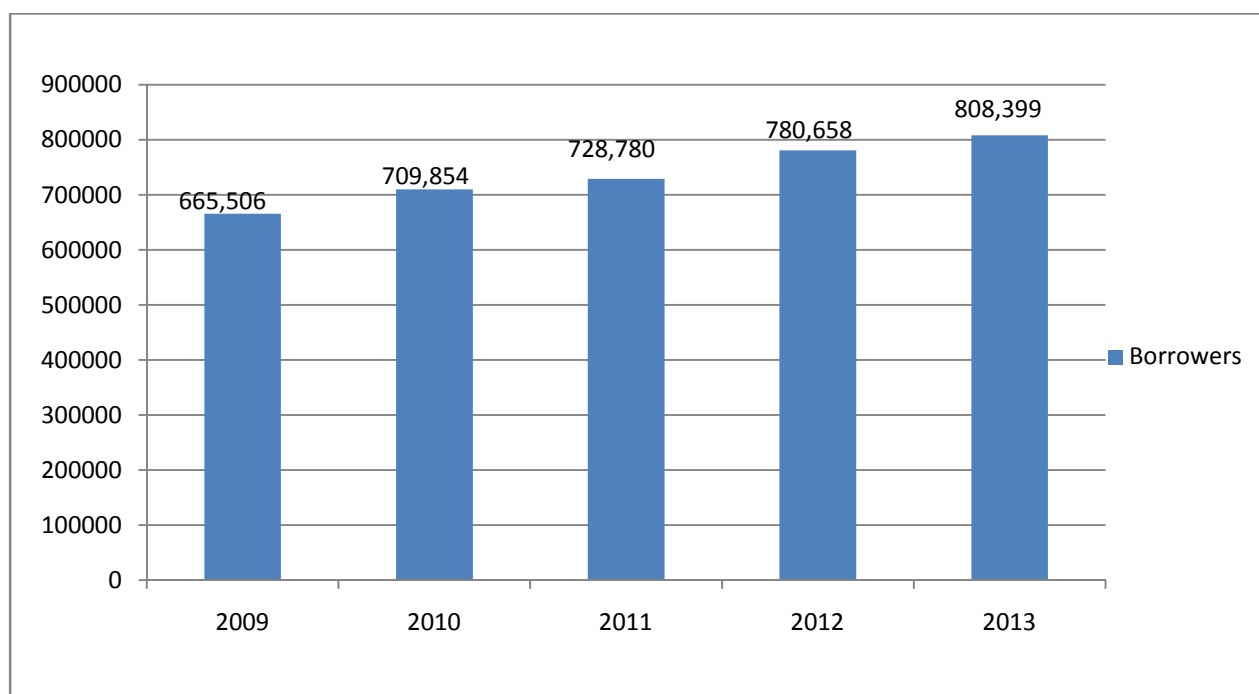
Table 2.1: Distribution of Formal Non-Subsidised Institutions

Type of Organisation	Number
Deposit Taking MFIs (DTMs)	9
Microfinance Banks (MFBs)	4
Commercial Banks Downscaling	4
Savings Bank (Post Bank)	1
Savings and Credit Co-operative Societies (SACCOS)	5,000

Source: Author's compilation from various sources

Just like the banking sector, the microfinance industry is highly concentrated, with more than 70% of the market being served by Kenya Women Finance Trust⁴, Jamii Bora⁵ and Faulu Kenya⁶. Similarly, there are high levels of concentration within the SACCOs (Cracknell, 2012). The microfinance industry has been growing in Kenya in terms of increased number of branches, growing number of borrowers (See Fig 3) and total assets and loan portfolio. According to the 2014 Kenyan Microfinance Sector Report, total assets of the sector grew to Kenya shillings 315.7 billion as at December 2013 registering an annual growth of 15.1%. The loan book also increased to KES 40.2 billion realizing an annual growth of 35.2%. The growth is really impressive. Despite this, MFIs seem to be more concentrated in the metropolitan areas; Nairobi, Kiambu, Mombasa and Nakuru. (See Fig 4)

Figure 3: Growth in the Number of Borrowers 2009-2013



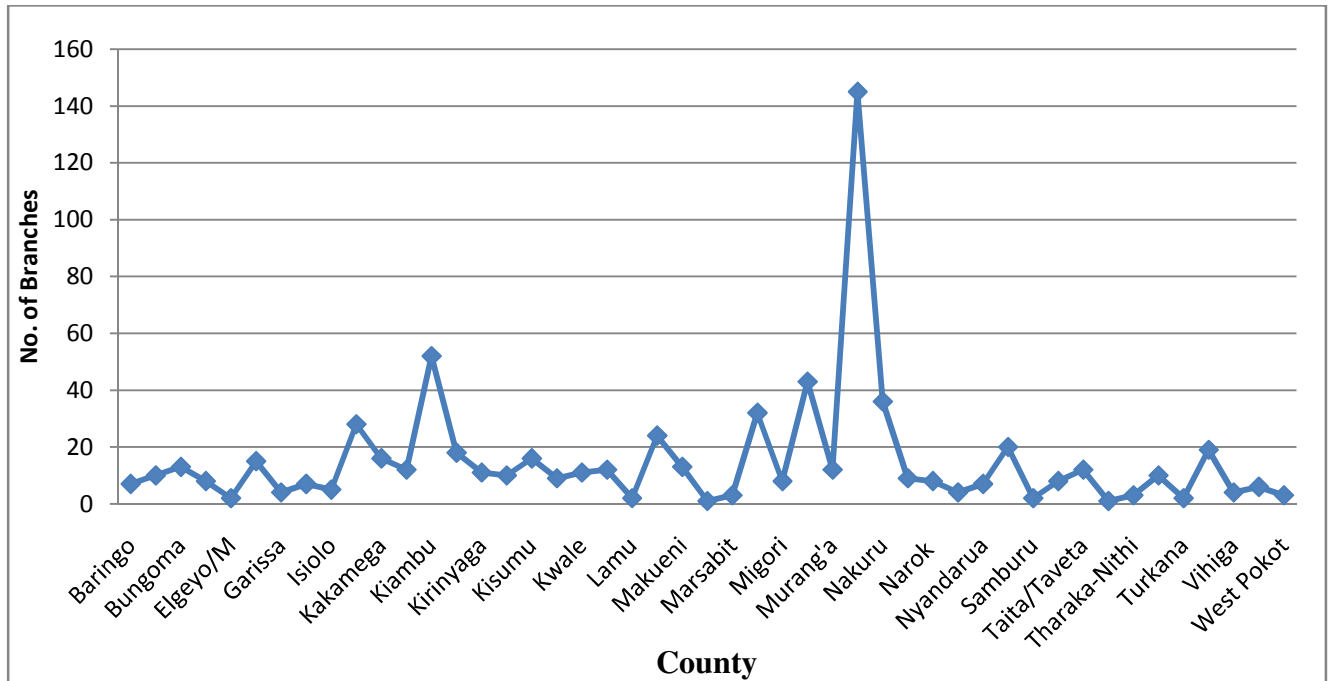
Source: Author's Compilation from various Sector Reports on the Kenyan Microfinance Sector

⁴Institutions that have transformed from traditional microfinance institutions to microfinance banks.

⁵Institutions that have transformed from traditional microfinance institutions to microfinance banks.

⁶Institutions that have transformed from traditional microfinance institutions to microfinance banks.

Figure 4: Distribution of MFI Branches per County



Source: Author's Compilation from 2014 Sector Report on the Kenyan Microfinance Sector

2.4.1 Regulatory Framework of MFIs

With the growth in the microfinance sector, the need for licensing MFIs arose in order to permit MFIs to lawfully mobilize savings and other commercial sources of funds which encourage innovation and capacity building. It also enhances self-sufficiency of the MFIs and greater outreach (World Bank and IMF, 2005). Microfinance banks are prudentially regulated by the Central Bank of Kenya under the Microfinance Act, 2006 and the Microfinance (Deposit Taking Institutions) Regulations, 2008 issued by the CBK pursuant to this legislation. The Act and the regulations issued thereunder lay down the legal, regulatory and supervisory structure for the microfinance industry in Kenya. The Microfinance Act became functional with effect from May 2, 2008.

The Act clearly states the conditions which should be met before a licence is granted. In order for a licence to be granted, an institution has to meet the minimum capital requirements. In 2000, the Central Bank implemented the Basel I accord standards on capital adequacy by introduction of additional capital adequacy ratios of 12% and 8 % for total capital to risk weighted assets and core capital respectively. Further, the Act specifies that the MFIs should maintain a core capital

of at least sixty million Kenya shillings and a core capital of at least twenty million Kenya shillings in the case of a deposit taking institution. The law (Microfinance Act 2006) also restricts the licensed DTMs to offer credit, savings and remittance products and services.

CHAPTER THREE LITERATURE REVIEW

3.1 Introduction

This chapter presents the theoretical literature which is based on credit rationing theories and the empirical literature which presents the general consensus by different scholars who carried out similar and related studies.

