

**THE IMPACT OF MICROFINANCE EFFICIENCY ON SUSTAINABILITY OF
MICROFINANCE INSTITUTIONS IN TANZANIA**

**THE IMPACT OF MICROFINANCE EFFICIENCY ON SUSTAINABILITY OF
MICROFINANCE INSTITUTIONS IN TANZANIA**

By

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**A Dissertation Submitted In Partial Fulfilment of the Requirements for Award of
the Degree of Masters of Science in Accounting and Finance of Mzumbe University**

2013

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled **The Impact of Microfinance Efficiency on Sustainability of Microfinance Institutions in Tanzania**, in partial fulfilment of the requirements for award of the degree of Masters of Science in Accounting and Finance of Mzumbe University.

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I, Nicholaus Masawe, declare that this dissertation entitled **The Impact of Microfinance Efficiency on Sustainability of Microfinance Institutions in Tanzania** is my own original work and has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Msc. in Accounting and Finance at Mzumbe University. I also declare that this work is the result of my own investigations except where otherwise identified by references.

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DEDICATION

I dedicate this research to all unbanked poor Tanzanians

ABBREVIATIONS AND ACRONYMS

BRAC: Bangladesh Rural Advancement Committee

CGAP: Consultative Group to Assist the Poorest

FFIs: Formal Financial Institutions

FINCA: Foundation for International Community Assistance

FSS: Financial Self-sufficiency

IDYDC: Iringa development of Youth, Disabled and Children care

MB-MFI: Member based microfinance institutions.

MFIs: Microfinance Institutions

MIX: Microfinance Information eXchange

NGO: Non governmental organization

NGO-MFI: Non governmental organization MFI

NMB: National Microfinance Bank Ltd.

OSS: Operating Self-sufficiency

OT: Opportunity Tanzania

PAR: Portfolio at risk for more than 30 days

PRIDE: Promotion of Rural Initiative and Development Enterprises

PTF: Presidential Trust Fund

SACAs: Savings and Credit Associations

SACCOs: Savings and Credit Cooperatives

SACCS: Saving Associations and Credit Co-operatives Societies.

SEDA: Small Enterprises Development agency

SELFINA: SERO Lease and Finance Ltd

ABSTRACT

The fast growing microfinance sector industry in Tanzania has called for the need of microfinance efficiency to fuel their financial and social sustainability. Although different MFIs exist for different reasons, it is through microfinance efficiency where such MFIs converge. Regardless of their type and goals, MFIs are strongly recommended to be strong sustainable both operationally and financially. However, sustainability of MFIs is impossible to achieve without first strive to achieve microfinance efficiency. This is particularly important if the level of competition in the industry is growing fast like the one in Tanzania. Therefore, there is undeniable a link between MFIs sustainability and microfinance efficiency, and the two concepts cannot be separated. A lot of studies have been done in the area of financial sustainability, but no one, if any, has been done to find out the impact of microfinance efficiency on sustainability of MFIs in Tanzania. This study, therefore, intended to bridge this gape.

This study employed quantitative approach using panel data to analyse data of seven MFIs whose information are contained in the MIX database. It was revealed that Cost per borrower, borrowers per loan office and number of borrowers influence the microfinance efficiency of MFIs in Tanzania. In addition, the study revealed a positive relationship between microfinance efficiency, as measured by number of borrowers and borrowers per loan officer, and the sustainability of MFIs. On the other side, negative correlation appear to exist between write off ratio, risk coverage ratio, cost per borrower & loan size with the financial sustainability.

From the study findings, among others, it is recommended that the policy makers to step in the industry and impose the regulation to all MFIs regardless of their size, type and location just like what is done by the Bank of Tanzania in regulating financial institutions. Otherwise MFIs may end up reversing the primary reason of their existence.

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CHAPTER ONE

PROBLEM DEVELOPMENT

“From a social as well as a financial perspective, however, improving efficiency should be of paramount importance to MFIs” (Brand, and Gerschick, 2000:3)

1.0 INTRODUCTION

Microfinance is about the provision of small scale financial services mainly to unbanked poor (Nyamsogoro, 2010). The efficient functioning of these MFIs on sustainable basis is important also for persistent financial access of the poor segment of the society (Qayyum and Munir, 2006). MFIs must better leverage their scarce resources to survive. This pressure is particularly acute for MFIs operating in market sectors that are highly competitive or particularly challenging to reach (such as poorer clients). As a result, efficiency is of critical importance to the field (Brand, and Gerschick, 2000). This study aims at finding out the impact of microfinance efficiency on sustainability of Microfinance institution in Tanzania.

1.2 THE MICROFINANCE SECTOR IN TANZANIA.

1.2.1 The Origin of Microfinance Sector in Tanzania

It is believed that the history of Microfinance institutions in Tanzania derive its origin from agriculture sector. In early 1965, Saving Associations and Credit Co-operatives Societies (SACCS) were established to provide microfinance services in areas where agriculture was the main economic activities.

The development of microfinance industry in Tanzania was highly noticeable in 1990s during when the government of Tanzania decided to embark on financial reforms. Among others, the financial reform in 1990 resulted into the restructuring of the state owned financial institutions and allowed the entry of financial institutions in the market.

However, following the restructuring and privatization of the National Bank of Commerce and the Cooperative and Rural Development Bank, there was closure of 78 branches throughout the country leaving people without any reliable financial services (Nyamsogoro, 2010). Since then, a number of microfinance programs have been initiated by the government of Tanzania in collaboration with other interested parties. This gave rise to the current member based microfinance institutions (MB-MFIs), now known as the Savings and Credit Cooperatives (SACCOs) and the Savings and Credit Associations (SACAs).

1.2.2 Supply of Microfinance Services in Tanzania

Based on the background of the history of Microfinance in Tanzania, it is generally accepted to categorize microfinance institutions by the group under which the provider belongs. The groups include Non government organizations (NGOs MFIs), Banks and Non Bank Financial institutions (Commonly known formal financial institutions), Member based MFIs and informal financial services providers and Government/donor programs.

Non- Government Organizations (NGOs)

The NGO-MFIs mostly operate a group lending technology in which the group guarantees loan repayment. They also have few individual-based lending where collateral is needed. Although NGO-MFIs are not allowed to mobilize savings, most of them require their clients to have some minimum savings as loan insurance funds. Some of these NGO-MFIs are: the Foundation for International Community Assistance (FINCA); Promotion of Rural Initiative and Development Enterprises (PRIDE); Small Enterprises Development agency (SEDA); Bangladesh Rural Advancement Committee (BRAC); SERO Lease and Finance Ltd (SELFINA); Presidential Trust Fund (PTF); Iringa development of Youth, Disabled and Children care (IDYDC); and Opportunity Tanzania (OT).

Member-based Microfinance Institutions (MB-MFIs)

The MB-MFIs in Tanzania are mainly the Savings and Credit Cooperatives (SACCOs) and the Savings and Credit Associations (SACAs). Loans are mostly given to Members only. Under very rare circumstances, loans are given to non members whose financial standing can be established. Collateral of some kind is normally required under such cases. The individual lending technology is prominently used by these types of microfinance institutions. Savings are compulsory before applying for a loan and normally a client/member is given a loan of double proportion to his or her savings with the MFI. The savings in this case act as loan insurance funds. Some MB-MFIs also offer other product like special loans for emergence purposes. According to the survey done by Nyamsogoro in 2008 some MB-MFIs indicated that they offer loans for education and for Agricultural purposes. The nature of the loans determines their duration and interest charges due on the same and normally the repayments are done in equal installment.

Formal Financial Institutions (FFIs)

Some FFIs offer small scale financial services. These include National microfinance Bank (NMB), Akiba Commercial Bank (ACB) CRDB Bank, and Regional Community Banks (These include Dar esalaa, Mufindi, Mwanga and Mbinga Community banks, and the Kilimanjaro Co-operative Bank (KCB) With the FFIs both group and individual lending group are used. The financial services offered include;

- Loans to micro and small enterprises for the purchase and inventory and supply of goods
- Collection and payment services to large corporate clients to/from micro and small enterprises
- Add-on services such as money transfers and payroll services to both the large corporate clients and micro and small enterprises

The banks also offer some credit facilities to employees of various organizations whose employers act as guarantors. Their terminal employment benefits are considered as loan insurance facility to be paid by employers in case of default of someone who ceases to be an employee of such organizations.

Government programs/projects

Local government i.e District, Municipal, and City Councils have established youth and women funds for lending. The councils are required by Law to set aside 10% of the revenue to provide loans to women and youth who want to establish or expand their businesses (Millinga, 2012). The Central Government through SELF Project and JK Funds charge subsidized interest. SELF Project is funded by a loan from African Development Bank (ADB) to the Government of the United Republic of Tanzania.

1.3 BACKGROUND OF THE PROBLEM

The Government of Tanzania embarked on financial sector reforms in 1991, in order to create an effective and efficient financial system. Despite the progress being achieved in the mainstream banking system, financial services to the poor and low income households in the rural and urban areas have been slow to develop and the access of these large segments of the population to financial services has remained stunted. Government realized that in order to have an efficient and effective financial system, additional focus must be placed on the expansion of financial services to the low-income segment of the population, and that the microfinance sector must be an integral part of the country's financial system. Recognizing the widening institutional gap the Government, in collaboration with the donor community, took action to facilitate the development of the microfinance industry. One of the important actions was initiating the microfinance policy formulation process in 1996 (Randhawa and Gallardo, 2003). The expansion of microfinance programs in Tanzania, one of the poorest countries in the world, was a reaction on the decreasing economic situation (Goey, 2012).

Delivering financial services to the poor has been identified as an important instrument capable of breaking the vicious cycle of poverty, as it would increase employment, income, consumption and empowerment of disadvantaged groups. Improving access to financial resources for the poor would also facilitate economic growth by easing liquidity constraints, and providing capital to startup new production related activities or adopt new technologies (Amha, 2008). The goal of microfinance is to improve the welfare of the poor. However, because providing financial services for the poor often requires high transaction costs, microfinance practitioners need resources from donors to cover the shortfall between revenue received from clients and the cost of service delivery. Meanwhile, subsidy resources are scarce and the interest of donors in microfinance in the future is uncertain. Therefore, financial sustainability is the key factor that allows the poor, especially the poor of the future, to receive the financial services that they need (Nghiem et al., (undated)) .But for all MFIs, regardless of legal structure, continued market penetration and increased competition will make self-sufficiency and profitability more elusive goals without corresponding improvements in efficiency. The issue of efficiency is of critical importance because financial sustainability has taken on new meaning in the increasingly competitive world of microfinance (Brand and Gerschick, 2000). This paper, therefore, aims at finding out the impact of microfinance efficiency on sustainability of microfinance institution in Tanzania.

1.4 STATEMENT OF THE PROBLEM

This paper concentrates on the impact of microfinance efficiency on sustainability of microfinance institutions in Tanzania. Institutions providing microfinance services need to attain sustainability in order to be able to sustain themselves and reach a significant scale of outreach towards poverty reduction (Nyamsogoro, 2010). While the relationship between financial sustainability and targeting poor clients maintains its importance in microfinance literature, institutional efficiency has recently come into the spotlight (Annim, 2010).

MFIs should strive to achieve financial sustainability by reducing operational costs and charging market rates of interest. The higher the degree of self-sufficiency, the greater the extent to which an MFI can leverage donor and government funds to expand outreach (Thapa, 2007). For Micro finance institutions to attain sustainability, they should be aware of the factors which are likely to affect their sustainability. One among the factors which affect sustainability, as argued by Woller (2000), is institutional efficiency. It is therefore important to know the impact of microfinance efficiency on sustainability in Tanzanian context. This research aims at finding out the impact of microfinance efficiency on sustainability.

According to Lafourcade et al (2005), based on cost per borrower and cost per saver as determinants of microfinance efficiency, it has been revealed that within Africa, East African MFIs are highly efficient in absolute terms as they spend only USD 58 per borrower. Furthermore, they argue that while cooperative MFIs appear to be the least efficient in serving loan clients, the regulated MFIs achieve higher efficiency by keeping both cost per borrower and cost per saver low. In Tanzania, the most recent comprehensive study about microfinance efficiency is the one done by Nyamsogoro (2010), who concentrated on the factors affecting financial sustainability of rural microfinance institutions in Tanzania, based on the specific related factors, it was revealed and concluded that microfinance efficiency affects financial sustainability. However, the objectives of this study appear to be different from the one done by Nyamsogoro.

1.5 RESEARCH OBJECTIVES

1.5.1 General objective

The main objective of the research study is to find out the impact of microfinance efficiency on sustainability of microfinance institutions in Tanzania.

1.5.2 Specific Objective

The study will be guided by the following specific objectives

- i) To identify the determinants of Microfinance efficiency in Tanzania.
- ii) To find out the effect of microfinance efficiency, as measured by the identified determinants, on sustainability.
- iii) To evaluate the efficiency trends of MFIs
- iv) To identify challenges facing the MFIs in attaining microfinance efficiency.

1.6 RESEARCH QUESTIONS

Based on the above research objectives, the following questions have been put forward.

- i) What are the determinants of microfinance efficiency?
- ii) What is the effects microfinance efficiency on sustainability?
- iii) How can microfinance efficiency trends be evaluated?
- iv) What are the challenges facing MFIs in attaining microfinance efficiency?

