LOAN REPAYMENT AND SUSTAINABILITY OF GOVERNMENT REVOLVING FUNDS IN MURANG'A COUNTY, KENYA

BY

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DECLARATION

This thesis is my original work and has not been presented for any degree in any other University. No part of this thesis should be reproduced without prior authority of the author and/ or Kenyatta University.

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DEDICATION

This thesis is dedicated to my Wife Agnes Wanjiku, my mother Sarafina Njoki and our children Kevin, Eric, Diana, Ann and Stephen. All have really sacrificed on my behalf, in one way or another and have kept praying for my success. I further dedicate this thesis to Pastor James Muguro, Pastor Peter Mburu and Pastor Kuria James for encouraging me to push on despite the challenges of life.

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OPERATIONAL DEFINITION OF TERMS

Access to Finance	The availability of supply of a satisfactory amount of financial services at reasonable costs, where rational quality and reasonable cost have to be defined relative to some objective standards.
Collateral	Asset supporting the security of the loan
Credit Assessment	The process of determining the probability that borrower can and will fulfil the obligations of a loan agreement or other debt claim.
Credit Policy	This embraces all factors that are formulated, approved and used to appraise credit allocation and includes; lending policy, credit standard policy, credit term policy and collection policy.
Default	Failure by a borrower to honour payment obligations.
Deprivation	Lacking what is needed for well-being.
Poverty	A state of lack of usual or socially acceptable amount of money or material possessions.

Risk	The potential of losing something of value such as physical health, social status, emotional well-being or financial wealth which can be lost or gained when taking risk resulting from a given action.
Revolving Fund	A fund or account that remains available to finance an organization's continuing operations without any fiscal year limitation, because the organization replenishes the fund by repaying in small amounts and in instalments the money used from the account.
Rural credit	Any type of lending program or line of credit that is aimed at impacting a rural population in a certain way.
Sustainability	Ensuring that the institutions supported through projects and the benefits realized are maintained and continue after the end of the project.
Vulnerability	A state of being open to injury, or appearing as if you are injured.

ABBREVIATIONS AND ACRONYMS

ACLS	Agricultural and Credit Loans Scheme
AMFI	Association of Micro-Finance Institutions
CGS	Credit Guarantee Scheme
ICT	Information and Communication Technology
LDCs	Less Developed Countries
MFIs	Micro-Finance Institutions
MFL	Micro-Finance Lenders
MIS	Management Information Systems
MSEs	Micro and Small Enterprises
NGOs	Non-Governmental Organizations
RCLF	Registrar of Cooperatives Loan Fund
RMFIs	Rural Micro Finance Institutions
ROSCAs	Rotating Savings and Credit Associations
SG	Solidarity Group
SACCO	Savings and Credit Co-operative

VB	Village Banking
WEF	Women Enterprise Fund
YEDF	Youth Enterprise Development Fund

ABSTRACT

In the attempt to alleviate poverty and empower the deprived, many non-governmental organizations and Government line agencies have been providing revolving funds and social services to rural dwellers in Kenya. The role of these funds is to help the rural poor, to earn a decent living, through their on-going income-generating activities. The government of Kenya overtime has formulated a series of revolving funds to counter the problem. The most notable and current, is the Youth Enterprise Development Fund and the Women Enterprise Fund which were both conceived in 2006 and 2007 respectively. In these programmes, identifying the marginal borrower has not been a simple case owing to the complex interplay of costs, returns, and risks in credit markets. The role of the government in providing start-up funds and their relationship to sustainability is crucial. The main focus of this study was to analyze the loan repayment and sustainability issues of government revolving funds in Murang'a County. The study was guided by the following specific objectives; to analyse the effect of loan repayment and sustainability of government revolving funds; to examine the implication of socio-economic functions of groups to government revolving funds sustainability; to establish the effect of borrower characteristics to government revolving funds sustainability and to determine the effect of technology on government revolving funds sustainability in Murang'a County. The study adopted a positivism philosophy of research, where the researcher was independent on what was being observed and studied. Descriptive survey design was used to determine the level of government revolving fund repayment and its effect on sustainability for other borrowers. The target population was 1520 social and economic groups in Murang'a County. Clustering and Simple Random Sampling techniques were applied to select a sample size of 307 groups, in addition a census of 16 constituency credit officers, who were also interviewed. This, in total accounted to 19.5% of the total population. A questionnaire and an interview schedule were used to collect data. Descriptive data were analysed using tables and charts. Quantitative data were analysed using Chi-square, Analysis of Variance and Logit Regression Model. The results indicated that government revolving funds operation procedure, socio-micro group functions and borrowers' characteristics were statistically significance to loan repayment and sustainability. The influence on technology to government revolving fund was statistically non-significant to repayment and sustainability. The study recommended training of young individuals on how to run businesses at the earliest time possible for them to appreciate owning and running own businesses. The review of the education curriculum to reverse the teaching business studies in primary schools was recommended. The study conclude that the WEF and the YEDF need to be institutionalized to increase the overall amount and efficacy in projects launched by the groups and individual beneficiaries; that there is a dire need to reduce external reliance by weaning the WEF and YEDF away from dependence of

external sources including the government and that; though technology did not have a statistical relationship to loan repayment and sustainability in Murang'a County, the government should strengthen this facility to enable loanee follow-up and enhance early detection of defauters in order to take early action.

CHAPTER ONE

INTRODUCTION

1.1 . Background to the study

Micro-finance can be illustrated as financial instruments, such as loans, savings, insurance and other financial products that are tailored to the poor. The fund is set up in an economy to lessen poverty and to particularly benefit the poor in the society. Revolving fund on the other hand, is the lending side of micro-finance. Access to government revolving funds help the poor to be involved in income-generating activities, which motivate them to accumulate capital needed for investment and consequently improve their standards of living (Mokhtar, Nartea & Gan, 2011).

Thorsten and August (2006) stipulate that, access to finance is related to access to basic needs such as safe water, health services and education that is vital for living and lack of it is associated to many problems that are reported by developing countries. Access to finance refers to the availability of supply of reasonable quality financial services at reasonable costs, where reasonable quality and reasonable cost have to be defined relatively to some objective standards.

Access to general financial services including government revolving funds or outreach of the financial system has become a major concern for many policy-makers in developing countries. Moreover, while the use of financial services, which measures the access to having deposit accounts with all finance institutions reaches over 90% in developed countries, in many less developed countries, the use of formal financial services is still limited to a small

number of firms and households (Peachey & Roe, 2004). Indeed, the zealous financial sector reforms undertaken by many developing countries over the past ten years which are: doing away with interest rate controls and directed credit, liberalizing entry and privatizing state-owned financial institutions, have not led to the type of broadening of access to financial services that was initially expected in Kenya, particularly for lower-income households and small and medium-sized enterprises (Peachey & Roe, 2004).

Broad access to finances is related to the economic and social development agenda as stipulated by Boynton, Victor & Pine (1993). The study signified the importance of a well-developed financial system in a country for economic development and poverty alleviation and that access to government revolving funds services results to broader access to external funds which in turn allows talented newcomers to be empowered and set free from the disadvantages that would arise from their lack of inherited wealth and absence of connections.

Barnett, Barrett and Skees (2007) note that, targeting anti-poverty measures to such areas and groups noted above, would be cost-effective and a way of reducing and alleviating poverty. Policies and strategies that would increase consumption of the poor in general, should be the principal component of pro-poor development programmes that should be given preference.

Odudho (2000) argues that, it should be the role of every government to come up with policies that are pro-poor that would dismantle the poverty trap prevailing in the economy. This is because poverty is likely to be associated with activities that have negative

externalities on growth of a country which include; unsustainable exploitation of financial and natural resources, spread of crime and diseases, a lot of social unrest and political instability. A report to the legislature of the state of Hawaii (2009) asserts that; coming up with a revolving fund could be established with an appropriation of seed money from the general fund, could be given a trial by any government. A revolving fund though in small amounts according to the report must exhibit the capacity to be self-sustaining and activities financed by the fund, should be programs that are initially established by general fund seed moneys and then replenished through the repayment of loans.

1.1.1. Government Revolving Funds Programmes in Kenya

Revolving fund is the extension of small loans (micro-loans) to impoverished borrowers who typically lack collateral, steady employment and a verifiable credit history. It is designed not only to support entrepreneurship and alleviate poverty, but also to empower the neglected groups of the society in order to uplift entire communities by extension. The issue of the central government of Kenya intending to take resources down to the rural village has been there since Kenya's independence in 1963 (Chweya, 2006).

Different regimes overtime, have had almost similar plans but on different outfits for decentralization and poverty alleviation, though their execution has in all cases fallen far from anticipation. The notable plans that intended to decentralize the resources that have been attempted in the past includes the Majimbo (federal) System of 1963; that attempted to devolve resources to Counties that were formulated immediately after independence, but logistic problems at the time, from leaders who failed to agree and acknowledge the

importance of the system, made it not to last for long (Odudho, 2000). The Sub-county Development Grant Programme (DDGP) (1966), the Special Rural Development Programme (SRDP) (1969/70), the Rural Development Fund (RDF) and the Sub-county Development Planning (DDP)(1971), the Sub-county Focus for Rural Development (DFRD)(1983-1984), Constituency Development Fund (CDF) (2003), the Youth Enterprise Development Fund (YEDF) (2006) and the Women Enterprise Fund (WEF) (2007) and currently, the Uwezo Fund (UF) (2013). Through the Majimbo (federal) system, the resources were to be allocated to a devolved unit referred to as Jimbo. Later, the programmes were extended to smaller operation units known as Sub-counties and Constituencies respectively. The government was targeting each unit as the basic operational force and instrument for the design of rural development (Mitiambo, 2011).

In most communities in Kenya, women lack a highly long-standing employment history that traditional lenders tend to insist on. Most of them especially in the rural areas are un-educated and therefore, unable to fill up any paper-work required for getting conventional loans, (Sagwe, Gacheru, & Mahea, 2011). The Women Enterprise Fund (WEF) was established in Kenya in 2007 as a revolving fund and was basically meant to provide accessible and affordable credits and to support women start and/or expand business in order to create wealth and employment (GoK, 2012). On the other hand, the Youth Enterprise Development Fund (YEDF) as a revolving fund was established in the year 2006 by the government of Kenya, with the main aim of reducing unemployment among the youth, who account to more than 61% of the total population in the country (Sagwe *et al.*, 2011). The fund was to target 13 million youths aged between 18 to 35 years in Kenya.

The development of YEDF came as a result of various complaints of neglecting of the youths overtime. The complaints have gained a lot of support from the public, since the population of women and the youths has been growing at a very high rate, and employment opportunities have not matched to that growth. This scenario therefore shifted the focus to empowering the two important groups in order to enable them to become entrepreneurs and future employers, (Sagwe *et al.*, 2011).

The major barriers encountered by youths as noted by Amuya, Ouko & Onwong'a (2010) were lack of confidence, lack of start-up capital, as majority of them especially those living in the rural areas earning very low from their daily activities and lastly, the socio-cultural barriers that are prevalent as they have to perform multiple roles of familiar nature, irrespective of their career. The government was able to set aside Ksh1 billion revolving fund for each target group in the 2006/07 budget to fast-track this noble and timely initiative.

The approaches that are applied for providing revolving fund to small enterprises in Kenya are four in number as postulated by Rosemary (2001) which include group-based minimalist credit funds, lending to individuals, lending to community-based enterprises and integrated credit models. In the group-based approach, borrowers can use either newly formed groups or already existing ones. Based on newly formed groups, credit is provided to small groups that guarantee the loans to their members.

This approach as stipulated by the above study emphasizes responsibility in the selection of clients, appraisal, approval and collection of loans while at the same time cutting administrative costs, which at times is mildly done. Members are expected to make weekly contributions to a joint account in the name of the group and the lending institution, which acts both as a savings account for each member and a loan guarantee fund. Members can only receive a second and bigger loan after the first loan is repaid. Some members have been reported to be engaging with more than one group and have multiple loans without the knowledge of the financing agencies, as they are not able to access data amongst them.

Kimondo, Kihara and Njogu (2012) suggests that, sustainability of borrowed funds in revolving fund institutions may be well thought-out at several levels of institutional, group and individual and can link to organizational, managerial, and financial aspects. The study by Kimondo *et al.,* (2012) established that financial regulation, number of clients served, financial coverage and volume of credit transacted were reasons that highly influenced sustainability of public owned Micro-Finance Institutions (MFIs) in Murang'a Municipality which was a small zone. The study deduced that, sustainability of MFIs is a functional relationship of related and interconnection of factors. This study required to evaluate the role of loaning procedures, socio-economic functions, borrower characteristics and use of technology in determining repayment and sustainability of borrowed funds from government revolving funds in Murang'a County in a wider perspective, where the issue of financial sustainability of youth and women groups has drawn more attention in conventional analysis at the expense of the sustainability of the individual borrower.

In addition to low repayment rate and the question of sustainability of revolving fund loan funds as noted in the study by Sagwe *et al.,* (2011), many funds have been forwarded for initiating small group development programme and cheering group participation in sustainable revolving fund lending and borrowing. The dispensing of financial services to the poor and low-income people has changed significantly over the recent past. The long standing assumptions that the poor cannot be good customers of the financial institutions have been challenged by well-documented experiences, as indicated by the study. A number of revolving fund programmes have shown that low-income customers can use small loans productively to pay higher rates of interest for their loans. It has also been attested that the poor need saving services as much or more than credit services, (Kimondo *et al*., 2012).

1.2 . Statement of the Problem

Government of Kenya has initiated several revolving fund funds towards alleviating youth and women unemployment since independence. However, high default rate has affected the sustainability of the revolving funds. Studies done on government revolving funds in Kenya show a lot has been disbursed, but very little recovered (Hulme, Kashangaki and Muwanga, 1999; Wakuloba, 2006).

Opiyo (2013) asserts that, both the youth and women groups have started defaulting on loans given to start businesses and the default was accounting to 40% and the fund managers fear that the revolving funds could dry out very soon and deny opportunities to new borrowers. The study reported most borrowers having stopped servicing their loans completely.

In Murang'a County, according to Public Accountability Statement (GoK, 2012), out of Kshs. 4.35 million disbursed to the women groups about Kshs. 2.68 million have been recovered. The recovery rate was slightly above 50% since its inception in 2007. A study done by Kiraka, Koboa and Katuolo (2013) on Micro, Small and Medium term Enterprise loan recovery in 14 constituencies in Kenya distributed in Nairobi, Nyeri, Nakuru and Kakamega respectively showed an average loan repayment rate of 72% which was a remarkable repayment rate, but a common phenomenon to only a few constituencies all over the country.

Youth Fund Status Report (GoK, 2009) notes the loan repayment rate in two constituencies in Murang'a County, namely; Kandara and Maragua was 40%. Out of the Ksh.4 million lent out since inception of the youth enterprise development fund, only Ksh.1.5million has been recovered. There is a general fear that, if the issues affecting the repayment of the revolving funds are not addressed substantially, its sustainability will be elusive. It's on this basis that this research was conducted to establish the effects of loan repayment on sustainability of government revolving fund in Murang'a County, Kenya.

1.3 Objectives of the Study

The study was guided by the following objectives:-

1.3.1. General Objective

To analyse the effect of loan repayment and sustainability of government revolving funds in Murang'a County, Kenya.

1.3.2. Specific Objectives

i. Determine the effects revolving fund institutional operational loaning procedures to government revolving funds sustainability in Murang'a County, Kenya.

ii. Examine the implication of socio-economic functions of groups to government revolving funds sustainability in Murang'a County, Kenya.

iii. Establish the effect of borrower' characteristics to government revolving funds sustainability in Murang'a County, Kenya.

iv. Determine the effect of technology on the government revolving funds sustainability in Murang'a County, Kenya.

v. Analyse the role of SMEs Regulatory Framework to government revolving funds in Murang'a County, Kenya.

1.4. Research Hypotheses of the Study

The study was guided by the following Hypothesis;

H_{01}: There is no relationship between institutional operation procedures to government revolving funds sustainability in Murang'a County, Kenya.

H_{02}: There is no relationship between the socio-economic functions of groups to government revolving funds sustainability in Murang'a County, Kenya

H_{03}: There is no relationship between the borrower' characteristics to government revolving funds sustainability in Murang'a County, Kenya.

H_{04}: There is no relationship between technology to government funded revolving

funds sustainability in Murang'a County, Kenya.

H_{05}: There is no relationship between SMEs Regulatory frame-work to government revolving funds sustainability in Murang'a County, Kenya.

1.5. Significance of the study

This study results was meant to benefit government revolving funds managements in Murang'a County and Kenya in general since it will be crucial in policy formulation and decision-making in respect to government revolving fund institutions. The repayment of revolving funds depends on several variables, and this study was to ascertain the determinants of loan repayment and help to develop more innovative strategies of ensuring repayment is done in good time. The study will have vital significance to the people of Murang'a County as they will be enlightened importance repaying loans on time. Bills should be brought on board in parliament geared to put a framework for effective running of micro-credit institutions including the government funded revolving funds to ensure their sustainability. The MFIs regulatory framework should ensure it has influence in the control and operations of all the government revolving fund institutions.

Study results will contribute to the existing body of literature and form a basis for further research. It will also be significant to the researchers and scholars as it will form a background reference for future studies in government revolving funds sustainability. The study will also inform the policy makers' formalities of lending institutions of important

issues they need to consider in lending loans. This will help in developing more innovative strategies of ensuring sustainability of the government revolving fund.

1.6. Scope of the Study

This study on the loan repayment and sustainability of government revolving funds on the youth and Women Enterprise funds was carried out in Murang'a County which is a vast semi-arid region which is dire need of revolving funds due to high poverty levels. The County is located in Central Kenya where the inhabitants are dominantly businessmen or businesswoman and farmers. Ironically, the most notable alcohol consumers' in central Kenya are from the same region which in one way would affect on the revolving fund borrowing and repayment. The study respondents were either, the Chairman, Treasurer or Secretary of each group sampled and one credit per sub-county in the youth fund and women fund enterprise funds respectively. This was because they were in a better position of offering the relevant information on effects variables influencing revolving fund repayment in the groups and the region respectively. The research covered revolving fund loans disbursement and recovery between years 2009 and 2013.

1.7. Limitations of the Study

The fund officers were not willing to reveal information, which they took to be very confidential. The researcher assured all of them that the information they offered was to be held with a lot of confidentially, and was to be used for academic purposes only, in this research. Getting information from especially the illiterate group officials posed a great challenge to the researcher as they had difficulties in responding to questions from the

questionnaire. The research assistants helped in reading and interpreting the questions for the respondents.

The study findings could not be generalised to other financial institutions such as banks due to different financial policies governing different financial institutional operations. The study would have covered more institutions which deals with government initiated credits to provide a broad analysis but it only focused on findings on the revolving funds arguably taking care of the larger part of the Kenyan population, at the moment the women and the youths. In spite of the limitations above the quality of research was not affected.

1.8. Organization of the Thesis

This thesis is organized in five chapters; the first chapter deals with problem statement, justification and the scope of the study; chapter two dealt with empirical and theoretical literature on the government revolving fund repayment and other literature as prescribed by the objectives and chapter three deals with methodology, collection and analysis of data. Chapter four deals with empirical results and discussions while the last chapter deals with summary, conclusion and recommendations of the study.

CHAPTER TWO

LITRATURE REVIEW

2.1. Introduction

This chapter begins by analysing the theoretical and the empirical background of the study. It goes further to deal with literature that shed light on specific revolving fund institutional loaning operation procedures. Next, a critical review of the socio-economic determinants of loan repayment performance and their influence on revolving fund loan repayment is offered. The chapter has a reviewed the role of the borrower characteristics and the effect of technology on determining the revolving fund loan repayment and finally a summary of research gaps.

2.2. Theoretical Literature

2.2.1. Group Lending in Theory

Group lending in theory, also referred to as solidarity group theory was the main theory applied in this study which is the first and most often-discussed “solution” to information asymmetries in developing countries. In this theory, as postulated by Karlan & Morduch (2009), adverse selection and moral hazards are dealt with by effectively changing the responsibility of screening, monitoring, and enforcement from the lender to clients. The peer group, who normally consist of five or more individual group members, borrow a loan together in solidarity. Members are self-selected based on their reputation and relationship with each other. Group liability requires that in case one group member defaults, the fellow group members will be responsible for his/her payment. Under group liability funds then,

clients have an inducement to screen other clients so that only the trustworthy individuals are allowed into the programme. The study describes *group lending* as a means of addressing moral hazard by providing incentives for clients to employ peer pressure to ensure that funds are invested properly and effort exerted until the loans are repaid in full. By lowering default, the expected total cost of borrowing for borrowers can be condensed, improving welfare especially for households without collateral.

2.2.2. Principal-agent Theory

The principal-agent theory postulated by Jorge & Lic (2000) was developed on relationships between economic agents with different objective functions in which one party is the principal, delegates to another, the agent, some actions (control over resources) was observed. The theory studied different ways in which the principal could induce the agent to take actions that are beneficial to the principal but may not be optimal for an unconstrained agent. The agent's actions are induced by the principal by varying the incentives provided in the contract in order to make these actions attractive to the agent. In this research, some revolving fund institutions use agents to disband funds to the loanees.

2.2.3. Vita Theory

The vita theory of the personal income distribution was also observed; it states as postulated by Canterbery (1997) that, individual specific functions on income is attributed to the theory of income distribution, which stipulates that personal income differentials are attributed to education, experience, training, dual labour, race, gender and religion. In this research, the implication of income from personal initiatives as a result of education and training was

sought which found no statistical significance on education to revolving fund borrowing and loan repayment.

2.2.4. Unified Theory of Acceptance and Use of Technology

Unified theory of acceptance and use of technology advanced by Venkatesh *et al.*, (2003) holds that, there are four key constructs in technology, namely; performance expectancy, effort expectancy, social influence and facilitating conditions. According to the theory, the first three are direct determinants of usage intention and behaviour. In this theory, technology has a key role in determining performance and efforts applied in production units. The social construct argues that technology does not determine human actions but human actions shape technology. The fourth construct that deals with facilitating conditions is a direct determinant of direct behaviour and for actions to be realized, the facilitation conditions must be adequate and relevant. These constructs presence and execution makes technology used to be acceptable.

2.2.5. Four Capital Model Theory of Sustainability

University of Melbourne report (2011) on capital model of sustainability theory argues that, there are generally four different types of capital in each society. They are namely, Human, Financial, Environmental and Manufactured capital. To create and maintain the sustainability in the society, the four capitals mentioned above must be balanced in the society. As an example, too much attention to human or manufactured capital may affect the environmental sustainability. This model put all the capitals next to each other and sustainability cannot be

achieved without maintaining a balance among them. In this study, variables were put next to the other to ensure loan is repaid and is sustainable for others to borrow.