3.2 Theoretical Literature

Theoretical literature is based on the credit rationing theories. Serrano and Sackey (2015) defined credit rationing as a situation where borrowers do not get the full amount of credit they applied for or worse still, they do not get credit at all despite being willing to pay the prevailing interest rates. This primarily results from the existence of information asymmetry. It is thus a situation in which the equilibrium interest rate does not ensure efficient credit allocation; hence, rationing is done as an alternative of non-price mechanism allocation.

In 1936, credit rationing may perhaps have seemed theoretically unexplainable, but 35 years later, after the “Availability Doctrine” failed to successfully explain it, Stiglitz and Weiss (1981) derived it from adverse selection and moral hazard in finance (Myerson, 2012). Subsequently, different scholars have come up to explain credit and justify credit rationing, building on Stiglitz and Weiss (SW) model. But, the bottom line is that credit rationing is viewed as a permanent disequilibrium phenomenon where demand for loanable fund exceeds the supply.

3.2.1 The “Availability Doctrine.”

The availability doctrine was first advanced by Roosa (1951), Scott (1957a, b), Lindbeck (1962) and Parker (1972). The doctrine attempted to give an alternative explanation to the working of the monetary policy work in the presence of interest inelastic investors. According to this theory, lending by banks is limited to availability of funds. The amount of funds that banks can attract determines the volume of loans that they can avail to the demanders of loanable funds. This supply constraint, therefore, results to credit rationing. Consequently, equilibrium in the credit market is purely determined by the supply conditions and real economic activity.

3.2.2 Stiglitz and Weiss Model of Credit Rationing

Stiglitz and Weiss's model is based on the idea that while borrower's repayment capacity may be known by banks on the basis of the expected returns from their projects, the borrower's risk is unknown to bankers. This is due to the existence of information asymmetry. The lender, therefore, is unable to differentiate between bad and good risk borrowers. According to Stiglitz and Weiss (1981), an increase in the rates of interest may adversely influence the combination of bad and good borrowers as a result of adverse selection and incentive effects.

3.2.2.1 Adverse Selection Theory of Credit Rationing

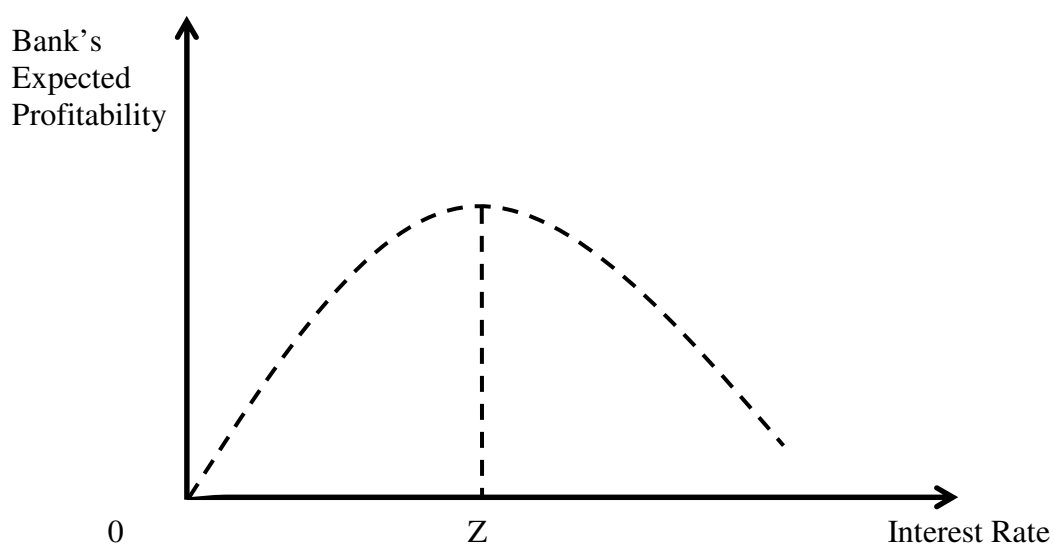
Stiglitz and Weiss (1981) pointed out that an increase in the rates of interest may adversely influence the combination of bad and good risk borrowers as a result of adverse selection. The adverse selection effects state that borrowers who have predetermined perception that their loan repayment probability is low are more probable to remain in the high-interest rates applicants' loan pool. They maintained that interest rates influence the riskiness of loans (i.e. the quality of loans). They also argue that interest rates serve as a screening device through which banks can be able to differentiate between risky and less risky borrowers.

As interest rates shoot, low-risk borrowers are discouraged from borrowing and, therefore, will leave the pool of loan applicants. When the lending rate rises, low-risk borrowers will no longer apply for credit because they have already lost interest for the loan. Increase in interest rates generates two opposite effects on the profitability of the bank. The first effect is negative: increase in interest rates increases the bank's risk portfolio. The second effect is positive which is brought about by the increase in the net interest income. In such a scenario, at the quoted interest rates, demand for credit may exceed the supply. This phenomenon is known as equilibrium credit rationing (Bellier, Sayeh and Serve, 2012).

The implication is that supply of loans is an inverse function of the interest rate. The initial rise in the interest rate may increase the supply of loanable funds as it increases the expected profitability of the bank. Nevertheless, the two do not have a monotonic relationship. Beyond a certain point, with increase in interest rates, expected profitability of the bank increases but at a declining rate up to an optimal point where the profitability falls as interest rates rise (see Figure 5). Point Z is the equilibrium point. However, at this point an excess demand for credit may persist, causing interest rates to rise further. Consequently, a higher profitability is expected by

bankers. Contrary to expectations, banks refuse to advance loans beyond this equilibrium point because doing so will lead to a fall in banks' expected profitability. Therefore, banks will not lend beyond the equilibrium point even if there is an increase in either interest rate or excess demand for loans in the market

Figure 5. There Exists an Interest Rate which Maximizes the Expected Return to the Bank



3.2.2.2 Moral Hazard Theory of Credit Rationing

Moral hazard is captured in what Stiglitz and Weiss (1981) referred to as the incentive effect. The incentive effect suggests that because higher interest rates reduce the successful projects' expected net returns, borrowers may be forced to switch from the low risk projects to high risk projects; where there is a low probability of success but the expected return will be high in case the projects do not fail. As interest rates shoot, low risk borrowers are discouraged from borrowing and therefore will leave the pool of loan applicants.

Moral hazard concerns the risk that arises because of the behaviour of the borrower after the contract is made. After an entrepreneur successfully borrows a loan to finance a new investment project, the probability of its success may be highly determined by the entrepreneurial efforts; that a bank is unable to monitor directly. To encourage such hidden efforts, there is a need for the borrower to anticipate substantial profits from his venture's success (moral hazard rents). Consequently, this need to allow entrepreneurs to keep sufficient profit from their successful investments can impose an upper limit on the rates of interest that banks can charge (interest rate

ceiling). As a result, rise in interest rates might not occur even when there is excess demand for funds by qualified borrowers. Borrowers end up getting less credit amounts than they applied for or none at all (Myerson, 2012).

A simple model of credit and moral hazard

Moral hazard leads to credit rationing because lenders have a limited involvement in the management of the borrowing firm's activities. We use a simple model which is a slight modification of Bester-Hellwig [1987] model, as summarized in Freixas-Rochet [1996]. The model takes in account the limited participation of lenders in the management of borrowing firms as the major cause of moral hazard in the selection of investment projects.

Assuming that each firm chooses between a "good" and a "bad" project; the "good" project generates a cash flow y_g with probability p_g and zero cash flows otherwise while the "bad" project generates cash flows of y_b with probability p_b and nothing otherwise. Cashflows are defined per unit of investment.

The expected returns of the good project are higher than those of the bad project, that is, $p_g y_g > p_b y_b$ and similarly the good project is safer, $p_g > p_b$ and $y_b > y_g$. This implies that the bad project has a lower probability of higher cash flows; however, it's not sufficient to overtake the good project's expected returns.

Letting the size of the loan to be one unit, the required repayment amount t is R which is inclusive of the interest rate. For simplicity, we take R as the interest rate. Risk neutral borrowers will select the good project if its expected returns net of the repayment amount, R are positive, that is:

$$p_g(y_g - R) \geq p_b(y_b - R).$$

Let us define a "cut-off" repayment amount as:

$$\hat{R} = \frac{(p_g y_g - p_b y_b)}{(p_g - p_b)}$$

Where $R \in (0, y_b)$

Therefore, the good project will be chosen if the market interest rate R does not exceed \hat{R} . It's good to note that the larger the difference between the cash flows $y_b - y_g$ and the lesser the difference in probabilities $p_g - p_b$, the more severe the moral hazard problem becomes. The value of the firm for the owners is given for the following weakly convex function:

$$V(R) = \max \{p_g(y_g - R), p_b(y_b - R), 0\}$$

The easiest way of closing the model is to postulate a large number of perfectly competitive lenders with a given outside option. If they are risk neutral, then, an investment with expected return q is chosen where supply of funds is perfectly elastic. As long as $q \leq \max\{p_g \hat{R}, p_b y_b\}$, at least one equilibrium interest rate, \bar{R} must exist in that:

- If the value of the outside option is low enough ($q < p_b \hat{R}$), a unique equilibrium with borrowers choosing the good project exists.
- A unique equilibrium where borrowers opt for the bad project may also exist if the outside option is high enough $q < p_g \hat{R}$ and $p_b y_b \geq p_g \hat{R}$.
- One type of multiple equilibria for intermediate values of outside option ($p_b \hat{R} < q < p_b y_b$) must also exist.