1.7 SIGNIFICANCE OF THE STUDY

Worldwide, poverty is stated to remain an obstacle in achieving sustainable development and improve the well-being of people. It also affects Tanzania, one of the poorest countries in the world ranked 152 out of 187 included countries (Goey, 2012). Delivering financial services to the poor has been identified as an important instrument capable of breaking the vicious cycle of poverty, as it would increase employment, income, consumption and empowerment of disadvantaged groups (Amha, 2008). Despite the progress being achieved in the mainstream banking system, financial services to the poor and low income households in the rural and urban areas have been slow to develop and the access of these large segments of the population to financial services has remained stunted (Randhawa and Gallardo, 2003). Microfinance is believed to provide solution for this challenge through provision of small scale financial services mainly to unbanked poor (Nyamsogoro, 2010).

Institutions providing microfinance services need to attain sustainability in order to be able to sustain themselves and reach a significant scale of outreach towards poverty reduction (Nyamsogoro, 2010). For Micro finance institutions to attain sustainability, they should be aware of the factors which are likely to affect their sustainability. One among the factors which affect sustainability, as argued by Woller (2000), is institutional efficiency. Therefore, for microfinance institutions striving for sustainability, microfinance efficiency is crucial and should not be overlooked. This study, therefore, aims at finding out the impact of microfinance efficiency on sustainability of microfinance institution in Tanzania.

This study has contributed knowledge in the microfinance field about the impact of efficiency on microfinance institutions in Tanzania. However, it is difficult to understand the microfinance efficiency without understanding its determinants. This study, through empirical reviews done in other countries and Tanzania as well, aims at determining the determinants and applicability of microfinance efficiency in Tanzania. This will help microfinance institutions and policy makers to understand the determinants of microfinance efficiency and respond accordingly on what should be done to improve the situation in Tanzania. Furthermore, the study will suggest the areas requiring further studies.

1.8 ORGANIZATION OF THE RESEARCH REPORT

This research report, about the impact of microfinance efficiency on sustainability of microfinance institution in Tanzania, is divided into three chapters. In chapter one, problem development, the research study has been introduced followed by background of the problem, statement of the problem, research objectives, research questions and the significance of the study. Chapter two deals with literature reviews, both empirical and textual literature reviews. Chapter three is about the research methodology to be adopted in this study. In addition, chapter three discusses the methodologies adopted in this study.

While the findings have been presented in chapter four, chapter five provides detailed interpretation and discussion of the findings presented in chapter four. Chapter six is about conclusion, recommendations and policy implication of the study.

CHAPTER TWO

LITERATURE REVIEW

“Literature review helps to identify the problem to be studied and also to indicate the important factors to be considered in the research which would enable to formulate a theory, on which, hypothesis can be formulated or tested.” (Sekaran, 2003).

2.0 INTRODUCTION

This chapter concentrates on what have been said by different authors and researchers about the problem under study. This chapter presents both theoretical and empirical literature review which will help to create conceptual framework that will govern the research undertakings about the problem under study. Included in this chapter are; the essence, role and importance of microfinance. In addition the chapter discusses the concept of microfinance efficiency and its determinants. Furthermore the chapter presents the concept of microfinance sustainability and how microfinance efficiency relates with microfinance sustainability.

2.1 MICROFINANCE: THE ESSENCE, ROLE AND IMPORTANCE.

Microfinance is the provision of financial services, by microfinance institutions, to low income people who have limited access to mainstream banks or other formal financial service providers (Lafourcade et al, 2005; Nyamsogoro, 2010,). The nature of these financial institutions is quite different from traditional financial institutions (such as commercial banks). MFIs are significantly smaller in size, limit their services towards poor households and often provide small collateral-free group loans (Haq, and Skully, (undated). Delivering financial services to the poor has been identified as an important instrument capable of fighting against poverty (Hermes et al (2009), Nyamsogoro, 2011).

The access of the poor to the financial services help them to access economic opportunities which in turn may help to build up their assets and enhance income in order to come out of poverty circle(Hoque et al., (undated). However, microfinance is not a panacea for poverty and related development challenges. That is, microfinance alone cannot improve roads, housing, water supply, education, and health services; thus, it should be complemented with other development interventions in input and output markets; building networks and linkages; increasing access to both producers and buyers in both domestic and international markets; and building the capacity of clients. Microfinance provides new opportunities, builds the confidence and self-esteem of the poor and empowers the disadvantaged groups (Amha, 2008; and Meyer, 2002)

2.2 MICROFINANCE EFFICIENCY: AN OVERVIEW

In terms of their priority, MFIs can be divided into two categories. Those whose priority is reaching the poorest of the poor (often termed ‘poverty lending’) and those whose priority is financial viability or sustainability. Efficiency is the core issue where the two camps converge. Those interested in directly impacting poverty understand that efficiency advances their mission, both by reducing costs (which ultimately can be passed on to the borrower) and increasing outreach. Those who concentrate on financial viability believe that continual improvements in efficiency will improve profitability and facilitate their ability to raise capital from private sources (either through savings mobilization, bank debt etc) thus ensuring their longevity (Brand and Gerschick, 2000)

Efficiency in microfinance is a question of how well an MFI allocates inputs (such as assets, staff and subsidies) to produce the maximum output (such as number of loans, financial self-sufficiency and poverty outreach). The efficiency of an MFI can be assessed only in relation to its own class of MFIs, namely units that operate in similar markets and under comparable institutional governance (ILO, 2007. In addition, a microfinance will be considered efficient if compared to other MFIs, at the same level of input, more output is achieved (Nyamsogoro, 2010).

2.3 SELF SUFFICIENCY: OPERATIONAL SELF SUFFICIENCY AND FINANCIAL SELF SUFFICIENCY.

Self-sufficiency refers to the ability of an MFI to cover its costs with earned revenue. Earned revenue is determined by comparing revenue with total expenses. If revenue is greater than expenses, MFI is financially viable. While computing financial viability, only operating income are considered and non-operating income such as donated revenue or revenue from other operations are excluded. MFIs' financial viability is assessed computing OSS and FSS.

Table 2.1: Formulas for OSS and FSS

S/N	Key indicators	Formula
1.	Operating self-sufficiency	$\text{Operating revenue} / (\text{Financial expense} + \text{Loan-loss provision expense} + \text{Operating expense})$
2.	Financial self-sufficiency	$\text{Adjusted operating revenue} / (\text{Financial expense} + \text{Loan-loss provision expense} + \text{Operating expense} + \text{Expense adjustments})$

Source: Adopted from CGAP (2003)

Operating Self-sufficiency

OSS refers to extent at which MFI generates operating revenue against operating costs such as administrative expenses, financing costs and provision for loan losses. Operating revenue is expected to cover operating costs. OSS indicates whether or not MFI is earning enough revenue to cover its direct costs, excluding (adjusted) cost of capital but including any actual financing costs incurred. If an MFI does not reach OSS, eventually its equity / loan fund capital should be used to cover its losses unless additional grants are raised to cover operating shortfalls. MFI must either increase its yield or decrease its expenses in order to operate at operationally self-sufficient level.

Financial Self-sufficiency

FSS indicates whether or not MFI is earning enough revenue to cover financing costs, loan loss provisions, operating expenses and adjusted cost of capital. Adjusted cost of capital refers to the cost of maintaining value of equity relative to inflation or market

rate of equity and cost of accessing commercial loan rather than concessional loans. Financial self sufficiency was not used in this research study because it wasn't possible to have the reliable data for its computation.

2.4 MEASURES AND DRIVERS OF MICROFINANCE EFFICIENCY.

From a social as well as a financial perspective, however, improving efficiency should be of paramount importance to MFIs. Competition and market saturation, which invariably increase over time, will prevent many MFIs from charging undifferentiated, high interest rates in perpetuity. In short, efficiency is critical for an MFI to remain agile, competitive and responsive to customer needs (Brand and Gerschick, 2000). It is argued by Hermes et al (2009) that the extent to which MFIs are efficient in using resources and turning them into services is key determinant of MFIs' financial sustainability and therefore, knowing the drivers and measures of MFI efficiency constitute the first steps in finding ways to improve their efficiency, which on the other side, is critical for both poverty reduction and MFIs' financial sustainability. This part covers the measures and drivers of microfinance efficiency.

2.4.1 MEASURES OF MICROFINANCE EFFICIENCY

Over the past, number useful measures of efficiency in MFIs have emerged. It is argued by Farrington, (undated) that, although it is possible to speak in broad terms about benchmarks of performance and comparison, perhaps the most useful application of efficient indicators is within a single institution over time. The following are the identified measures of MFIs efficiency

2.4.1.1 Administrative expense ratio

The administrative expense ratio, which is also called the operating expense ratio, is the administrative expenses as a percentage of average gross portfolios. (Farrington, T (undated); Brandt et al (undated); and MicroRate, 2003).

The lower the operating expense ratio, other factors held constant, the higher the MFI's efficiency is in cost reduction strategies. (MicroRate, 2003; and Nyamsogoro, 2010). Although the ratio improves as the average loan size increases, it does not detract from the importance of this indicator. It is possible to adjust for differences in loan sizes, the age of the operations, and other factors by grouping institutions based on these characteristics((Farrington, T (undated). Unless the ratio [Administrative expense ratio] is used by loan -only MFIs, it is not an appropriate measure for MFIs providing a variety of services. It is, therefore, suggested by Nyamsogoro (2010) that the average total assets to be appropriate denominator which have other products other than loan

2.4.1.2 Cost per borrower

Cost per borrower is computed by taking operating expenses divided by average number of borrowers/clients 'Operating expense/average number of borrowers'. (Lafourcade et al, 2005; and MicroRate, 2003). Interest and provision expenses, as well as extraordinary expenses, are not included in the computations. (MicroRate, 2003). The cost per borrower, as a determinant of MFI efficiency, indicates how much it costs to serve one loan client. It is argued that the lower the cost per borrower will indicate the microfinance efficiency which will in turn increase the profitability and hence MFI's sustainability (MicroRate, 2003; and Nyamsogoro, 2010). For MFIs to improve the cost per borrower through cost deductions, they are required to observe, among other things, technological innovations, product refinements and ongoing efforts to strengthen their capacity (Lafourcade et al, 2005).

Cost per borrower ratio is considered as the acceptable and appropriate indicator than operating expense ratio because the size of loan does not form part of the denominator and, therefore, institutions with larger loans do not automatically appear more efficient, as in the case with the operating expense ratio. The Cost per Borrower, therefore, compliments the operating expense ratio. However, the two ratios move in opposite directions.

This is most pronounced when average loans are very small. In those cases the operating expense ratio invariably rises fast, whereas cost per borrower drops equally quickly (MicroRate, 2003).

2.4.1.3 Other expenses ratio

MFIs can also use other expenses ratio, apart from the above expenses ratio, whenever they feel it is appropriate.

2.4.1.4 Loan officer productivity ratio

This ratio is calculated by dividing the number of active borrowers of an institution by the total number of loan officers. The number of active borrowers is defined as individually identifiable borrowers who have at least one current outstanding loan with the institution. Loan officers are defined as personnel whose main activity is direct management of a portion of the loan portfolio. It includes field personnel or line officers that interact with the client, but not administrative staff or analysts who process loans without direct client contact. Loan officers also include contract employees who may not be part of the permanent staff, but are contracted on a regular basis in the capacity of loan officer. (MicroRate, 2003). It is argued by Nyamsogoro (2010) that, although the duties of loan officers differ from one MFI to the other, loans officers are the ones involved in the whole process from finding clients, evaluating their credit worthiness to making follow-ups when a loan/service is granted.). For institutions that allow clients with strong credit records to borrow multiple loans concurrently, a more revealing measure is the number of clients managed by each loan officer. This ratio reflects the productivity of the field staff. (Farrington, T (undated; and MicroRate, 2003). Other things held constant, the higher the ratio the more productive the institution (Nyamsogoro, 2010).

2.4.1.5 Personnel Productivity Ratio

Personnel productivity ratio, which is computed by dividing number of active borrowers/clients; by number of personnel, measures how efficient an MFI is in utilizing its total human resources in managing its clients. (MicroRate, 2003; and Nyamsogoro, 2010). The number of active borrowers is defined in exactly way as in the loan officer productivity ratio, while the total staff is defined as the total number of people that work full time in an MFI. It includes contract staff such as consultants, as long as they work full time. If there are a significant number of part-time employees, then their number is adjusted to full-time equivalents. Two persons working half time then become equivalent to one full-time employee. (MicroRate, 2003)

Unlike loan officer productivity ratio which tends to ignore other non-loan officers, another productivity measure called personnel productivity ratio is used by some MFIs to compute productivity ratio based on total number of personnel. This is because including all staff instead of only loan officers, as under loan officer productivity ratio, in the denominator provides a more complete view of the institution's productivity as some of the duties of loan officers and other microfinance staff duties tend to overlap. (MicroRate, 2003; and Nyamsogoro, 2010)

2.4.1.6 Loan officers to total staff

The ratio of loan officers to total staff is a proxy for the institution's ability to allocate resources to its core business: lending. In fact, the ratio seems to decrease as microfinance institutions mature, suggesting an increase in middle management that may not bode well for future efficiency enhancements. (Farrington, (undated). However, this might not be the appropriate measure on the MFI's ability to allocate resources when the institution is engaged in the provision of a large diversity of products/services from which it is difficult to determine which one is the institution's core business.