2.3. Empirical Literature

2.3.1. Sustainability of the Revolving Funds

Sustainability relates to the ability of a programme to continuously maintain its activities and services to meet its objectives. For revolving fund operation to be effective and successful there should be sustainability (Jamal, 2003). Study by Desta (2009) postulates that, the issue of revolving fund sustainability has been receiving high attention recently as revolving fund lenders try to reduce poverty in developing economies. The challenge noted by the Desta (2009) was lack of evaluation and mapping out the progress made by beneficiaries of revolving fund towards sustainability, so that, decision-makers could be able to monitor and evaluate effectiveness of the program, and adjust accordingly.

Lemire, Pearson and Compbell (2002) assert that; a successful revolving fund revolving scheme requires a long-term commitment from government authorities, donors and other stakeholders, because time and effort are needed to establish the infrastructure and to build the necessary capacities. It takes even longer to develop the trust, group confidence and financial discipline on the part of borrowers to make such funds sustainable. Systems for monitoring and evaluating the funds' performance are important, and borrowers must be helped to graduate gradually to other systems of credit. Lemire *et el.*, (2002) found that the credit unions in Cameroon were slow to enlarge, but with the right combination of leadership, technical know-how and innovative capital injections and partnerships, this approach fostered both growth and sustainability to them. A magic solution of creating broad sustainable mechanisms for providing revolving fund services needs to be invented. The

above study suggests investigation of borrowers' aims, needs and strategies and to establish possible approaches of enhancing contribution to empowerment that does not unnecessarily increase borrowers' vulnerability.

Fisher and Siram (2002) stipulated that; by providing loans rather than grants, the revolving fund provided can turn out to be sustainable by recycling resources over and over again. The revolving fund industry has obligated to resolve the tension between a focus on poverty and a commitment to sustainability by integrating the revolving fund institutions and the groups into a matrix defined by two axes of outreach (or access) and financial sustainability;

High Sustainability

2. Sustainable financial services with access by target client	1 Sustainable financial service reach target group
Low Access	**High Access**
3. Highly subsidised financial services with low access by clients.	4. Highly subsidised financial services reach target clients

Low Sustainability

Figure 2.1: Combining Outreach and Sustainability

(Source: Fisher and Sriram, 2002: pg 1)

The review found that, the conventional financial sector may achieve financial sustainability but has little outreach to the poor clients (quadrant 2) in figure 2.1. The traditional efforts by non-governmental organizations (NGOs) may reach poor clients but often unsustainable (quadrant 4). Good revolving fund finance practices on the other hand, combine both outreach and sustainability in the virtuous (quadrant 1). Fisher *et al.,* (2002) observed that, there were a lot of people who were un-banked, which is a clear need for the provision of revolving fund intermediation at a mass scale. This could only be achieved through the combination of outreach (access) and sustainability.

The review further observed that revolving fund institutions have moved away from livelihood promotion and now should pursue financial sustainability through extending outreach, reducing costs and shifting transaction costs to borrowers. Fisher *et al.*, (2002) concluded that livelihood interventions may require direct engagement with market actors, and there is need to use innovations in livelihood promotion and to go beyond the old debate on modest credit verses integrated services to effect a sustainable change in the economic wellbeing of the poor people.

2.3.2. Micro-Credit Operation Procedures and Loan Sustainability

2.3.2.1. Loan Supervision for Repayment

Supervision according to Siddique (2007) includes visiting the spot of loan money investment; verify the goods in the spot along with the loan in a scheduled meeting. The supervision is to be carried out through the group leader regarding the proper utilization of the loan money in presence of other members. This is a participation and responsibility of all

members of the groups concerned. After taking the loan money, the investment of the same within specified time is to be ensured. Afterwards, all members are to be in touch with each other to ensure the intended investment is done. The group leader will take special initiative for the supervision and the revolving fund institution staff and other responsible persons concerned with loan will visit the spot of investment periodically. The utilization of the loan in question will be discussed regularly and necessary step taken in the meeting order to discover misuse in advance. Supervision is also intended to know the total status of the group and every member to ensure the loan purpose and capacity for investment of each other. In scheduled meetings, the members are supposed to express independent opinion regarding utilization of others loans for early detection of defaults.

Steel and Andah (2003) assert that, non-supervision of borrowers influences the loan repayment. Siddique (2007) postulates that, the general problem for lack of supervision of a member, affects the loan utilization and makes the members to absent themselves from group meetings. Again, if the loan is not supervised regularly, it encourages misuse of loan and members are not able to pay up their instalments, confidence on each other and the discipline of the group is hampered. Additionally, a lot of work will be created for the staff as they try to follow-up the loan defaulters, the members also lose confidence with the revolving fund institution and conceive wrong ideas of revolving fund borrowing and eventually, the individual group member loses his/her social status.

Steel *et al.,* (2003) assert that various supervisory methods can be used as reported by the study; off the-site surveillance, on-site examination, follow-ups and special assignment. Off-site examination entails analysis of prescribed reports submitted periodically by the revolving

fund institutions. The prescribed reports are meant to provide information on performance of institutions. On-site examination entails supervisory of the physical books, records and data to assess the accuracy of reports submitted and to review details of compliance. The follow-up site visits should be undertaken to discuss supervisory concerns raised during examination and to ensure conformity with recommendations. Special responsibilities involve on-site activities such as investigation with respect to concerns and needs to be enforced. Strengthened skills of supervisory staff in knowledge of methodologies and ways of tightening enforcement of reporting including application of sanctions for non-compliance with directives are lacking in most revolving fund institutions.

2.3.2.2. Business Plan Requirement and Loan Repayment

Stuhldreher and Jennifer (2006) stipulate that; access to sustainable financial services by small-holders is normally seen as one of the constraints limiting their benefits from credit facilities. However in most cases, the access problem, especially among formal financial institutions, is one created by the institutions mainly through their lending policies. The study notes that, this is displayed in the form of prescribed minimum loan amounts, complicated application procedures and restrictions on credit for specific purposes. For small-scale enterprises, reliable access to short-term and small amounts of credit are more valuable, and emphasizing it could be more appropriate in credit programmes aimed at such enterprises.

Linda (2001) notes that a business plan as a written document that describes in detail how a new business will achieve its goals. It lays out a written plan for marketing, financial sourcing and operation of the business. It's sometimes prepared for an established business

that is moving into a new direction. It is tailored to a particular industry and may target changes in perception and branding by the customer, client, taxpayer, or larger community. Business plans may be internally or externally focused to cover 3 to 5 years. Externally, focused plans target goals that are important to external stakeholders, particularly financial stakeholders. Internally, focused business plans target intermediate goals required to reach the external goals. They may cover the development of a new product or a new service. The financier requires the borrowers' credit history, the collateral securities in place, ability to meet the lenders' demands, whether demand for the product or service is adequate, whether the borrower has established a proprietary position and whether the business has a position in the market which is realistically projected and some of these information can be extracted from a business plan. The strength of the business plan must be substantial and the annual revenue estimates convincing for an existing business in order to get funding.

2.3.2.3. Financial Literacy Exposure and Loan Repayment

Opiyo (2013) notes that both the youth and women groups in Kisumu, have started defaulting on loans given to start businesses. The default is attributed to widespread financial illiteracy in the area. The default rate according to the study was at about 40% and the fund managers fear that the revolving funds could dry out very soon and deny opportunities to new borrowers. Funds managers according to the study on both the YEDF and the WEF in Kenya are concerned as most borrowers have stopped servicing their loans completely.

Thorsten and Augusto (2006) stipulate the need to move closer financial systems to the users. For this to happen, the authority needs to formulate market enabling policies, formulate financial literacy programmes and ensure financial products are tailored to specific groups

that are in place. The government role according to the study is the participation in the financial market and ensures enabling environment, deficiencies in financial literacy exposure requires more profound structural reforms, mostly outside the reach of even financial sector policy-makers and once effectively implemented, will increase access to sustainable credits and use of financial services.

2.3.2.4. Screening Mechanism for Loan Repayment

Muhammad (2011) observes that; unlike formal finance, informal lenders often attach more importance to loan screening than to monitoring the use of credit. The screening process usually involves the lender's assessment of the prospective borrower through non-credit transactions over a number of seasons, asking for references or personal sureties, asking questions from other people from the lender's village, and visiting the applicant's farm or business. In group lending, screening practices include group observation of individual habits, personal knowledge by individual money-lenders and recommendations by members of the group. In this lending programme, members are made jointly liable for the loans given and the joint liability plus the threat of losing access to future loans motivates members to perform the function of screening of loan applicants, monitoring borrowers and enforcing repayment. In most cases, the borrowers are very cunning and most of them lie to the lenders. In order to convince the lenders for higher amount of loans, and their ability to repay, some borrowers obtain some items from neighbours and friends and assume ownership for a while. Cheating takes place because these borrowers are able to access the loan officers' assessment schedule before-hand, which make them able to set the borrowed items in a manner they will not display suspicion.

Gine, Goldberg and Yang (2009) postulate that information asymmetries in Malawi coupled with costly enforcement of repayment influence and reduce the profitability of money lenders. The study notes that, when identification of clients is not possible, borrowers can obtain a fresh loan even if they have defaulted in the past by simply using a different identity. As a result, lenders are forced to offer the same contract every period or borrowers forced to surrender their personal identity cards, as they cannot tailor the terms of the contract to individual credit histories. Lenders sometimes are forced to respond by limiting the supply of credit, due to the inability to sanction unreliable borrowers.

2.3.2.5. Micro-Insurance and Loan Repayment

Barth, Gerard and Ross (2008) notes that saving is hard work in Kenya, and the Kenyan institutions are largely designed to make it easy to spend, and not to save. To address the issue of how saving might be increased among lower-income families, as per the study, a typology of saving policies needs to be introduced. The study by Barth *et al.,* (2008) discussed policies ranging from: - coerced (mandated) savings such as Social Security; programmes that make it hard not to save such as automatic enrolment in employer-sponsored savings plans; policies that bribe (or provide incentives for) people to save through, for example, savings matches; programmes like lottery-linked savings plans that actually get people excited to save. Most communities have experimented the use of one or more savings plans outlined above including insurance, but the study notes lack of an acceptable national saving plan in Kenya and recommends for its invention soonest possible.

Sabir (2009) asserts that micro-insurance is the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved. It is the insurance services to low-income people, traditionally underserved and underinsured. The insurance product is deemed to be targeted or sold the product to low-income people.

World Bank (2004) notes that, loans for agricultural production or livestock breeding in South Africa usually have longer terms than those for trade or small industry. In addition, rural households need financial services that are adapted to the agricultural cycle, such as savings funds to provide cash for the season in between harvests, or transfer funds for remittances for migrants who leave the rural areas for seasonal work. The study notes the need for agricultural insurance funds among small farmers who have to protect themselves against weather-related risks. Providing affordable insurance to small farmers remains a challenge due to the pooled risks involved (natural disasters causing damage to many clients at once). Institutions providing such insurance funds need to be reinsured by big international insurance companies to spread the risk beyond their geographic region. Even though profitability in agriculture is generally low and interest rates are high, it is possible for rural financial institutions to operate on a cost-covering basis and offer financial services to farmers.

2.3.3. Socio-Economic Function of Groups and Revolving fund Loan Sustainability

Efforts by the Government of Kenya to address socio-economic problems over the years have not been a success. The available data according to Ghada *et al.,* (2010), revealed that over 46 per cent of the Kenyan population are absolutely poor. Poverty in the urban areas is growing fast, and still remains overwhelmingly a rural phenomenon (Development Planning, Republic of Kenya, 2007). Three quarters of the Kenyan poor are found in the rural areas while the majority of the urban poor live in slums and peri-urban settlements (Republic of Kenya, 2004).

Mutua and Oyugi (2007) indicated that, about 73 per cent of the population of developing countries live in the rural areas, compared with only 33 per cent in developed economies. The poor attribute their poverty to a number of factors including: unemployment, lack of assets, lack of credit, inaccessible markets, corruption, poor health, illiteracy, insecurity and economic shocks. Poverty, according to the study above, is a multi-dimensional phenomenon that goes beyond the lack of incomes. This multi-dimensionality makes the poor vulnerable to multiple factors arising from the interactions of economic, political and social processes.

2.3.3.1. Livestock Income and Loan Repayment

Walker, Tschirley and Pequenino (2002**)** note that, the more level of education, the higher the income in Mozambique. The positive effects on income sources are most outstanding in small-business, self-employment and in non-agricultural wage employment. More educated household heads are remarkably less likely to engage in and earn reward from extractive self-employment activities and from agricultural wage employment. Walker *et al.,* (2002) found that the more the education one possessed, the higher they dash away from blue-collar

activities for generation of income. The study did not find the significance of crop and livestock income to the level of education, thus suggesting a technological stagnancy of agriculture, where increased capacity to process information from education is not a demonstrable advantage. Nevertheless, simulation of an improvement in the educational level of household heads has a major influence on poverty reduction.

2.3.3.2. Land Size and Income and Loan Repayment

Kibaara (2006) postulate that, even though high and sustainable economic growth in Kenya rural financial services is central to poverty reduction, studies done earlier, reveal that promotion of efficient, sustainable and widely accessible rural financial services (rural micro-lending) is key to achieving pro-poor growth and poverty reduction goals. This is because access to financial services plays a critical role in helping the poor widen their economic opportunities, increase their asset base and diminish their vulnerability to external shocks. However, most formal financial institutions do not serve the poor because of several challenges, notably: low effective demand/dispersed demand, high transaction and information costs, high levels of unmitigated risks and lack of power to command resources. The poor are disadvantaged in accessing productive resources such as land, credit and services and are vulnerable towards external economic shocks and natural disasters.

Kimani and Musungu (2010) observe that, rural plan policies for development in Kenya should be properly implemented. The study came-up with the following government policies that were voiced at the time, in the eve of independence in Kenya; land registration and consolidation to enable farmers to use their land as collateral for credits, training of farmers

on modern farming techniques, provision of quality seeds and fertilizers, agricultural extension services, marketing arrangements and better communication and infrastructure establishment to enhance farmers to sell their surplus produce. The government was to provide incentives for modernizing the traditional farming societies, and ensure all farmers take their children to school and family treated in health centres and hospitals. The government also was to ensure that farmers were given reasonable terms for credit. The study noted that, if revolving funds to agriculture are subsidized and interest rates lowered without lowering interest rates for non-agricultural funds, two effects would occur. First, 'an agricultural illusion' will be observed as other borrowers take advantage of the cheap funds and apply for agricultural loans, thereby increasing the demand (demand illusion) for agricultural loans. The availability of money allows credit to be ostensibly acquired for agricultural purposes but diverted to either consumption or non-agricultural activities or to more profitable investment. Second, a concessionary income transfer would occur and add to the skewed transfer of resources.

2.3.3.3. Crop Income and Loan Repayment

World Bank (2004) notes that, the rural areas lack legal environments enabling a sound development of the financial system. In more concrete terms, land tenure and property rights are frequently unclear in some areas and their administration is slow and inefficient. Law enforcement is costly and slow, and the court system lacks transparency and efficiency in Kenya. Any measures aimed to improve the above aspects will help promote rural financial systems. A land case in Kenya and issuance of title deeds takes ages before being addressed and is a great concern at the moment, affecting access to finances. Every country regulates its

formal financial sector through state laws and regulations and hence in order to accommodate a well-functioning financial sector, a country's legal and regulatory framework should be clear, transparent, promote competition among institutions. Given the particular difficulties of financial institutions operating in rural areas, laws and regulations should be designed to foster the development of rural financial institutions and services and to ensure rural dwellers are not excluded from the formal banking sector.

2.3.3.4. Other Source of Income and Loan Repayment

Mahajan and Ramola (1996) observe that, analysis of household perceptions of changes in their wellbeing over the past years provides regular results with the analysis of income determinants and severity of poverty. The study notes that, women-headed households are significantly disadvantaged in income compared to households headed by men. This finding applies particularly to widow-headed households who have less income than male-headed households, representing the combined effect of significantly lower income from crop production, livestock sales, resource extraction and non-agricultural wage earnings. Older household heads have lower income from off-farm sources, but higher levels of remittance income. The study found that, household asset base plays a crucial role in household income. Both land area owned and number of fields are positively associated with sources of income.

According to the study above, geographical location, infrastructure potentially affects household income-earning opportunities and there is a positive correlation between infrastructure and off-farm income opportunities. Those villages that were settled after

independence had higher household incomes than older villages. The older villages were associated with more poverty than the up-coming villages.

The presence of very young children according to Mahajan and Ramola (1996) was related with a small but statistically significant decline in household income. Older children were characterized by a small, but statistically significant improvement in income prospects. Adding a man to the household was correlated with a significantly greater gain in income than adding a woman to the household. Simulation of adding a young child to the family has a big effect on the severity of poverty and influencing loan repayment.

2.3.4. Effect of Borrower Characteristics to Revolving fund Sustainability

2.3.4.1. Spouses Influence and Loan Sustainability

Evidence from India and some other counties show that, even in financially successful revolving fund programmes, women are not necessarily the actual users of loans accessed in their names. Even when women use loan for their own activities, most of them remain confined to a narrow range of female low income activities. Increasing access to loans cannot be taken as an automatic indication of benefit to women, (Jameela, 2003).

The above study on revolving fund employment and diversion of loans observed that, the appearance of a woman in the loan register as beneficiary does indicate the woman was the beneficiary and does not imply that she actually used the loan for the purpose for which it was sanctioned. The study asserts that, diversion of use of loans is found at considerable rate

among women. They divert the loans to other uses due to poverty and circumstances prevailing at the moment. Sometimes the situation is too bad, like in sickness, and money that was borrowed must be diverted to take care of the emergencies in absence of the spouse input.

2.3.4.2. Loan Diversion

Khaleque (2010) asserts that diversion of loan is defined as the quotient of the difference between the total amount of loan received and the total amount of loan used for the proposed purpose and the total amount of the loan received. Alternatively, diversion of loan index is applied, which equals to the ratio of total amount of loan used, in proposed activity and total amount of loan received. The diversion rate lies between 0 and 1, and hence referred to as loan diversion index.

$$\textbf{Loan diversion Index (LDI)} = \frac{\textbf{Amount of loan not used in proposed activity}}{\textbf{Total amount of loan received}}$$

If LDI = 0 means the household has not diverted its credit from its proposed activity.

If LDI = E (1, 0**)** means the household has partially diverted its credit from its proposed activity. For example, if LDI is equal to 0.25, then it will mean that the household has diverted 25% of the received loan to other purposes other than the proposed ones. LDI = 1 means the household has fully diverted its credit from its proposed purpose.

2.3.4.3. Informal Borrowing and Loan Sustainability

Credit usage studies show that while there has been improvement in credit provided by the formal sector in rural areas, the formal sector only accounts for the tip of the iceberg of source of rural credit. A large part of rural financial flows are transacted in the informal sector and larger part of it appears to be unreported and poorly understood, (Mahajan & Ramola, 2006).

The Kenyan micro-lending industry as noted by Mohane *et al.,* (2000) is a rapidly growing market, given the increased disposable income and accompanying need for credit in the emerging market in our economy. The highly sophisticated formal banking sector according to the study provides services to established businesses and middle to high-income individuals, but limits services to low-income individuals and micro-businesses, almost entirely to the operation of savings accounts. This sector of the market is viewed by the formal micro-finance institutions as high risk and provides unsustainable profits because of the small size of the loans and related transaction costs that are proportionally high.

Mahajan and Ramola (2006) note that, a large part of rural financial flows, are transacted in the informal sector in India and larger part of the transaction goes unreported. Governments in most developing countries have been hostile to informal money-lenders whose transactions though unreported have been viewed as exploiters of helpless citizens. World Bank (2004) asserts that, interest rates guidelines given by most governments have been perceived as exorbitant and exploitative and some governments have gone as far as

legislating against the money-lenders. Regardless of this hostility, the outfits have survived in the developing world mainly because it has been more adaptable to rural conditions and more acceptable to rural people than formal sector credit agencies. Women in India have depended largely on money-lenders to meet their urgent and immediate credit needs, sometimes to pay loans that need immediate attention despite the very high rate of interest charged, (Jameela, 2003).

Rosemary (2001) postulates that; although it is not obvious that demand for credit far outweighs the supply, there are significant obstacles to the transformation of potential demand into revealed demand. The absence of supply creates a lack of demand expressed in low revealed demand. Due to market failure in the credit market, the transaction cost involved in obtaining credit was considered greater than the utility, prompting households to switch profits between activities as a way of financing working capital. This explains the existence of informal credit markets alongside formal credit institutions. The above study noted a lack of clear policy environment that affects the necessary incentive for enterprise, it also indicated the need for expanding the sources of rural credits, to enable increase of potential lending to SMEs, and need of institutions' concern on loan default and administration to reach more potential borrowers.

Lapenu and Zeller (2001) postulated that, socially cohesive groups pool risks by diversifying the members' asset portfolio so that their repayment performance is improved even in communities with high risk exposure. Groups with higher level of social cohesion as measured by the number of common bonds, have a better repayment rate. Results also

indicated that; it is not the level of physical and human assets of group members but the degree of variance of such assets among members, which leads to better repayment, by pooling risks among group members.

Kibaara (2006) notes that, in Kenya, the challenges that the community faces influence access to sustainable source of rural credits. The study reported the following challenges: Insecurity that has infiltrated the rural areas, the targeted robberies that attracts the money kept in the safe and that on transit in credit institutions, poor infrastructure and lack of proper policy framework to spur the growth of rural financial services. The study notes that the community associations' offer unregulated rural credit services which are not recorded anywhere. In case of the collapse of the association, the members have no recourse of recovering their deposits. The community association's personnel lack the necessary management skills required to run credit institutions, and at times high interest rates charged by credit institutions discourages borrowing.

Graig, Alain and Elisabeth (2004) observe that group lending typology is classified into three types: Village Banking (VB) where institutions make loans to groups of 20 or more, require no collateral, use joint liability, require savings as a mandatory part of the lending package, do not conduct extensive screening, and generally charge higher interest rates and give smaller loans than other institutional lenders. The Solidarity Group (SG) lenders; lend to joint-liability groups of approximately 5 individuals, usually require some kind of collateral, screen clients' businesses prior to lending and disburse bigger loans at lower cost on more flexible terms and the Individual Lenders **(**IL) disburse loans to individuals and require a

larger degree of collateralization, conduct much more screening, and give the largest loans and the best terms.

The above review stipulates that, merry-go-round were composed of less than 20 members who contribute a specified amount of money regularly. Members vote on who is to be given lump sum amount. The merry-go-rounds were most common with women mainly for the purposes of buying household items. The Rotating Savings and Credit Association (ROSCAs) variant is an advanced version of merry-go round where the members contribute some monthly shares and also disburse loans to members. They have their roots in the traditional mutual guarantee system. The actual number of ROSCAS in Kenya is not known, however, these associations provide credit to many low-income people. A typical ROSCA involves a group of 5 to 30 members. The merry-go round is embedded in the model. The association offers short-term loans to members at interest rates that range between 5-20% per period. Some ROSCAs and especially in Rift Valley are financially very strong and have managed to buy assets such as land and buildings.