Bester-Hellwig (1987) highlighted the likelihood of credit rationing when suppliers of funds are price-setters and the maximum expected lending rate is met at the "cutoff" rate of

$\hat{R}(p_g \hat{R} > p_b y_b)$. This gives rise to a backward bending funds supply curve with an inside maximum at \hat{R} . If \hat{R} is lower than the demand, then some form of rationing would occur.

3.2.3 Non-price mechanism credit rationing and Microfinance

Due to information asymmetry problems, credit markets are characterized by a rationing equilibrium which is inefficient. At this point, the market forces of demand and supply are not allowed to work and hence markets do not clear. Banks set the interest rates and collateral requirements. Increasing interest rates forces the good risk borrowers to withdraw from the credit market since they are not willing to pay such high interest rates. Similarly, setting of collateral requirements lowers the borrowers' utility and kicks out some individuals out of the formal credit market (Stiglitz and Weiss, 1981). It is for this reason that the poor, women and SMEs are

excluded in the credit market since they are viewed as risky borrowers and more so, they lack collateralizable assets to guarantee loan repayment. As a result, worthy borrowers are financially excluded.

The inefficiency of the credit market created a need for NGOs' and governments' intervention. Consequently, governments in developing countries set up financial institutions which provided subsidized credit to people who were excluded from bank credit. Similarly, NGOs were set up which provide small loans to the rural and urban poor. Eventually, formal MFIs were born. It's on this background, that microfinance has created both economic and social impact to the poor notwithstanding the challenges posed by rural credit markets in developing countries.

3.3 Empirical Literature

3.3.1 Access to Microcredit and its benefits

Microcredit as defined earlier is process of loaning capital to the poor people so that they can invest in self-employment; and is committed to provision of small loan amounts to micro entrepreneurs to invest in their businesses, plough back the returns and enable them to grow out of impoverishment. It conforms with the age-old maxim "give a man a fish and he will only eat for a day- teach a man how to fish and he will eat for a lifetime". Access to capital in form of microcredit gives the low-income people the means to advance their lives and enables them to provide for their families and themselves not only in the short-run but also in the long-run (Furlane, 2013).

Empirical evidence from multiple of microfinance clients from different parts of the world shows that access to microcredit services enable the poor to raise their household incomes, build on assets, and decrease their vulnerability to the disasters that are part of their day-to-day lives (Karanja et al., 2014). According to Karanja et al. (2014) access to flexible, affordable and convenient, financial services including microcredit empowers and equips the underprivileged in the society to make their own choices as well as match their way out of poverty in a self-determined and sustained way. Kasim and Jayasooria (2001) noted that one of the ways to reduce poverty particularly among the hard-core poor is through microcredit. It has the potential to play a significant role both in the bust and boom economic environments. In the former

situation it has the ability to mitigate the heat of the economic turmoil. As for the latter situation, it has the capacity to raise productivity of self-employment in an economy's informal sector.

Microfinance acknowledges the fact that the working poor, in principle, are creditworthy and have the entrepreneurial ability to start and run businesses if at all they had access to capital. As noted earlier, these micro-borrowers are often excluded by the conventional financial institutions and hence end up getting credit from informal money lenders and/or pawnshops who charge them exorbitant interest rates. For example, in the Philippines, usurers often charge an interest rate of up to 1000% p.a for a monthly loan while MFIs charge interest rates ranging from 15% to 70% p.a. Therefore, for these micro-borrowers, the only resort to paying these outrageous interest rates charged by informal money lenders and/or pawnshops is microcredit (Deutsche Bank Research, 2007).

Abdulsalam and Tukur (2014) in their study in Nigeria found out that microcredit enables businesses to increase the value of capital (physical assets) acquired by the firms. According to them, access to microcredit also increases employment generation by the firms due to business expansion as a result of microcredit.

3.3.2 Review of Models Used

Different scholars used different models to analyse determinants of access to credit. However, most of the scholars converged to the use of the probit model in their analysis. These include: Zeller et. al (1994); Rand (2006); Baiyegunhi et. al (2010); Quoc (2012) and Clamara et. al (2014). On the contrary, Okurut (2009) and Okurut et al (2009) used binary probit model for their estimation. Okurut (2006) and Mwangi&Kihui (2012) adopted the multinomial logit model while Okurut (2006) and Okurut&Schoombee (2007) used the Heckman probit model. In other studies, ordered probit model, binominal Logit model and simple OLS regression were adopted by Bakhshoodeh and Karami (2008); Kacem and Zouari (2012) and Peprah (2012) respectively.

3.3.3 Review of the Variables

Several factors explain why some borrowers may or may not have access to credit. These factors can be categorised as borrowers' characteristics, and the loan terms and conditions imposed by suppliers of funds (Zeller, 1994). Evidence from different scholars show that factors such as age, distance to bank, education level, gender, marital status, location (rural or urban), wealth,

household size, household income, among others to be the factors that determine access to microcredit. These factors are discussed in details below.

3.3.3.1 Age of the Borrower

Most studies found a positive and significant link between age of the borrower and access to credit. (see Zeller, 1994; Zeller et al, 1994; Akoten et al., 2006; Okurut, 2006; Okurut and Schoombee, 2007; Okurut, 2008; Okurut et al., 2009; Mwangi and Kihui, 2012; Peprah, 2012; Clamara et al, 2014; Mwangi and Sichei, n.d). However, some studies realised a negative and significant relationship between age of the borrower and access to credit (see Rand, 2007; Bakhshoodeh and Karami, 2008; Baiyegunhi et al., 2010). The implication behind the positive relationship was that elderly people are likely to have control on household resources which financial institution normally require as collateral. This is in accordance with the wealth accumulation theory that assumes that older people have accumulated enough physical resources in their lifetime, thereby making them more credit worthy; since they are able to meet collateral requirements by the financial institutions. Further, younger people are unlikely to access financial services for instance bank account and credit due to lack of necessary documentation requirement. People gain access to the required documents by financial institutions such as personal IDs, employment contract, certifications of residence among others with age. These documents enable financial institutions to lessen the problems of information asymmetry while assigning a customer's risk level.

The intuition behind the negative relationship is that for firms, it is a reflection that older firms to a greater extent finance their investments using retained earnings following Myer,(1984) pecking order theory which suggests that firms will finance their investments using internal funds first while debt financing will be the last option. For individuals, the intuition is that young people are viewed to have made more opportunities to establish business relationships with lenders and to build social links with communities.

3.3.3.2 Distance to the Bank

Studies by Bakhshoodeh and Karami, (2008), Quoc, (2012) Clamara et al, (2014) and Mwangi and Sichei, (n.d) showed that the distance from the bank is a major determining factor of access to credit. A positive and significant relationship was established: borrowers who live in remote

areas have less access to loans as compared to those that live close to the banks. The intuition behind the results is that most remote areas are characterised by high illiteracy levels, impoverishment and poor infrastructure in form of communication and technology. This implies that individuals with lower education levels are uninformed of there being alternative banking options, such as internet and mobile banking which substitute physical financial institutions. The perception of distance as a barrier could also reflect lack of access, due to the fact that residing in a rural area renders it more problematic to access financial services.

3.3.3.3 Education Level

Okurut, (2006), (2008), Bakhshoodeh and Karami (2008), Peprah, (2012), Kacem and Zouari, (2013), Clamara et al., (2014) and Mwangi and Sichei, (n.d) established that education level is a positive and significant determinant of access to credit. The intuition is based on the idea that education builds on human capital thus enhancing the effective use of credit by households. Further, education serves to enlighten the public on the different financial services available as well as creating awareness on the best way to manage the available services. On the contrary, studies by Zeller (1994) and Rand (2007) showed that years of schooling have a negative correlation with access to credit. The negative correlation was a reflection of the possibility that highly educated applicants have lower credit demands, and they are more likely to know when their loan application will be rejected, hence, refraining from application.

3.3.3.4 Income

In addition to income being used expressly as a determinant to access to credit, some scholars (see Okurut, 2006; Okurut and Schoombee, 2007 and Okurut, 2008) used household expenditure as a proxy for household income. Different scholars independently investigated the relationship between access to credit and size of the applicant's income. They converged to a conclusion that there is a positive and significant relationship between the two (see Zeller et al., 1994; Okurut, 2006; Okurut and Schoombee, 2007; Okurut, 2008; Okurut et al., 2009; Mwangi and Kihui, 2012; Clamara et al., 2014; Mwangi and Sichei, n.d). The intuition is that when lending out funds, financial institutions are primarily concerned with the loan repayment. High income is seen as collateral for loan, thus they use the borrowers' income as a measure of repayment capacity.