2.4.1.7 Yield on gross loan portfolio and yield gap

According to Nyamsogoro (2010), the yield on gross loan portfolio measure is a ratio of cash financial revenue from loan portfolio to average gross loan portfolio. The yield on gross loan portfolio, which does not include any unpaid revenue as part of unpaid revenue may never get received, indicates the ability of an MFI to utilize the short term assets in generating cash financial revenue. Other things held constant, the higher the ratio of yield on gross portfolio the better the MFI is.

Since the yield on gross loan portfolio ignores the unpaid revenue, MFIs that are in need of comparing MFI's actually received and what were expected to be received from the loan contract may use a yield gap measure. Again, all factors held constant, the larger the gap between the actual revenue and what was contracted for, the inefficient the MFI. (Nyamsogoro, 2010)

.2.4.1.8 Portfolio at risk

Brand and Gerschick, 2000 insist that, maintaining high portfolio quality is critical to an MFI's viability. Delinquency, which indicates the increased risk of loan loss, spreads quickly, eroding an MFI's asset value and increasing expenses. These expenses include both financial (e.g. provisioning expenses that cover anticipated lost principal, interest and fees in the case of default) and operational (e.g., increased staff effort required for collection). The most commonly used measure of delinquency is portfolio at risk (PAR). PAR measures the unpaid balance of loans with late payments as a percentage of the unpaid balance on all loans. (Brand and Gerschick, 2000; Brandt, et al (undated); and Nyamsogoro, 2010). The higher PAR will indicate poor collection, and or that an MFI is not efficient in making collections.(Nyamsogoro, 2010). It shows the portion of the portfolio that is "contaminated" by arrears and therefore at risk of not being repaid. The older the delinquency, the less likely that the loan will be repaid. (MicroRate, 2003)

However, there is ambiguity about the period beyond which the loan is to be included in the computation .It is argued by Brand and Gerschick, 2000; Brandt et al., (undated); Farrington, (undated) ; Lafourcade et al., (2005); and MicroRate, (2003) that 'PAR $\geq$ 30 days' is commonly used by MFIs in reporting the PAR ratio with a given degree of

lateness. PAR₃₀ captures the outstanding balance of all loans with a payment more than 30 days late. Therefore, Portfolio at risk is calculated by dividing the outstanding balance of all loans with arrears over 30 days by the outstanding gross portfolio as of a certain date. Generally speaking, as argued by MicroRate (2003), any portfolio at risk (PAR₃₀) exceeding 10% should be cause for concern, because unlike commercial loans, most micro credits are not backed by bankable collateral.

Although portfolio at risk is a useful measure, but it does not tell the whole story as it can be manipulated, just like other performance measures. The most common form of doing this is to write off delinquent loans. It is, therefore, important PAR being analyzed together with the write off ratio. (MicroRate, 2003)

2.4.1.9 Write off ratio

When MFIs are faced with poor portfolio quality, among other ways, they may write off the loans from their books. (Lafourcade et al., 2005). Although the policies to write off debts differ from one MFI to another, but the ultimate impact is to reduce profitability since the bad debts written off form part of the operating expenses of an MFI. The written off ratio is given by the value of loans written off divide by the average gross loan portfolio. (MicroRate, 2003; and Nyamsogoro, 2010). This indicator simply represents the loans that the institution has removed from its books because of a substantial doubt that they will be recovered. The writing off of a loan is an accounting transaction to prevent assets from being unrealistically inflated by loans that may not be recovered. (MicroRate, 2003). The higher the write off the higher the inefficient the MFI will be. Furthermore, this ratio [write off ratio] indicates the extent to which an MFI is in debt collection. (Nyamsogoro, 2010)

In attempting to sanitize their portfolios, some MFIs may report low portfolio at risk through aggressive write offs. It is only the write off ratio that will allow an analyst that this improvement is more apparent than real. (MicroRate, 2003).

2.4.1.10 Risk coverage ratio

Since some loans will not get recovered which may end up increasing the number of bad debts, MFIs are needed to take caution to cover any as a result of bad debts. This is normally achieved by setting aside part of MFIs' profit, known as loan loss reserves, to cover any unpaid amount beyond a certain specified period. However, as the risks associated with unpaid amount differ from one MFI to another; the amount set aside to cover bad debts will also differ from one MFI to another. But generally, the longer the loan remains unpaid the higher will be the amount set aside to cover the loss when it happens. The risk coverage ratio, which is computed by dividing loan loss reserve by the amount of portfolio at risk beyond a certain specified period, indicates how an MFI is prepared for worst case scenarios. (MicroRate, 2003; and Nyamsogoro, 2010). Furthermore, this measure shows what percent of the portfolio at risk is covered by actual loan loss reserves. While a higher risk coverage should generally be preferred, there are cases that justify lower levels of coverage. Risk coverage must be analyzed in conjunction with portfolio at risk and write-offs, since all three are interdependent. (MicroRate, 2003)

2.4.1.11 Provision Expense Ratio

The Provision Expense Ratio is calculated by dividing the loan loss provisioning expense for the period (not to be confused with the loan loss reserve in the balance sheet) by the period's average gross portfolio. This measure gives an indication of the expense incurred by the institution to anticipate future loan losses. One should expect this expense to increase in step with overall portfolio growth. For formalized MFIs, local banking and tax laws will prescribe the minimum rate at which they must make provisions to allow for loan losses. NGOs on the other hand can follow a wide variety of practices, including making no provisions at all (this is rare), provisioning a certain percentage of new loans, or relating provisions to the quality of the portfolio. MFIs need stricter provisioning practices than banks or finance companies because their loans are less collateralized.

The level of provision expenses has to be analyzed together with the risk coverage ratio. If loan loss reserves in the balance sheet fall relative to the portfolio at risk, then provision expenses are probably too low. (MicroRate, 2003)

2.3.1.12 Number of borrowers

The number of borrowers, as a measure of the size of an MFI, has something to do with efficiency. Other things remain constant, it is expected that larger MFIs are more efficient than smaller MFIs, due to the potential dilution of fixed costs over a larger base

2.4.2 Drivers of microfinance efficiency

If the above discussed ratios are the efficiency measures, it is important to know what factors are likely to cause their change; these factors are known as efficiency drivers. Among the others, this part identifies and reviews the following drivers

2.4.2.1 Economies of scale/ portfolio size

Due to increased competition and change in overall industrial environment, MFIs have been pushing to increase the scale in anticipation of broader outreach and lower costs to compensate for the low average loan size. This in turn affects the institution's efficiency. However, it is argued that there is limits beyond which MFIs' growth can no longer bring about efficiency, instead the push for scale may end up exacerbate the situation by building upon and reinforcing inefficiencies in the institutions. (Brand and Gerschick, 2000). On the other hand it is insisted that below a certain portfolio it is difficult for an MFI to be efficient. (Farrington, (undated)). Therefore, for MFI to be efficient through economies of scale, it depends on the extent to which an MFI has increased its scale. This is to say, neither 'too much' economies of scale nor 'too little' economies of scale are appropriate to improve an MFI's efficiency

2.4.2.2 Loans size

It is argued that MFIs with the smallest loans usually have higher administrative expenses ratio. (Brand and Gerschick, 2000; and Farrington, (undated)). Due to this, contrary to MFIs' goals, many MFIs are moving away from the poorer clients to those who are better off under the assumptions that better off clients pose lower risks and demand larger loan sizes which would increase institution profitability and sustainability. (Amha, 2008). However on the other hand, holding other factors constant, the loan sizes increase as MFIs get older. This is because as MFIs mature, their loan sizes typically increase because as clients become successful, they want large size. (Farrington, (undated))

2.4.2.3 Level of financial environment

It is argued by Hermes et al, (2009) that the efficiency of MFIs is determined by the extent to which financial markets of countries are developed. The level of financial development can affect the MFIs' efficiency both positively as well as negatively.

Among the arguments supporting the positive relationship between the level of financial development and microfinance efficiency are; First, financial development may indicate an increasing number of commercial banks that, among other things, offer microfinance services. This may result to increased level of competition which may compel MFIs to improve their efficiency, through costs reduction and improving the quality of services they offer, so that they may remain sustainable (Hermes et al., 2009; and Lafourcade et al., 2005); Second, as argued by Hermes et al., 2009, the presence of commercial banks may lead to positive spill-over effect. In practice, these banks may use up-to-date and more efficient banking techniques that are new to MFIs. These [modern and efficient techniques] may then be copied and applied by MFIs, which may help improving their efficiency.

On the other hand, a well developed financial system may bring about negative effects to MFIs' efficiency.

The main argument supporting this argument originates from the competition arising from the increase in number of commercial banks or financial institutions providing microfinance services as explained above. However, instead of contributing to improve the efficiency as discussed so far, the presence and increase in commercial banks leads borrowers to substitute loans and other microfinance services from MFIs for loans and other microfinance services from commercial banks for various reasons, such as lower borrowing costs, more flexibility with respect to borrowing options and large amount that can be borrowed, which in turn may reduce their efficiency. Moreover, competition may have an adverse effect on the repayment performance of MFI borrowers, if they take up multiple loans from different financial institutions. Reduced repayment rates leads to decreased financial performance and has adverse consequences for the efficiency of MFIs (Hermes et al., 2009). However, this argument should be analyzed in conjunction with economies of scale and loan size, since all these seem to be interdependent.

2.4.2.4 Regulation

The commercialization of microfinance market has brought new stakeholders, including regulators, to the table. (Brand and Gerschick, 2000). In addition, the increasing role of the financial system may trigger the government to enhance existing regulatory and/or supervisory systems and these improved systems may also include MFIs and their practices. Consequently, increased regulation and supervision of the activities of MFIs may contribute to improved efficiency of these institutions. (Hermes et al., 2009). Regulations help to define the legal status of institutions, outlining the allowable and non-allowable activities as well as the scope of offering microfinance services. (Muganga, 2010). Among other things, regulations take the following forms: interest rate ceilings; foreign exchange controls; controls over admitting new entrants into the market; as well as establishing reasonable capital requirement. (Nyamsogoro, 2010). Thus, either existing or potential regulatory restrictions cap what MFIs can earn on loans, making efficiency critical to financial self-sufficiency.

(Brand and Gerschick, 2000). This is because, through interest rate ceilings for example, MFIs are motivated to improve their efficiency through cost reductions as excessive costs can never be passed to the borrowers. This is extremely important for MFIs to remain financially sustainable. Thus, as it is argued by Amha (2008) that Creating an enabling policy and regulatory environment has a significant impact on growth, productivity and efficiency of MFIs, it is therefore important not to overlook the regulatory framework in assessing the efficiency of microfinance institutions.

The summary of how different ratios, as the measure of microfinance efficiency are calculated have been presented in the table 2.1

Table 2.2 Formulas for efficiency ratios

S/N	RATIO NAME	FORMULA
1.	Loan officer productivity	Number of active borrowers / Number of loan officers
2.	Personnel productivity	Number of active borrowers / Number of personnel Number of active clients / Number of personnel
3.	Operating expense ratio	Operating expense / Average gross loan portfolio* <i>* Average total assets could be used as an alternative denominator.</i>
4.	Cost per borrower	Operating expense / Average number of active Borrowers
5.	Cost per client	Operating expense / Average number of clients
6.	Other expense ratios	Any expense / Average gross loan portfolio* <i>*Average total assets could be used as an alternative denominator.</i>

Source: Adopted from CGAP (2003)

2.5 THE RELATIONSHIP BETWEEN MICROFINANCE EFFICIENCY AND MICROFINANCE SUSTAINABILITY

Operational self sufficiency and financial self-sufficiency are the two degrees of self-sufficiency for MFIs which have been identified by Thapa (2007). Operational self-sufficiency, which is computed by dividing operating income by operating expenses, requires MFIs to meet all administrative costs and loan losses from operating income. (Nyamsogoro, 2010; and Thapa, 2007). It is suggested, based on international experience, that successful MFIs should be able to achieve operational self-sufficiency within three to seven years. MFIs achieve financial self-sufficiency when.

They are able to cover all administrative costs, loan losses, and financing costs from operating income, after adjusting for inflation and subsidies and treating all funding as if it had a commercial cost. Successful MFIs are expected to achieve financial self-sufficiency within five to ten years (Thapa, 2007). However, an enduring problem facing MFIs is how to attain financial sustainability (Nyamsogoro, 2011). Financial sustainability is determined by the extent to which MFIs are efficient in using resources and turning them into services. Knowing the determinants of MFI efficiency would help to increase our understanding of what determines financial sustainability and therefore also of the potential of microfinance in making a significant and long-term contribution to poverty reduction (Hermes et al, 2009). MFIs must better utilize their scarce resources to survive and succeed. This pressure is particularly acute for MFIs operating in market sectors that are highly competitive, which prevent MFIs from charging high interest rates, or particularly challenging to reach such as poorer clients or rural areas. (Brand and Gerschick , 2000). As a result, efficiency is of critical importance for any MFI to reach the poorest (social goal) as well as attaining sustainability (Financial goal). In short, efficiency is crucial for an MFI to remain competitive and profitable over the fast changing environment.