2.3.4.4. Credit Scheme and Loan Sustainability

Linderman and Thurmier (2000) assert that, the government of Sierra Leone has been silent on the matter of informal sources of credit. Attention has, however, been focused on the establishment of credit funds including the Agricultural and Credit Loans Scheme (ACLS), the Registrar of Cooperatives Loan Fund (RCLF), the Integrated Agricultural Development Projects QADPs) and the Credit Guarantee Scheme (CGS) for small-scale farmers. These

programmes had failed to meet their objectives and most of them have collapsed in Sierra Leone. The Rural micro-finance institutions (RMFIs) were established to replace these failed funds with a view to mobilizing savings and providing credit to rural residents. In Kenya, the situation is almost similar as collapse of loans funds and starting of new ones is the order of the day. This has been due to high default rates, high transaction costs, mismanagement of financial institutions, charging interest rates that are below the rate of inflation, so as to remain in business.

Karlan and Morduch (2009) stipulate that competition maturity distinguishes the competent from the incompetent, the hardworking from the lazy, and the lucky from the unlucky. It thus adds to the risk that firms and individuals face. Ultimately, most people are better off, but the ride is not always pleasant, and some do fall off. The micro-financial services markets over the years have become increasingly competitive. The pace of change in market has been extremely rapid and customers have become much more sophisticated regarding financial matters, not hesitating to explore all the possibilities in order to find the best deal. The rate of technological change too, has been phenomenal, enabling micro-finance institutions and other financial institutions to provide a range of high-tech financial services.

The review above notes that, as competition and moral hazards continue to increase peer-group pressure which is vitally important to the success of group-based loans also rises. Women are vulnerable to peer pressure, and this partly explains why the group-based methodologies are more successful with women. Community pressure is very common where the group members themselves decide to “burn” any defaulter, by means of rejecting the person and begin to identify him/her in the whole community as that person who “never

pays". So the person in question is rejected so that he/she cannot enter into any other group in the vicinity. Community pressure exists in towns, but will not be so influential like in the rural settings.

2.3.5. Use of Technology and Revolving fund on Loan Sustainability

2.3.5.1. Data Mining for Loan Repayment

Wakuloba (2006) note a strong relationship between major source of income and cause of default in government revolving funds in Uasin-Gishu Sub-county. The study used descriptive survey design and observed that from year 2000 to 2005 out of 90,217,577.00 of loan disbursed to groups, only about 59,346,107.35 accounting to 66% has been recovered (appendix 5). To the study, borrowers were not repaying for their loans and defaulting rate was very high. The study recommended the need for strengthening the organisation's management information systems to facilitate provision of up-to-date loan repayment statements to borrowers and enable early detection of potential slow repayment, and defaulters who were on multiple loans in the sub-county. The study did not specify how much debt the borrower can comfortably handle and did not specify the income streams, and other obligations that could interfere with repayment.

Mathison and Manger (2006) observe that banks over the last three decade have transformed their business from paper to fully integrated ICT- enabled systems. In time, as stipulated by study, many micro-finance practitioners see ICT innovation as a key strategy in efforts to take revolving fund to the next level in terms of outreach and sustainability. With ICT

innovation, it's now possible to explore opportunities, to apply it closer to client interface, to create significant new efficiencies and allow micro-finance providers to save the hard-to-reach client in more remote areas.

On the other hand, credit-card services as noted by Mathison & Manger (2006) on the above study were introduced to reduce the high costs associated with small transaction lending. It's particularly important for unsecured credit for unspecified purpose, small transactions and pre-defined credit limits. Smart-cards technologies were introduced as part of revolving fund solution. The cards have embedded computer clip that could store client and transaction data, as well as process information. Smart-cards functioned as electronic passbook, thereby reducing reliance on printed receipts and as noted by the study were used in conjunction with biometric technologies (for finger print of client identification) thereby enhancing privacy and data security. Internet banking provided clients with real true information about account, and the ability to transfer funds between accounts. It also gave bank clients the flexibility to manage their financial resources deliberately at their own leisure.

2.3.5.2. Use of Credit Bureau for Loan Repayment

Mishikin and Eakins (2007) postulate that, the financial industry just like other industries are in business to earn profits by selling its products. To maximize profits, financial institutions develop new products to satisfy their own needs as well as those of their customers. Most micro-finance institutions as noted by the study have not done enough to lending to the retail customers. The lending to productive sectors of the economy has been negligible due to lack

of viable projects for individual borrowing. This was the major reason why the institutions have not been active in lending to some enterprises and the so called absence of loan repayment culture, which is costly when clients treats loans as grants or gifts.

The review note that the newly established credit rating bureau agent through the Central Bank of Kenya (2012) is to provide vital information about potential borrowers and has to make financial institutions more comfortable to lend to small and medium enterprising funds (SMES) and agriculture. They noted Commercial Banks as the only users of the credit rating bureau as per the time of the study. They accuse those mandated to make sure the credit bureau works to have embraced the pursuit of profit at the expense of ethics. It's the high time that all bottle-necks of credit reference bureau were dealt with, to extend services to all revolving fund finance institutions.

2.3.5.3. Use of Smart Cards for Loan Repayment

(Srivastava, 2004; Ghada, 2010) observe the efforts taken by banks in Uganda in trying to identify their customers using biometrics for final use by credit reference bureau. The studies indicated that banks and MFIs should not sit around and wait until the ideal policy; legal and regulatory environment has been created by government. They should continuously innovate to reduce costs, improve financial sustainability, and expand outreach.

Gine (2010) observe that the introduction of biometrics into the revolving fund sector improved the loan repayment rate in Malawi, borrowers' fingerprints were taken and according to the study, 40% of those whose fingerprints were taken paid their loans more

than those whose finger prints were not taken at all. Those whose finger prints were taken took smaller loans perhaps to be sure of their ability to pay. The study noted a considerable increase loan repayment which was much higher than the cost of outsourcing the biometric instruments. The study also noted that the use of biometrics helped to reduce multiple loans borrowing as well as the clients' transaction costs.

Gine, Goldberg, Sankaranarayanan, Sheerin, and Yang (2011) assert the importance of biometrics in monitoring and surveillance applications. The study note that the mechanism of likely extension of time and attendance processes to prevent hourly employees from punching time cards for their absent friends, which costs employers hundreds of millions of dollars annually. They are used in eliminating the need for multiple identification mechanisms. Biometrics according to the study helped to determine whether applicants were already enrolled under a different identity and thus prevented individuals from cheating the public sector benefits programmes by collecting benefits under multiple identities.

2.4. Rationale of Regulatory Framework in Revolving Fund Institutions

Regulation and supervision of revolving fund as asserted by World Bank (2012) is expected to lead to quality growth, broaden the funding base from revolving fund institutions eligible to minimize and administer deposits, broaden credit facilities and initiate process of integrating the institutions in the formal financial institutions. The regulation of the government revolving funds will enable the Kenya government to define procedures for her operations, entrance and exit of firms and groups; and ultimately create an environment for fair competition and efficiency in the sector. Adequate liquidity should be ensured as depositors and borrowers should be able to access funds without subjecting the institutions to solvency and attainment of acceptable rates of return.

2.5. Summary of Literature Review and Research Gaps

Jennifer (2010) notes that; despite the statistics and success stories, there are critics of micro-finance as a means of wealth creation. There are currently some 10,000 micro-finance institutions serving about million people; however, this is estimated to be only 4% of the people who actually need micro-finance assistance. Micro-finance is one of the world's largest untapped profit sources. Since the 1990s, the goals of micro-finance for investors have turned from donating to help the poor to investing to help their own financial returns.

From the literature review, some research has been conducted on default on government revolving fund funds and its effect to group disintegration in Kenya. Wakuloba (2005) noted that, the default rate was extremely high on the trade and development joint loans. The environment under study would be different from the area of study of the researcher which would provide different results. The researcher recommends the use of ICT and innovations (Smart cards/Biometrics or otherwise) to detect default in time, which the researcher intended to investigate and the extent of its use after the recommendations.

Rosemary (2011) observes that, loan rationing in the informal credit market is attributed to limited resource base. In conclusion, the study stated the need for expanding the capacity of rural sources of credits to enable increase potential lending to SMEs. The researcher did a study on the youth and women groups that have access to government revolving funds which would provide different results and recommendations.

Table 2.1: Summary of Literature Review and Gaps

Study by	Title	Findings	Knowledge gap	Focus on proposed study
Karlan & Morduch (2009)	Development of finance in USA	Customers have become much more sophisticated regarding financial matters	Technological change needs to be phenomenal	Use of innovations in revolving fund institutions
Desta, (2009)	Whether revolving fund programs Alleviate poverty and foster environmentally sustainable development. A Review of African Case Studies	Need to reduce external reliance by weaning government funded initiatives	Need to provide financial literacy education and revolving fund lenders to work closely with village leaders	Re-engineering delivery systems so as to improve on financial sustainability.
Limire, Perasoh & Compbell (2001)	Women and credit in Cameroon	Borrowers must be helped to graduate to other systems of credit.	Investigation of borrowers aims, needs and strategies to establish possible strategies enhancing contribution to empowerment	Solutions of creating large scale sustainable mechanisms
Fisher & Sriram (2002)	Beyond revolving fund: putting development back into micro-finance in India	The formal financial sector may achieve financial sustainability but has little outreach to the poor clients	Need to combine outreach (access) and sustainability	Need to use innovations in livelihood promotion
Njiru,	Loan defaulter	Client will be	Higher penalties in	Prosecution of

(2010)	crisis in Kenya	motivated to continue paying the loan if the interest rate is low	case of default	loan defaulters
Mishikin & Eakins (2007)	Financial institutions and market in United States of America	The higher the interest rate, the greater is the amount for future consumption	Change in consumer behaviour resulting to thrift	Increase in personal savings resulting from a shift in attitude concerning thrift
Muhamma d (2011)	Cost structure and sustainability in micro-finance institutions in Bangladesh	Borrowers are very canning and a lot of lying taking place	How to deal with borrowers that are liars	Finding ways to reduce cheating by group members
Walker, Tschirley & Pequenino (2004)	Determinants of rural income, poverty, in Mozambique	Neither crop nor livestock income sources are significantly associated with the level of schooling	Technologically stagnant agriculture where increased capacity to process information from schooling is not a demonstrable advantage.	Ensure knowledge acquired in school is reflected in group dynamics and activities
Mahajan & Ramola (1996)	Empowerment of women through micro-finance in India	-Women-headed households are significantly disadvantaged in income compared to households headed by men. -Older household heads have lower income from off-	Agricultural extension had no measurable impact on either net crop income or livestock sales	Analysis of farm and of the farm income in determining loan repayment and sustainability

		farm sources		
Wakuloba (2006)	Causes of default in government micro credit programmes. A case study of Uasin- Gishu sub-county trade development joint loan board.	-Lack of appropriate Management Information Systems (MIS) to be able to detect slow borrowers and potential defaulters. -Non-prosecution of defaulters is contributing to the rising trends in default	Determine how much debt the borrower can comfortably handle, income streams and any other obligations that could interfere with repayment.	How to intensify borrower follow-up to, improve recovery of outstanding loan balances accruing to slow borrowers and prosecute defaulters
Giné (2010)	Use of biometric in the micro- credit institution in Malawi	Increased loan repayment was far much higher than the cost of outsourcing the biometric instruments.	Improve loan recovery methods	Ensure innovations are applied to increase loan recovery
Lapenu & Zeller (2001)	Distribution growth and performance of revolving fund institutions in Africa	Social cohesive groups pool risks by diversifying the members asset portfolio	Need to broaden micro institutions clientele and to innovate in cost-efficient service delivery systems	Development of lending technology systems that are cost effective to loan creation and repayment
Rosemary (2001)	Formal and informal institutions' lending policies	-Need for policy measures to increase	Establishment of credit insurance scheme in protecting financial	Encourage the use of insurance scheme cater for to both the YEDF and the

	and access to credit by small-scale enterprises in Kenya: An empirical assessment	access of SMEs to formal credit -Need to expand the capacity of informal credit sources to enable SMES to increase their potential	institution against default risks	WEF
Jamal (2003)	Microfinance and loan repayment performance: a case study of the Oromia credit and savings share company(Ocssco) in Kuyu	- Need for a continuous supervision on loan utilization and training -Screening system efficiency	Need to test if there is some sort of association between loan repayment and purpose of borrowing.	Relationship between revolving fund loan repayment and the amount borrowed
Mahajan & Ramola, (2006)	Financial services for the rural poor woman in India	-Governments in most developing countries have been hostile to moneylenders	-Government initiatives perceived as usurious and exploitative	Survival of money lenders in the surroundings
Kibaara (2006)	Rural finance services in Kenya	-Poor road net work increases transaction costs -Lack of proper policy framework to spur the growth of rural financial	Lack of proper policy framework to spur the growth of rural financial services	Need to ensure necessary management skills in community associations

		services		

Source; Researcher (2013)

2.6. Conceptual Framework

Based on the preceding literature review and discussion, the systematic Diagram figure 2.2 was developed to show the relationship between the independent, moderating and dependent variables. A discussion on how each of the variables was operationalized is given below:

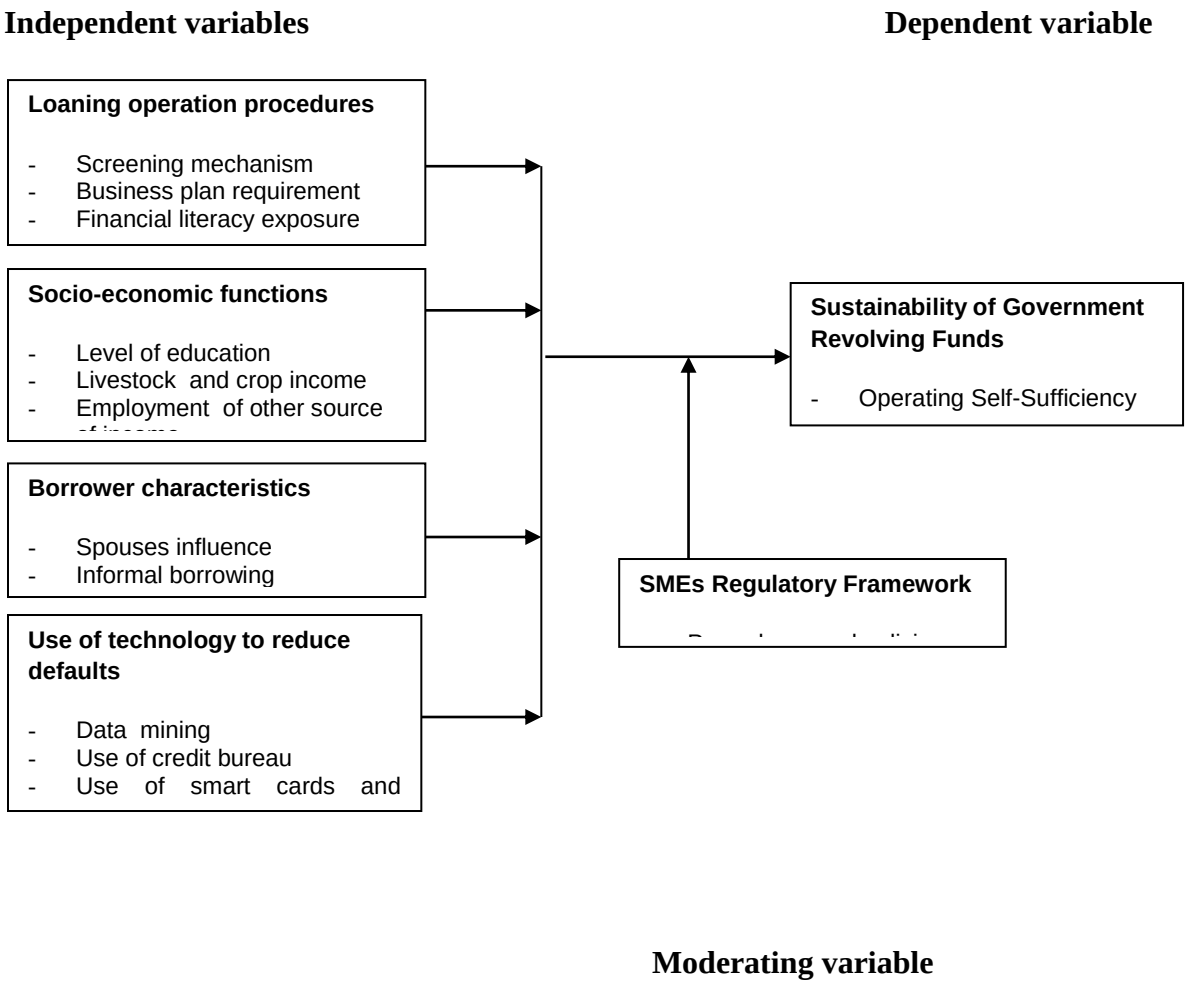

Figure 2.2 Schematic diagram

Source: Researcher (2013)

The dependent variable was measured by finding the amount received by revolving fund institutions, and compared with the total costs to the institutions to determine the operating self-sufficiency ratio (OSSR). The operating self-sufficiency according to Guntz (2011) shows whether revenue earned is sufficient to cover all operating, financial and loan expenses. If the trend is positive and the (OSSR) ratio greater than 1, implies that financial suitability has been identified. The revolving fund institutional loaning operation procedures were measured by checking the lending, information symmetry, screening mechanism and possibility and the effect of micro-insurance. The effect of the borrowers' characteristics was measured by the presence of spouse influence, informal borrowers and credit funds among others in the county.

The socio-economic functions were measured by checking the presence of group income-generating activity, level of education, presence of livestock income, land size if any, crop income available and off- the firm income if any. In this case, the income variation was measured by finding out the daily and monthly income exposed to individuals in different group members.

The legal and regulatory framework of revolving fund institutions according to SMEs finance policy guide (2011), establishes the rules within which all the financial institutions, instruments and market operate in a given county. It includes banking, insurance, leasing factoring and security laws as well the respective bodies of secondary regulations and guidelines. Sound legal and regulatory framework that are effectively enforced to promote

market development and competition while subjecting financial institutions and agents to sound and appropriate potential regulation and rules of conduct to protect consumer and depositors as well as to ensure market stability. Although a number of good practices already exist (e.g. credit guarantee funds, micro-finance, private risk capital), effective policies to support SME access to finance are lacking (SME policy index, 2009).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines how the study was carried out. It addresses the research philosophy and design, study locality, study population sample and sampling procedures employed. The research instrument used their validity and reliability, data collection procedures and methods to be used for data analysis.

3.2. Research Philosophy

The study adopted a positivism research philosophy which is an epistemological position that advocates an observable social reality that allows replication and end product that can be generalised elsewhere (Saunders, Lewis & Thornhill, 2009). In this model, the researcher is independent on what is being observed and what to be studied and how to study it, which is determined by objective criteria. Positivism as a philosophy adheres to the view that only factual knowledge gained through observation (the senses), including measurement, is trustworthy. In this study, the researcher was independent in the study and there were no provisions for human interests or intuition within the study.

3.3. Research Design

The study adopted a cross-sectional descriptive survey research design. The design was chosen because it ensured complete description of the situation, making sure that there is minimum bias in the collection of data and allowed data collection from sizeable population in an economical way (Cooper & Schindler, 2008). The design was appropriate in testing the

relationship between different components and variables to the current status of the government revolving fund loan initiatives repayment and sustainability. Mugenda and Mugenda (2003) and Sauders *et al.,* (2007) note that no single approach exists in isolation and can be mixed and matched to achieve optimal results of the study. In addition, survey method is perceived as authoritative by researchers as it allows the use of both descriptive and inferential statistics in data analysis. The data collected using this design can be used to suggest possible reasons for particular relationship between variables. It also allows the researcher to have more control over the research process and, when sampling, as it is the case in this study, it is possible to generalize findings that are representative of the whole population at a lower cost. Thus, the cross-sectional descriptive survey research design was found to be more consistent with the general objective of the study; to establish the effect of loan repayment and sustainability of government revolving funds in Murang'a County, Kenya.

3.4. The Empirical Model

Discrete regression models like the probit, discriminant and logit models as indicated by Gemma (2014) are ideal to use when the dependent variable is of a binary choice. Generally, any of the three models can be used as they tend to generate more or less similar results. The choice of any of the model is a matter of convenience. This study employed the logit model to examine the sustainability or (non-sustainability) of government revolving funds as a matter of personal preference. The following logit model was adopted as suggested by Gemma (2014)

$$Pr(Yi = 1|Xi) = f(\beta 0 + \beta i\ Xi + \varepsilon i) \quad \text{---------- (3.1)}$$

This outcome has more than one independent variable. The outcome of the logistic regression will be 0 or 1, where 1 indicates that the outcome of interest is present, and 0 indicates the outcome is absent. Logistic regression generates the coefficients and standard errors and significant levels of a formula to predict a logit transformation of the probability of presence of the characteristic of interest. The logit model estimates the probability of dependent variable to be 1(Y=1). This is the probability that some events have happened. Both logit and probit models are preferred because they help in overcoming weaknesses inherent in linear probability models such as heteroskedasticity and linearity problems (Muathe, 2010).

To measure the study's main objectives; to determine the effect of revolving fund institutions' loaning operation procedures to loan sustainability (X_1); to examine the implication of socio-economic functions to revolving fund loan sustainability (X_2); establish the effect of borrower' characteristics to revolving fund loan sustainability (X_3) and lastly to determine the effect of technology to the revolving fund institutions for loan sustainability(X_4), the multiple logistic regression model was applied as modelled by Gemma (2014):

$$\mathbf{Pr(Y)} = \beta_0 + \beta_1 \mathbf{X_1} + \beta_2 \mathbf{X_2} + \beta_3 \mathbf{X_3} + \beta_4 \mathbf{X_4} + \boldsymbol{\varepsilon_i} \quad \text{----------} \quad \mathbf{(3.2)}$$

Where **Pr** is the probability of presence of the characteristics of interest,

Y is the level sustainability of government revolving fund,

βj is a multiple (partial) regression coefficient ie the expected change in **Xi** assuming other **X's** are entirely held constant,

$\mathbf{X_1}$ = Loaning operation procedures,

$\mathbf{X_2}$ = Socio-economic functions,

$\mathbf{X_3}$ = Borrower' characteristics,

$\mathbf{X_4}$ = Use of Technology,

$\boldsymbol{\varepsilon_i}$ = Error term.

The effect of the moderating variable was sought out. Moderation as noted by Kenny (2013) indicates the effect of a variable to alter the outcome to be reported. In this study, the SMEs procedure and policies were the moderating variables. To test the effect of moderating variable, the above model was modified as follows as suggested by Kenny (2013).

$$\mathbf{Pr(Y)=}\beta_0 + \beta_1 \mathbf{X_1} + \beta_2 \mathbf{X_2} + \beta_3 \mathbf{X_3} + \beta_4 \mathbf{X_4} + \beta_1 \mathbf{M_1} + \boldsymbol{\varepsilon_i} \quad \text{---------- (3.3)}$$

Where $\mathbf{X_1}$ = Loaning operation procedures,

$\mathbf{X_2}$ = Socio-economic functions,

$\mathbf{X_3}$ = Borrower' characteristics,

$\mathbf{X_4}$ = Use of Technology,

$\mathbf{M}$ = Moderating variable,

$\boldsymbol{\varepsilon_i}$ = Error term.