3.3.3.5 Marital Status

According to Quoc (2012) marital status (being married) has a positive and significant relationship with access to credit. These results were supported by Mwangi and Kihiu (2012) who found marital status to be significant in explaining access to informal credit services. Informal service providers bank heavily on marital status given the fact that married people appear to be more responsible and hence are more trusted. In addition, married individuals are seen to have at least more than one source of income; that is, from the spouse income, therefore, increasing their repayment capacity.

3.3.3.6 Gender

A good number of writers agree that gender is a key determinant of access to credit. Okurut (2006); Okurut (2008); Mwangi and Kihiu (2012) and Clamara et al. (2014) showed that being male increases the chances of individuals' access to credit. This view was also supported by Rand (2007) who found that male-owned firms in Vietnam obtained credit more frequently in comparison to female-owned firms implying easier access. Similar results were obtained by Okurut and Schoombee (2007). The intuition is that in the context of most African countries, household resources and businesses are normally controlled by men which make them more creditworthy reducing their likelihood of being rationed in credit markets.

3.3.3.7 Wealth

Different scholars (see Zeller, 1994; Okurut and Schoombee , 2007; Bakhshoodeh and Karami, 2008; Okurut et al., 2009; Baiyegunhi et al., 2010; Quac, 2012; Clamara et al., 2014) using different proxies for wealth of businesses and individuals established that wealth has a positive link with access to credit. This implies that financial institutions use the wealth of borrowers' as a measure of their repayment capacity. Property owners are more often than not likely to meet the documentary requirements and guarantee as compared to those who do not own property. The value of visible assets is used as collateral such that in the event of default, lenders will take possession of the assets and liquidate them in order to recover the amounts outstanding.

3.3.3.8 Location

Studies by Zeller et al. (1994), Akoten et al., (2006), Okurut (2006), Okurut and Schoombee (2007), and Okurut (2008) revealed a negative and statistically significant relationship between access to credit and a household being located in rural regions. Due to information asymmetry,

financial institutions may prefer lending to borrowers operating in their vicinity because it is easy to monitor them and to obtain “soft” information from them that will allow lending officers to tell from the borrower’s conduct whether to execute further loan requests or not. This is so because most financial institutions are located in urban areas. However, Rand (2007) found that living in rural areas is positively related to access to credit. His argument was that most of government banks’ credit is allocated to rural residents and therefore a higher percentage of people in rural areas.

3.3.3.9 Household Size

Studies by Okurut (2006), Okurut and Schoombee (2007), Mwangi and Kihui (2012) and Mwangi and Sichei (n.d), revealed a positive and statistically significant relationship between the size of the household and household access to bank credit. This is because a large family is quite important in production (serves as labour) and therefore, has high income from labour that increases the repayment capacity. In contrast, Okurut (2006) and Mwangi and Kihui (2012) found a negative link between access to credit and household size. The intuition is that larger households may be perceived to have lower repayment capacity. Therefore, they have a higher probability of being constrained in their access to credit.

3.3.3.10 Being in Paid Employment/ Employment Status

Okurut, 2008 and Okurut et al., 2009 revealed that being in paid employment positively and significantly influence access to credit. The implication is that employed individuals have a regular flow of income mostly monthly income that can service their loans and, therefore, they are considered more credit worthy. Besides, employers act as guarantors for bank loans and based on the arrangements between the lender and the employer; they make deductions at intervals from salaries of the borrowers for the purpose of loan repayment and remit them to the banks.

3.3.3.11 Other Variables

Peprah (2012) revealed that well-being of clients is a positive and significant determinant of access to credit. Size of the firm was also found to have a positive link with access to credit by Rand (2007); firms are more probable to access credit the larger they are. Moreover, Clamara et al. (2014) suggested that formality: the legal registration of a company to have a positive correlation with access with credit access.

3.4 Credit Schemes by the Government to Enhance Access to Microcredit in Kenya

Lack of credit access is a major impediment to the growth and development of micro, small and medium enterprises (MSMEs) especially those that are owned by the youth and women. This is principally due to the lenders' behaviour in terms of hedging against the risks of borrowers by asking collateral from them, which they lack, and information asymmetry as well (Mwangi and Ouma, 2012). Consequently, different credit schemes have been designed to avail credit to these segments of the society and clients who suffer poor or no access to credit. This paper is going to discuss two such schemes: the Youth Enterprise Development Fund and Women Enterprise Fund (WEF) which have been designed to improve access to credit by the youth and women in Kenya.

3.4.1 The Youth Enterprise Development Fund (YEDF)

Even though young people lack skills on how to successfully manage enterprises, those who opt for self employment are normally faced with difficulties in relation to access to capital (World Bank, 2005). Majority of the financial institutions are unwilling to lend to the youth due to their lack of collateral (Mburung'a, 2014). Despite there being a number of youth organizations and NGOs availing loans to young people interested in setting up their own businesses, loan qualifications are very stern. NGOs call for the youth to have existing businesses, join a credit scheme and group savings, and have some savings among other requirements. Additionally, youth organizations are often hesitant to advance loans to the youth since they find it hard to monitor the loan recipients (World Bank, 2005). As a way of responding to these challenges facing the youth and the escalating unemployment rates, the GoK founded the Youth Enterprise Development Fund (YEDF) in 2006 as one of the strategies of addressing youth unemployment.

The Youth Enterprise Development Fund (YEDF) was established by the GoK in 8th December, 2006 through Legal Notice No. 167. It was officially launched in February 1, 2007 by the then President of the Republic of Kenya His Excellency Mwai Kibaki and transformed into a state corporation in 11th May, 2007 through Legal Notice No. 63. The aim of the fund was to provide an on-lending facility to the youth, with flexible collaterals and low interest rate, in order to support youth-owned enterprises; and attract and facilitate other youths to invest in micro and small enterprises. It focuses on enterprise development as a principle strategy for increasing economic opportunities for youth as a means of enabling them to contribute in nation building.

YEDF focuses on multiple areas, which include providing capital to young entrepreneurs, facilitate linkages in supply chains, avail business development services, and create market opportunities for the products produced by the youth enterprises (Ministry of Youth Affairs and Sports, 2009).

The fund has three lending components: Constituency Youth Enterprise Scheme(C-YES), Easy Youth Enterprise Scheme (EYES) and financial intermediaries. The C-YES funds (maximum of Ksh. 50,000) are intended for youth owned enterprises and are available to them through their registered youth groups in their respective constituencies nationwide. The C-YES gives loans to qualified youth groups at 0% interest rate, with a one-off deduction of 5% administrative fee. The fund is administered, monitored and managed by YEDF through the community committees at the constituency level. The EYES scheme finances project by individuals who are members of the group(s) that have finished repaying of the C- YES loan.

3.4.2 Women Enterprise Fund

Access to credit for the rural-poor in Kenya, more so women has not been easy. The reason behind this is that Kenyan women experience social and economic discrimination due to the patriarchal nature of the Kenyan society (Ijaza et.al, 2014). Acknowledging the financial, social and economic challenges that Kenyan women face, the Government of Kenya set up the Women Enterprise Fund (WEF). The introduction of the WEF was geared towards creating and enhancing affordable access to finances for Kenyan women who were facing difficulties in accessing funds from the existing MFIs and commercial banks (Ijaza et.al, 2014).

The Women Enterprise Fund is a Semi-Autonomous Government Agency under the Ministry of Gender, Children and Social Development. It was initiated by the GoK and was established in 2007 through Legal Notice No. 147. It was officially launched in May 26, 2009 by the then President of the Republic of Kenya His Excellency Mwai Kibaki but had began its operations immediately after its conception in 2007. The fund has five mandates as stipulated in the Legal Notice No. 147 which include:- provision of loans to women through credible MFIs, SACCOs and registered NGOs involved in micro-financing; attract and facilitate investment in MSMEs' oriented infrastructures such as business incubators or business markets that will benefit women enterprises; supporting women-oriented MSMEs to develop linkages with large business enterprises; facilitate the marketing of products and services produced by women enterprises in

both international and domestic markets and finally to support capacity building of the beneficiaries of the fund in their institutions (Women Enterprise Fund Strategic Plan, 2009-2012).

3.4.2.1 Constituency Women Enterprise Fund (CWES) - (Tuinuke loan)

The Constituency Women Enterprise Scheme (C-WES) is a division of the WEF that is tasked to ensure that all women at the constituency level, more so those residing in remote areas which are not sufficiently served by Financial Intermediaries access funds. It targets women – enterprise groups in the divisions and its accessibility is restricted only to women groups running within the parliamentary constituency. C-WES acts as a form of microcredit institution and extends interest and collateral free credit to women as a form of economic empowerment. Precisely, C-WES gives loans to qualified women groups at 0% interest rate, with a one-off deduction of 5% administrative fee repayable within 12 months but with a grace period of 2-1 months depending on amounts. It adopts group lending methodology to advance loan to women (Women Enterprise Fund, 2015). For eligibility:-

- ✚ Only registered self help groups of ten members and above are eligible for CWES.
- ✚ The membership of the group should comprise 100 percent women or a combination of 70 percent and 30 percent women and men respectively.
- ✚ All the leadership posts should be held by women.
- ✚ The group must have an account which must have been operational for a minimum period of three months with a bank/postbank/ SACCO FOSA / DTM.
- ✚ Groups should receive training on business management skills by the fund’s officers as a requirement for loan application.