2.6 MICROFINANCE APPROACHES: WELFARIST AND INSTITUTIONIST

Although it is believed that microfinance is not a panacea for poverty and related development challenges, it is highly appreciated that microfinance services provided by microfinance institutions plays a significant role in fighting against poverty. Through microfinance institutions, poor unbanked and disadvantaged group of people get access to finances and other microfinance services. While the ultimate goal of MFIs is to reach poorer of the poor, on the other hand, they are required to achieve financial sustainability. Exclusion of the poorest from microfinance schemes is a well-known challenge. If MFIs have to serve the poor in remote rural areas, it may be difficult for them to achieve financial self-sufficiency. Therefore, MFIs face an apparent tension between achieving financial sustainability and contributing to poverty reduction. (Brand and Gerschick, 2000; and Thapa, (2007)). These are the two competing views facing Microfinance institutions (Nyamsogoro, 2010). The two competing views are commonly termed as institutionist and welfarist approaches for financial sustainability and poverty reduction respectively.(Nyamsogoro, 2010; and Woller et al., 1999)

2.6.1 Institutionist approach

Under this approach, the center of attention is the institution, and institutional success is generally measured by the institution's progress toward achieving financial self-sufficiency. Institutionists argue that a primary objective of microfinance is financial deepening, the creation of a separate system of "sustainable" financial intermediation for the poor (Woller et al., 1999). Unless there is a balance with poverty lending approach, overemphasis of institutionist approach contradicts with the shared objective- poverty reduction (Nyamsogoro, 2010)

2.6.2 Welfarist approaches

Welfarists, on the other hand, emphasize depth of outreach. Under this approach, MFIs are viewed as a tool for poverty reduction whose objective is to empower the poor and, therefore, should be given higher priority. (Nyamsogoro, 2010).

2.7 PROFITABILITY THEORY AND FINANCIAL SUSTAINABILITY

The sustainability of MFIs can be expressed in terms of Operating Self Sufficiency or Financial Self Sufficiency. Operational Self-sufficiency (OSS) is a ratio of total revenue over total operating expenditure. Microfinance institutions use OSS as a measure of profitability, therefore, in other way we can say sustainability means profitability. Since the study intends to find out the impact microfinance efficiency on sustainability, and sustainability is closely linked with profitability, there is a need to have deeper understanding of profitability and how this is related with sustainability in Microfinance efficiency. Therefore, this part discusses profitability theory from the point of view of Microfinance institution.

The Economist's view of Profit

Economic profit is defined as the flow of goods or services (wealth) over a period of time (Msongole, 2010). In economics the value of capital is derived from the value of income (profit). Economists are principally concerned with the income of persons, group of persons and society as a whole. Economic profit is real because it considers the price level changes or the holding of gains resulting from the appreciation of noncurrent assets. However, economic profit is said to be subjective because it bases on the net present value of method of valuation which is usually associated with the predictions and uncertainty.

According to Fisher, profit means consumption; this is to say profit is approximated by the value of goods or services to obtain utility. From fisher's point of view, it is argued that the profit is measured by the level of satisfaction of the owners of MFIs.

Hicks defined profit as the amount which a man can consume during the period and still expect to be as well off as at the end of the period as he was at the beginning. Therefore, profit is said to be an indicator of the amount which people can consume without impoverishing themselves.

The Accountant's view of Profit

Accountants measure business profit on periodic basis by identifying the revenues and expenses of the period. Profit is mainly influenced by the Generally Accepted Accounting Principles as accrued concept, matching principle, going concern assumptions, etc. The major pointed limitation of accountant profit is that profits can be affected by accounting principles.

Although it is argued that accountants view of profit ignores the unrealized gains/losses, contrary to economists' view of profit, it is insisted by Nyamsogoro (2010) that when the Capital maintenance concept and profit as a residual theory are considered, the only different between the economic and accounting profit is how unrealized gains/losses in the market value of assets and liabilities are treated. While the economists would consider the unrealized gains or losses immediately, it often takes time for the accountants to recognize the changes, and when they do, they do it through revaluation, or accounting for price changes.

In this study, the accountant theory of profit was used in which the efficiency of MFIs was linked with the performance-profitability measures of MFIs.

MFIs are considered to be sustainable if and only if they are able to cover all the operating and financing costs from their own generated revenue, something which is revealed in the reported profit.

2.8 REVIEW OF EMPIRICAL STUDIES

This part reviews past studies about the problem under study; both empirical studies conducted outside Tanzania and from Tanzania are reviewed in this part.

2.8.1 Empirical Studies outside Tanzania

Abdul, Q and Munir, A (2006) conducted research to estimate the efficiency and sustainability of microfinance institutions in South Asian countries, particularly in Bangladesh, Pakistan and India, by using non-parametric Data Envelopment Analysis.

It was concluded that ten MFIs from Pakistan, nine each from Bangladesh and India operate on the efficient frontier but do not meet the criterion suggested by Gow (2006) that MFIs are considered efficient if they have more than 10,000 active borrowers. The analysis further revealed that the inefficiencies of MFIs in Pakistan, India and Bangladesh are mainly of technical nature. The results have an important policy implication that in order to improve the efficiency of the MFIs there is need to enhance the managerial skills and improve technology. This could be done by imparting training programs in the field of microfinance management.

A study conducted by Annim (2010) which intended to examine patterns, trends and drivers of MFIs efficiency. A balanced panel data of 164 MFIs for the period 2004-08 was extracted from the MIX website for the study's use. Both parametric and non-parametric efficiency estimation techniques were used. The study argues that patterns, trends and drivers of the efficiency of microfinance institutions (MFIs) depend on the scope of financial sustainability measures and on MFIs' inclination to either of the dual objectives of financial systems and outreach. In addition, the study reveals that, irrespective of an MFI's objective and estimation technique, operational self-sufficiency (OSS) indicates a positive relationship with efficiency.

The study also confirms the argument that, unlike the financial goal, MFIs' social efficiency and outreach require the role of external factors, including other institutions providing services within the business environment. The ability of such institutions in reducing bureaucracy that unduly delays economic transactions and in providing financial-related information improves the social efficiency of microfinance institutions

Nghiem et al (undated) also conducted research to analyse the efficiency of 46 microfinance schemes in the North and the central regions of Vietnam using DEA technique. Data Envelopment Analysis (DEA) methods were used to assess the technical efficiency and scale efficiency of the microfinance schemes. The empirical results revealed that the average technical efficiency scores of schemes surveyed is 80%.

In addition, a second stage regression analysis was used to assess the impact of a variety of environmental variables upon the efficiency of the scheme. The age and the location of the scheme were found to have a significant influence upon efficiency. However, it was against the expectation that schemes become efficient as they become more mature. Gonzalez(2007) performed research study to find out the efficiency drivers of MFIs and the correlation between costs and the variables associated with the provision of financial services by microfinance Banks. The sample consisted of 1,003 MFIs in 84 countries reporting data to the Microfinance Information Exchange, Inc. (MIX), primarily in the period of 1999 to 2006. The results revealed that, based on the analysis of MFI characteristics, the three main drivers of efficiency as measured by operating expenses ratio are relative loan sizes, ages and scale. However, they were surprised by how quickly reductions in cost disappear after MFIs grow beyond 2,000 borrowers. In addition, the results revealed that the relationship between microfinance efficiency, as measured by operating expense ratio, and borrowers per staff is statistically significant, but not very strong. Our results also confirm the fact that mobilizing voluntary savings is associated with higher operating expense ratio. However, it was observed that, the increase in costs was not as dramatic as expected. Finally, after controlling for all explanatory variables included in the regression analysis, they did not find any significant correlation between the number of offices per MFI and the average operating expense ratio.

In the paper presented by Amha (2008) about the innovations in the delivery of financial services by MFIs in Ethiopia found that a large number of MFIs in Ethiopia has progressed significantly in terms of sustainability. Thirteen MFIs were operationally sustainable in December 2006 compared to only six MFIs in December 2003. The number of financially sustainable MFIs increased from two MFIs in 2003 to seven MFIs in 2006. It is further argued that the sustainability of Ethiopian MFIs is higher than that of the rest of Africa. In 2005, operational and financial sustainability of Ethiopian MFIs was, on average, 123% and 107% compared to 92% and 89% for the Africa

respectively. The majority of the MFIs increased their productivity indicators (borrower per staff and borrower per loan officer ratios) as a result in the last six years.

Another notable study outside Tanzania is the one conducted by Lafourcade et al (2005), who provided an Overview of the Outreach and Financial Performance of Microfinance Institutions in Africa. The study which collected information from 163 MFIs in Africa revealed that MFIs in Africa tend to report lower levels of profitability, as measured by return on assets, than MFIs in other global regions. The results show that of the all MFIs types reviewed, the regulated MFIs report the highest return on asset, averaging around 2.6 percent.

However, the study revealed that the microfinance sector in Africa is quickly expanding, and institutions have increased their activities. In addition, African MFIs are among the most productive globally, as measured by the number of borrowers and savers per staff member. MFIs in Africa also demonstrate higher levels of portfolio quality, with an average portfolio at risk over 30 days of only 4.0 percent.

It was also insisted that still African MFIs face many challenges. Operating and financial expenses are high, and on average, revenues remain lower than in other global regions. Efficiency in terms of cost per borrower is lowest for African MFIs. However, the study revealed that within Africa, East African MFIs are considered efficient when measured in terms of cost

2.8.2 Empirical studies from Tanzania:

This part intends to review studies conducted in Tanzania about the problem under study.

Among the most comprehensive recent studies conducted in Tanzania is the one done by Nyamsogoro (2011). The study intended to find out the factors influencing financial sustainability of rural microfinance institutions in Tanzania. A random effect panel regression model was used to analyse four years longitudinal data collected from 98

rural MFIs in Tanzania. The study revealed that the financial sustainability is affected by capital structure, interest rates, differences in lending type, cost per borrower, product type, MFI size, depth of outreach and the number of borrowers. In addition, the study used primary data directly obtained from MFIs, and following the decomposition of lending type, the study documents an empirical evidence of the term to maturity and number of installment to financial sustainability.

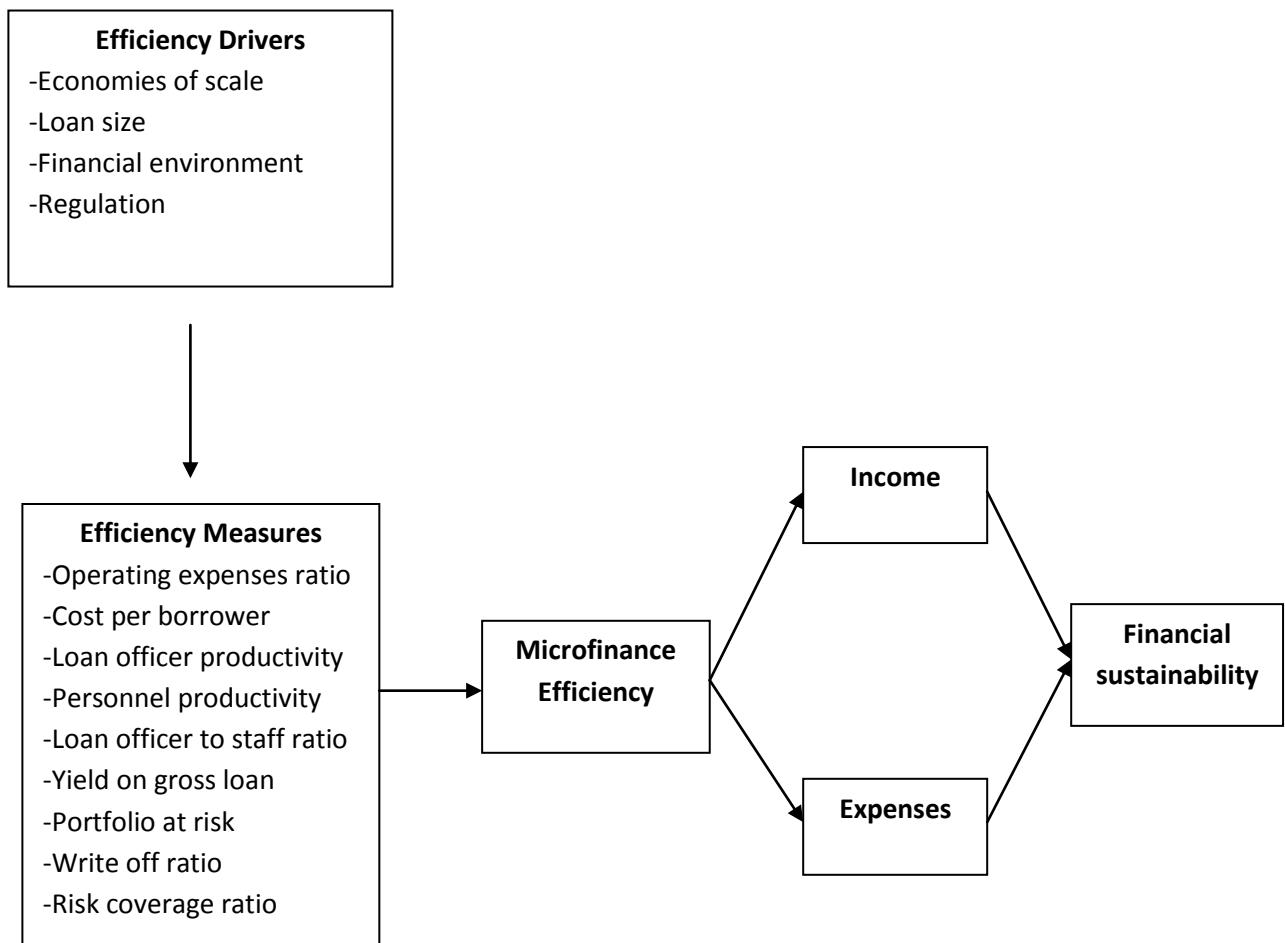
It was recommended that, MFIs should utilize the differences in lending terms brought about by the differences in lending type. When the group lending is used, higher number of installment, larger minimum loan size, and less term to maturity should be preferred to take advantage of the collective responsibility of the group that promotes financial sustainability.