Quantitative data were analysed using descriptive statistics and inferential Statistics (Logit Regression) using SPSS data analysis software program. The models helped to establish whether there was a zero-order relationship among the variables. If one or more of these relationships, are non-significant, the study concluded that the moderating factor was not likely to influence the results. If there is a significant relationship, the regression coefficient for indirect effect represents the change in Y for every unit change in X_i, and hence

influences the results. Qualitative data were analyzed through content analysis by capturing common themes and group. Final result of data analysis was presented through tables and figures for easy understanding and interpretation.

3.5. Measurement and Operationalization of Variables

The explanatory variables included in the model are described and categorized into loan operation procedures, socio-economic functions, borrower characteristics and extent of use of technology. They are operationalized and hypothesized to influence government revolving fund repayment and sustainability in a certain direction greater than or less than 1 as shown in Table 3.1

Table 3.1: Operationalization and Measurement of Variables

Category	Variable	**Operationalization**	**Measurement**	**Hypothesized direction of predictor**
Dependent variable	Micro- credit sustainability (Y)	Amount recovered or un-recovered over the Financial costs or expenses	Dummy variable based on actual data. If 1= government micro- credit initiative is otherwise 0 (two and below)	Positive
Predictors				
Loan operations procedures	Loan screening (X1)	Screening process in place	Dummy variable based on actual data If =1, screening undertaken otherwise 0	Positive
	Financial	Number of	Sum of management	Positive

	literacy Exposure (X2)	times exposed to training	judgement on 1-5 scale	
	Micro-insurance(X3)	The acquisition of insurance for the loan	Dummy variable based on actual data If =1, micro insurance undertaken otherwise 0	Uncertain
	Business plan requirement (X4)	Insisting on a business plan before a loan	Sum of management judgement on 1-5 scale	uncertain
Socio-economic functions	Livestock and crop income (X5)	Number of livestock and number of acres and land registration	Sum of management judgement on 1-5 scale	Positive
	Employment and other source of income (X6)	Income from other sources	Sum of management judgement on 1-5 scale	Positive
Borrower characteristics	Spouse influence (X7)	Extent of spouse influence to borrow	Dummy variable based on actual data If =1, spouse influence available otherwise 0	Uncertain
	Informal sector influence (X8)	Perception informal lenders	Sum of management judgement	Positive
	Loan diversion (X9)	Extent of loan diversion	Dummy variable based on actual data If =1, loan diversion preference otherwise 0	Uncertain
use of technology to reduce	Data mining (X10)	Frequency of data mining	Sum of management judgement on 1-5 scale	Positive

defaults				
	Use of credit bureau (X11)	Application of credit bureau by revolving fund institutions	Sum of management judgement on 1-5 scale	Uncertain
	Use of smartcards and biometrics (X12)	Degree of use of smart cards or biometrics	Sum of management judgement on 1-5 scale	Uncertain
Regulatory frame work	Procedures and policies (X13)	Legal framework to regulate revolving fund institutions	Sum of management judgement on 1-5 scale	Uncertain

Source: Researcher (2013)

3.6. Target population

The target population was 1,520 respondents which include 1504 groups and 16 constituency credit officers or fund managers from the socio-economic women and youth groups, dealing with government funded revolving fund found in the county as per the youth enterprise board (2013) and the Women Enterprise Board (2013).

Table 3.2: Distribution of the Population

STRATA **Sub-counties in Murang'a County**	**WEF groups Year 2013**	**YEDF groups Year 2013**	**Total (N)**	**Percentage of the total**
Gatanga	253	100	353	23%
Kandara	151	100	251	16.5%
Murang'a South	62	77	139	9.14%

Kigumo	42	67	109	7.17%
Mathioya	137	91	228	15%
Kiharu	79	40	119	7.8%
Kahuro	78	40	118	7.76%
Kangema	116	71	187	12.3%
Constituency credit officers	8	8	16	1.05
Total	**926**	**594**	**1520**	**100**

Source: Researcher (2013)

Table 3.2 shows the WEF and YEDF groups that are registered with the ministry of culture and youth services in Murang'a County. The county has been sub-divided into 8 sub-counties out of which 7 constituencies have been curved. Kiharu Constituency serves both Kiharu and Kahuro sub-counties. Results from the table 3.2 indicate that most groups for both WEF and YEDF were found in Gatanga Sub-county with 23% of the groups respectively. Kigumo and Kahuro Sub-counties had the lowest number of groups with 7.17% and 7.76% respectively.

3.7. Area of Study

The study was carried out in Murang'a County which is located in central part of Kenya and it boarders Nyandarua, Kiambu, Nyeri and Kirinyaga to the west, south, north, east irrespectively (Appidex1) according to Sasa News (2012). The county has eight administrative sub-counties namely Kangema, Mathioya, Kigumo, Murang'a South, Kiharu, Kahuro, Kandara and Gatanga and sub-divided into seven constituencies, namely; Kangema, Mathioya, Kigumo, Maragua, Kiharu, Kandara and Gatanga. The County has a population of 942,581 with men dominating with 51% and women with 49% according to the latest

Kenya census of 2009. Out of the total population in the county, 83.7% reside in the rural areas and 29% of the people living in the county are below the poverty level, earning an income of below one dollar (Kshs.85) per day.

The county lags behind in the provision of social and economic amenities such as schools, dispensaries, water supplies, tarmac roads and electricity. These variables have a lot of effects in revolving fund repayment and consequently the sustainability of the same. There are 1,504 active registered social and economic groups in the county according to Youth Enterprise board (2013) and the Women Enterprise Board (2013). These groups are distributed across the board, in agriculture, transport, commerce and women merry- go-round groups among others. There was 918 WEF and 586 YEDF registered groups by year (2013) respectively.

3.8. Sampling Design and Procedure

Clustering of the entire county into eight sub-counties and then applying a Simple Random Sampling technique to select a sample size of 307 respondents, which included 291 groups and 16 constituency loan officers was done. From every group sampled, one executive official was sampled using simple random sampling. In addition, a census of 16 constituency loan officers which entitled 8 constituency loan officers or the YEDF and 8 constituency loan officers for WEF were interviewed. This, in total accounted for 19.5% of the total population.

Mugenda and Mugenda (2003) formula to determine the sample size is given below:

$$\mathbf{n = \frac{Z^2 * P(1-P)}{\quad}} \qquad \text{----------} \qquad \mathbf{(i)}$$

$\mathbf{d^2}$

Where n was the desired sample size

Z = z values e.g (1.96 for 95% confidence interval)

P = percentage picking a choice expressed as decimal (0.5 used for sample size needed)

d = level of statistical significance set (0.05)

n= sample size

Sample size (n) = $\frac{(1.96)^2 * 0.5*(1-0.5)}{(0.05)^2} = 384$

$$\mathbf{n_f = \frac{n}{1 + (n)/N}} \quad \text{----------} \quad \mathbf{(ii)}$$

Where $\mathbf{n_f}$ = the desired sample size (when the population size is less than 10,000)

n= the desired sample size (n = 384) (when the population is more than 10,000)

N = the estimate of the population size (N = 1502)

Sample size (n_f) = $\frac{384}{1 + (384)/ 1520} = 307$

Saunders, Lewis & Thornhill (2009) note that, a sample size of 10% and above are counted to be ideal to represent the entire population. A sample size of 19.5% for this study would be even be better and help to check any type I or type II error that may arise. Table 3.3 below shows the sampling strategy that was undertaken to arrive at the required respondents.

Table 3.3: Sample Determination

STRATA **Sub-counties in the County**	**Total WEF and YEDF groups in Murang'a county (N)**	**Weighting from the total number of groups**	**Sampling rate**	**Sampled WEF and YEDF per sub-county**
Gatanga	353	23%	**19.5%**	69
Kandara	251	16.5%	**19.5%**	50
Murang'a South	139	9.14%	**19.5%**	27
Kigumo	109	7.17%	**19.5%**	21
Mathioya	228	15%	**19.5%**	44
Kiharu	119	7.8%	**19.5%**	23
Kahuro	118	7.76%	**19.5%**	23
Kangema	187	12.3%	**19.5%**	36
Constituency loan officers	16	1.05	**100%**	16
Total	**1520**	**100**		**307**

Source; Researcher (2013)

Table 3.3 shows the sampling procedure to arrive at the number of respondents. Probability sampling technique where the chance or probability is known and is usually equal to all cases was applied, Sauders *et al.,* (2007). After adding the WEF and YEDF together, a common rate of 19.5% per constituency was applied. To arrive at 307 respondents, 100% of the constituency loan officers were also included in the sample.

3.9. Data Collection Instruments

Data was collected using structured questionnaires that were administered with the help of research assistants (Appendix 3). Questionnaires had open and closed ended questions which were administered on drop and pick mode. Likert scale questions describing opinions on issues were used. Questionnaires as advocated by Mugenda & Mugenda (2003), are appropriate for research studies since they collect information that was not directly observable. The questionnaires were filled by individual chairman/treasurer/secretary in the youth groups and the women groups who rely on government revolving funding. An interview schedule (appendix 4) was administered to the constituency loan officers to investigate the procedures and policies in place among other issues. The items included in the initial objective (loaning operation procedures) were; screening mechanism, business plan requirement, financial literacy exposure and micro-insurance facilities. The succeeding objective which was the socio-economic functions; the items included were level of education, level of livestock and crop income and information of other sources of income. For the third objective (borrowers' characteristics), the items included were; spouse influence, loan diversion and informal lending and borrowing. The fourth objective which was the use of technology, the items included were; data mining, the use of biometrics smart cards, the extension of the credit bureau and lastly questions on the effect of SMEs regulatory framework to YEDF and the WEF.

3.10. Validity and Reliability of Instruments

3.10.1. Validity

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomena under study (Mugenda & Mugenda, 2003). It measures the meaningfulness and technical soundness of the research. To ensure validity, the content of the questions constructed were made to be related in line to the revolving fund industry. The respondents were needed to be familiar with the terms to be used in the questionnaire. The required data were collected from reliable sources; the language used on the questionnaire was kept simple to avoid any ambiguity and misunderstanding. The validity was also ensured through collection of data from relevant respondents' who were the constituency loan officers and groups' officials after the acquisition of permission from the University and the regional office of the YEDF and the WEF in Murang'a County.

3.10.2. Reliability

The Cronbach's alpha was used to estimate internal consistency reliability by determining how the instruments relate to each other in terms of question content, wording sequence form and layout during the pilot study and the actual study (Muathe, 2010). The questionnaires were tested on a sample of 4 respondents each from the different cluster using the simple random sampling approach. The pilot study sample however did not participate in the main study. It has been suggested by Zaiontaz (2013) that reliability of 0.7 is enough to predict tests or hypothesize measures of a construct. According to the study, it is recommended that a minimum of 0.7 for explanatory will work and a standard reliability of 0.90 for advanced practice should be applied. At times, if the Cronbach's alpha value is above 0.50, as indicated by the Zai**o**ntaz (2013), it's regarded as an indication of reliability. In this study, 0.5 was used to indicate reliability of instruments and the results for all items are summarized in Table 3.4.

Table 3. 4. Reliability Statistics

Factor	Variable	Number of items	Reliability
Loaning operation procedure	Screening mechanism	5	0.744
	Business plan requirement	9	0.853
	Financial literacy exposure	5	0.235
	Micro insurance	7	0.607
Socio- economic factors	Livestock and crop income	14	0.6
	Employment other source of income	7	0.803
Borrower characteristics	Spouses influence	7	0.765
	Informal borrowing	9	0.911
	Loan diversion	6	0.834
Use of Technology	Data mining	5	0.744
	Use of credit bureau	7	0.869
	Use of smart cards and biometrics	4	0.371

Source: Pilot Study data (2014)

The questionnaire lacks internal consistency in two variables that had a Cronbach's alpha of less than 0.5. These variables are financial literacy exposure of the respondents and use of smart-cards and biometrics which had a reliability of 0.235 and 0.371 respectively. These two variables were excluded in the data analysis. All the other variables had an alpha value above 0.5 indicating they were reliable as suggested by Zaiontaz, (2013).

3.11. Data Collection Procedure

Primary data collection processes involved obtaining a clearance certificate from the Ministry of Education, Science and Technology to conduct the research (Appendix 2) and a research permit (Appendix 2). It was also necessary to obtain consent from the Constituency loan officers before conducting the survey. Primary data was collected by the researcher and the research assistants who went around all the sub-counties in Murang'a County. Questionnaires used were closed and open-ended questions that enabled the researcher to collect quantitative data, while open-ended questions enabled the researcher to collect qualitative data. The quantitative data were necessary to guarantee a generalization of results and to statistically test the research model. The qualitative data was necessary to provide realistic explanations for quantitative data (Mugenda & Mugenda, 2003). Interview schedules with the constituency loan officers were done from April 15th to May 20th 2014.

Questions were selected and phrased in ways that resulted in people providing accurate information. The questions were read to the respondents and answers recorded by the interviewer especially the illiterate respondents who comprised a sizeable number. Those who were able to fill the questionnaires without assistance requested for more time to fill the questionnaires in full. The respondents were given three weeks to complete the questionnaires at their convenient time, but not all were able to fill all the questions in full. Some questionnaires accounting to 14.4% were not filled at all. The respondents were expected to provide data voluntarily and confidentiality of the information was assured by the researcher. Four days before the deadline date, the respondents were reminded to complete filling the questionnaires via mobile phones by the research assistants. The interviews were conducted to 10 constituency loan officers out of 16, through face-to-face partly by the research assistants and by the researcher. This approach allowed the researcher

to clarify doubts to ensure that questions were clearly understood by the respondents. Secondary data were collected using documented guideline where financial information related to the loans was collected.

3.12. Data Analysis

Several methods were adopted in this study in order to describe, illustrate and analyze data statistically. Descriptive survey data were summarized in tables and figures. Descriptive statistics allowed the researcher to digest and understand large quantities of data and effectively communicate to users the research study purpose (Cooper & Schindler, 2006). Content analysis by finding themes, patterns and relationships derived from structured interviews and observations was applied to analyze qualitative data. All the independent variables had an accompaniment of a number of factors which were combined and averaged to find the composite index (Appendix 7).

For empirical analysis of the study and for drawing inferences from population sample, bivariate analysis, that is the test of differences or measure of association between two variables at a time was applied. It employs the Pearson Correlation Coefficient which is a measure of the magnitude and direction of the linear relationship between two variables. The value of the correlation ranges from -1 to 1, where the sign of correlation coefficient indicates the direction of the relationship, (Mugenda and Mugenda, 2003). The absolute values of the correlation coefficient indicated the strength, with larger absolute values indicating stronger relationships. Significance of the variables was tested at (sig level of 0.05). The significance of each correlation is also displayed in the correlation tables. If the

significance level is very small (less than 0.05) then, the correlation is significant and the two variables are linearly related. If the correlation is (more than 0.05) then, the correlation is not significant and the two variables are not linearly related. Logit regression model was also applied to test the extent to which the independent variables predicted the sustainability of government revolving funds.

Before testing the fit of the model, multicollinearity analysis was performed to establish the possibility of a collinearity problem of the predictor variables having some explanatory power over each other. According Sosa-Escudero (2009), multicollinearity is a situation where correlations among the independent variables are strong. When this happens, it makes the estimated regression to fluctuate widely, making interpretation difficult. To measure the level of multicollinearity, the collinearity test was conducted using correlation analysis. The results were inferred by Variance Inflation Factors (VIF) analysis whereby, If (VIFs =1, there is no correlation), if (5>VIFs >1 as per Sosa-Escudero (2009), there is moderate correlation) and if (VIFs>10, there is high correlation, which is a problem) and also using the Tolerance Level that measures the extent of correlation, which is the degree to which one predictor can itself be predicted by the other predictors in the model. The higher the Tolerance level, derived as (Tolerance = $1/VIF_i$), the less the overlap between variables. The lower the tolerance value, the higher the degree of collinearity which is a problem. Tolerance value of 0.5 is generally considered acceptable (Sosa-Escudero, 2009). The study suggested that, a tolerance value of less than 0.1 almost certainly indicates a serious collinearity problem.

The overall fit of the model was tested using the log-likelihood and associated chi-square statistics. The contribution of each predictor variable was tested using Wald statistics.

Similarly, the open-ended questions were analysed through content analysis (ANOVA) where the researcher grouped common themes and drew inferences from the findings. Cooper and Schinder (2003) note that content analysis helps to bring issues into the forefront that would not have otherwise been captured through the use of structured questions in the questionnaire.

To arrive at the correct conclusion, it was also necessary to reduce the possibility of committing Type I and type II errors. Sosa-Escudero (2009) argues that in hypothesis testing, a Type I error occurs when the null hypothesis is rejected when it is true. Furthermore, type II error occurs when null hypothesis is not rejected. For any set data given, Type I and Type II errors are inversely related. The smaller the risk of one, the higher the risk of the other, hence reducing the possibility of committing a Type I error increases the probability of committing a Type II error and vice-versa. In addition, based on the real-life application of errors, a type I error is considered to be more serious and therefore, more important to avoid than a Type II error. In this study, care was focused on minimising the occurrence of both types of errors. Increasing the sample size helps to reduce the risk of committing both types of errors. The sample was fairly high, about 307. In addition, the P-values, which are important in estimating the probability of committing type I error when the null hypothesis is rejected when in fact it is true, were compared at 0.05 significant levels (Commins & Hazinski, 2000). Power test which is equal to (1-β) is probability of a test rejecting the null hypothesis when null hypothesis is false as reported by Black (2008) was computed. Table 3.3 provides summary of the analysis undertaken:

Table 3.5: Summary of Data Analysis Techniques

Research objectives	**Relevant question from the questionnaire**	**Level of data**	**Proposed analysis technique**	
			Analysis	**Hypothesis**
Loan operation procedure	Screening mechanism	Nominal	Mean and standard deviation	Multicollinearity analysis, logit analysis, Type 1 and II test, ANOVA test
	Business plan requirement	Ordinal	Mean and standard deviation	
	Financial literacy requirement	Interval	Frequency	
	Micro-insurance	Nominal	Frequency	
Socio-economic functions	Livestock and crop income	Ratio	Mean and standard deviation	Multicollinearity analysis, logit analysis, Type 1 and II test, ANOVA tests
	Employment and other sources of income	Ratio	Mean, Kurtosis	
Borrower characteristics	Spouse influence	Nominal	Frequency, Kurtosis	Multicollinearity analysis, logit analysis, Type 1 and II test, ANOVA tests
	Informal borrowing	Nominal	Frequency	
	Loan diversion	Nominal	Frequency	
Use of technology to reduce defaults	Data mining	Interval	Mean and standard deviation	Multicollinearity analysis, logit analysis, Type 1 and II test, ANOVA tests
	use of credit bureau	Interval	Frequency	

Source: Survey data (2013)

3.13. Ethics Considerations

Due to the importance of the information supplied by the respondents, the researcher was to observe certain research logistic and ethics considerations. This was to ensure trust with the respondents. The researcher was to ensure compliance with competence, confidentiality, integrity, and objectivity at all times. Researcher was to have an obligation not to communicate confidential information; and that any information that needed communication was done correctly and was only used for the purpose of this study.

CHAPTER FOUR

RESEARCH FINDING AND DISCUSSIONS

4.1. Introduction

This chapter consists of data analysis, presentation and discussion of the research findings. The chapter was divided into 4 sections; descriptive statistics, diagnostic tests, inferential statistics and model testing.

4.2. The Response Rate and Descriptive Statistics

From the study, the sample population under examine was 307 respondents who were sampled from the target population of 1502. A total of 261 respondents filled and returned the questionnaires; in addition 10 constituency loan officers were available for interview. This response rate was 85.60% of the total population. Mugenda & Mugenda (2003) and Saunders, *et al.,* (2007) have argued that a response rate of 50% and above is sufficient for a study and therefore response rate of 85.60% for this study was very good.

4.3. Characteristics of the Respondent

4. 3.1. Total number of Members per Group

The study sought to know the total number of members per group of the respondents.

Table 4.1: Number of Members per Group

	Classification factor	Frequency	Percent
Number of members of a group	5-10 members	45	17.2
	11-15 members	98	37.5
	16-20 members	57	21.8
	21 and above members	53	20.3
	Non -respondents	8	3.1
	Total	**261**	**100.0**
Ideal number of group members recommended	3-5 members	10	3.8
	6-10 members	131	50.2
	11-20 members	101	38.7
	Above 20 members	14	5.4
	Not sure	5	1.9
	Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.1 show that larger part of groups had between (11-15) members, making (37.5%) of the respondents and most of the respondents 50.2% prefer (6-10) membership per group from the current guideline from the YEDF and WEF of about (11-15). The results agree with a study by Graig, Alain & Elisabeth (2004) on how rising competition among revolving fund institutions affects incumbent lenders in South Africa, who indicated that groups of less than 20 members on average were ideal for effective running and control.

4.3.2. Gender, Marital Status and Position Held by the Respondents

The study sought to know the gender, marital status and the position held by the respondents

Table 4. 2: Bio-data of the Respondents

factor	**Classification**	**Frequency**	**Percent**
Gender of group members	Male	107	41.0
	Female	136	52.1
	Non- respondent	18	6.9
	Total	**261**	**100.0**
Position held by respondents	Chairman	57	21.8
	Member	44	16.9
	Treasurer	153	58.6
	Cashier	7	2.7
	Total	**261**	**100.0**
Marital status of group members	Single	71	27.2
	Married	159	60.9
	Widowed	11	4.2
	Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.2 on gender, show that a good number of respondents (52.1%) were female while 41% of the respondents were male. The findings did not find high disparity between the male and female membership. The results indicate the improvement on men acceptance to join groups owing to the fact that, very few men in Kenya were involved in group activities in the past. On the position held, majority (58.6%) of the respondents were group treasures, while (21.8%) of the respondents were chairmen. This implies that

information was mainly collected from the persons with correct information on majority of the groups. The marital status was sought and the findings were that majority (60.9%) of the respondents were married while (27.2%) of the respondents were single. This implies that the leaders of the groups were married; which is an assumption of more responsibility to most groups, but on the other hand may have effect on continuity as the young shy away from responsibility.

4. 3.3. Highest Level of Education of Respondents

This study sought to investigate the highest level of education attained by majority of the group members.