3.4.2.2 Financial Intermediaries Partners (FIS) - (Jimarische loan)

Unlike CWES, under this channel, the loan is given to self help groups, individual women, or women-owned companies at an interest rate of eight percent per annum on reducing balance.

The fund advances a maximum loan amount of Kenya Shillings two million per borrower with repayment period of up to a maximum of 36 months; and flexible security which differs depending on the financial intermediary involved. Loan amounts exceeding Kenya Shillings five hundred thousand require approval by WEF board (Women Enterprise Fund, 2015).

CHAPTER FOUR METHODOLOGY

4.1 Theoretical Framework

When the dependent variable is binary, binary response regression models are used. Various probability models (linear probability model (LPM), probit, logit and tobit) have been used extensively to empirically model the determinants of access to credit. The dependent variable; access to credit is assigned a value of 1 if there is access and 0 otherwise. The binary response model can be derived from an underlying latent variable model (Wooldridge & Weeks, 2002).

$$y^* = \beta_0 + x_i\beta_{i1} + \varepsilon_1 \quad (4.1)$$

Where y^* = latent variable, β_0 = constant, x_i = vector of observable household characteristics, β_i is vector of i parameters; $i = 1, 2, 3, \dots, n$ and ε is the error term.

We adopt a random utility model by Mc Fadden, (1981) which can be modified to suit Wooldridge, (2002) latent variable model. The probit model was used for estimation of factors that influence access to microcredit. Access to microfinance is captured as a dummy ($y = 1$ if household received microfinance loan, otherwise zero).

The binary response regression model was explained on the basis of rational choice view of consumers' behaviour (Wooldridge & Weeks, 2002); (Gujarati, 2008). Assuming that the borrowers are rational, a borrower would maximize utility by making a choice that yields the highest utility.

Formally;

$$y = 1 \text{ if } y^* > 0 \text{ and } y = 0 \text{ if } y^* < 0$$

$$P [y = 1 | x] = P [y^* > 0 | x] \quad (4.2)$$

The probability of a borrower accessing credit from a MFI is given as follows:-

$$\begin{aligned} P[y = 1 | x] &= P [Z_{i1} > Z_{i2}] \\ &= P [\beta_0 + x_i\beta_{i1} + \varepsilon_1 - \beta_0 - x_i\beta_{i2} - \varepsilon_2 > 0 | x] \quad (4.3) \\ &= P [x_i (\beta_{i1} - \beta_{i2}) + (\varepsilon_1 - \varepsilon_2) > 0 | x] \\ &= P [x_i \beta + \varepsilon] \end{aligned}$$

$$y = x_i \beta + \varepsilon \quad (4.4)$$

Where Z_{i1} is utility from accessing credit from MFI; Z_{i2} is utility from accessing credit elsewhere; all other variables as defined before.

4.2 Model specification

The probit model was applied to identify the determinants of access to microcredit in Kenya. The choice of the probit model over the other binary response models was based on both convenience and the limitations of other models precisely linear probability model which gives probabilities outside the brackets of zero and one. Additionally, it was informed by the fact that based on literature review, most studies (see Zeller et. al, 1994; Rand, 2007; Bakhshoodeh and Karami, 2008; Baiyegunhi et. al, 2010; Quoc, 2012; Clamara et. al, 2014) adopted the probit model in their empirical analysis of determinants of probability of access to credit. The model obtained above will be estimated as:

$$y = x_i \beta + \varepsilon \quad i = 1,2,3, \dots, n \quad (4.5)$$

Where: y is a dummy dependent variable, precisely; $y = 1$ if there is access to microcredit and $y = 0$ otherwise.

x_i is a vector of household characteristics that were in relation to the reviewed literature β is a vector of unknown parameters to be estimated and ε is an error term, $\varepsilon \sim N(0,1)$

4.3 Estimation Method

The probit model was used to determine the probability of access to microcredit.

$$P(\text{Access to microcredit} = 1) = \theta[\beta_0 + \beta_1(\text{Location}) + \beta_2(\text{Gender}) + \beta_3(\text{Age}) + \beta_4(\text{Marital status}) + \beta_5(\text{Education}) + \beta_6(\text{Hhold Size}) + \beta_7(\text{Earnings}) + \beta_8(\text{Business Sector})] \quad (4.6)$$

4.4 Variable Measurement and A priori Expectation

Dependent variable

The dependent variable of the study is access to microcredit (1 if household accessed microcredit, zero otherwise). Microfinance credit in this study is defined as credit from

SACCOs, formal MFIs, Chamas (translated as groups), shopkeepers, moneylender, employers, neighbours, friends and farm produce buyers.

Independent variables

The independent variables for which data was available included location, gender, age, marital status, education level, household size, earnings and business sector. The definitions of these variables including the expected signs are presented in table 4.1 below.

Table 4.1: Variable Measurement and A priori Expectations

Variable	Definition	Expected Sign
Dependent variable		
Microcredit Access	Microcredit access was captured as a dummy and was constructed as follows: 1 = access to microcredit (whether in full amount applied for or partial) and 0 = no access to microcredit	
Independent Variables		
Location	Dummy (1 = Urban, 0 otherwise)	Positive
Gender	Dummy (1 = female, 0 Otherwise)	Negative
Age	Age of the borrower in complete years	Positive
Marital Status	Dummy (1 = Married, 0 otherwise)	Positive
Education Level	Number of years of schooling of the borrower	Positive
Household size	Number of family members in the household	Positive
Earnings	Monthly earnings of the borrower	Positive
Business Sector	Dummy (1 = Manufacturing, 0 otherwise)	Positive

4.5 Data Sources

The study used data from nationally representative dataset collected in 2013 by FinAccess Kenya, to establish the factors that determine access to microcredit in Kenya. The survey was carried out over a period of five months beginning October 2012 to February 2013 and covered

all the 7 regions (North Eastern Province was excluded due to security concerns) comprising both rural and urban clusters. Fieldwork was conducted by a market research company known as TNS-RMS while sampling was done by the Kenya National Bureau of Statistics (KNBS). It targeted a sample size of 8,520 individuals who were randomly selected from 710 clusters.

Multistage sampling was used to arrive at a target sample of 8,520 individuals. However, the survey only achieved 6,449 completed interviews where the number of completed interviews per cluster ranged from three to twelve, with an average of nine completed interviews per cluster. At the first selection stage, the population was divided into 710 clusters. The second selection level involved random selection of 12 households from each cluster with households in each cluster having equal probability to be selected. At the final level of selection an individual within the household was selected using the KISH grid approach to randomly select a respondent aged 16 years and above.

The FinAccess survey data set was chosen because it has a national coverage of representative households countrywide and it also gives information on household and individual characteristics, such as gender, education level, income source, age, location and household size among others. It is also the most recent complete data set available on financial access by households. It provided the required information for the study as informed by literature.

CHAPTER FIVE ESTIMATION AND RESULTS

5.1 Introduction

This chapter presents the descriptive statistics and the econometric model results of the factors that determine access to microcredit in Kenya. It is organised as follows: section 5.2 presents the descriptive analysis of the data using frequency distribution tables and percentages while sections 5.3(a) and 5.3(b) present the probit model results and marginal effects respectively.

5.2 Descriptive statistics

The main objective of this research was to examine how socio-economic and demographic characteristics of borrowers affect their access to microcredit in Kenya. This section discusses and describes these characteristics of individuals who sought microfinance credit. They include gender, marital status, education level and location of the borrower. Frequency tables and percentages have been used to present the data. All the tables were obtained based on the data of 1,009 microcredit borrowers.

5.2.1 Socio-economic Characteristics

These include: gender, marital status, level of education and location of borrowers.

5.2.1.1 Gender of borrowers

With regard to sex, the variable gender took the value of 1 for female borrowers and 0 otherwise.

Table 5.1: Gender of borrowers

Gender	Frequency	Percentage (%)
Male	359	35.6
Female	650	64.4
Total	1009	100

Out of a sample of 1,009 respondents, 35.6% were male while 64.4% were female. A research by Deutsche Bank Research (2007) revealed that women, especially in Asia form the vast majority of microfinance borrowers. The prevalence of female borrowers reflect the fact that they are more reliable debtors because, as a result of tighter social and family ties, they often adopt less risky investment strategies leading to lower rates of default for MFIs (Deutsche Bank Research, 2007). Additionally, majority of MFI clients being women can be explained by the fact that most MFIs target women. This is because they are generally one of the most poorest and vulnerable

segments of society. MFIs also target female micro entrepreneurs for the reason that studies have shown that they are the ‘change’ agents of the family. They spend a greater fraction of their income on the wellbeing of their households as opposed to men (CARE International, 2016).

5.2.1.2 Marital Status of Borrowers

The study also inquired to establish the marital status of the respondents. This is illustrated in table 5.2 below.