In a study conducted by Kessy & Urrio (2006) on contribution of MFI on poverty reduction in Tanzania, the researchers covered four regions of Tanzania which are Dar es salaam, Zanzibar, Arusha and Mwanza. Both primary and secondary data were collected; primary data were collected from 352 MSE's through questionnaires, interviews were also conducted. PRIDE (T) Ltd which is a microfinance institutions were used as a case study so as to get the insight of MFI operations. The study findings pointed out that to large extent MFI operations in Tanzania has brought positive changes in the standard of living of people who access their services, clients of MFI complained about high interest rate charged, the weekly meeting was pointed out as barrier as the time spent in weekly meeting could be used to other productive activities. The study recommended MFI to lower its interest rate, increase grace period and provide proper training to MSEs.

2.9 CONCEPTUAL FRAMEWORK

This part presents the general conceptual framework about the problem under study as per the reviewed microfinance literatures.

Figure 2.1: General Conceptual Framework



Source: Constructed from literature reviewed

The above figure shows how microfinance efficiency relates with financial sustainability. The figure indicates that microfinance efficiency is determined by efficiency measures, which are highly influenced by efficiency drivers. Then microfinance efficiency affects the income and expenses which in turn affect financial sustainability of an MFI.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter describes the research methodology and design applied on the problem under study. Among other things, to arrive at the appropriate research design, it is crucial to identify the type/purpose of the study to be undertaken (Kothari, 2004; and Sekaran, 2003). This chapter, therefore, starts by stating the type of study. The research design for this study is then introduced followed by the method to be used to analyze data.

3.1 TYPE OF STUDY

The research study is of diagnostic in nature. According to Kothari (2004), diagnostic study is the one which determines the association between variables. This type of study is considered relevant to the study as the researcher aims at finding out the relationship between the microfinance efficiency and financial sustainability by identifying the impact of microfinance efficiency on financial sustainability.

3.2 RESEARCH APPROACH

The study will employ a quantitative research approach.

3.3 STUDY POPULATION

The study intended to cover all microfinance institutions in Tanzania; however it was not possible to accommodate all the MFIs in Tanzania. Some MFIs were taken to represent others. The MFIs selected for this study are Akiba Bank, BRAC, SEDA, FINCA, NMB, and Opportunity. The choice of the selected MFIs depended mmuch on the availability of their information in the MIX market data set.

3.4 RESEARCH DESIGN

With objectives of this study in mind, which are; identifying the determinants of microfinance efficiency; and finding out the impact of each determinant identified on financial sustainability, the study will employ a survey design. Survey research design is used to quantitatively describe/examining the relationships among variables. (Glasow, 2005). Therefore, it is of critical importance to employ a survey research design in this study, which aims at finding out the relationship between microfinance efficiency and sustainability that specifically focuses at the impact of microfinance efficiency on sustainability. In addition, it is argued by Kothari (2004) that a survey design, which takes into account all the steps involved in a survey concerning a phenomenon to be studied, is appropriate design for research study which are diagnostic in nature.

The survey design, which has adopted for this study, makes use of longitudinal data for five years collected from different MFIs in Tanzania. The longitudinal data, which is also termed as panel data, have been considered appropriate for this study due to its ability to control unobserved characteristics. In addition, longitudinal data allows studying the importance of lags in behavior (Wooldridge, 2006). This is particularly important in this study as the microfinance efficiency, among other things, is highly influenced by the age of an MFI.

3.4.1 Sampling

Microfinance institutions operating in Tanzania was a targeted population for this study. However, due to some reasons like scarcity of both financial and non financial resources, it is practically impossible to collect data from every element of the population. Furthermore, study of sample rather than the entire population is also sometimes likely to produce more reliable results. (Sekaran, 2003). Therefore, this study has selected some few MFIs which represent the entire population, from which the conclusion has been drawn for generalizability.

a) Sample size

The sample size of the study is 7 MFIs. Although the sample size for particular study is influenced by many factors, which sometimes differ from one study to another, for multiple regression analyses, of which this study applied, a thumb rule is proposed by Hair et al (2006) that appropriate sample size should be 5 times or more as the number of variables in the study. That is, for each independent variable, a minimum of 5 observations should be made.

To be consistent with the general thumb rule, it is important therefore to consider the number of independent variables under this study. The study took into account 6 independent variables which call for the 30 number of observations. With five years data from each MFI, the 30 observations require 6 MFIs. However, for the purpose of this study, a sample size of 7 MFIs has been used. The sample size appears to be greater than the required 6 MFIs.

b) Sampling techniques

The study has applied both simple random sampling and purposive sampling. The choice of sampling techniques takes into account the ultimate sampling goal of this study, which is to obtain the representatives of the given population for generalizability, and the likelihood of obtaining the information from MFIs. Under simple random sampling, every element in the population has a known and equal chance of being selected. Simple random sampling is the best design when the generalizability of the findings to the whole population is the main objective of the study (Glasow, 2005; and Sekeran, 2003). Furthermore, simple random sampling has a least bias. (Sekaran, 2003). On the other hand, the study will also employ purposive judgmental sampling. Judgment sampling, which calls for special efforts to locate and gain access to the individuals who do have the requisite information, is the best technique when a limited number or category of individuals has the information that is thought. As not all MFIs in Tanzania provide their information to the mix market website, a source from which this study will gather data, a judgment sampling in combination with

simple random sampling will be used. Under judgment sampling, the researcher will be interested to ensure that elements available for simple random sampling are the ones whose information is available to the mix market source.

3.4.2 Types and sources of data

The study has used both primary data and secondary data. Secondary data has been sourced from the MIX market, which is the most comprehensive and up-to-date global web-based information on MFIs.

3.5 DATA COLLECTION METHODS

The study employed mail survey (questionnaire) and interviews for primary data and documentation method for secondary data. The questionnaires prepared were distributed to some MFIs' managers in Mwanza. The questionnaire has been attached in appendix I. In addition the researcher conducted an interview to some of employees of MFIs in Tanzania to gain direct response about the problem under study. The interview was guided by the questions in the questionnaire.

3.6 DATA ANALYSIS.

The research study which aims at finding out the impact of microfinance efficiency on sustainability will make use of STATA econometrics software to analyze the quantitative panel data. In chapter two, different predictors of microfinance efficiency and how they affect sustainability have been discussed in detail. We want to reach correct conclusions not only about which predictors are important and the size of their effects but also about the structure by which multiple predictors simultaneously relate to the response. Often, we also want to know whether the multiple predictors that influence a response or outcome do so independently or whether they interact. This will be achieved through the use of multiple regression model with the help of STATA econometrics software.

3.5 MODEL SPECIFICATION

The specific panel regression model used is

$$OSS = \ln wor + \ln bplo + \ln rcr + \ln borrowers + \ln loansize + \ln cpb + e_t$$

Where: OSS is the operating self sufficiency, dependent variable stands for microfinance efficiency, $\ln wor$, $\ln bplo$, $\ln rcr$, $\ln borrowers$, $\ln loansize$ and $\ln cpb$ are independent variables for natural logarithms of write off ratio, borrowers per loan officer, risk coverage ratio, number of borrowers loan size and cost per borrower respectively. e_t is the error term.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

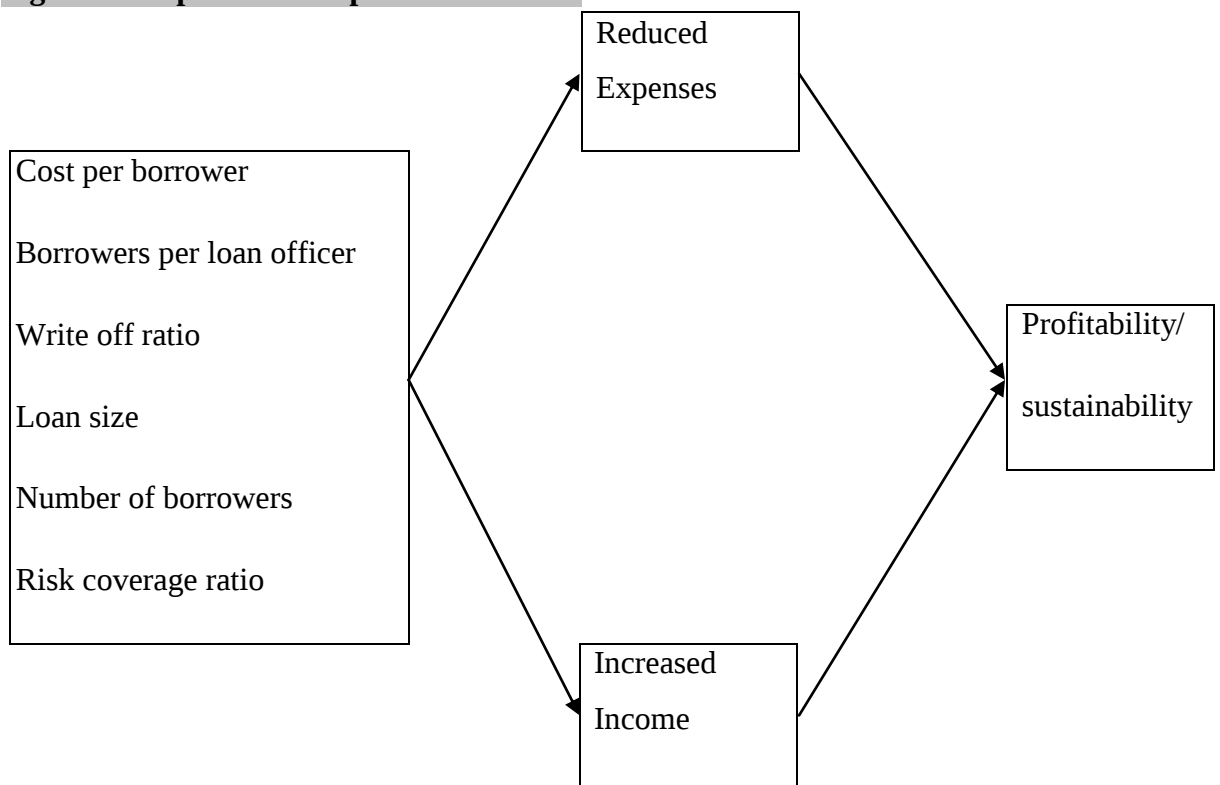
4.0 INTRODUCTION

The concept of microfinance efficiency and its determinants have been discussed in detail in chapter two of this research report. The better way to understand the determinants of microfinance efficiency is to look on how actually microfinance efficiency can be achieved. According to Nyamsogoro (2010), it is insisted that microfinance efficiency can be attained in three ways. First through cost minimization at a given level of operation, secondly, microfinance efficiency can be achieved through maximization of income at a given level of operation. On the other hand, microfinance efficiency can be attained by combining both approaches. The combination of the two approaches can be expressed by profitability status of a particular MFI, this is because it is through MFIs profits where both expenses and income are accommodated. In each of the approach, it is very important to know their determinants. For the purpose of this paper, we are going to concentrate on the determinants of microfinance efficiency based on how, ultimately, they affect profitability of MFIs in Tanzania. This chapter, therefore, is determined to present analyzed data covering objective number one and two of the study which aims at finding out the determinants of microfinance efficiency in Tanzania and the effect of such determinants of microfinance efficiency to sustainability respectively. This chapter is divided into four interrelated sections. The first part of this chapter presents the conceptual framework of microfinance efficiency used in this study. In addition, part one describes both dependent and independent variables used to attain the objective number one and number two of the research study. While part two of this chapter describes how the data obtained have been analyzed, part three gives out the results of regression analysis.

4.1 CONCEPTUAL FRAMEWORK: MICROFINANCE EFFICIENCY

In chapter two, a general conceptual framework about the problem under study was presented according to the literature reviewed. In this part, the conceptual framework has been narrowed down to accommodate the variables that were actually used in this study.

Figure 4.1: Specific conceptual framework



Source: Constructed by the researcher based on the selected and reviewed variables

The above illustration shows how operation self sufficiency, as a measure of MFIs profitability and dependent variable in this study, is affected by cost per borrower, number of borrowers per loan officer, number of active borrowers, write off ratio, risk coverage ratio, and number of borrowers. The choice of these variables was based on the literature reviewed.