Table 4.3: Respondent's Level of Education

factor	**Classification**	**Frequency**	**Percent**
Highest level of education	Diploma	65	24.9
	Degree	42	16.1
	post graduate	10	3.8
	Others	144	55.2
	Total	**261**	**100.0**

Source: Survey data (2014)

From the Table 4.3, the level of education of most respondents amounting to (55.2%) indicated that their members had attained other forms of education (majority being form four and standard eight graduates). About (24.9%) of the group members had attained diploma

level of education. The study found that (16.1%) and (3.8%) of the group members had attained degree and post-graduate levels of education respectively. This implied that majority groups are made up of persons who have not attained beyond O-level certificate. The results support Walker, Tschirley & Pequenino (2002) on determinants of rural income. The results note the need to ensure knowledge acquired in school is reflected in group dynamics and activities, which is currently lacking. Low involvement of graduate with above O-level of education, indicate little use of education to group dynamics and activities.

4. 3.4. Respondent's Period of Membership, Age Bracket of Members

This study sought to investigate the respondent's period of membership and age bracket of the group members.

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Table 4.4: Group Period of membership and Age Bracket

Classification factor		Frequency	Percent
Period of years as a member	< 1 year	60	23
	1-3 years	110	42.1
	3-7 years	76	29.1
	8- 10 years	12	46
	Above 10 years	3	1.1
	Total	**261**	**100**
Age bracket of group members	Age 15-25	34	13.0
	Age 26-35	99	37.9
	Age 36-45	100	38.3
	Above 45	23	8.8
	Total	**261**	**100**

Source: Survey data (2014)

Results from Table 4.4 show that (42.1%) of the respondents period of membership was for a period between (1-3) years, (29.1%) of the respondents indicated that they had been members of the groups between (3-7). This implied that the majority of the respondents had been members of YEDF and WEF respectively for relatively a long period and were in a position of offering credible information on sustainability of government revolving funds initiatives. The age of the group members was crucial, it was found that (38.3%) of the group members indicated that they were aged between (36-45) years, (37.9%) of the group members were aged between (26-35) years of age, (13.0%) of the of the group members were aged between

(15-25) years, (8.8%) of the group members were aged above 45 years. The result suggests that age holds positive relationship to group formation and involvement in group affairs, while the minority and the old aged participating less.

4. 3.5. Relationship of Age and Children Number on Loan Repayment

This study sought to investigate the influence on age, marital status and number of children in determining the credit repayment.

Table 4.5: Influence on Age and Number of Children on Loan Repayment

Classification factor		**Frequency**	**Percent**
Members that are single are able to repay their loans promptly	not at all	95	**36.4**
	low extent	6	2.3
	moderate extent	63	24.1
	great extent	17	6.5
	very great extent	79	30.3
	Total	**261**	**100.0**
Members with young children and few in number are more committed to repay their loans	not at all	146	55.9
	low extent	14	5.4
	moderate extent	57	21.8
	great extent	26	10.0
	very great extent	17	6.5
	Total	**261**	**100.0**
Members medium aged children and medium number are more committed to their loan repayment	strongly disagree	140	53.6
	disagree	19	7.3
	neutral	47	18.0
	agree	30	11.5
	strongly agree	24	9.2
	Total	261	100.0
Members with aged children and high number are committed to their loan repayment	strongly disagree	121	45.1
	disagree	5	1.9
	neutral	31	11.6

	agree	41	15.3
	strongly agree	63	23.5
	Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.5 show that (36.4%) of the respondents believed that there was no relationship between marital status and revolving fund repayment. Likewise, (55.9%) of the respondents indicated that the youthfulness of parents has no relationship to revolving fund repayment. Other (53.6%) of the respondents indicated there is no relation being a medium aged parent and loan repayment. Some (45.1%) of the respondents indicated there is no relationship between the aged members' children effect on loan repayment, such that the children assist their parents in repaying loans. This finding does not support Mahajan & Ronola (1996) in their study on empowerment of women through micro-finance in India. It was observed that a positive relationship between the age of children and income existed. Older children were observed to help to contribute to family income which in turn improved loan repayment. Adding an extra young child was associated with extension of severity of poverty that influenced repayments.

4.3.6. Earnings and Repayment

The respondents were requested to indicate who among the members repay their loans promptly based on their monthly earnings.

Table 4.6: Earnings and Loan Repayment

factor	Classification	Frequency	Percent
Group members earnings and loan repayment	(Ksh0-3000)	69	26.4
	(Ksh 3001-5000)	71	**27.2**
	(Ksh 5001-10000)	66	25.3
	(Ksh 10001-20000)	28	10.7
	(Above Ksh 20,000)	27	10.3
	Total	**261**	**100**

Source: Survey data (2014)

Results from Table 4.6, shows that a good number of the respondents (27.2%) indicated that those group members that earn between (Kshs 3001-5000) are the best in repaying their revolving fund loans as they try to get higher amount in the next round. This finding does not support Mahajan & Ronola (1996) on empowerment of women through micro-finance in India. The study found higher income earning farmers to be more likely to repay their loans promptly.

4.4. Effect of Loaning Procedure on Repayment

The respondents were requested to indicate procedures that influence micro-credt loan repayment. The results are presented on table 4.7.

Table 4.7: Loaning Procedures and Revolving Fund Repayment

Variables	N	Mean	Std. Deviation
Personal account vital for loan repayment	261	3.45	1.383
Ability to repay loans depends on which institutions the borrowing was done	261	3.70	1.314
Administrative fee charged on borrowed amount effects repayment	261	3.86	1.234
Number of other loans an individual has effect on borrowing and repayment	261	3.88	1.198
Delay in loan processing influences borrowing and repayment	261	4.21	.933
Business plan essential to borrowing and payment should be mandatory	261	4.28	.856
Quality of services provided by revolving fund institutions effect repayment	261	4.29	.912
Flexibility of revolving fund institutions on lending determines loan repayment	261	4.30	.829
The borrowing terms put in place influence on loan borrowing repayment	261	4.30	.823
Valid N (list wise)	**261**		

Source: Survey data (2014)

The results in Table 4.7 show that the the larger part of respondents with (Mean score = 4.30) indicated that the borrowing terms put in place and flexibility of revolving fund institutions on loan lending influences the influence of repayment. Respondents with (M= 4.28) indicated that a business plan is essential to borrowing and payment should be

mandatory. Both variables had the lowest standard deviation of 0.823 and 0.829 respectively. The results from the findings indicate a mean (above 3.00) thus clearly showing that the loaning procedures has influence on revolving fund loan borrowing and repayment which was in line with the study by Stuhldreher and Jennifer (2006) on breaking the financial services barriers in USA which voiced the importance of a business plan before borrowing and lending. The study by Muhammad (2011) on the study cost structure and sustainability in micro-finance institutions in Bangladesh also voiced the importance to loan screening than monitoring lending and borrowing as part of loaning procedure. Currently, according to report by constituency loan offers in Murang'a County, business plan requirement was a formality.

4.4.1. Group Members' Failure to Save

The study intended to know the reasons why group members were failing to save resulting to poor repayment of revolving fund repayment.

Table 4.8: Reasons for not Saving

Reasons	N	Mean	Std. Deviation
No Knowledge of advantages of maintaining a financial buffer	261	4.18	1.001
No Pre-commitment measures to ensure the preference of savings dominates	261	4.21	.886
No motivation for savings to build a reserve fund to fall back	261	4.25	.909

Strong preference for current consumption to future consumption	261	4.37	**.788**
Valid N (list wise)	261		

Source: Survey data (2014)

Results in Table 4.8 shows that most of the respondents (Mean = 4.37) with the lowest standard deviation (Stdv 0.788) indicated that strong prference to current consuption results to low savings. Lack of motivation for savings to build a reserve fund to fall back had a standard deviation (stdv 0.909) and lack of pre-commitement measures to ensure preference of savings dominates (stdv 0.886) and lack of knowledge of advantages of maintaing a financial buffer in the group had a standard deviation (stdv 1.001). The mean as indicate by Table 4.8 were 4.25, 4.21 and 4.18 respectively. The findings were in line with the study done Barth, Gerard, and Ross (2008) on bank regulation that are changing in Kenya which had noted that saving is hard work, and many Kenyan institutions are largely designed to make it easy to spend, and not to save. The study recommendations of the means to improve savings including coerced (mandated) or otherwise should enforced. Most respondents (38.4%) supported a monthly visitation by the constituency loan officers and others for dissemination of information.

4.4.2. Multiple Lending

The respondents were requested to indicate whether instituutions in the constitiencies were failing to reduce multiple lending and borrwing. Figure 4.1 below provides the outcome:

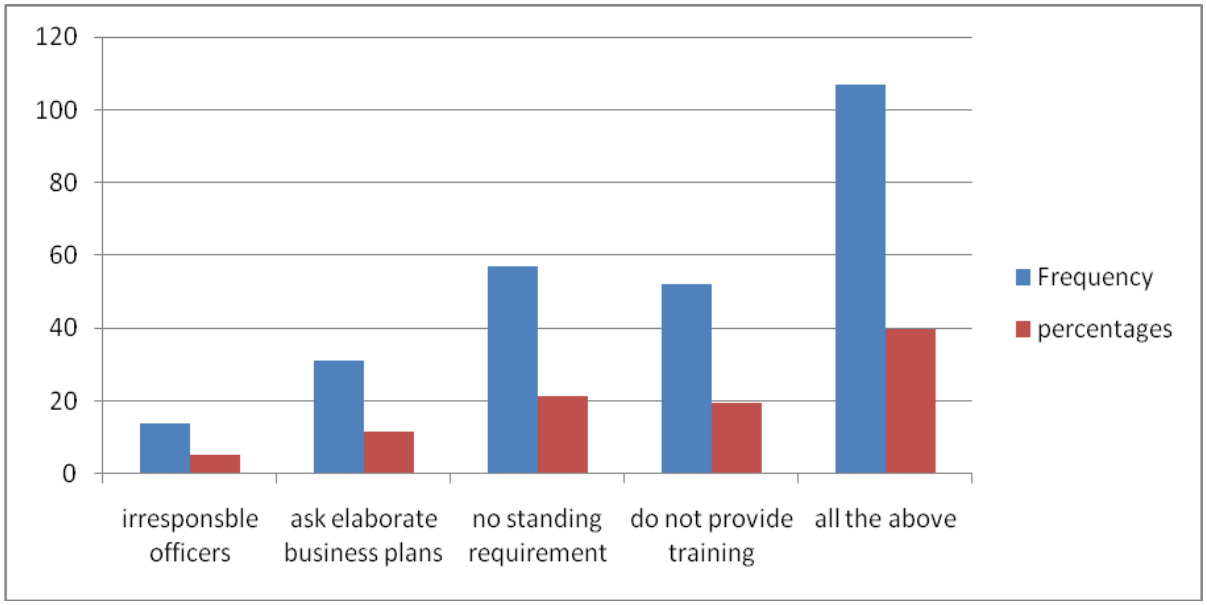


Figure 4.1: Multiple Lending

Source: Survey data (2014)

Results from Figure 4.1 show that a good number of the respondents (41.%) indicated that all the variables (ranging from irresponsible officers, lack of elaborate plans, lack of standing reqiurement and not providing training to borrowers as the key reasons that encourage multiple borrowing. About (5.4 %) indicated that, irresponsible officers are the main cause of multiple borrowing. Among the respondents, (19.4%) indicated that lack of providing training to borrowers on financial matters as the main cause of multiple borrowing. The results supports Wakuloba (2006) on the study of causes of default in government revolving

fund in Uasin-Gichu District who noted high existence of multiple borrowers and recommended the need for early detection of the multiple borrowers.

4.4.3. Extent of Loaning Procedure to Influence Borrowing and Repayment

The respondents were requested to indicate the extent to which screening mechanism, micro-insurance, denmand of business plan, use of smart-cards, amount lent out and administrative fees inlfuence revolving fund borrowng and repayment. The results are as indicated on Table 4.9.

Table 4.9: Loaning Procedure extent to Borrowing and Repayment

Category	N	Mean	Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Importance of screening on micro - credit borrowers	261	4.68	.736	.542	10.314	.300
Micro-insurance introduction to YEDF and WEF	261	4.44	.770	.593	4.143	.300
Every micro-institutions should demand on business plans before issue of borrowed fund	261	4.33	.863	.745	2.343	.300
Use of technology should be applied by every revolving fund institutions for mining data	261	4.02	1.259	1.584	.374	.300
Multiply the amount lent out to the groups	261	4.53	.797	.635	5.027	.300
Review the administrative fee upwards	261	3.00	1.777	3.158	-1.547	.300
Valid N (listwise)	261					

Source: Survey data (2014)

Results from Table 4.9 show that a good number of respondents (M = 4.68) and a lower standard deviation of (Std dev = 0.736) indicated the importance of screening on revolving

fund borrowers. Kortosis captures whether the actual distribution was more peaked or flatter than the normal distribution. From the findings, kortosis measure for impotant of screening was (K=10.34) showing how peaked the category was comparatively. The respondents with (M=4.44) indicated that introduction of micro-insurance to YEDF and WEF very much needed and should be hastened. The respondents indicated that loan screening mechanism was most vital aspect in revolving fund borrowing and repayment compared micro-insurance, demand for business plan, use of smart cards and administrative fees put in place to others.

4.4.4. Screening Process Taking Place in Most Groups

The study intended to know the screening process that takes place in the groups the respondents belonged.

Table 4.10: Screening Process in Groups Including the Interview Report

Category	Frequency	Percentage
Loan application and integrity checks	225	86.5
Technical assessment	12	4.6
Approval by secretariat based on ability	9	3.5
Ability to insure the loan	5	1.9
Collateral security checks	4	1.5
Proposed development criteria checks	3	1.2
Site eligibility checks	3	.8
Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.10 show that most of the respondents (86.6%) indicated that main screening processs they had come across was loan application and integrity checks, site eligibility checks had the least respondents (0.8%). The study by Muhammad (2011) asserts the importance of screening but warn the credit officers on borrowers cunning and lying that takes place in many villages.

4.4.5. Rounds of Borrowing and Amounts

The respondents were asked to state the number of rounds they had borrowed since the inception of both the YEDF and the WEF.

Table 4.11: Rounds of Issue and Amount Borrowed

Classification Factor		Frequency	Percent
Rounds of issue	Round 1	101	38.7
	Round 2	108	41.4
	Round 3	38	14.6
	Round 4	9	3.4
	Non-respondents	5	1.9
	Total	**261**	**100.0**
Amount borrowed	Between 10,000 and 100,000	137	52.5
	Between 101,000 and 200,000	89	34.1
	Between 200,001 and 300,000	20	7.7
	Above 400,000	7	2.7
	Non-respondents	8	3.1
	Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.11 show that large part of respondents (41.4%) indicated they had borrowed in the second round, showing most of them were not new members to the groups. (38.7%) of the respondents only borrowed in the first round. The results were in line with the challanges that were stated in 2009 on both YEDF and WEF status reports. The reports had indicated a negative perception and attitude on the funds as they were established on the eve of a general election and hence percieved as a political organization to influence voting parterrn particulary among the youth and women. The individuals concerned have proved the

asssetion to be not true and are now joining in numbers. On the other hand, many did submit their borrowing documents in good time, resulting to delay in release of funds and this accounts as to why they were in round one. The fund was not sufficient as reported by the YEDF and WEF reports to cater for the high demand and the expectation of the youth and women. This was another reason for the high rate of respondents in round one in 2013 survey. On the amount borrowed as indicated by the results on Table 4.11, most of the respondents (52.5%) had borrowed (between Kshs.10,000 - 100,000). Very few (2.7%) had borrwed above Kshs. 400,000.

4.4.6. Seminars Attendance and Workshops for Financial Literacy

The researcher needed to find out whether group members attend training/workshop/seminars for financial literacy.

Table 4.12. Attendance to Seminars and Workshops for Information

Category	**Frequency**	**Percent**
Attended training	221	82.5
Did not attend training	32	11.9
Non-respondents	8	3.0
Total	**261**	**100.0**

Source: Survey data (2014)

Results on Table 4.12 show that most of the respondents (82.5%) indicated they have attended workshops and seminars on financial literacy. Only (11.9%) of the respondents had

not attended any seminar. The results refect the positive initiative taken by the WEF and YEDF initiatives but still question on the (11.9%) who have already borrowed and have not being trained. The expectation should be (100%) training on all the groups. The results support the study by Desta (2009) on whether micro-credt programmes alleviate poverty in South Africa, who attributed the need to external reliance, provide financial literacy education and revolving fund institutons to work closely with village administration. The constituency loan officers confirmed the mild involvement of the village administration in indentifying members in their villages for financial literacy training but rarely involved during the proceess of loan rapayment. They are only involved when the deal does not materialize which needs to be checked.

4.4.7. Attendance Dates, Service Provide and Time Taken Analysis

The study wanted to find out the dates of training, service provision, and time taken and if there was any fee to be paid and lastly the organization that sponsored the training.

4.13: Attendance, Service Provided and Time Taken

Classification Factor		Frequency	Percent
Attendance of training	Yes	221	82.5
	No	32	11.9
	Non-respondents	8	3.0
	Total	**261**	100.0
Date and month of training	Last year(2012)	23	8.8
	Jan-April 2013	35	13.4
	May - Aug 2013	63	24.1
	Sep-- Dec 2013	52	19.9
	Not applicable	88	33.7
	Total	**261**	**100.0**
Time taken for training	Below 2 hours	68	26.1
	Between2- 4 hours	113	43.3
	Between 4-6 hours	27	10.3
	Above 6 hours	15	5.7
	Non-respondents	38	14.6
	Total	**261**	**100.0**
Training fees paid	Kshs 1-500	14	5.4
	Kshs 500-1000	2	.8
	Kshs above 1000	1	.4
	No fees paid	216	82.8
	Non-respondents	28	10.7

	Total	**261**	**100.0**
Sponsor	Government	70	26.8
	Youth fund organization	43	16.5
	Women fund organization	67	25.7
	NGO	2	.8
	Others	5	1.9
	Non-respondents	74	28.4
	Total	**261**	**100.0**

Source: Survey data (2014)

Results from Table 4.13 show that most of the respondents (82.5%) attended training. A good number of the respondents (24.1%) indicated to have attended training between (May - August 2013). Very few (8.8%) had attended training in 2012. This was an indication of poor structures in 2012. From the results, most of the respondents (82.8) indicated that they were trained free of charge. Concerning the sponsor, the WEF was the key sponsor followed by the YEDF accounting for (25.7%) and (16.5%) of the respondents respectively.

4.5. Socio-Economic Functions of Groups Effects to Revolving fund Loan Repayment

The study sought to examine the implication of socio-economic functions to revolving fund loan sustainability in Murang'a County, Kenya. First, the respondents were asked to indicate the sources of income for most of the group members and on average the amount they received from the source monthly. The respondents were also required to rank the source in oder of importance. The results are indicated on Table 4.14 below:

Table 4.14: Socio-Economic Functions Effect to Loan Repayment and Sustainability

Sources of income			**Average income received per month**			**Ranking**	
	Frequency	%	Income	Frequency	%	Frequency	%
Crop income	35	13.4	Between (1000 – 4000)	50	19.2	41	15.7
Self employment	35	13.4	Between (5000-8000)	68	26.1	34	13
Livestock income	33	12.6*	between (9000-14000)	80	30.7	31	11.9
Wage-income	61	23.4	Between (15000-19000)	23	8.8	58	22.2
Business income	97*	37.2	Above 20,000	6	2.3	83	31.8*
Total	261	100	Non respondents	33	12.6	14	5.4

Source: Survey data (2014)

Resuluts on Table 4.14 show that a good number of respondents (37.2%), had business as the source of their income. Livestock income was the least source, according to the (12.6%) of the respondents and crop income had (13.4%) of the respondents. The average income received by most members in the groups reported to be (between 9,000 and 14,000) accounting to 30.7% of the respondents. On ranking of the most important source of business income was ranked the most significant source of income accounting to 31.8%. The results was in agreement with a study by Walker, Tschirley & Pequenino (2004) on determinants of rural income, poverty, in Mozambique who indicated that positive effects on income sources are most pronounced in small businesses, self-employment and in agricultural activities.

4.5.1. Influence Land Tenure, Acreage and Registratin to Monthly Land Income

The study intended to determine the extent to which land tenure system and registration influence the average income from land per month. The results are as indicated in Table 4.15 below:

Table 4.15 Relationship of Land Tenure, Acreage and Registration to Monthly Land Income and Loan Repayment

Size of Land			**Land tenure**			**Average income from land per month**				**Registration title**	
Category	**F**	**%**	**Category**	**F**	**%**	**Category**	**F**	**%**	**Categor y**	**F**	**%**
Less than 1 acre	167	64.0 0	Self owned	19 2	73.08	Between 2,000 - 5,000	198	75.90	Land registere d	120	46.0

Between 1- 2 acre	38	14.60	Rented	4	1.50	Between 6,000 - 8,000	5	1.90	Land not registered	12	4.6
Between 3 and 4 acres and above	1	0.4	Rented out	2	0.8	Between 9,000 - 12,000	5	1.90	N/A	126	48.3
Non - respondents	50	19.20	Communal	6	2.30	Not applicable	53	20.30	4	3	1.1
			Not applicable	51	19.60	Total	261	100.00	Total	261	100.0
Total	261	100.0		261	100.00						

Source: Survey data (2014)

Results on Table 4.15 show that most of the respondents (64%) had land that was less than one acre and was self-owned accounting to (73%). Group members use their own farms for farming. Only (0.8%) of the respondents have rented land for farming. Most (75.9%) of the respondents indicated that they are able to earn between (Kshs 2,000 – Kshs 5,000) from farming per month indicating that most of them are subsistence farmers. A large amount of land in the county according to the repondents (46.0%) are registered and have title deeds. The results support Mahajan & Romola (1996) who argue that both land area owned and number of fields are positively associated with source of income.

4.5.2. Extent of Socio-economic Functions to Determine Revolving Fund Loan Repayment

The respondents were requested to indicate the extent to which size of the farm, land registration, and others influence revolving fund loan repayment. Table 4.16 shows results from the resposes.

Table 4.16: Extent of Social-Economic functions to Loan Repayment

Category	N	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Size of the farm determine micro credit repayment	261	3.95	1.142	.305	.300
Land registration is vital for security and has been used as collateral by most group members	261	3.89	1.218	-.595	.300
Distance of the revolving fund institutions has effect on borrowing and repayment	261	3.85	1.400	-.655	.300
The more the frequency the visit by group members, the better for information on loan repayment	261	4.36	.863	2.601	.300
It's important to know other group members. It helps to build cohesiveness that has effect to loan repayment	261	4.38	.830	2.575	.300
The continuity in a group determines the level of loan repayment	261	4.39*	.855*	2.989*	.300
Time of maturity of investment determines the repayment and sustainability	261	4.23	1.050	2.904	.300
Valid N (list wise)	261				

Source: Survey data (2014)

Results on Table Table 4.16, show that most of the respondents (Mean = 4.39) with (Stdv = 0.855) and (Kurtosis = 2.989) indicate continuity in a group determines the level of repayment and loan sustainability. The findings also found a positive siginificance between the size of the farm to revolving fund repayment (Mean = 3.95) . The results support Kimani and Musungu (2010) who argue that rural plan policies for development should be properly implemented. The study raised need of land registration and consolidation to enable farmers to use their land as collateral for credits and training of farmers on modern farming techniques.