Table 5.2: Marital Status of Borrowers

Marital Status	Frequency	Percentage (%)
Single	157	15.6
Divorced	21	2.1
Widowed	94	9.3
Married	734	72.7
Donot Know	3	0.3
Total	1009	100

Majority, 734 (72.7%) of the microfinance clients were married, 15.6% were single, 9.3% were widowed while 2.1 % were divorced. These results are consistent with the study by Ajagbe (2012) in Nigeria who found out that majority of small scale entrepreneurs who access microcredit are married. The rationale is that married people are more likely to be stable as compared to their counterpart, therefore they are deemed to be more reliable by financial institutions and this makes them more likely to demand credit. Further, most married people have got huge financial responsibilities and therefore, will seek loans to bridge their financial gap.

5.2.1.3 Level of Education of Borrowers

Table 5.3: of Education of Borrowers

Level of Education	Frequency	Percentage (%)
None	66	6.5
Primary	510	50.6
Secondary	307	30.4
Technical	84	8.3
University	42	4.2
Total	1009	100

Majority of the borrowers attained primary education with a percentage of 50.6, followed by those who attained secondary school education level with a percentage of 30.4. The minority of the borrowers attained a degree level. The results support the findings by Ajagbe (2012) in

Nigeria who found out that only a few small scale entrepreneurs who accessed microcredit had attained university level of education. This could be because most graduates get white-collar jobs and therefore will not be operating small businesses which require microloans. However, it is clear that all the borrowers had gained at least one level of education.

5.2.1.4 Location of Borrowers

Table 5.4: Location of Borrowers

Location	Frequency	Percentage (%)
Rural	617	61.2
Urban	392	38.8
Total	1009	100

With regards to location, the results revealed that majority (61.2%) of the borrowers were rural residents while the minority (38.8%) were urban residents. This is in line with the findings by Rand (2007) in Vietnam who established that a relatively large proportion of enterprises/individuals in rural provinces are debt holders as compared to their counterparts in urban cities. Additionally, he noted that most of government microcredit is allocated to rural areas thereby rural applicants standing out to be the majority. In Kenya, most formal financial institutions are located in urban centres, therefore, the high transport cost and long distances constrains rural residents from accessing these institutions resulting to borrowing from MFIs⁷ most of which are informal.

5.2.2 Other Descriptive Statistics

5.2.2.1 Business Sector

The table 5.5 below shows information about distribution of core business sectors.

Table 5.5: Business Sector

Business Sector	Frequency	Percentage (%)
Manufacturing	40	13.0
Trading/Retail	205	66.8
Services	57	18.6
No response	5	1.6
Total	307	100

⁷MFI in this study includes SACCOs, MFI, Chama, shopkeeper, moneylender, employer, neighbour, friend, farm produce buyer.

From the table above, we see that 66.8% of the microfinance clients engage in trade/retail business, 18.6% in services and 13.0% in manufacturing businesses. Nevertheless, it is not astounding that the leading economic activity is that of trading/retail followed by service. This principally owes to the small capital requirement to start such businesses. Furthermore, the fact that the least number of borrowers engaged in manufacturing business can be explained by the fact that; this kind of businesses require massive investment (capital) which MFIs cannot provide; and hence majority of manufacturers would turn to commercial banks for such huge loan amounts. These results support the findings by Kiraka et al. (2013) who observed that majority of women micro-entrepreneurs (who are majority of MFI clients) in Kenya engage in trade and services type of businesses while only a few are in manufacturing and information technology sectors.

5.2.2.2 Reasons for borrowing

Everyone needs money in their everyday life. At times, people have sufficient amounts but other times they need to borrow in order to supplement their monetary needs. The study sought to establish why people borrow from MFIs as opposed to other lending institutions and the findings are presented in table 5.6 below.

Table 5.6: Reasons for borrowing

Reasons for borrowing	Frequency	Percentage (%)
Low interest on loan	235	23.3
No collateral needed	211	20.9
Fast processing time	173	17.1
Flexible loan amount	41	4.1
Flexible repayment terms	107	10.6
No guarantor needed	59	5.8
Was approached by marketing officer	1	0.1
No other option available	126	12.5
Other	56	5.6
Total	1009	100

The results of this study revealed that 23.3% of the MFI clients borrowed from MFIs because they perceived that MFIs charge low interest on loans, 20.9% because they did not require any form of collateral in order to secure a loan and 17.1% for the sole reason that they believed MFIs would process their loan requests fast, therefore, getting the loan in time. Further, 14.7% of the borrowers applied for loans from MFIs because of the institutions' flexible repayment terms and

flexible loan amounts while 5.8% borrowed for the reason that they needed no guarantor in order to secure a loan. Surprisingly, a significant percentage (12.5%) of the clients borrowed because they had no other option available (maybe they did not qualify for loans from other financial institutions) apart from MFIs.

5.2.2.3 Collateral Used

The research also sought to establish what form of collateral the MFI clients offer to MFIs in order to successfully apply for loans. Below is a table showing the various forms of collateral that the borrowers used.

Table 5.7: Collateral Used

Collateral Used	Frequency	Percentage (%)
Land / title deed	15	1.9
National Identity Card	72	9.0
Livestock	19	2.4
Salary	56	7.0
Other household asset	53	6.6
Other	55	6.9
No collateral needed	526	65.8
No response	3	0.4
Total	799	100

The results showed that approximately 66 percent of borrowers did not require collateral in order to access credit. 9 percent and 7 percent of the borrowers required national identity card and salary as collateral respectively for them to secure loans from MFIs. Land/title deed was found to be a less important type of collateral with only 1.9 percent of borrowers pledging it for collateral. The transaction between MFIS and their clients in relation to credit is based on trust and social capital as opposed to individuals pledging collateral. Traditionally, microfinance is viewed by scholars and experts as being ‘collateral free’. Traditional forms of collateral are considered inimical to the spirit of advancing microcredit to the financially excluded population of developing countries. Literature on the subject shows how microfinance has replaced physical collateral with collateral substitutes which include denial of future credit and use of social sanctions (Bond and Rai, 2002).

According to Roodman (2006), MFIs also use social capital manifested in form of friends and family network and group lending as a form of collateral substitute. In the case of group lending,

members of the group are severally and jointly liable for all loans taken out; therefore, they are individually liable for the each others' loans and hence no need of physical collateral. Mayoux (2001: 438) further reiterates that “The existence of social capital in the form of indigenous networks and norms of association is seen as substituting for financial collateral in the selection of loan beneficiaries and loan disbursement and recovery.” This, therefore, explains why majority of borrowers did not require collateral in order to get loans and just few required physical capital (land) as collateral.

5.2.2.4 Frequency of Repayment

Table 5.8: Frequency of Repayment

Frequency of Repayment	Frequency	Percentage (%)
Daily	10	1.0
Weekly	96	9.5
Monthly	496	49.2
Whenever money is available	362	35.9
Not started repaying	26	2.5
Other	19	1.9
Total	1009	100

Conventionally, MFIs adopt a weekly repayment schedule with repayment starting one to two weeks after the loan has been disbursed. Weekly repayment by MFI clients is believed to minimize the risk of default in the absence of collateral and render lending to the poor viable. However, it also increases MFI operational costs significantly, thus limiting loan sizes and client types that are lucrative under this model (Field and Pande, 2007). On the contrary, the results showed that majority (49.27%) of the microfinance clients repaid their loans on a monthly basis while only 1.0% of the borrowers preferred to repay their loans on a daily basis. 35.9% of the borrowers repaid their loans whenever they had money available while 1.9% had not yet kicked off with the repayment.

Vast research has been done to test this hypothesis⁸ but results from these studies showed that reduced repayment flexibility does not affect the repayment rate. Field and Pande (2007) found that switching from weekly to monthly instalments did not affect client repayment capacity. Mensah et al. (2013) also found out that there is no correlation between repayment schedule and loan default. However, he observed that clients given less repayment period had higher rate of

⁸The hypothesis that weekly repayment by MFI clients is believed to minimize the risk of default.

default more than the ones given a longer period of time. Therefore, the majority of clients repaying on a monthly basis can be justified by the fact that longer repayment period encourages longer term investments in between the instalments hence, it may improve customers' long run repayment capacity due to the income generated (Mensah et al., 2013).

5.2.2.5 Loan Disbursement and Repayment by Mobile Money

Table 5.9: Loan Disbursement and Repayment by Mobile Money

Response	Loan Disbursement by Mobile Money		Loan Repayment by Mobile Money	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Yes	60	6.0	57	6.5
No	949	94.0	827	93.5
Total	1009	100	884	100

It is evident from the results that only 6% of MFI clients received their loan payout via mobile money. 94% of the clients' loans were disbursed through other platforms other than mobile money. The results further suggested that a bigger group of microfinance clientele, 93.5%, did not repay their loans by use of mobile money. Only 6.5% of the borrowers repaid their loans by use of mobile money. Investing in mobile bank programs increases MFIs' operating cost via administrative expenses.