However, it should be noted that some variables discussed in chapter two of this report were overlooked because it couldn't be possible to grasp their sufficient information for regression analysis. These include yield on gross loan portfolio and loan officer to total staff ratio. In addition some variables were dropped because it was believed that their effects could be explained by other factors. This was done purposely to reduce the problem of multicollinearity. For instance Operating expenses per loan portfolio, operating expenses per assets, cost per loan and administrative expenses per assets are believed to be explained by the presence of Cost per borrower.

The expected relationships between the selected independent variables and operating self sufficiency, as a measure of microfinance efficiency, have been presented in the following table.

Table 4.1 Description of independent variables

S/N	Variable normal name	Variable name as used in regression model	Expected effect on OSS
1.	Write off ratio	Lnwor	-
2.	Borrowers per loan officer	Lnbplo	+/-
3.	Risk coverage ratio	Lnrcr	-
4.	Cost per borrower	Lncpb	-
5.	Number of borrowers	Lnborrowers	+/-
6.	Loan size	Lnloansize	+

Source: Slightly modified -adopted from Nyamsogoro (2011)

4.1 Regression Analysis: Diagnostic Test

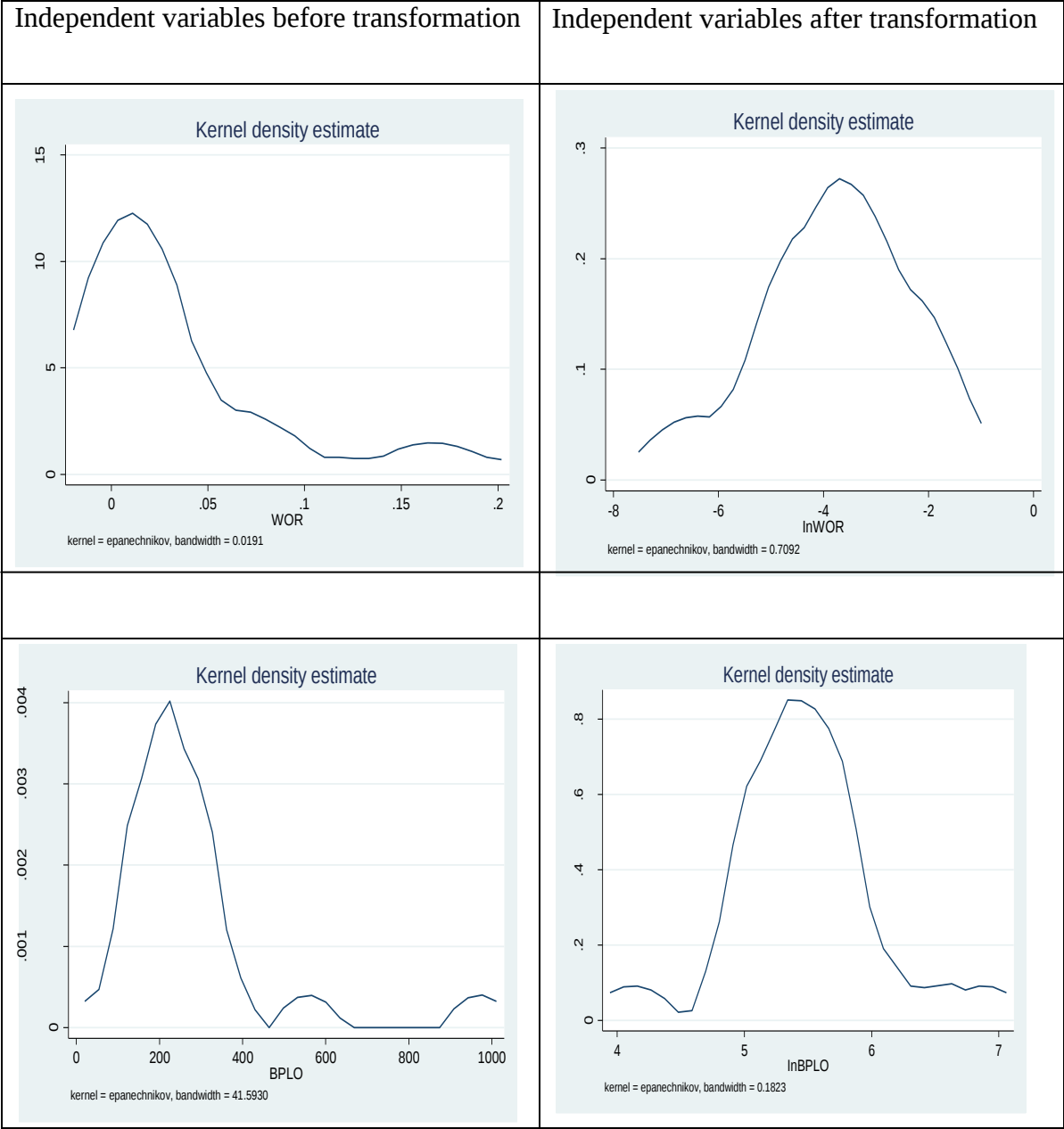
In finding out the determinants of microfinance efficiency, five years panel data from seven different MFIs in Tanzania were analyzed by the use of the STATA econometrics software. However, with the help of hausman test, random effect panel regression model was adopted. According to Hsiao (2007) as quoted by Nyamsogoro (2011), a random effect panel regression model is an appropriate model to follow if it is strongly believed that some omitted variables may be constant over time but vary among panels, and others may be fixed among panels but vary over time.

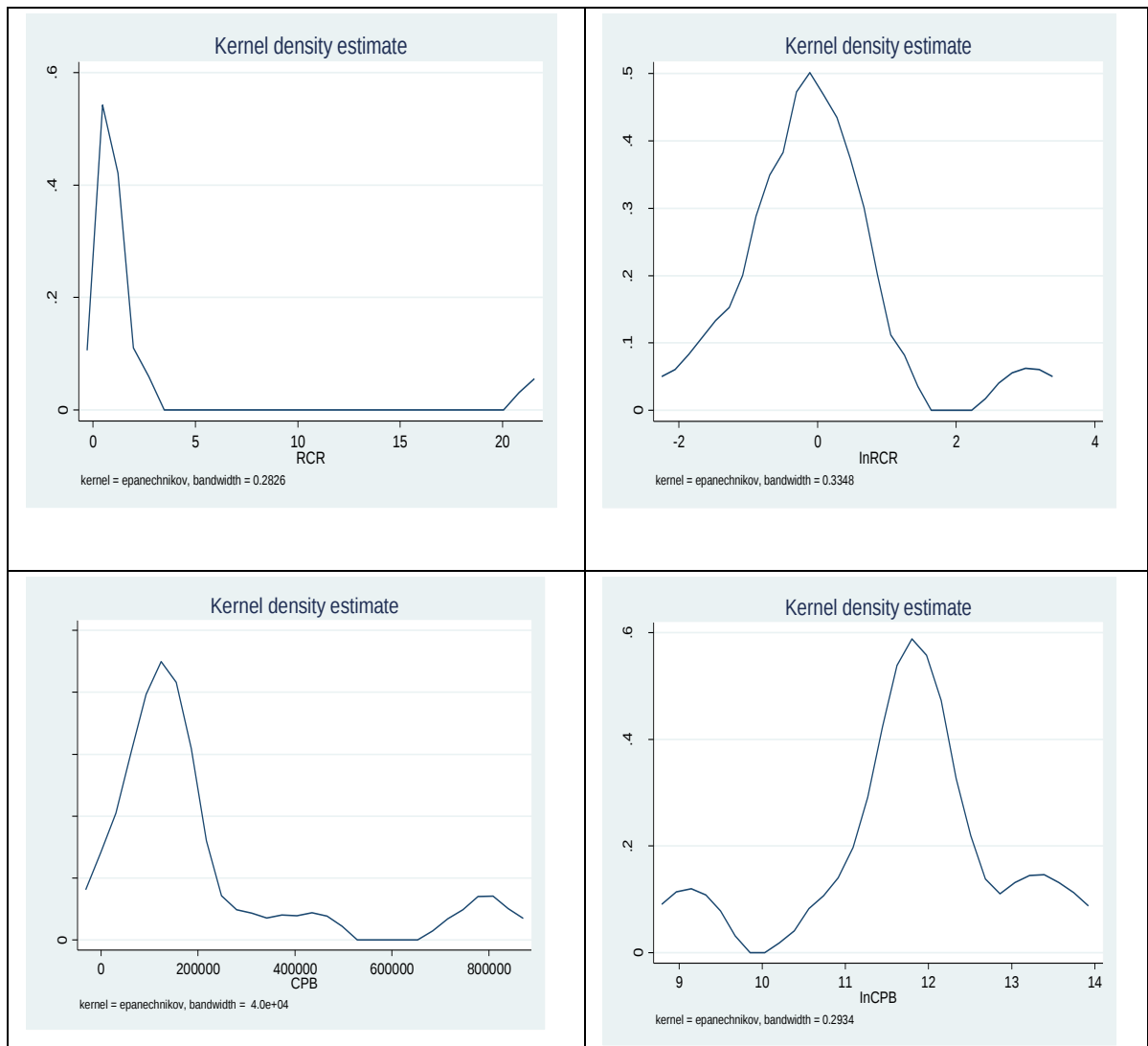
The assumptions underlying the regression analysis had to be tested to make sure that they are complied with. The tests for normality, multicollinearity and heteroskedasticity were conducted.

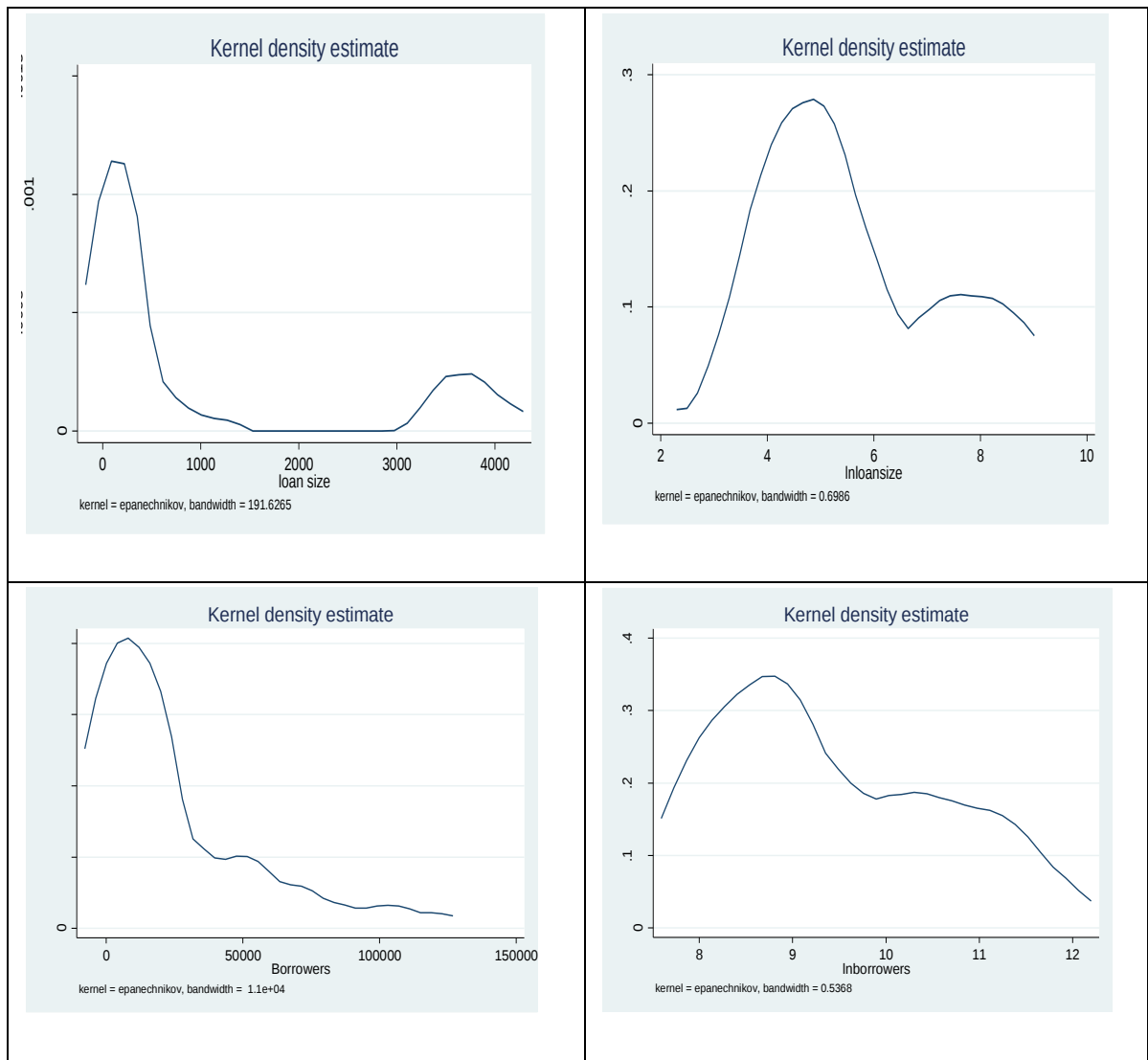
4.1.1 Diagnostic test for normality

In testing the normality assumption, by the use of kdensity command, it was revealed that residuals for all selected independent variable were not normally distributed. As a result, new variables namely Incpb, Inrcr, Inwor, Inbplo, Inborrowers and Inloansize were generated for cost per borrower, risk coverage ratio, write off ratio borrowers per loan officer, number of borrowers and loan size respectively. The diagrams showing the normal distribution of these variables before and after generation of new variables have been shown in graph 4.1 below.