4.6. Borrower Characteristics to Government Revolving fund Loan Sustainability

The study intended to find out the effect of borrowers characteristics to revolving fund sustainability in Murang'a County, Kenya. The respondents were initialy asked to indicate whether there was micro-credt loan diversion from the intended purpose; that they were aware of and, their approximate number. Figure 4.2 below indicates the findings from the respondents:

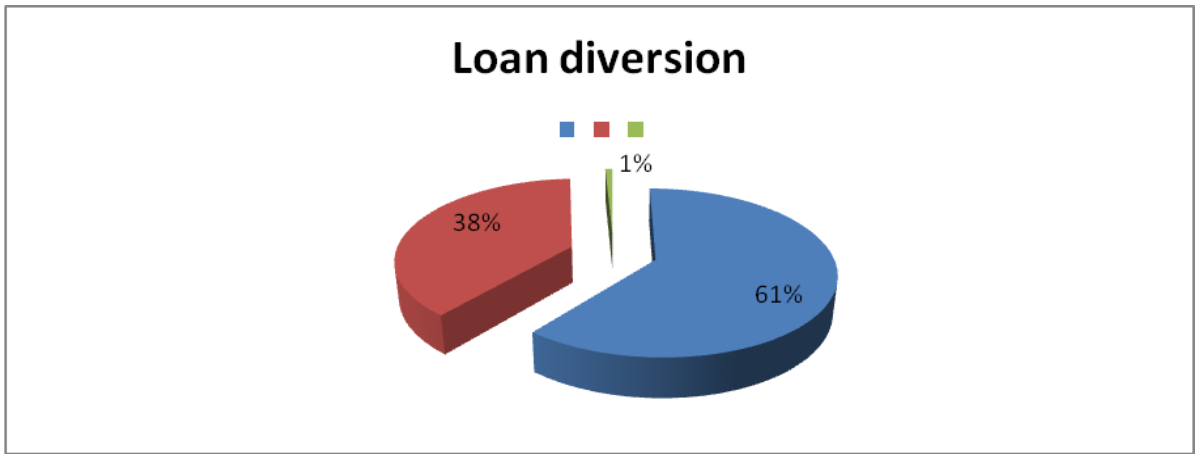


Figure 4.2: Loan Diversion from Intended Purpose

Source: Survey data (2014)

Results on figure 4.2, most of the respondents indicated that loan diversion was thriving (Yes= 61%). Those respondents that had not come across members who had diverted their loans was 38%. The respondents were requierd to indicate the actual number they had come across

Table 4.17: Loan Diversion

Category		Frequency	Percent
Number of group members that have diverted loans per group	Between (1 – 5)	94	36.0
	Between (6-10)	59	22.6
	Between1(11 – 15)	13	5.0
	Above 15 groups	9	3.4
	Not applicable	85	32.6
	Total	261	100.0

Source: Survey data (2014)

Results from Table 4.17 show that a good number of respondents (36%) indicated that there were (1-5) members that had diverted their loans in their respective groups. The respondents were requested to indicate what they thought was the main reasons for group members to divert their loans to other users. The feedback is indicated in Table 4.18.

Table 4.18: Causes of Loan Diversiom

Category	N	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Poor business performance causes loan diversion	261	4.86	.918	3.321	.300
Domestic problems are main causes of loan Diversion	261	4.72	1.079	1.514	.300
Literacy and low level of education are the main causes for loan diversion	261	4.65	1.176	.692	.300

Prevailing shocks in the economy are main causes of loan diversion	261	4.73	1.015	.599	.300
Circumstances at disposal compels the group members to divert loans	261	4.69	1.180	1.518	.300
Valid N (list wise)	**261**				

Source: Survey data (2014)

Results on Table 4.18, show that most of the respondents (M = 4.86) with a (stdv = 0.918) and the highest (Kurtosis = 3.2121) indicated that poor business performance was the main cause of loan diversion; illiteracy circumstances compelling group members and domestic problems on the other hand, had lower respondents of (mean = 4.65, mean = 4.60 and mean = 4.72). The results support Jameela (2003) who states that loan diversion was due to poverty and circumstances at disposal compels the borrowers to use the loans in different ways. Sometimes the situation is too bad and money borrowed becomes diverted. Some group members borrow in order to pay other loans which other lenders are threatening to use all means to recover and sometimes to reduce stress that is high just for a while. Some respondents indicated that a large number of borrowers take loans after training and divert it to alcohol drinking. This has been a major concern in Murang'a County where the level of alcohol taking by inhabitants has been reported to be relatively high compared to other regions in central Kenya. The problem has escalated such that women in the County have staged protest marches for attention and to stop brewers from selling alcoholic drinks to their husbands. The County Government of Murang'a has responded by passing an Alcohol Regulation Bi-law (2014) to minimize the consumption of alcohol in the County. The study recommended the relationship between revolving fund loan repayment and the purpose of

borrowing and continuous supervision of the loan repayments ensured to avoid loan diversion.

4.6.1. The Spouse Inflence on Government Revolving Fund Loan borrowng and repayment

The respondents were also requested to indicate whether there were spouse loan influences in the groups during and after borrowing. Table 4.19 presents the results.

Table 4.19: Spouse Inflence on Borrowing of Loans

	Category	Frequency	Percent
There is spouse borrowing loan influence	yes	172	64.2
	No	63	23.5
	Not applicable	26	9.7
	Total	**261**	**100.0**

Source: Survey data (2014)

Results on Table 4.19 shows that majority of the respondents 64.2% had noted spouse loan influence in their groups. The results suppot Jameela (2003) who argues that in India and some other countries show that, even in financially successful revolving fund programmes, women are even not necessarily the actual users of loans accessed in their names. In Kenya, a large number of women indicated that their spouse lure them to take loans promising good things they would liked to hear, only to get away with all the money. Some borrow without

the spouse knowledge and only come to be informed about it, when the lenders are demanding for their money; and when the items listed as collateral security are being auctioned. Some group members as per the respondents have succumbed to depression and some to death. The respondents indicated that, spouse influence has turned to many breakages of homes and marriages in Murang'a County.

4.6.2. Money Lenders and Revolving Funds Existence

The respondents were requested to indicate whether there exist informal money lenders and other credit funds institutions in the constituency of residence and state the main reasons why they flourish or not flourishing.

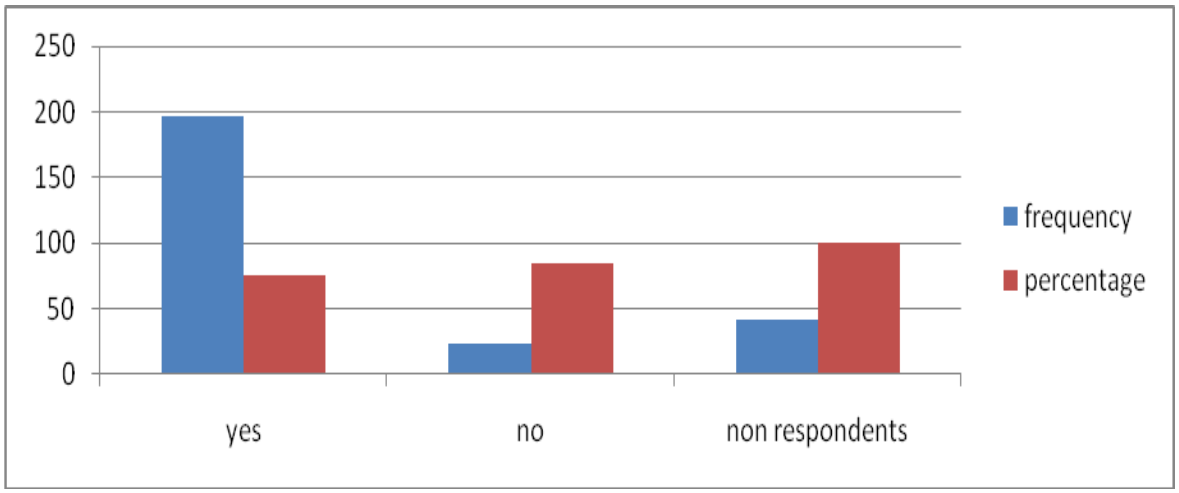


Figure 4.3: Money Lenders and Revolving Funds

Source: Survey data (2014)

Results on Figure 4.3 show majority of the respondents (73.1%) indicating that there was high existence of informal money lenders and credit funds. About (8.8%) of the respondents indicated lack of informal lending in the constituencies. The results suppot World bank

(2004) study on leasing which indicated that regardless of the hostilities, money lenders have survived in the developing world. This is due their services that are tailor made to rural dwellers and very little nagging from the lenders. Financial institutions have a long process and many basic requirements before borrowers are provided with the loans required. The respondents were also requested to indicate the main reasons why the informal sector was flourishing in most sub-counties of Murang'a County. Table 4.20 indicates the analysis of the respondents.

Table 4.20: Factors that Influence the Flourishing of the Informal Money Lenders

Category	N	Mean	Std. Deviation	Std. Error Mean
Informal money lenders provide quick loans	261	4.65	.948	.056
Informal money lenders are not gender bias	261	4.56	.942	.055
Informal money lenders do not demand mandatory savings	261	4.18	1.345	.079**
Informal money lenders are convenient as funds are steadily available	261	4.49	1.005	.059
There is a lot of discouragement and yelling from credit officers	261	4.19	1.394	.082

Source: Survey data (2014)

Results on Table 4.20 show that lager part of respondents (M = 4.65) with a (stdv = 0.948) indicated that informal money lending was found to be flourishing due to the fact that the

informal money lenders and other credit funds provide their loans very quickly, unlike others who are very slow. A high number of respondents (M = 4.56) also indicated that the informal sector was flourishing due to low or non-gender bias, when dealing with clients, which is a common phenomenon with revolving funds under study. The least respondents (Mean = 4.18) indicated that the informal money lenders and credit funds do not demand mandatory savings as required by most revolving fund institutions and mainstream financial institutions. Some group members borrow from the government revolving funds to repay the loans from informal money lenders, making repayment a tall order. The results support the study by Jammela (2013) who notes that women in India have largely depended on money lenders to meet their urgent and immediate credit needs. The respondents were asked to state their perception of the groups towards government revolving funds and why some borrowers were not repaying loans and the reason for increased credit funds. Table 4.21 below provides the analysis from the responses.

Table 4.21: Perception on Government Revolving Funds

Category	N	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Most borrowers are taking government revolving funds as grants	261	4.33	1.055	1.726	.300
There is high presence of snowballing within groups	261	4.35*	.988*	2.547	.300
There is limited access to YEDF	261	4.34	.955	2.031	.300
Credit agencies are on the rise due to limited access to WEF	261	4.35	.902*	2.191	.301
Valid N (list wise)	261				

Source: Survey data (2014)

Results on Table 4.21 show that a good number of respondents (M = 4.35) indicated high presence of snowballing on the government revolving fund loans as they argue that if others are not paying, why make them pay. Taking the government loan as a grant was also rated high taking (M = 4.33). Most of the respondents expects to be written-off which has been the norms on most of the loans in other sectors. For example, the culture of writing-off agricultural loans in Kenya in various sectors has been the order of the day and borrowers expect the same will happen in future if they fail to pay. Credit funds according to respondents were on the rise because of limited access to both the youth fund and the women

fund (M = 4.34 and M = 4.35) respectively. From the findings, very many groups have applied for the loans but only a handful have benefited. The results support Mishikin and Eakins (2007) who note that the main reason why the institutions have not been active in lending to some enterprises was the absence of loan repayment culture, which has been costly when borrowers treat loans as grants or gifts.

4.7. Technology and Loans Repayment

The study intended to determine the effect of technology to the revolving fund institutions for loan sustainability in Murang'a County, Kenya. First, the study sought the extent to which the use of technology and innovations affects loan repayment.

Table 4.22: Effect of Technology Effects to Loan Repayment

Category		Frequency	Percent
Finger prints taking technology for all members of revolving fund groups that has been lacking should be taken and kept in a data base	Strongly disagree	3	1.1
	Disagree	6	2.3
	Neutral	29	11.1
	Agree	106	40.6
	Strongly agree	116	44.4
	Not applicable	1	.4
	Total	261	100.0
Signing against our names in the group records which has been going on is not enough,	Strongly disagree	3	1.1
	Disagree	5	1.9

something more should be done	Neutral	20	7.7
	Agree	122	46.7
	Strongly agree	110	42.1
	Not applicable	1	.4
	Total	261	100.0
Finger prints taking technology have been exposed us compared to use to face recognition technology	Strongly disagree	78	29.9
	Disagree	24	9.2
	Neutral	33	12.6
	Agree	86	33.0
	Strongly agree	39	14.9
	Not applicable	1	.4
	Total	261	100.0
Credit Reference bureau technology that is meant to commercial banks should be extended to revolving fund institutions	Strongly disagree	30	11.5
	Disagree	3	1.1
	Neutral	28	10.7
	Agree	103	39.5
	Strongly agree	96	36.8
	Not applicable	1	.4
	Total	261	100.0

Source: Survey data (2014)

Results from Table 4.22 show that a large number of respondents (44.4%) strongly agree that finger print taking technology for all members of revolving fund groups should be taken and

kept in a data base, a good number respondents (46.7%) agreed that signing against their names that had going for long is not enough and something more should be done to improve it. A high number of respondents (29.9%) disagreed that finger print technology at disposal had exposed them to face recognition technology. According to the respondents, both finger print and face recognition technologies has not been exposed to most of the groups, and on the credit referencing bureau technology, most respondents (39.5%) agreed that the referencing bureau should be extended to all revolving fund institutions. The results support the study by Wakuloba (2006) on causes of defaults in government revolving fund institutions who suggested the need strengthening organisational management information systems for data mining to enable early detection of slow repayment borrowers.

4.7.1. Efforts to Improve Sustainability

The study sorted the information on the effort that was in place to improve sustainability, which the respondents were aware of. Table 4.23 below provides the analysis from the respondents.

Table 4.23: Categories in Place to Improve Sustainability

Category	N	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Doing a lot of advertising in local media has helped improve awareness and loan repayment	261	4.46	.815	4.876	.300
Regular visitation to the groups has helped improve information dissemination	261	4.46	.704	4.459	.300
Members are encouraged to visit lending institutions on their own	261	4.48	.683	3.144	.300
Reducing of rigidity in service delivery and lending terms has influence repayment and sustainability	261	4.40	.709	2.157	.300
Calling for seminars and workshops regularly should increase to make aware of service and products to improve repayment and sustainability	261	4.49	.705	2.757	.300
Loan supervision has been low overtime and should be intensified	261	4.37	.870	4.439	.300
Valid N (leastwise)	261				

Source: Survey data (2014)

Results on Table 4.23 show that a good number of respondents (Mean = 4.49) indicated that calling for seminars and workshops regularly make them aware of services and products that will improve loan repayment and sustainability. A high number of respondents (Mean =

4.48) indicated that members should be encouraged to visit the revolving fund institutions regularly on their own in order to abreast themselves with the new changes, which would improve loan repayment. The respondents (Mean = 4.46) indicated that doing a lot of advertising in local media and regular visitation to the groups by loan officers and other officials would improve loan sustainability. A substantial number of respondents (Mean = 4.40) and (Mean= 4.37) indicated that reducing rigidity in service delivery and lending terms has influence on repayment and sustainability, and that loan supervision has been low over time and should be intensified to improve sustainability. This result supports the study by Desta (2009) who recommends the need to provide financial education and development of re-engineering delivery systems so as to improve financial stability. The respondents indicated the need to remove bottlenecks in loans delivery which they stated was taking too long to reach them.

4.7.2. Treatment of Revolving Funds Defaulters

The respondents were requested to indicate their view on how to deal with defaulters. Their responses are tabulated below.

Table 4.24: Revolving Fund Deafaulters, Saving Plan and Policies for Sustainablity

Category		Frequency	Percent
Revolving fund loan defaulters should be	Strongly disagree	20	7.7
	Disagree	13	5.0
	Neutral	20	7.7

prosecuted/ blacklisted	Agree	92	35.2
	Strongly agree	114	43.7
	Non applicable	2	.8
	Total	**261**	**100.0**
Saving plan to recommend	Voluntary saving plan	161	61.7
	Coerced saving plan	31	11.9
	Bribed saving plan	5	1.9
	Sponsored saving plan	61	23.4
	Not applicable saving plan	3	1.1
	Total	**261**	**100.0**
Policies that have been put in place to ensure loan sustainability	Have championed for a lower interest rate	44	16.9
	Have introduced incentives mechanism	17	6.5
	Have set stiff rules and conditions	43	16.5
	Advise workers to acquire small size loans	105	40.2
	Outline loans currently servicing before loaning is done	30	11.5
	Voice on joint liability to ensure all participation in repayment	18	6.9
	Non- respondents	4	1.5
	Total	**261**	**100.0**

Source: Survey data (2014)

Results on Table 4.24 show that a substantial number of respondents (43.7%) indicated loan defaulters should be identified early and prosecuted for sustainability to be realized. The results supports Njiru (2010) study on warning indicators of a loan defaulter crisis

recommends prosecution of loan defaulters. The importance of having a credit history was indicated to be also a concern with a (Mean = 3.24). On the issue on the saving plan to recommend most respondents (61.7%) indicates that voluntary saving plan should be ruled out and enforced by the government to all institutions. Sponsored saving plan was also highly recommended whereby an individual saves on behalf of another in order to improve loan repayments and sustainability. On the issue of policies to be put in place to improve loan sustainability, most respondents (40.2%) have come across advice being made to workers' to acquire small loans. A high number of respondents (16.9%) had heard individuals championing for lower administration fees.

4.7.3. Borrowed Amount and Repaid by Individual Groups

The respondents were requested to indicate the amount borrowed and repaid by the groups for comparison purpose. On the issue of the amount borrowed and repaid, the respondents were to indicate the amounts for both. Table 4.25 presents the results.

Table 4.25: Group Revolving Fund Borrowing and Repayment

	Category	Frequency	Percent
Groups composition	1-10 male, 1-10 female	109	41.8
	11-20 male,11-20 female	65	24.9
	21-30 male,, 21- 30 female	64	24.5
	over 30 male, above 30 female	14	5.4
	0male, all others females,	5	1.9
	0 female, all others males	4	1.5
	Total	**261**	**100.0**
Amount borrowed	Between 10,000 and 50,000	96	36.8
	Between 50,001 and 90,000	30	11.5
	Between 90,001 and 140,000	78	29.9
	Between 140,001 and 180,000	17	6.5
	Above 180,000	40	15.3
	Total	**261**	**100.0**
Amount repaid	Between 10 000 and 50,000	122	46.7
	Between 50,001 and 90,000	18	6.9
	Between 90,001 and 140,000	54	20.7

	Between 140,000 and 180,000	16	6.1
	Above 180,000	31	11.9
	Not repaid	20	7.7
	Total	**261**	**100.0**
Rating of government funded micro credits	Below standard	22	8.4
	Low	23	8.8
	Average	43	16.5
	Above average	66	25.3
	Satisfactory	105	40.2
	Non-respondent	2	.8
	Total	**261**	**100.0**

Source: Survey data (2014)

Results on Table 4.25 show that large number of respondents (41.8%) group composition was between (1-10) males and (1-10) females. These results prove that males especially in the YEDF have been trying hard to be engaged in group activities. Some WEF groups have agreed to involve men in their groups though in a small way. The respondents complained of not having a separate fund for men. They felt that, the current outfit make most men to shy away from group activities. On the amount borrowed, most groups (36.8%) had borrowed (Kshs 10,000 and 50,000). The repayment of this amount was high accounting to 46.7% of the respondents who repaid the loan as stipulated. Most of those who borrowed above Ksh 50,000 did not honour their repayment schedule as shown on Table 4.27. For example, reports indicated that those groups that borrowed between (50,001- 90,000) were accounting

to (11.5%). The repayment reports indicated that groups accounting to 6.9% had repaid their loans with a deficiency of 4.6% (11.5% - 6.9%). These results support studies done on government revolving funds in Kenya which a lot has been disbursed, but very little recovered (Hulme, Kashangaki & Muwanga (1999); Wakuloba, 2006 and Opiyo, 2013). On the rating of the government funded revolving funds, most of the respondents (40.2%) indicated they found them satisfactory.

4.7.4. Commencement of Groups, Amount Lent out, Un-recovered and Diverted

The study also intended to determine the year when the groups comenced business and the amount of loans they had borrowed, the unrecoverd amount and the amount diverted to others uses.

Table 4.26: Groups commencement, Amount Lent out, Un-recovered and Diverted

	Category	Frequency	Percent
Year of commencement to now	Between 2007-2009	21	8.0
	Between 2010 – 2012	121	46.4
	Between 2012 – 2014	79	30.3
	Non-response	40	15.3
	Total	**261**	**100.0**
Amount lent out overtime	Below 100,0000	61	23.4
	Between 100,001-200,000	71	27.2
	Between 200,001 - 300,000	18	6.9
	Between 300,001 - 400,000	53	20.3

	Above 400,000	18	6.9
	Not Applicable	40	15.3
	Total	**261**	**100.0**
Amount unrecovered	Below 100,000	146	55.9
	Between 100,001 - 200,000	22	8.4
	Between 200,001 - 300,000	1	.4
	Between 300,001 - 400,000	1	.4
	Not applicable	91	34.9
	Total	**261**	**100.0**
Cash diverted to other uses	Below 100,000	152	58.2
	Between100,001 - 200,000	13	5.0
	Between 200,001 - 300,000	5	1.9
	Between 300001 - 400,000	1	.4
	Not applicable	90	34.5
	Total	**261**	**100.0**

Source: Survey data (2014)

Results on Table 4.26 show that a good number of respondents (46.6%) commenced business between 2010 and 2012. New groups commencing during (2013 - 2014) were high (30.3%) groups. Groups that commenced business 2007 and 2009 when the WEF and YEDF funds were set out were very few, accounting to 8.0% of the total population. The result support

the YEDF funds status report (2011), which notes inadequate disbursement and repayment structures in some parts of the country particularly remote areas posing a major challenge to disbursement and loan repayment. From the results, most of the groups 27.2% had lent between (Kshs 100,000 - 200,000), the highest unrecovered category was the amount below Ksh 100,000 accounting to (55.9%). Again, those who diverted their loans to other uses were groups that had borrowed below Kshs 100,000 accounting to 58.2%. These results indicated that most of the groups that did not repay and had diverted their loans were those who lent out an amount below Kshs. 100,000 category, which happens to be the category with many respondents, thus indicating the extent of high risk of government revolving funds.