These results could be explained by the findings by Gant (2012) that; *ceteris paribus*, banks that have a mobile banking program are associated with a certain percentage increase in operating expenses per loan portfolio. Further, regulations make it hard to disburse loans in a cost-efficient way. Maximum limits on the mobile payment system can force MFIs to make loan disbursements in several small instalments, which may lead to an increase in the costs for the clients in form of withdrawal charges (Yousif et al., 2013). Due to these reasons many MFIs may be reluctant to adopt the mobile banking system, hence the low disbursement and repayment rates via mobile phone.

5.2.2.6 Late Repayment

Table 5.10: Late Repayment

Late Repayment	Frequency	Percentage (%)
Yes	180	20.4
No	704	79.6
Total	884	100

The study found out that majority of the MFI clients; 79.6% repay their loan in time. Only 20.6% of the borrowers made late repayment. These results are consistent with findings by Khan (2014) in Pakistan who got almost similar results (82.26% rate of repayment and 17.74% default/ late repayment rate). The high repayment rate can be explained by the fact that most MFIs employ group lending methodology which mitigates the risk of default and late repayment. However, the repayment rate can be improved by development a proper mechanism for monitoring clients by microfinance institutions or provision of appropriate guidelines concerning effective loan utilization (Khan, 2014).

5.2.2.7 Consequences of Late Repayment

Table 5.11 below shows the consequences of late repayment.

Table 5.11: Consequences of Late Repayment

Consequences of Late Repayment	Frequency	Percentage (%)
Nothing, you were forgiven	106	58.9
Paid a fine, then continued repaying loan	64	35.6
Physical harassment	5	2.8
Others	3	1.6
No response	2	1.1
Total	180	100

As the proverb goes, “Borrowed money is like fire; a good servant but a bad master”. If borrowed money is not put into productive activities, then there is a high probability that the borrower will face difficulties when repayment time comes, thereby defaulting or making late repayment. Late repayment attracts consequences. On the contrary, the study found out that a great percentage of individuals (58.9%) who did not repay their loans on time were forgiven and therefore no action was taken against them. 35.6% of those who made late repayments paid a fine and later continued repaying their outstanding loans while only 2.5% experienced physical harassment from the MFI officers. The results conformed with the findings by Asongo and Idama (2014) that a considerable percentage of microfinance client who make late repayments are forgiven or rather no action is taken against them whereas only a few are forced to pay through physical harassments such as being taken to the police.

5.2.2.8 Use of Microfinance Loan

Microfinance clients must make difficult decisions with respect to loan usage. More often than not, they are faced with the question of whether to fully invest all the loan money or to use some

of the amounts to settle immediate domestic and personal needs. Khan (2014) observed that microfinance clients use their loans for both income generation through investment in small businesses and consumption smoothing - to meet domestic needs of their families. The table below shows the different uses into which the borrowers put the borrowed money.

Table 5.12: Use of Microfinance Loan

Use of Microfinance Loan	Frequency	Percent (%)
For emergency (burial, medical)	299	29.6
For education of yourself, children or siblings or others	273	27.1
For meeting day-to-day ordinary household needs	225	22.3
For expanding your business	74	7.3
For personal reasons (clothes, shoes, own travel)	44	4.4
For agricultural inputs – seeds, fertilizer, insemination	38	3.8
For starting up a new business	29	2.9
For improving a house	26	2.6
To acquire household goods	23	2.3
To pay off debts	23	2.3
For agricultural improvements e.g. irrigation, fencing	20	2.0
Purchase land	17	1.7
For purchase of livestock /cattle	17	1.7
Purchase or build a house for your family to live in	16	1.6
Purchase or build a house to rent out	11	1.1
For social reasons (wedding, bride price)	10	1.0
For purchasing a car or motorcycle	10	1.0
repay for someone else who was unable to repay	9	0.9
To pay for farm labour	7	0.7
For later in life/old age	4	0.4
For agricultural implements – plough, hoe, tractor	3	0.3
To transport farm produce to market	3	0.3
For purchase of shares/stocks/bonds/T-bills	2	0.2
To leave something for children	2	0.2

The results indicated that most individuals (29.6%) borrowed for the purpose of financing emergencies such as funerals and medical bills. The second most use of the loans was to finance

education (27.1%). In Kenya, quality education is expensive and hence quite a good number of people tend to borrow in order to finance education; either for themselves, children or siblings. The third most use of the loans was to finance the day-to-day financial needs -immediate consumption (22.3%) of the borrowers. From a social point of view, it is not necessarily bad for households to borrow so as to smooth consumption.

Further, the results showed that only two people borrowed to finance purchase of shares/stocks/bonds/T-bills. This can be explained by the fact that these kind of investments require huge chunks of money to invest in and hence a microloan cannot be appropriate. Other uses of the loan included purchase of land and livestock (2.4%), payment of farm labour, agricultural related uses among others as presented in the table above. These results are in support of the findings by Khan (2014) and Okurut et al. (2014) in Pakistan and Botswana respectively who found out that; loans by microfinance clients are mainly used to smooth consumption as opposed to productive business investments. However, a caveat is issued that; borrowing to finance domestic needs may create a vicious cycle of debt among the borrowers more so because MFI loans attract higher interest rates as compared to the interest rates by the conventional commercial banks.

5.3 Empirical Results

5.3.1 Multicollinearity Test

Multicollinearity refers to a situation in which there exists an exact or perfect linear relationship among some or all independent variables (Hanssens, Parsons and Schultz, 2012). In this study, multicollinearity was tested by the use of Variance Inflation Factor (VIF). The results of the VIF multicollinearity test, as presented in table 5.12 below showed that only the variables in the category “marital status” had high VIF values. The general rule of thumb is that VIFs values exceeding 4 warrant investigations, while VIFs values greater than 10 reflect serious multicollinearity and require correction. Therefore, there was no variable that warranted correction in the model. That notwithstanding, Allison (2012) noted that, in a situation where the variables with high VIFs are indicator variables that correspond to a categorical variable with three or more categories, high VIF is not a problem and therefore, can be safely ignored. Hence, the study did not find the need to correct the VIFs that were greater than 4 since they had not surpassed the value of 10 and could be safely ignored.

Table 5.13: Multicollinearity Test Results

Variable	VIF	1/VIF
Married	8.97	0.111432
Single	7.48	0.133759
Widowed	4.53	0.220952
Secondary	2.54	0.393917
Primary	2.46	0.407043
Technical	1.50	0.668320
Lnage	1.29	0.773081
University	1.22	0.817618
Lnhszsize	1.18	0.850816
Urban	1.17	0.857901
Lnearnings	1.16	0.860492
Female	1.10	0.906193
Trade	1.07	0.937955
Services	1.04	0.958380
Manufacturng	1.01	0.985451
Mean VIF2.51		

5.3.2 Regression Results

The primary objective of the study is to examine empirically the factors that determine access to microfinance credit in Kenya. The dependent variable of the study is access to microcredit. Microfinance credit in this study is defined as credit from SACCOs, formal MFIs, Chamas (translated as groups), shopkeepers, moneylender, employers, neighbours, friends and farm produce buyers. It was captured as a dummy and was constructed as follows: 1 = access to microcredit (whether in full amount applied for or partial) and 0 = no access to microcredit. Table 5.14 below presents the econometric results from the probit model. The estimated variables are jointly statistically significant based on the value of LR χ^2 (=244.01) and the joint probability ($\text{Prob} > \chi^2 = 0.0000$).

Table 5.14: Probit Regression Results

Variable Name	Coefficient	Z-statistic	Probability
Urban	-0.0258	-0.58	0.559
Female	0.1704	3.94	0.000***
Log of Age	-0.0754	-1.30	0.195

Single	-0.1354	-0.98	0.329
Widowed	0.2108	1.45	0.147
Married	0.2012	1.53	0.126
Primary	0.4340	5.94	0.000***
Secondary	0.5251	6.57	0.000***
Technical	0.6758	6.40	0.000***
University	0.9725	6.98	0.000***
Log of Household Size	0.0048	0.14	0.888
Log of Earnings	0.0517	5.67	0.000***
Manufacturing	0.3758	3.23	0.001***
Trade	0.2308	4.26	0.000***
Services	0.0883	0.99	0.323
Constant	-1.8532	-6.69	0.000***
Number of observations		6112	
LR chi2 (15)		244.01	
Prob> chi ²		0.0000	

*** Significant at 1%

Microcredit, as defined earlier is the provision of tiny loan amounts to informal micro entrepreneurs in the society. From the results presented in the table above, seven out of the fifteen explanatory variables were found to be statistically insignificant while eight of the variables were significant at 1% level. Location, age, marital status, household size and being in the services business sector were found to be insignificant influencers of access to microcredit.

The results revealed that being female is a positive and significant determinant of access to microcredit in Kenya. In most communities, Kenya included, men typically have social and political power, and also tend to be in control of most of the household and family resources. Consequently, they are viewed to be more creditworthy increasing their likelihood of access to bank credit. Consequently, women are excluded from bank credit access and hence turn to microfinance credit which is offered collateral free or with “little” collateral. These results are,

therefore, consistent with a priori expectations and with the findings by Mwangi and Kihui, (2012), Akoten et al., (2006), Zeller, (1994), Zeller et al, (1994) and Mawngi and Siche, (n.d) who found that being female is positively related to access to MFI and informal credit. In Kenyan context, the results could be explained by the fact that at their inception, most microfinance institutions in Kenya exclusively targeted female clients. Example of these MFIs is Kenya Women Finance Trust (KWFT) and Pamoja Women Development Programme (PAWDEP).