Graph 4.1: Diagnostic test for Normality assumption







4.1.2 Diagnostic test for Heteroskedasticity

The hettest test performed to check out if there is the problem of heteroskedasticity revealed that there is no such a problem. The idea that the hettest test is a post was taken into account. The result obtained has been presented in the table 4.2 below

Table 4.2: Diagnostic output for Heteroskedasticity

```
. hettest  
  
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
Ho: Constant variance  
Variables: fitted values of oss  
  
chi2(1)      =    0.01  
Prob > chi2   =   0.9079
```

With p value of 0.9079, which is greater than the required level of 0.05, we do not reject Null hypothesis and confirm that there is no the problem of heteroskedasticity.

4.1.3 Diagnostic test for Multicollinearity

This is another post test undertaken to check if there is a problem of multicollinearity for the regression model in use. The results, as presented in table 4.4 below reveals that there is no problem of multicollinearity since the mean value is less than 10. If the mean value is greater than ten, the multicollinearity problem is believed to be in existence and appropriate measures should be undertaken to solve the problem

Table 4.3: Diagnostic output for Multicollinearity.

```
. vif
```

variable	VIF	1/VIF
lnloansize	4.17	0.239659
lncpb	3.71	0.269265
lnbplo	2.36	0.423628
lnborrowers	2.20	0.455137
lnrcr	2.01	0.496961
lnwor	1.51	0.664201
Mean VIF	2.66	

4.2 Descriptive results

This part presents and describes the summary statistics of the variables in the regression model.

Table 4.4: Descriptive statistics output

Variable	Obs	Mean	Std. Dev.	Min	Max
mfiid	34	100921.8	710.8902	100161	101875
year	34	2008.941	1.412953	2007	2011
wor	25	.030084	.0472917	-.0004	.1827
bplo	25	263.96	176.3967	62	969
rcr	22	1.712282	4.410004	0	21.2596
par	25	.064408	.0820891	0	.4017
oss	30	.9950433	.3924871	.2811	1.738
oeplp	31	.6654161	.6226416	.13	2.8765
oepla	30	.3212633	.1931693	.0608	.6746
cpb	24	166420.5	219662.6	281	830225
borrowers	27	23782.81	29793.19	3398	115695
loansize	33	953.7273	1482.226	20	4095

Operational Self-sufficiency (OSS) is a ratio of total revenue over total operating expenditure. Microfinance institutions use OSS as a measure of profitability. MFIs with OSS greater than 1 are regarded to be more profitable, and for the purpose of this study, such MFIs are considered to be efficient enough. From the descriptive results presented above, the mean OSS is 0.995. This indicates that MFIs in Tanzania are not efficient enough.

The efficiency of MFIs is affected by the age of MFIs, as measured by the number of borrowers. MFIs are considered efficient if they have more than 10,000 active borrowers (Gow, 2006). Generally, it is expected that larger MFIs are more efficient than smaller MFIs, due to the potential dilution of fixed costs over a larger base. From the summary statistics above, 23,782 active borrowers have been indicated suggesting that, in terms of number of borrowers as a measure of efficiency Tanzanian MFIs are said to be efficient.

The descriptive statistics also shows that it costs an average of TZS 166, 420 to save a client. Other results are as shown in the table.

4.3 Econometrics results: Presentation

This part presents econometrics results of regression analysis for panel data from 2007 to 2011 for seven different MFIs in Tanzania. Specifically, this part intends present analysed data that covers both objective one and objective two which required the application of regression analysis as described in chapter three of this research study. After undertaking panel data regression analysis, the following results were obtained.

Table 4.5: Econometric results

. xtreg oss lnwor lnbplo lnrcr lncpb lnborrowers lnloansize, re						
Random-effects GLS regression			Number of obs		= 14	
Group variable: mfiid			Number of groups		= 5	
R-sq: within = 0.4563			Obs per group: min		= 2	
between = 0.9418			avg		= 2.8	
overall = 0.8655			max		= 3	
corr(u_i, X) = 0 (assumed)			Wald chi2(6)		= 45.05	
			Prob > chi2		= 0.0000	
oss	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnwor	-.025336	.0329439	-0.77	0.442	-.0899049	.0392329
lnbplo	.2639703	.1288456	2.05	0.040	.0114375	.516503
lnrcr	-.0331903	.0602951	-0.55	0.582	-.1513666	.084986
lncpb	-.0518741	.0262278	-1.98	0.048	-.1032798	-.0004685
lnborrowers	.1100619	.0448468	2.45	0.014	.0221638	.1979599
lnloansize	-.0532329	.0405861	-1.31	0.190	-.1327802	.0263143
_cons	-.8883927	.886743	-1.00	0.316	-2.626377	.8495915
sigma_u	0					
sigma_e	.0445486					
rho	0	(fraction of variance due to u_i)				

NOTE: wor, lnbplo, lnrcr, lncpb, lnborrowers, and lnloansize stand for natural logarithms of write off ratio, borrowers per loan officer, risk coverage ratio, cost per borrower, number of borrowers and loan size respectively.

Among other reliability measure of the regression model is R-squared. This tries to describe the extent to which dependent variable is expressed by explanatory variable. The higher the ratio, the more reliable the model is. It is indicated in the table 4.5 above that the overall R-square for the model is approximately 87%. This indicates that OSS as a measure of microfinance efficiency is explained by 87% by the selected variables by

CHAPTER FIVE

INTERPRETATION AND DISCUSSION OF THE FINDINGS

5.0 INTRODUCTION

This chapter is intended to interpret and discuss the findings presented in the previous chapter. The chapter is divided into three main parts covering the first three specific objectives. While part one interprets and discusses to cover for objective number one that aimed at finding out the determinants of microfinance efficiency, the next part interprets and discusses the data presented in chapter four specifically aimed to attain objective number two of this research study which aimed at finding out the impact of microfinance efficiency on sustainability of MFIs in Tanzania. The last part of this chapter is intended to accomplish objective number three by discussing the trends and performance of microfinance efficiency as measured by the selected measures.

5.1 DETERMINANTS OF MICROFINANCE EFFICIENCY

It is argued by Hermes et al (2009) that the extent to which MFIs are efficient in using resources and turning them into services is key determinant of MFIs' financial sustainability and therefore, knowing the drivers and measures of MFI efficiency constitute the first steps in finding ways to improve their efficiency, which on the other side, is critical for both poverty reduction and MFIs' financial sustainability

As indicated in chapter two, which deals with literature review, microfinance efficiency can be measured by a number of measures. However, as explained earlier in this chapter, only some of the discussed variables were taken for regression analysis purpose. These include cost per borrower, number of active borrowers per loan officer, written of ratio and risk coverage ratio, loan size and number of borrowers.

Out of the six independent variables used in the regression model, borrowers per loan officer, cost per borrower and number of borrowers were found to influence

Microfinance efficiency and hence the determinants of microfinance efficiency in Tanzania. The rest appeared to have p value greater than 0.05 hence not statistically significant. This has been presented in the econometric results presented in table 4.5 above.

As stipulated in chapter three that the study would involve making comparison with some previous reviewed studies and literatures, to achieve this, each variable has been discussed separately to make it more sensible.

Borrowers per loan officer

With p value of 0.04, borrowers per loan office as a measure of microfinance efficiency as indicated in the above random effect regression analysis output, is statistically significant. Therefore we reject Null and conclude that a borrower per loan officer is a determinant of microfinance efficiency. This result finding is in line with microfinance literatures which suggest that microfinance efficiency is affected by the number of borrowers served per loan officer. In addition, the finding confirms that of Gonzalez (2007).

Cost per borrower:

The econometric result on the relationship between cost per borrower and the microfinance efficiency (measured by operating self sufficiency) indicate that the cost per borrower is statistically significant at 4.8 percent significance level. This finding confirms the findings by Nyamsogoro (2011) that the cost per borrower measure the effectiveness in cost reduction given the number of borrowers they are serving. This implies the role played by cost per borrower in improving the microfinance efficiency.

Number of borrowers:

The relationship between number of borrowers and microfinance efficiency is strongly statistically significant at 1.4 per cent significance level. Although this finding is in line with the study by Nyamsogoro (2011), the finding is contrary to the findings by LOGOTRI (2006) as quoted by Nyamsogoro (2011).

In additional, the finding confirms different microfinance literature that the microfinance efficiency is highly influenced by the number of borrowers.

Loan size

Surprisingly, loan size was not found to be the determinant of microfinance efficiency as shown in the table 4.5. This finding appear to contradict with those raised by Nyamsogoro (2011) and Gonzalez (2007).

Write off ratio,

Contrary to most of the microfinance literatures reviewed, this study found that microfinance efficiency of MFIs in Tanzania is not influenced by write off ratio. This can be witnessed by reviewing the results presented in table 4.5, with p value of 0.442, which greater than 0.05, we do not reject Null hypothesis and conclude that, based on the information gathered, write off ratio is not a determinant of microfinance efficiency of MFIs in Tanzania.

Risk coverage ratio

This also falls under the group of the variables which were found not to influence microfinance efficiency in Tanzania. With p value equal to 0.582, which is greater than the required level, we do not reject null hypothesis and confirm that microfinance efficiency, as measured by OSS, is not influenced by RCR.

5.2 THE EFFECT OF MICROFINANCE EFFICIENCY ON SUSTAINABILITY OF MFIS.

Regardless of the MFIs legal structure, continued market penetration and increased competition makes sustainability more elusive goal without corresponding improvement in efficiency (Brand and Gerschick, 2000). This suggests that microfinance efficiency fuels the sustainability of any MFI. This part intends to cover objective number two of this research study which aimed at finding out the effect of microfinance efficiency on sustainability of MFIs in Tanzania.

By using the econometrics results presented in table 4.5, we are going to discuss the impact of microfinance efficiency, as measured by the selected and used variables in the regression analysis, on sustainability, particularly operating self sufficiency. This has been achieved by looking how such variables correlate with operating self sufficiency variable. This is to say coefficient correlations from the econometric results obtained have been used to achieve specific objective number two. In addition, the results obtained for this objective are linked with what have been done by the previous researchers.

Written off ratio (WOR)

Not every loan in a loan portfolio may turn out as expected, however some may turn out to be poor. When MFIs are faced with poor portfolio quality, among other ways, they may write off the loans from their books. (Lafourcade et al., 2005). The ultimate impact is to reduce profitability since the bad debts written off form part of the operating expenses of an MFI. From the econometrics results presented in table 4.5, a negative coefficient of correlation of -0.25336 was revealed. As expected, this indicates that write off ratio as independent variable moves in opposite direction with operating self sufficiency. The coefficient of correlation of -0.25336 obtained for this variable indicates that we would expect a decrease of percentage change of 0.25336 in operating self sufficiency for every one unit increase in WOR.

Number of active borrowers per loan officer

The number of active borrowers per loan office which is also known as loan officer productivity ratio measures the productivity of loan staff (Microrate, 2003). It is expected therefore, other things held constant, the more number of borrowers are accommodated by a single loan officer the less is the MFI's operating expenses and hence the higher the operating self sustainability. The coefficient for the number of borrowers per loan officer is positive. This indicates that, microfinance efficiency is associated with larger number of borrowers served by loan officer.

The results show coefficient of correlation of + 0.2639703, other things held constant, this can be interpreted that for each one point increase in BPLO, operating self sufficiency increase by 0.2639703%. The result is in line with those by Nyamsogoro (2011) and Gonzalez (2007). However this information should be interpreted with caution because if the number of borrowers goes beyond the reach, efficiency may fall as the loan officers may get difficulties to make follow up their customers which may end up increasing portfolio at risk.

Risk coverage ratio

An efficient MFI sets aside part of its profit known as loan loss reserve for some loans which are unlikely to be recovered beyond a certain specified period. This ratio measures how management is prepared for worst possible case scenarios. (MicroRate, 2003; and Nyamsogoro, 2010). How this as a measure of microfinance efficiency affects the operating sustainability depends on individual MFIs and their default risks which differ among MFIs. The econometric result in table 4.6 indicates a negative coefficient of correlation which means that the decrease in microfinance efficiency is associated with the increase in risk coverage ratio. The intensity of their relationship is as shown in table 4.3.

Cost per borrower

The cost per borrower, as a determinant of MFI efficiency, indicates how much it costs to serve one loan client. Other factors held constant, the lower the cost per borrower the higher the sustainability. The negative coefficient of this variable conform with the profitability theory which states that other factors held constant, the lower the costs the higher the profits. In addition, this finding confirms the results obtained by Nyamsogoro (2010) in which the negative correlation was observed for CPB as measured against sustainability.

Loan size

The effect of loan size on the microfinance efficiency in Tanzania was also measured. The regression analysis result indicates that there is a negative relationship between loan size and microfinance efficiency. This is contrary to what was expected from microfinance literatures (as presented in table 4.5). Although the finding contradicts with those obtained by Nyamsogoro (2011) Gonzalez (2007) that higher costs are associated with smaller loans. On the other face, the finding is in line with the one by Cull et al (2007).