4.7.5. Sustainability Using the Operating Self Sufficient Ratio (SSOR)

The study computed operating self-sufficient ratio (OSSR) of the amount borrowed and repaid by all the costituencies in Murang'a county. This was meant to dertermine whether the operating revenue as a percentage of of operationg and financial expenses including loan loss provision expense was greater than 100%. If the OSSR is greater than 100%, it means that the institution(s) in question is able to cover the costs through own operations and therefore do not rely on contributions from other donors to survived. The general formula as modeled by Guntz, (2011) for computing revolving fund sustainability was:

$$\text{OSSR} = \frac{\text{Operating income}}{\text{Total operating expenses}}$$

Table 4.27 show the analysis of the loan borrowed, repaid, cost and amount recovered including the risk level for WEF in 2012 and 2013

Table 4.27: Amount Lent out and Repaid (WEF- 2013 and 2012 Report)

Constituency	No. of Groups		Amount Distributed		Amount due to date		Paid to date		Loan balance		Loan cost/ expenses 5%		Risk level	
	(Millions)													
	Year 20 - -													
	12	13	12	13	12	13	12	13	12	13	12	13	12	13
													%	%
Gatanga	208	253	10.8	13.1	3.15	5.7	6.27	6.9	6.27	6.3	0.54	0.66	<1	25
Kandara	121	151	6.34	8.1	2.2	3.2	3.7	4.2	3.7	3.8	0.32	0.41	<1	11
Kangema	112	116	6.05	6.3	3.76	4.3	3.45	3.3	3.45	2.9	0.30	0.31	23	62
Kigumo	40	42	1.9	2.1	1.5	1.6	0.74	1.2	0.74	0.9	0.10	0.11	23	50
Kiharu	140	157	7.4	8.6	3.6	4.1	3.9	5.1	3.9	3.5	0.37	0.43	<1	24
Maragua	61	62	3.3	3.3	1.8	2.2	1.6	2.1	1.6	1.2	0.17	0.17	9	36
Mathioya	119	137	5,21	7.1	3.91	4.1	2.23	3.7	2.23	3.7	0.26	0.36	24	24

Total	**801**	**918**	**48.6**	**48.6**	**19.8**	**25.5 (a)**	**22.3**	**26.5 (b)**	**22.3**	**22.3**	**2.01**	**2.43 (c)**		

Source: Survey data (2014)

In the researcher's point of view in Table 4.27, the total amount recovered (2013)(b) Loan cost was (c) which was 5% of the amount borrowed and amount due to date was (a)

$$\textbf{OSSR} = \frac{b}{a+c} \quad \textbf{= 0.95:1}$$

OSSR< 1(Not sustainable but near to 1)

The Operating Self- Sufficiency Ratio (OSSR) for WEF year 2012 was 0.91:1 which was an indication of non-sustainability of the government revolving fund intiative. The findings indicated a satisfactory trend since the OSSR was positive from 0.91:1 to 0.95:1. The computed risk level in all the constituencies in 2013 as reported by the (GoK, 2013) public account statement (2013) on WEF was found to be greater than 10% thus sending unsatisfactory results. Kandara constituency was outstanding with the lowest risk level of 11%. The risk level in Kangema constituency (62%) was rather worrying and measures should be put in place to arrest this scenario. The Average County risk level for WEF (2013) was computed as 33%. The OSSR for the YEDF for year (2012- 2013) was computed as 0.417:1 and 0.540:1 (APPENDEX 6) for years 2012 and 2013 respectively. This was also an indication of non-sustainability of the YEDF but the trend was positive. The study agrees with the results indicated in the Youth Fund Status Report (2009) that noted the loan

repayment rate in two constituencies in Murang'a County, namely; Kandara and Maragua to be at 40%. This rate as noted from the computation has improved but still a lot needs to be done for YEDF to reach sustainability level.

4.8. SMEs Regulatory Framework influence to Loan Repayment and Sustainability

The respondents were requested to indicate the regulatory framework that was prevalent to their revolving fund institutions that they had come across. Table 4.28 below indicates their responses.

Table 4.28: SMEs Regulatory Framework Prevelent in the Revolving Fund Institutions

Category	Frequency	Percent (%)
Supporting the establishment of stronger business association has been going on?	46	18.4
Establishing tailored trainings for group members has been undertaken?	62	23.8
Sharing knowledge and field experience has been taking place?	63	24.17
Agitating for regular publishing of lending policies has been taking place?	28	10.7
Holding regional outreach events for group members for information has been taking effect?	36	13.8
Not come across any regulations been enforced	74	28.4
Total	261	100

Source: Survey data (2014)

Results on Table 4.28 show most of the respondents (24.17%) have shared knowledge and field experience has been taking place through the mild visitation of constituency loan officers to the groups. About (10.17%) of the respondents indicated they have come across agitating for publishing of lending policies. From the results in table 4.28, a high number of respondents (28.4%) who did not respond indicated they have not come across any regulation put across in their groups. The constituency loan officers during the interview confirmed SMEs regulatory framework has no consequence in the affairs of the government revolving funds. The respondents were also requested to indicate the extent to which they agreed with certain variables to be put forward to the SMEs regulatory framework for their effects to be felt by the revolving fund institutions. Table 4.29 below indicates the findings from the responses.

Table 4.29: SMEs Regulation Techniques

Category	**N**	**Mean**		**Std. Deviation**
	Statistic	Statistic	Std. Error	Statistic
Improving access to revolving fund institutions should be encouraged and should be voluntary	261	4.45	.042	.709
There Should be improved service level to revolving fund enterprise through new lending codes and rules	261	4.38	.044	.748

Revolving fund institutions should initiate a pre-financing code and rules regularly	261	4.35	.049	.824
Micro-institutions should post alternative sources of funds available to groups	261	4.35	.053	.902
Valid N (list wise)	261			

Source: Survey data (2014)

Results on Table 4.29 show that most of the respondents (M = 4.45) with a standard error of 0.042 indicated that, improving access to revolving fund institutions should be encouraged and should be voluntary. Improved service level to revolving fund enterprise through new lending code and rules had respondents (M = 4.38). The respondents were requested to indicate the recommendation they would like to make to the revolving fund institutions across the county. Most of the respondents failed to respond but those who gave their recommendations believed that there was a relationship between loan repayment and sustainability at the moment.

4.9. Analysis of the Interview Schedule

Results on the interview schedule was from 10 out of the 16 respondents, which indicated that more than 50% of the groups had acquired their second loan, pointing out that they were not new groups. The constituency loan officers visit the groups occasionally as reported by the respondents for monitoring and checking of group continuity. The constituency loan officers acquired information on borrowers from the group's officials and records kept in the files. Screening mechanism on 60% of the groups was done through loan application

integrity checks. Micro-insurance was found lacking to almost all the groups. Records of borrowers' history were not in place with most groups, some (20%) of the groups found to have disintegrated at the start-up stage.

Multiple borrowing was reported to be high in most groups and some loan officers, (30%) of them were reported to be irresponsible in their lending exercise. The amount recovered by most groups compared to the amount borrowed was reported to be low and hence most groups did not portly element revolving fund sustainable. About (60%) of the respondents recommended Taff rules on defaulters including prosecution and blacklisting of defaulters. About (70%) of the respondents indicated high spouses influence in most groups and recommended spouses to be invited during loan borrowing period. About (50%) of the constituency loan officers recommended the ownership documents of all securities needed for loaning to be provided before lending is done. About (40%) of loan officers were facing challenges of groups' members running away with borrowed funds among other challenges. About (40%) of the constituency loan officers recommended for rewarding of borrowers who repay their obligation in good time and encouraged officials from the SMEs regulatory authority be make visit groups for advise and otherwise.

4.10. Hypothesis Testing

The previous results had presented descriptive statistics on government revolving fund revolving fund repayment and sustainability however, to draw inferences about the population on the basis of the sample, there was need to empirically analyse data using the

Pearson correlation coefficient. The correlation of the five variables was as provided in table 4.30.

Table 4.30: Correlation Analysis of the Variables Under Study

Correlations			
		Level of sustainability	Loaning operation procedure
Level of loan sustainability	Pearson Correlation	1	.622
	Sig. (2-tailed)		.024
	N	261	261
Loaning operation procedure	Pearson Correlation	.622	1
	Sig. (2-tailed)	.024	
	N	261	261

		Level of sustainability	Socio-economic factors
Level of loan sustainability	Pearson Correlation	1	.511
	Sig. (2-tailed)		.005
	N	261	261
Socio-economic factors	Pearson Correlation	.511	1
	Sig. (2-tailed)	.005	
	N	261	261

		Level of sustainability	Borrower' characteristics
Level of loan sustainability	Pearson Correlation	1	.649
	Sig. (2-tailed)		.034
	N	261	261
Borrower' characteristics	Pearson Correlation	.649	1
	Sig. (2-tailed)	.034	
	N	261	261
		level of sustainability	Use of technology
Level of loan sustainability	Pearson Correlation	1	-.039
	Sig. (2-tailed)		.0630
	N	261	261
Use of technology	Pearson Correlation	-.039	1
	Sig. (2-tailed)	.0630	
	N	261	261

Source: Survey data (2014)

Source: Survey data (2014)

From the table 4.30, the loaning operation procedure was significantly correlated to the level of loan sustainability as the significance level was (<0.05). The Pearson correlation coefficient the two variables are (0.622) which was positive and large. This indicates a stronger relationship between loaning operation procedure and level of sustainability of government revolving funds. The Pearson correlation coefficient for socio-economic functions and level of sustainability was (0.511) and for borrower characteristics to level of sustainability was (0.649) and both had a significance level (<0.05). This implied that there is a strong relationship between socio-economic functions and borrower characteristics to level of loan sustainability. Meanwhile, for use of technology and level of sustainability, the significance level was (0.0630>0.05) and the Pearson correlation coefficient was (-0.039) showing a negative relationship between use of technology and level of sustainability.

In addition the logit regression model was applied to empirically analyse data. To estimate the fit of the model, the "forced entry" method of logit regression was used. This was in line with Karki and Bauer (2004) argument that this is an appropriate method for theory testing.

However, before the hypothesis testing, it was necessary to conduct the multicollinearity test.

4.10.1. Multicollinearity Test

To eliminate any correlation between the independent variables causing a problem in the research findings, multicollinearity test was performed from all questionnaires respondents' answers. Multicollinearity exists where two or more independent variables are highly correlated with each other. The results show that, most of the variables were weakly

correlated because the Variance Inflation Factors (VIFs) reviewed (5>VIFs >1). Hence; there was no serious multicollinearity problem in the data shown in Table 4.31 below:

Table 4.31: Collinearity Statistics

Predictor variables	Tolerance Value	VIF
Highest level of education	.804	1.244
personal account vital	.519	1.927
loans and institutions borrowed	.453	2.208
Delay in loan processing	.501	1.995
Business plan	.431	2.320
Flexibility of revolving fund	.335	2.982
borrowing terms	.358	2.790
Quality of services	.393	2.547
Strong preference consumption	.349	2.869
Motivation for savings	.274	3.653
Knowledge of advantages	.271	3.697
visit monthly	.830	1.204
Micro-insurance introduction	.883	1.132
Use of technology	.712	1.404
Land ownership	.127	7.865
Average size of land	.132	7.577
Size of the and repayment	.694	1.442
Land registration as a security	.566	1.767

prevailing shocks and loan repayment	.784	1.275
Rating spouse influence	.631	1.584
Wife's who borrow without knowledge	.593	1.686
Irresponsible borrowing and deaths	.590	1.694
Presence of snowballing	.688	1.453
Signing is not enough	.759	1.317
Credit bureau extension	.705	1.419
Finger prints have been used better than face recognition	.716	1.396
Loan defaulters prosecution	.786	1.273
Doing a lot of advertising	.770	1.299
Loan supervision	.716	1.397
Saving plan to recommend	.802	1.246
Amount borrowed	.389	2.572
Amount repaid	.426	2.350
Amount borrowed overtime	.856	1.168
Cash diverted to other uses	.669	1.494
Regulatory framework put in place	.018	.001

Source of data: Survey (2014)

Results on Table 4.31 show that, most of the predictor variables in this study had their VIFs less than 10 and a tolerance value of more than 1, thus ruling out of any possibility of multicollinearity (Sosa-Escudero, 2009). However, the regulatory framework predictor variable had VIFs of 0.001 and a tolerance level of 0.018. With VIFs less than 1, this indicates an element of non-correlation, and analysis of VIFs was less than 1. This indicated

an element of non-correlation, and was dropped from regression analysis, thus ruling out of any possibility of multicollinearity (Sosa-Escudero, 2009).

4.11. Measuring of the Multiple Logit Regression Models

The four hypotheses that the study sought to test are addressed in this section. The first to the fourth hypotheses were: determine the effect of operation procedures to revolving fund (H_1), examine the implication socio-economic functions (H_2), and establish the effect borrower' characteristics (H_3) and determine the effect of technology (H_4) to sustainability of government revolving funds. Before the variables were analysed, various factors accompanying each variable were combined and averaged. Binary logit regression model was considered appropriate due to the nature of the study because the situation would have to occur or otherwise. The outcome was to be either 0 or 1, where 1 indicates that the outcome of interest is present, and 0 indicates the outcome is absent.

The following was the logit model that was tested (Equation 4.1);

$$\mathbf{Pr\ (Y_i)} = \beta_0 + \beta_1 \mathbf{X_1} + \beta_2 \mathbf{X_2} + \beta_3 \mathbf{X_3} + \beta_4 \mathbf{X_4} + \boldsymbol{\varepsilon_i} \quad \text{---------- (4.1)}$$

Where $y_i = 0$ or 1 and $E(\varepsilon_i) = 0$.

$y_i = 1 \quad if \quad y^* > 1$ **(**Sustainable index is "high enough" that is, able to cover operating costs, loan losses and interest and other adjustment expenses).

$y_i = 0 \quad if \quad y^* < 1$ (Sustainable index is not "high enough" to cover operating cost loan losses and interest and other adjustment expenses)

The Table 4.31 below indicates the logit regression results after the variables were run on an SPSS statistical package.

Table 4.32: Parameter Estimate of Logit Model

Loan sustainability	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Loan operation procedure	-.018	.292	.004	1	**.048**	.982	.554	1.741
Socio-economic functions	-.838	.264	10.064	1	**.002**	.432	.258	.726
Borrower characteristic	-.965	.341	8.005	1	**.005**	.381	.195	.743
Use of technology	-.519	.285	3.317	1	**.069**	.595	.340	1.040
Constant	1.618	.230	49.475	1	**.000**	5.04		
Chi-square	22.761				**0.000**			
Predicted overall performance	73.4*							
-2log likelihood	344.29							
Negelkerke R^2	0.402							

Source: Survey data (2014)

The regression results of the logit model in Table 4.32 are reflected by the regression coefficient standard errors t- values, Wald statistics and p-value. The logit model generates a

chi-square value of 22.761 and p-value of 0.000 which was statistically significant because the p= value was less than∞ = (0.05). The results indicated that loan operation procedure had a significant level of 0.045 < 0.05, socio-economic functions had a significant level of 0.02 < 0.05, borrower' characteristics had a significance level of 0.005< 0.05 and use of technology had 0.069 > 0.05. This called for the rejection of the null hypothesis (H_{01}, H_{02} and H_{03}). The alternative (H_{A1}) was adopted for the first hypothesis that; there is a relationship between revolving fund institutional operation procedures to loan sustainability in Murang'a County.

In the second hypothesis (H_{A2}), the alternative was adopted; that there was a statistical significance between social-economic factors to revolving fund loan sustainability in Murang'a County. Similarly on the third hypothesis the alternative hypothesis (H_{A3}) was adopted which indicated that, there are effects of borrower' characteristics to revolving fund sustainability in Murang'a County, Kenya. In the fourth hypothesis (H_{A4}), where the significance level was (0.069 > 0.05); the study failed to reject the null hypothesis (H_{04}), since there was no statistical significance relationship on technology to revolving fund loan sustainability in Murang'a County at the moment. The results on loan operation procedure agrees with (Jamal 2003; Muhammad, 2011; Siddique, 2007 and Stuhldreher & Jennifer, 2006), who in their study attached the importance of micro-insurance, advocated the importance to loan screening than to monitoring the use of credit voiced the need of beefing–up loan-supervision and the demand for business plans before issuance of loans respectively. All the variables had statistically significant relationship to loan repayment and sustainability.

Results on socio-economic functions (Mahajan & Romola, 1996; Kibaara, 2006; World bank, 2004; Walker *et al.,* 2002) indicates land area owned and number of fields, geographical location and infrastructure potential, land registration and consolidation, improved land tenure and property rights have a statistically significance relationship between loan repayment and sustainability respectively. The study did not find a statistical significant relationship between the level of education and the loan repayment and sustainability. In fact, most of the group members were below "O" level certificate of education.

Results on borrowers' characteristics (Jamaela, 2003; Kheleque, 2010; Mahajan and Ramola, 2006 and World Bank, 2004) noted that increase in access to loans could not be taken as automatic benefits to women and loan diversion considered to be of high rate among women, loan diversions to other uses was reported to be high and spouse influence, the informal borrowing shows that large part of rural financial cash flows was transacted in the informal sector and regardless of hostility put across, in the informal financial outfits have survived in Kenya. On the same note women in Murang'a County have depended on money lenders to meet their urgent and immediate needs. The results conclude that borrower' characteristics had statistical significance to loan repayment and sustainability. With diversion, spouse influence and informal lenders will influence the amount borrowed and repaid.

Results on the use of technology had non-statistically significant relationship to the loan repayment and sustainability. Most respondents indicated that they had not come across the facilities in their groups. Studies done by (Wakuloba, 2006; Mathism and Manger, 2006;

Maskin and Eakins, 2007; Ghada *et al*, 2010 and Gine, 2010) noted a strong relationship between source of income and causes of defaults, and recommended the need for strengthening the organisations management information systems. The studies noted paper-less banking taking shape in Kenya through a fully integrated ICT, enabling credit-cards system that was introduced to reduce high costs associated with small transitions. This initiative could be replicated to the revolving fund institutions. The need to ensure extension of the Credit Reference Bureau to revolving fund institutions and use of biometrics that had high influence in loan repayment in other countries namely; Malawi, South Africa and Mozambique were also floated in the study. Studies from the countries in question indicated that, after the exercise was rolled out, people whose finger prints were taken took fewer amounts of loans, that they were able to repay and reduced the problem of multiple borrowing and public cheating.

Most Kenyans came across to biometrics or biometric authentication as the identification technology during (2013) election accounting to why the respondents found the questions rather strange and produced non-significant report. This technology has been mildly used by a few institutions in Kenya to identify individuals in groups that are under surveillance. It was hoped, it will help curb some of the fraudulent practices of manipulation and vote rigging that were prevalent in the previous manual registration system. On the use of biometric technology in developing countries, the success of government in combating corruption and delivery of public services efficiently depends on accurate identification of citizens and the ability to cross reference database and information across government department and agencies. This can only be possible with a national system to allow

individuals to uniquely identify themselves. Government programmes especially in Kenya should avoid working in isolation each with its own data base of beneficiary which cannot be merged with each other. Implementation of an efficient identification system in Kenya could expand financial credit market and insurance.

Through people, biometrics which is a measure of identity based on physiological finger prints, face, hand geometry, iris or retina, speech or written signature characteristics of each person's identity and information cannot be forgotten, lost or stolen like in other conventional methods. It can be used to monitor applications to ensure double enrolment on similar benefits, thus preventing cheating on public sector benefits under multiple indentities. A biometric system was introduced in 2013 in the Kenya's parliament to monitor attendance of parliamentarians in a bid to curb absenteeism. This is an indication of the government willingness to embrace technology in the country and has promised to digitalize most of the services for better service delivery to the citizens. The systems in question needs to be extended and more exposure done to all clients particularly those who rely on revolving fund institutions for financing, to capture relevant information on the borrowers, and be able to detect multiple borrowing and defaults early, which is a concern at the moment. Success stories on the use of biometrics in the revolving fund financial sector have been reported in Malawi which can be replicated in Kenya.

Result on Table 4.31 above shows the logit model's accuracy of overall prediction was 73.4 %, showing that the overall fit of model was satisfactory. Additionally, the logit model yielded a Negelkerke R^2 is 0.402, meaning that 40.2% of the dependent variables can be explained by the independent variables, namely; loaning operation procedures, socio-

economic factors and borrower characteristics. Mbachu (2012) asserts that a Negelkerke $R^2$of 0.2 and <1(excluding 1) is satisfactory. Logit model generated a -2loglikelihood value of 344.26 which means that the model was good (a perfect model has a -2loglikeli-hood value of zero and above). The easiest way of assessing Wald statistics is to consider the significance value, and if (< 0.05), it means that the null hypothesis should be rejected; that there is no statistical relationship between the independent variable to the dependent variable.

For interpretation of Exp (B) shown on table 4.31 above, results of values from the regression analysis is taken to account, and if the value (>1), then the odd of an outcome occurring increases, and if the figure is (< 1), any increase in the predictor variable leads to a drop in the odd of the outcome occurring (Mbachu, 2012). From the table Loan operation procedure as a predictor has a value of Exp (B) at 95% Confidence interval(CI) of 1.741 that implies that, when the predictor is raised by one unit, will increase level of sustainability by 1.741 times. The socio-economic factor predictor had an Exp (B) of (0.726), which implies that, an increase by one unit drops in the outcome, in this case the level of sustainability. The summary of hypothesis testing is provided below:

Table 4.33: Summary of Hypothesis Testing

Hypothesis	Construct	**Result**	**Explanation**
H1	There is no statistical significant relationship between micro credit institutions' operation procedures to loan sustainability	Reject null hypothesis	Significant level of 0.045 < 0.05

H2	There is no statistical significance between social-economic factors to revolving fund loan sustainability	Reject null hypothesis	Significant level 0.02 < 0.05
H3	There is no statistical significance effects of borrower characteristics to revolving fund sustainability	Reject null hypothesis	Significance level 0.005 < 0.05
H4	There is no statistical significance on technology to revolving fund loan sustainability	Fail to reject null hypothesis	Significance level (0.069 > 0.05);
H5	There is no statistical significant relationship between SMEs Regulatory framework to sustainability	Fail to reject null hypothesis	Significance level (0.022 > 0.05);

Source: Survey data (2014)

The summary of the hypothesis in Table 4.33 indicates the significance of the coefficients tested. The results showed that the first three variables were significant and hence the null hypotheses were rejected and the alternative hypotheses taking effect. The fourth hypothesis indicated the non-significant of the hypothesis and hence failed to reject the null hypothesis. The non-significance coefficient was removed from the model since they did not predict the dependent variable. Therefore, the new regression model appears as shown in equation 4.2 below;

$$\mathbf{Pr\ (Y_i) =}\ \beta_0 + \beta_1 \mathbf{X_1} + \beta_2 \mathbf{X_2} + \beta_3 \mathbf{X_3} + \boldsymbol{\varepsilon_i} \quad \text{---------- (4.2)}$$

4.10.1. Measuring the Effect Moderating Variable in the Logit Regression

To test the effect of the moderating variable (Regulatory Framework), the above model was to be improved as follows, equation 4.3:

$$\textbf{Pr (Yi)} = \beta_0 + \beta_1 \mathbf{X_1} + \beta_2 \mathbf{X_2} + \beta_3 \mathbf{X_3} + \beta_1 \mathbf{M_1} + \boldsymbol{\varepsilon_i} \quad \text{---------- (4.3)}$$

Where $y_i = 0$ *or 1 and* $E(\varepsilon_i) = 0$.