Earnings (monthly earnings) were found to be positively and significantly related to access to microcredit at 1 percent level. This indicates that individuals with monthly earnings are more likely to access microcredit as compared to those that do not have any source of income. In addition to the findings being consistent with a priori expectations, they were consistent with the findings by other scholars who established similar relationship (see Clamara et al., 2014; Mwangi and Kihui, 2012; Okurut et al., 2009; Okurut, 2008; Okurut and Schoombee, 2007; Okurut, 2006; Zeller et al., 1994; Mwangi and Sichei, n.d). The intuition is that when lending out funds, financial institutions including MFIs are primarily concerned with loan repayment. Income is seen as collateral for loan thus they use the borrowers' income as a measure of repayment capacity.

It is evident from the results that education level is a positive and highly statistically significant (at 1% level) determinant of access to microcredit. Those borrowers who attained primary, secondary, technical and university education had a positive and significant relationship with access to microcredit. By implication, education increases the efficiency of choices made by individuals and serves to enlighten them on the different financial services available as well as creating awareness on the best way to manage the available services. Further, education builds human capital resulting into a higher earning power, therefore, the income serves to increase their repayment capacity. These results are as expected and are consistent with findings by various scholars (see Clamara et al., 2014; Kacem and Zouari, 2013; Mwangi and Kihui, 2012; Peprah, 2012; Okurut et al., 2009; Bakhshoodeh and Karami, 2008; Okurut, 2008; Okurut, 2006 and Mwangi and Sichei, n.d) who establish a positive relationship between access to credit and education level.

Both manufacturing and trade businesses had a positive and significant correlation with access to microcredit (at the 1% level) indicating that borrowers who engage in this kind of businesses are more likely to have easier access to microcredit as compared to those who do not operate any kind of business. The results are consistent with expectations because business activities are a reliable source of income which increases repayment capacity of business owners whose MFIs are more concerned with.

5.3.3 Marginal Effects (M.E) After Probit

The marginal effect of an explanatory variable is the partial derivative of a given function of the covariates and coefficients of the preceding estimation. Marginal effects (M.E) measure the probable immediate change in the endogenous variable as a function of a change in the exogenous variable while holding the other covariates constant (SAS Institute Inc., 2008). The calculation of marginal effects is different for the discrete / categorical and continuous variables. With binary exogenous variables, M.E measure discrete change, that is, how the predicted probabilities change as the binary explanatory variable changes from 0 to 1. On the other hand, M.E for continuous variables measures the instantaneous rate of change (Williams, 2015). In relation to this study, the M.E of the probit model shows the change in the probability of access to microcredit by MFI clients for a unit increase in the exogenous variables. Table 5.15 below presents the marginal effects when estimating the probit model of households' access to microcredit in Kenya.

Table 5.15: Marginal Effects After Probit

Variable Name	Coefficient	z-statistic	Probability
Urban*	-0.0058	-0.59	0.558
Female*	0.038	4.02	0.000
Log of Age	-0.0171	-1.3	0.195
Single*	-0.0295	-1.02	0.308
Widowed*	0.052	1.34	0.179
Married*	0.0443	1.58	0.114
Primary*	0.099	5.97	0.000
Secondary*	0.1339	6.01	0.000
Technical*	0.1997	5.36	0.000
University*	0.3165	5.82	0.000
Log of Household Size	0.0011	0.14	0.888
Log of Earnings	0.0117	5.71	0.000

Manufacturing*	0.1013	2.8	0.005
Trade*	0.057	3.94	0.000
Services*	0.0209	0.95	0.343
Y = Pr(microfinance) (predict) = .1439729			

The results suggested that being female increases the probability of accessing microcredit by 3.8% as compared to being male. This is probably because as discussed earlier, most MFIs target women. Generally, women have been denied credit access from traditional commercial banks and that's why they are targeted by microfinance (Peprah, 2012). Further, they indicated that individuals who had attained primary level of education increased their likelihood of accessing microcredit by 9.9% while those who had attained secondary level of education increased their likelihood of accessing microcredit by 13.4%. Borrowers with technical level of education increased their probability of accessing microcredit by approximately 20% while those that had schooled up to university level increased their chances of getting microcredit by approximately 32%. These tabulations clearly show that education level has a positive link with microcredit access, in that; the higher the level of education, the higher the likelihood of accessing microcredit.

With reference to earnings, the results revealed a positive link between earnings and access to microcredit. Individuals who had constant monthly earnings increased their chance of access to microcredit by 1.2%. By the same token, individuals who engaged in manufacturing and trading activities increased their chances of accessing microcredit by approximately 10% and 5.7% respectively.

CHAPTER SIX

SUMMARY OF RESULTS, POLICY RECOMMENDATIONS AND CONCLUSION

6.1 Introduction

This chapter presents a summary of the findings of the study and policy recommendations drawn from the study. The first section gives the summary of findings while the second part gives conclusion and policy recommendations drawn.

6.2 Summary of Findings

Using FinAccess Survey 2013 data, the study sought to empirically discover the determinants of access to microcredit in Kenya. Specifically, the study aimed at examining the socio-economic and demographic characteristics of microfinance borrowers in Kenya; estimating the key determinants of access to microfinance in Kenya and drawing policy implications from the findings generated. With regard to socio-economic and demographic characteristics, the study revealed that majority of MFI clients in Kenya are women and that most of the borrowers were married. Further, the results showed that in relation to the level of education, majority of the borrowers attained primary level of education. Rural clients were also found to be the majority among microfinance borrowers whereas most of the clients engaged in trading/retail business activities.

Interestingly, the key determinants of access to microcredit in Kenya were not unique from other developing countries such as Nigeria, Ghana, and Uganda among others. It is evident from the probit results that female clients have an upper hand when it comes to access to microcredit. Education level was also found to have a positive link with access to microcredit with clients who attained university level of education having the highest probability of accessing microcredit.

Equally, earnings (monthly earnings) exhibited a positive and significant relationship with access to microcredit. Both manufacturing and trade businesses were found to have a positive and significant correlation with access to microcredit. On the same note, the results showed that individuals who engaged in manufacturing activities had a higher likelihood of accessing microcredit as compared to their counterparts in the and trading business.

6.3 Conclusions and Policy Recommendations

The positive and significant correlation between being female and access to microcredit implies that microfinance is heading towards the right direction of achieving one of its objectives of women's empowerment. It also shows that microfinance has the potential to contribute significantly to gender equality in the financial markets. Therefore, it is recommended that MFIs should move towards a more gender-balanced portfolio to benefit all the poor.

Education level was found to be a positive and highly significant determinant of access to microcredit, with the probability of access increasing with higher education levels. This implies that education enhances access to microcredit. Efforts have been made by the Government of Kenya to enhance access to education by introducing absolute free primary education and partial free secondary education. Since education improves access to microcredit and productivity, the government should extend free education to both secondary and tertiary levels. This is because higher education enlightens people on the different financial services available; increases the efficiency of choices made by individuals and makes them arrive at informed loan-decisions to increase productivity. This can be achieved by ensuring that funds disbursed to the Ministry of Education and devolved governments are strictly monitored to make sure that students benefit from them through bursaries and sponsorships and also to avoid instances of embezzlement .

The results also revealed a positive relationship between both manufacturing and trade business sectors and access to microcredit. However, only a few MFI clients (the least number) engage in manufacturing business while the majority engage in trade/retail businesses. This concentration in low-value sectors is not good for the economy because it leads to market saturation but little economic growth. Therefore, it is of importance that the MFIs take it upon themselves to encourage their clients to engage in viable and productive businesses which will have a tangible impact on economic growth and on top of that, give training on business management skills in order to atleast help the clients make proper use of the loans.

Earnings (monthly earnings) were found to be positively and significantly related to access to microcredit. This indicates that individuals with monthly earnings are more likely to access microcredit as compared to those that do not have any source of income. The national

government have in the past conceived programmes that would create employment for the youth such as “Kazi kwa Vijana” – loosely translated as “Employment for the Youths”. However, this programme did not work out in solving the unemployment problem since it offers temporary employment for the youth. Therefore, it is recommended that both the county and national governments should initiate schemes that would create permanent employment for the youths, women and the poor to enable them have a permanent and reliable stream of income; preferably monthly earnings. This will open avenues for them to get access to microcredit since monthly income enhances access to microcredit through improvement of repayment capacity.

6.4 Recommendation for further Research

This study mainly dealt with the demand side factors that affect access to microcredit. The author recommends that a study on the supply side factors determining access to microcredit should be done.

6.5 Limitations of the Study

The study was mainly limited by the data set used since not all the variables of interest (as informed by the literature) were captured by the FinAccess Survey, 2013 dataset.

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