Number of borrowers

The microfinance efficiency is said to be influenced by the size of an MFI. Among others, the size of an MFI can be measured by the number of borrowers. The higher number of borrowers, keeping other factors constant, the higher an MFI is efficient due to the potential dilution of fixed costs over a larger base. On the other hand, if the number of borrowers increases beyond the limit, they may become unmanageable and hence affect negatively the microfinance efficiency.

The results from the econometric analysis indicate the negative correlation between number of borrowers and the microfinance efficiency as measured by OSS. This finding is in line with that by Nyamsogoro (2011) that increased number of borrowers in itself does not improve microfinance efficiency. In addition the study confirms the one done by Gonzalez (2007), however Gonzalez didn't find any reduction in cost when the number of borrowers exceeded 5,000. This confirms the fact that there is an optimal level, in terms of number of borrowers, beyond which the microfinance efficiency cannot exceed, and perhaps may start deteriorating.

5.3 MICROFINANCE EFFICIENCY: PERFORMANCE AND TRENDS.

This part intends to cover objective number three of the research study which focuses on reviewing the MFIs' trends and performance in terms of their efficiency as measured by efficiency indicators. Although the performance of MFIs differs among themselves, it is believed that MFIs of the same type will, to some extent, exhibit the same trends.

This paper therefore will assess the efficiency trends based on the types of MFIs by using the identified different efficiency indicators whose information was obtained from the MIX market database from 2007 to 2011. In addition, during the discussion, the information obtained direct from the field will be used to figure out the challenges and opportunities available.

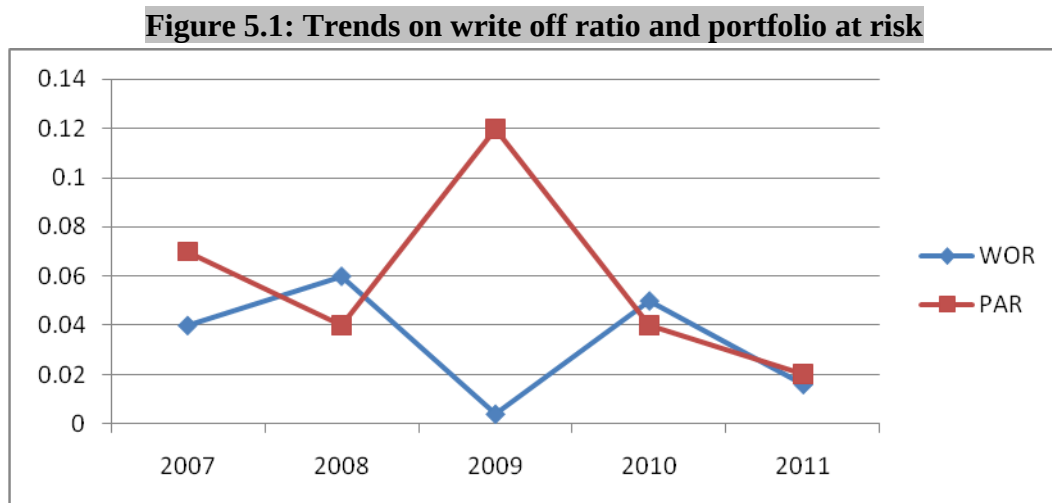
The performance and trends of MFIs in Tanzania in terms of their efficiency make use of ratio analysis and the results obtained are compared and interpreted over time and across MFIs according to their types. In addition, the reviewed results from other researchers are compared against the results from this study. For the purpose of this study, two types of MFIs whose trend & performance were established are NGO-MFIs and Formal Financial Institutions (i.e. Banks-MFIs). The intention was to know how the efficiency trend and performance may differ among different MFIs over time.

Borrowers per loan officer

As explained earlier, borrowers per loan officer measures the efficiency with which MFIs utilize their personnel, particularly loan officers. It is expected that, other things being equal the large the number of borrowers per loan officer means efficiency utilization of loan officers. However, this ratio should be interpreted with caution because if the number of borrowers goes beyond the reach of loan officers, some loans may never get recovered as number of clients per officer may be unmanageable above certain limit. Therefore, the trend of this indicator should be interpreted and linked to portfolio at risk and write off ratio. There was a decreasing trend in this indicator as the number of borrowers per loan officer for NGO-MFIs ranged from 277 in 2007 to 178 in 2011. On the side of Banks MFIs there was also a decreasing trend as the number of 321 in 2007 to 179 in 2011. The reasons for this decreasing trend may differ among MFIs, but it was revealed that some of the reasons that contributed to that trend are; the labour turnover ratio which, according to the information gathered, is higher for NGO based MFIs. Increased competition in the industry is also pointed out to be among the other reasons.

Portfolio at risk and write off ratios.

Portfolio at risk (PAR) indicates the efficiency of MFIs in making collections. It is expected that the higher the number of portfolios at risk the higher the probability that loans will not get recovered hence MFIs inefficiency. On the other hand, written off ratio measures the loans that the institution has removed from its books of accounts because of substantial doubt that they will not be recovered. For NGO-based MFIs there was no steady trend for both write off ratio and portfolio at risk. The trends for the two indicators are shown in the illustration below.



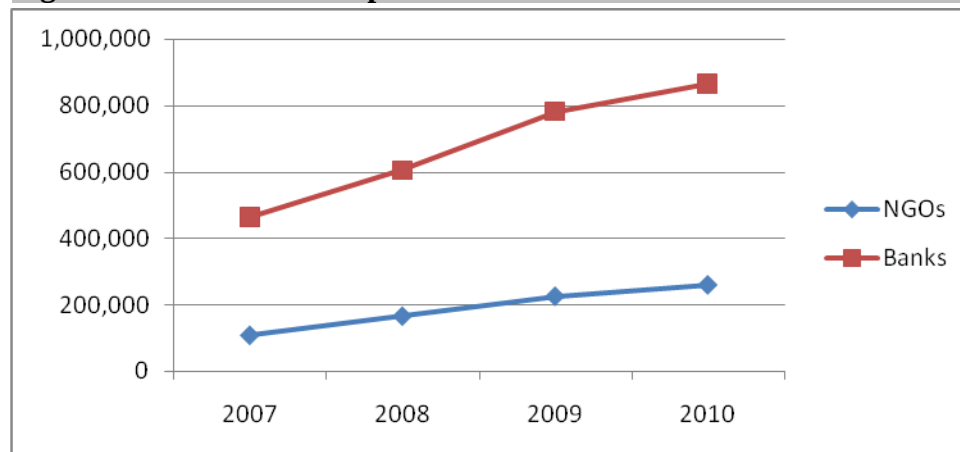
Source: Constructed from the data obtained from MIX, (2013)

Holding other factors constant, we expect the PAR and WOR to move together. Although this was witnessed in the last year (2010/2011), for the first two years (2007/2008 and 2008/2009) this was not the case as the two ratios are moving in opposite direction as shown in the illustration above. Since both variables involve judgment in estimations, among others, this could be the reason behind such trends.

Cost per borrower

Cost per borrower indicates how much it costs to serve one loan client. As stated earlier that, other factors held constant, the more an MFI reduces costs the more it becomes efficient. According to the data gathered, for both type of MFIs under study, there was a rising trend of cost per borrower as shown in figure below. However, the banks-MFIs have the highest cost per borrow with an average of TSH. 713,460 per annum between 2007 and 2011 while the average CPB for NGO based MFIs averages at TSH. 190,860 per annum from 2007 to 2010. The trend was in line with the one by Nyamsogoro (2010) who found out that, among all types of MFIs, FFIs is a leading type of MFIs in terms of cost per borrower.

Figure 5.2 Trends on cost per borrower for NGO-MFIs and FFI-MFIs



Source: Constructed from the data obtained from MIX, (2013)

From the primary data collected directly from respondents, among the factors said to increase this ratio to NGO-MFIs is labour turnover ratio in the industry, it is strongly argued that before MFIs start enjoying what is called learning curve, their employees tend to change jobs regularly, probably the reason behind this would be the low remuneration package given to those employees. However, another factor would have been the problem of regular electricity cut off in Tanzania; this tends to increase the operating expenses to MFIs.

The situation is worse more in remote areas with no reliable electricity. Therefore, the government effort in bringing electricity to such areas may play part in reducing cost per borrower for NGO based MFIs.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

6.0 INTRODUCTION

This chapter presents the summary conclusion and policy implication of the research study undertaken. The chapter is divided into three subsections, the summary, conclusion and policy implications. In addition, the chapter presents areas for further research.

6.1 SUMMARY

Recently the microfinance industry in Tanzania has experienced an increased competition. This has fueled the increased need of efficiency for MFIs to be sustainable enough and remain competitive. This paper, therefore, seeks to understand the impact of microfinance efficiency on sustainability of MFIs in Tanzania by using efficiency indicators as independent variables and operational self sufficiency as dependent variable. From the findings gathered, Out of the six independent variables used in the regression model, borrowers per loan officer, cost per borrower and number of borrowers were found to influence microfinance efficiency and hence the determinants of microfinance efficiency in Tanzania. The rest appeared to have p value greater than 0.05 hence not statistically significant. These are write off ratio, risk coverage ratio and loan size ratio.

The findings for number of borrowers per loan officers cost per borrower and number of borrowers appear to confirm the one by Nyamsogoro (2011) that they are the determinants of microfinance sustainability, which has been used as a measure of microfinance efficiency in this study. In addition, Borrowers per loan officer also appears to confirm the study by Gonzalez (2007). However, the findings for loan size appears to contradict the ones by Nyamsogoro (2011) and Gonzalez (2007).

Furthermore the study has revealed that microfinance efficiency does affect sustainability. Specifically, the study has revealed that, there is a positive correlation between borrowers per loan officers & number of borrowers and operational self sufficiency. While on the other side, the study has revealed that there is a negative correlation for write off ratio, risk coverage ratio, cost per borrower & loan size with operational self sufficiency.

In addition, based on cost per borrower, although there is an increasing trend of CPB over time for both types of MFIs; NGOs based MFIs are more efficient than the Banks MFIs.

6.2 CONCLUSION AND POLICY IMPLICATIONS

Whether the aim of an MFI is to make profit, to reduce poverty or both in any country, microfinance efficiency is inescapable. This is particularly the case for areas where the industry is experiencing growth of microfinance and the competition is becoming higher where MFIs can no longer pass their inefficiency to their customers through increased charged interest rates

From the above findings it is recommended that MFIs, particularly NGOs MFIs, to increase loan officers' salaries to reduce the labour turnover ratio. Also MFIs in Tanzania should arrange for in house training to keep their employees updated on how to improve microfinance efficiency due to ongoing environmental changes.

Despite the current 6.9% economic growth of Tanzania, it is argued by the government that, the level of poverty is still up, it is therefore recommended to policy makers to think of using MFIs to deal with this problem by increasing incentives and grants to MFIs which are scattered all over Tanzania particularly those capable of reaching the poor unbanked Tanzanians. However, the first priority should be given to those MFIs which have attained a high level of efficiency in their operations.

Since literatures and the findings as well suggest that the regulated MFIs are more efficient than unregulated ones, it is recommended to policy makers to take into account this and think of what should be done to have all MFIs regulated. This is an acute area to strengthen particularly in the countries like Tanzania with the highest level of poverty and Microfinance sector is growing fast. If this will not be taken into account, the said intention of having MFIs for poverty reduction will be reversed, and perhaps it has been reversed. This is to say the increased growth of MFIs may end up increasing poverty through increased interest rates charged to the unbanked poorest of the poor. In addition, this may end up reversing one of the famous quotations in microfinance literatures by Muhammad Yunus, the Peace Noble Price Winner of 2006 and founder of the Grameen Bank, who believes that credit is a human right, that every person has the right to credit to improve her/his livelihood and that once this right is established, the entitlement to other rights becomes easier. Instead, if MFIs are not regulated to enhance their efficiency, they may end up bringing chaos to most of Tanzanians, majority of who are poor unbanked.

6.3 AREAS FOR FURTHER STUDIES

Since, the study didn't take into account many variables which are believed to have an impact to microfinance efficiency, therefore, this study points out some areas that may require further studies.

- a) The study recommends further study on the relationship between the microfinance efficiency and the overall financial infrastructure within which MFIs operate.
- b) The relationship between information technology and microfinance efficiency is another area for further research.
- c) Furthermore, the study recommends further research on the impact of subsidies on microfinance efficiency of MFIs in developing countries.

- d) Since the study has highlighted some challenges facing microfinance efficiency of MFIs in Tanzania, researchers may step in and explore in details such challenges and what should be done to eliminate such challenges.

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APPENDIX I

QUESTIONNAIRE:

1. MFI name:.....
2. Is your MFI regulated?
 - a) Yes
 - b) No
3. Type of you MFI
 - a) Member based
 - b) Non governmental organization
 - c) Financial institution
 - d) Other (specify)
4. Key goal of your MFI
 - a) Poverty reduction
 - b) Profit making
 - c) Both
5. Is your MFI regulated
 - a) Yes
 - b) No
6. How do you scale the level of labour turnover in your MFI?
 - a) High
 - b) Medium
 - c) Lower

7. Do you think labour turnover affects the efficiency of your MFI?
- a) Yes
 - b) No
8. How frequently do you keep your employees up to date through in house training?
- a) High
 - b) Medium
 - c) Frequently

9. What are the challenges facing microfinance efficiency in Tanzania.

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