Table 4.34: Parameter Estimate of Regression Logit Model and Moderating Variable

Parameter Estimates								
							95% Confidence Interval for Exp(B)	
Level of sustainability	B	Std. Error	Wald	Df	Sig.	Exp(B)	Lower Bound	Upper Bound
Intercept	.473	.840	.317	1	**.574**			
Loan operation procedure	-.661	.546	1.466	1	**.226**	.517	.177	1.505
Socio-economic functions	.124	.557	.049	1	**.824**	1.132	.380	3.370
Borrower characteristics	-.859	.696	1.523	1	**.217**	.424	.108	1.657
Use of technology	-.924	.562	2.700	1	**.100**	.397	.132	1.195
Regulatory framework	.524	.564	.863	1	**.353**	1.689	.559	5.108
Chi-square	39.224				**0.000**			
Predicted overall performance	85.3							
-2log likelihood	0.175							
Negelkerke R^2	81.726							

a. The reference category is: above 3.0.

b. This parameter is set to zero because it is redundant

Source: Survey data (2014)

The regression results of the logit model in Table 4.34 are reflected by the regression coefficient standard errors t-values, Wald statistics and p-value. The logit model generated a chi-square value of (39.224) and p-value of (0.000) which was statistically significant because the p=value was less than (∞ = (0.05). The results indicated after improving the regression model with regulatory framework moderating variable all the independent variables had non-significant influence at significance level (0.226 > 0.05) for loan operation procedure. The socio-economic functions had a significance level (0.824) while the borrower characteristics had a significance level of (0.217 > 0.05), and use of technology had (0.100 > 0.05). This called for the dropping of the moderating variable which supported the multicollinearity statistics in table 4.31 above.

Result on Table 4.34 above shows the logit model's accuracy of overall prediction was (85.3 %), showing that the overall fit of model was good. Additionally, the logit model yielded a Negelkerke R^2 was (81.73%) of the dependent variables can be explained by the independent variables namely; loaning operation procedures, socio-economic functions, borrower characteristics, technology and Regulatory framework. Logit model generated a -2loglikelihood value of (0.175) which means that the model was good (a perfect model has a

-2loglikeli-hood value of zero and above). These results fail to support studies done Kimando *et al.,* (2013) on the role of the micro-finance regulatory framework who noted that regulation assist the revolving fund institutions to regulate and supervise their operations which eventually protects customer deposits, and ensure irresponsible lending does not threaten stability of the wider financial system. Most of the respondents in the study had not heard or received any regulatory authority at their premises in Murang'a County.

The general equation after introduction of moderating variable changes to the following: -

$$\mathbf{Pr(Y)= 0.473 - 0.661X_1 + 0.124X_2 - 0.859X_3 - 0.924X_4 - 0.524M_1}$$

After dropping the moderating variable, the model remained as before, Equation (4.4)

$$\mathbf{Pr\ (Yi) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + E_i} \quad \text{---------- (4.4)}$$

4.12. Testing of the Study Model

The objectives was to determine the effects of revolving fund institutions' loaning operation procedures to loan sustainability, to examine the implication of socio-economic functions to revolving fund loan sustainability, to establish the effect of borrower characteristics to revolving fund sustainability and determine the effect of technology to the revolving fund institutions for loan sustainability in Murang'a County. To analyze these objectives, a logit regression was developed and adopted for use in this study. As noted in the earlier explanation, the null hypothesis; loaning procedure, socio-economic and borrowers' characteristics were rejected, apart from the use of technology which was noted to be non-

significant. However, ANOVA test was also computed as the preliminary test for the model to test for the variable fit and sustainability in the model and determine the extent to which the independent variables explains the dependent variable.

4.12.1. The Modal Summary and ANOVA Tests

The ANOVA test which partitions the observed variance based on explanatory variables and the general equation after substituting the coefficients was done. It compares partitions of test significance of explanatory variables (Ayers, 2008). The ANOVA tests results are as indicated in Table 4.35 below:

Table 4.35: ANOVA Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.329	4	.332	2.508	.043[b]
Residual	33.912	256	.132		
Total	35.241	260			

a. Dependent Variable: level of sustainability

b. Predictors: (Constant), borrower characteristic , loaning procedure , socio-economic factors

Source: Survey data (2014)

The results in table 4.35 on ANOVA test showed an F- statistics of 2.508, (significance level = 0.043) which were statistically significant at 0.05($P < 0.05$). This shows that the model

adopted in the study was significant and that, the variables tested fitted well in the model. A multiple logit regression analysis was performed to determine how the independent variables influenced the independent variables. The logit regression model for the study was as shown in equation 4.4 above. Results on Table 4.35 above show that, the first three independent variables were found to be significant, the fourth variable was found to be non- significant and dropped. The values of betas were referred to as (β_0=1.618, β_1= -0.018, β_2= -0.838 and β_3 = -0.965). The model is represented below:

$$\mathbf{Pr\ (Y) = 1.618 - 0.018\ X_1 - 0.838\ X_2 - 0.965\ X_3}$$

From the model above, the coefficient of revolving fund loaning procedures, socio-economic functions and the borrowers' behaviour are negative but significant as p-value was less than ∞ = 0.05 on the three variables (Table 4.31 above) and the predicted probability resulted to high and positive results (Table 4.36 below). Logit coefficients are log-odds units and cannot be read as Ordinary least squares (OLS) coefficient (Torres-Reyna, 2009). To interpret, one needs to estimate the predicted probabilities of Y= 1, using a formula provided below as modelled by Torres-Reyna (2009)

$$\mathbf{Pr(Y) =} \frac{1}{1 + \left[\frac{1}{e^{(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3)}} \right]}$$

The logit regression shows that loaning operation has positive and statistical influence on the level of sustainability. The β-value of X_1 was provided as negative 0.018 as indicated in the

above general equation which means in theory that, an increase in loaning procedures (X_1) by one unit is associated with an increased chance ratio of micro credit sustainability by 0.83 computed as follows:

$$\mathbf{Pr(Y) = } \frac{1}{1 + \left[\frac{1}{e^{(1.618 - 0.018)}} \right]} \mathbf{= 0.83}$$

Table 4.36: Summary of Predicted Probabilities (computed)

Variable	Beta	Predicted probability	Comment
X1	-.018	0.83	Statistically influence in dependent variable
X2	-.838	0.89	statistically influence in dependent variable
X3	-.965	0.80	Statistically influence in dependent variable
Intercept	1.618	0.85	

Source: Survey data (2014)

Table 4.36 provides a summary of predicted probabilities were computed from the formula above as stated. From the findings, table 4.36 shows the probabilities are all high and have positive statistical influence at a p-value that is less than $\infty = 0.05$ (Table 4.32 above). This is attested by the results on the maximum likelihood of 344.29 (Table 4.32) which is the probability of observing the data expressed in terms of a parameter. Once the value is greater that zero, it shows significance of the independent variables in question (Torres-Reyns, 2009). The logit estimation results suggest that socio- economic factors are also positively

and statically associated to revolving fund sustainability. An increased chance ratio of revolving fund sustainability by (0.89) was reported as per the computation form the above formula. Similarly the logit estimation for borrower characteristics indicated there was a positive and statistical association to revolving fund sustainability. An increased chance ratio of revolving fund sustainability by 0.80 was reported.

4.12.2. Power to Reject Null Hypothesis Test

Black (2008) indicated that power which is equal to (1-β) is probability of a test rejecting the null hypothesis when null the hypothesis is false. This formula was applied to compute the power test of the three variables that remained after withdrawing technology that was non-significant to the model.

Table 4.37 Power to reject null Hypothesis test

Variable	Beta	Predicted probability	(1-β)
X1	-.018	0.64	0.17
X2	-.838	0.89	0.11
X3	-.965	0.80	0.2
Intercept	1.618	0.85	

Source: Survey data (2014)

Results on table 4.37 show that the possibility of rejecting the null hypothesis when null hypothesis is false. On loaning operation procedure, the probability of rejecting null hypothesis was (17%). The probability of rejecting the succeeding variable (socio-economic functions) was (11%) and the probability of rejecting the third variable (borrowers' characteristic) was (20%).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents a summary of the study, conclusion and recommendations. Section 5.1 shows the summary of the study, section 5.2 draws conclusion from the findings, section 5.3 shows conntribution of the study to the existing body of knowledge, section 5.4 presents' recommendations and section 5.5 present recommendations for further research.

5.2. Summary

Several empirical studies have investigated access to micro-finance in the rural areas in Kenya through the SMEs but study on sustainability of YEDF and WEF as government initiated revolving funds has invariably produced conflicting results as discussed in chapter one. Although these studies attest that financial regulation, volume of credit transacted, loan operation procedure, socio-economic functions, borrowers characteristic and technology has effect on loan repayment, few have attempted to measure how the variables have affected the level of sustainability of YEDF and WEF as self-sufficient entities that will not always be waiting to be funded by government and grants, without which they cannot operate. This study was designed to analyze the effect of loan repayment and sustainability on government revolving funds which are a branch of micro-finance.

The Government of Kenya initiated several revolving fund funds towards alleviating youth and women unemployment however; high default rate has affected the sustainability of the revolving funds Studies done in Kenya show a lot has been disbursed but very little

recovered and is feared that if the trend is not checked, the intended purpose of the fund will disappear in thin air. The study was descriptive in nature aimed at establishing the empirical determinants influencing revolving fund loan repayment and sustainability of government revolving funds.

The specific objectives of the study were: To determine the effects of revolving fund institutions' loaning operation procedures to government revolving funds sustainability in Murang'a County, Kenya; examine the implication of socio-economic functions of groups to government revolving funds sustainability in Murang'a County, Kenya; establish the effect of borrower characteristics to government revolving funds sustainability in Murang'a County, Kenya; determine the effect of technology on the government revolving funds sustainability in Murang'a County, Kenya and to analyse the role of SMEs Regulatory Framework to government revolving funds in Murang'a County.

The study adopted a cross-sectional descriptive survey research design using quantitative approach to data collection, analysis and reporting through some elements of qualitative approach of data aimed at analysing the effect of loan repayment and sustainability of government revolving funds in Murang'a County, Kenya. Triangulation method was used which ensured effective analysis of both primary and secondary data.

To address the initial specific objective of determining the effects institutional operational loaning procedures to government revolving funds sustainability, the study derived frequency distribution tables to capture the screening mechanism, business plan requirement, financial

literacy exposure and micro-insurance as factors influencing loan repayment. Composite index was established to consolidate all the factors into one variable. To ascertain the relationship between loaning operating procedure and sustainability of government revolving funds, the overall results of the Pearson correlation coefficient and the logit regression indicated significance of the independent variable, and hence the first null hypothesis was rejected the alternative taken, which indicated that there is a relationship between revolving fund institutions' operation procedures to government revolving funds sustainability.

The succeeding objective of the study intended to examine the implication of socio-economic functions of groups to government revolving funds sustainability in Murang'a County. The study derived descriptive statistics on livestock, crop income and income from other sources as factors influencing loan repayment and sustainability. The composite index was also established to come up with one variable to be input in both the Pearson correlation and the logit regression analysis. After the analysis, the results indicated significance of the variable in question. The second null hypothesis was rejected and the alternative taken, which implied that there is a relationship between socio-economic functions of groups to government revolving funds sustainability in Murang'a County.

The other objective of the study, intended to establish the effect of borrower characteristics to government revolving funds sustainability in Murang'a County. The study derived frequency distribution tables, histograms and pie-charts to capture spouse influence, informal borrowing and loan diversion as factors influencing loan repayment and sustainability. Composite index was also established to make one variable that was to be regressed. After the Pearson

correlation and the logit regression analysis, the results indicated that the third null hypothesis was rejected and the alternative taken, which implied that, there is a relationship between borrower' characteristics to government revolving funds sustainability in Murang'a County.

The final objective of the study intended to determine the effect of technology on the government revolving funds sustainability in Murang'a County. The study derived descriptive statistics on data mining, use of credited bureau, use of smart card and biometrics as factors influencing loan repayment and sustainability. Composite index was also established to make one variable that was analysed and regressed. The results from the Pearson correlation and the logit regression analysis, there was non-significance of the variable in question. The study failed to reject the null hypothesis which meant that, there was no relationship between technology to government revolving funds sustainability in Murang'a County as at 2013.

5.3. Conclusion

This study examined the effect of loan operation procedures, implication socio-economic functions, effect of borrower characteristics and the effect of technology on sustainability of government revolving funds in Murang'a County. In line with Vision 2030 for gender and youth, which tries to advance for equity in resource distribution and improved livelihoods for all, the main goal according to the vision laid down to increase opportunities, all-round among women, youth and all other disadvantaged groups. Special strategies were to involve the increasing participation of women and youth in all economic, social and decision-making

process in the country at large. From the study, it can be concluded that there is a significant relationship between loan repayment and sustainability of the government revolving funds. Each outcome is predicted by different set of variables.

Following the results from the hypothesis testing, the study concluded that, loan operation procedures have a significant relationship to revolving fund loan repayment, where integrity checks, loaning application checks, site checks, eligibility checks, level of screening, financial literacy exposure and flexibility in the revolving fund institutions were advocated. The need of revolving fund lenders working closely with village lenders to ensure smooth operation and development of programmes is a step in the right direction.

For implication of socio-economic functions namely; the level of education, age brackets of the group members, marital status of the group members, level of earnings of the members, size of the land, the main economic activity had either a positive or negative influence to revolving fund repayment and sustainability. Members with high education (post-graduates) were very few in most of the groups, majority being standard eight dropouts. Knowledge learnt in school was found not exhibited in groups' dynamics. Majority of the group members were in the age bracket of (36- 45) years, most of whom were women, the youths members (15-35); were few which is a great concern. The marital status in most groups did not have a positive relationship to loan repayment and those who earned fewer incomes were found to be better in repaying for their obligations. Business was found to be the main source of income to most of the group members most of which had parcels of land of less than 1 acre, and 46% of that land was not registered, affecting loan repayment. Informal lenders

were found to be thriving due to their promising practice of providing quick loans and lacking of gender bias, which is prevalent with the government revolving funds institutions. The study concluded that, socio-economic functions have a significant relationship to government revolving funds sustainability.

On the effect of borrower' characteristics; loan diversion was found to be high due to poor business performance prevalent at times and high level of illiteracy was common to most group members. The loan spouse influence was found to be very high affecting loan repayment as a result of extreme level of ignorance. There has been excessive level of snowballing, where group members perceive government loans as grants, and fail to repay because others are not paying affecting repayment and sustainability. Most of the group members' advocated for prosecution/blacklisting of all the loan defaulters. The study concluded that, borrower characteristics have a significant relationship to government revolving funds sustainability.

For the effect of technology, it was found to be inversely related to loan repayment and sustainability. Most of the groups had never come across a computer in life, and there is dire need to introduce this devise to all the groups. At the same time group members were encouraged to visit groups regularly to abreast with the new changes. Other countries namely Malawi, South Africa, Mozambique and India have embraced technology where biometrics, smart cards technology and face recognition devices have been introduced, which had improved their revolving fund loan repayment. The presence of irresponsible loan officers, lack of elaborate plans and revolving fund institutions not providing training to all groups

were the attributes to multiple borrowing which affected loan repayment. Most of the groups were in their second round of borrowing and preferred group membership of between (11-15) members which was in line with the government requirements for revolving fund groups' formation.

The study further concluded the dire need to institutionalize both the WEF and YEDF to increase the overall amount and efficacy in projects launched by the different groups and individual beneficiaries. The need to address the issue of how savings might be increased among lower income families was a great concern and a saving topography that is acceptable by all a great concern. Women groups were found to more organized and repaying their loans better than the youth initiated groups, however both funds are not sustainable at the moment and require weaning from external sources.

5.4. Recommendations

5.4.1. Policy Recommendations

The study made some policy recommedations to loan repayment and sustainability of government revolving funds. To start with, the study underpins the importance of demanding business plans to WEF and YEDF which in the past has been a formality. Business plans help one to organize his/her thoughts, as well as the individual resources. It helps one to communicate the specifics of the business idea to others, including business advisors, potential suppliers and major customers, family and friends. The plan provides a "yardstick" against which one can measure progress during the initial years of the business. Studies have

shown that businesses that started with a formal business plan are considerably more likely to succeed than those that go without a written plan. Developing a business plan is the first step to a successful business. This guide will provide an outline in organizing individual effort to gather and evaluate information about the business. Effectively completed business plan must identify the strengths, weaknesses, opportunities, and threats that may affect the business and the strategy one may use to succeed.

In view of the above, business plans should be subjected to a thorough adjudication process by the qualified staffs that are able to review and make decisions on certain plans, to demonstrate viability for better loaning operation procedure. Use of business plan as one of the revolving fund loaning operation procedure was found to have a significant relationship to repayment and sustainability. Constituency loan officers, on top of dissemination of information on what makes a business plan, should be in a position to review the plans to measure their viability and advise accordingly before loans are issued. This would help reduce uncertainty in repayment.

The credit reference beureu which has been a preserve of the commercial banks should be made compulsory to all revolving fund institutions and should be net-worked to share some important information on borrowers. It should assist in making credit accessible to more people, and enabling lenders and businesses to reduce risks and fraud. Revolving fund institutions play great role in extending financial services within an economy especially to the rural areas. In support of this role, credit bureaus will help lenders to make faster and more accurate credit decisions.

The government revolving funds organization management systems should be strengthened to facilitate up-to-date loan repayment statements to lonees follow-up and take action early in case of defaults. Some groups indentified prosecution/blacklisting of defaulters as a solution to some of the problems they are currently facing. Due to problems of high risk and high cost of borrowing, uncertainity of repayment capcity on the rural borrower has been reported high due to irregular income streams. Systems should be developed to ensure consistent incomes and expenditure to reduce/remove uncertainty.

The study supported the importance of micro-insurance on loans borrowed by both the WEF and YEDF. Micro-insurance according to this study reflected that kind of insurance protection arrangement with low premiums and low coverage. In this context, “micro" refers to the small financial transaction that each insurance policy generates. Micro-insurance is a financial arrangement to protect low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved. The target population typically consists of persons ignored by mainstream commercial and social-insurance funds, as well as persons who have not previously had access to appropriate insurance products. The study emphasized the importance of agricultural insurance scheme among small farmers who have to protect themselves against weather-related risks. Institutions aimed at providing such insurance need to be reinsured by big international companies in order to spread risks beyond the agricultural regions. The study noted some policies that were laid down on the eve of independence including; land registration, training of farmers on modern farming techniques, provision of quality seeds and fertilizers,

agricultural extension services, marketing arrangements and better communication and infrastructure establishment to enhance farmers to sell their surplus produce which has been a tall order to successive governments.

It was found that most of the group members were standard 8 drop outs and few had attained form four-level of education showing a negative relationship between group membership and level of education. The highly educated individuals that have studied business in high school were lowly engaged in groups' affairs. Due to this unique circumstance, it is important to train the young individuals on how to run and own businesses at their early stage of life before they graduate from lower primary. A good number of the graduates at this level do not proceed to secondary school where business study as a subject is handled. This subject, which was taught in the primary curriculum and used to provide basic knowledge on how to own and run a business was good but was stopped in the Kenyan Curriculum. Developers of the Curriculum should revise the earlier decision and revert the teaching of business subject to both primary schools and primary colleges.

Lack of awareness as a category to improve loan repayment, was found to be in existence among many youth groups, especially those in the rural settings where the groups were not informed on the requirements to secure loans. The revolving funds should conduct an awareness campaign on their mandates and requirements to qualify for a loan. Doing advertisements to the potential borrowers in the local vernacular media will help improve awareness and consequently loan repayment and sustainability. These campaigns will go a long way towards enhancing to the better the borrower characteristics' which was found to

have a positive significant relationship to revolving fund loan repayment and sustainability, and informing both the youths and women not to fear venturing into private business and rid them of their obsession with white collar jobs which are not easy to find.

Funds to develop systems that would result group confidence and financial discipline through positive thinking, training and talking to other groups on the part of the borrower should be put in place. Other Systems of monitoring and evaluating, for one to graduate to other systems of credit are needed, which is part of the revolving fund loaning procedure. The authority should ensure that the systems put forward are free from manipulation by conmen/women that were reported moving around, promising what the borrowers wanted to hear. Conning of group members was reported in some constituencies in Murang'a County; which made some group officials to provide information needed with a lot of caution. The period of loan release should be reduced to at most one month. The government revolving funds were reported to be taking too long before they are released to the borrowers and this has given room to a rise of problems of conning indicated above in the process making promises to release funds soonest possible.

Loan beneficiaries must demonstrate willingness to be guided and developed into entrepreneurs. They need to comply with the training, mentoring and monitoring processes to enhance on the loaning operation procedures which were found to have positive significant relationship to revolving fund repayment and sustainability. Periodic statements on the loan borrowing for both individual borrowers and groups' repayments should accompany the monthly reports provided by the constituency YEDF and WEF offices. This will help to

discover defaults in time. Beneficiaries should be required to fully account for the funds and submit regular progress reports accompanied by a detailed financial report to their respective constituency loan officers.

The start-up amount of Ksh 50,000 that was recommended when both funding initiatives were rolled out has been overtaken by events including inflation and is too low according to the respondents and needs review. The YEDF start-up amount was recently adjusted to Ksh 100,000 according to the constituency loan officers but for WEF, the start-up fund has remained the same and needs review to at least Ksh 100,000. Again, the 5% administration fees charged may appear small but the respondents felt it was too high, and should be reduced further. Reduction of this fee would go a long way in enhancing the borrower capability and encourage them to rely on government revolving funds for sources of credits which would now be cheaper by far, compared to sources from the informal lenders. The three months grace period as per the loaning operation procedure given to the borrowers before they start repaying should be extended to six months and beyond to give the borrowers room to make adjustment so as to improve on the rate and amount of loan repayment.

The study noted irresponsible lending and borrowing that has caused stress and deaths to good number group members, as a result of worsening borrower' characteristics, that was found to have positive significant relationship to revolving fund loan repayment and sustainability. The operation structure of both YEDF and WEF funds, may be contributing to this behaviour. Most of the Constituency Loan Officers are volunteers on stipend payment

which affects their morale in service delivery. Due to the structures, circumstances make some of the officers irresponsible in their actions, which affects supervisory and monitoring of groups in their jurisdiction.

The study noted increased issues on loan diversion and spouse influence during the time of borrowing and repayment in almost all the groups that took part in this research. Some spouses were reported to have run away from homes after receiving the loans to evade repayment or to evade the nugging demands from their partners, to part with some/all the amount borrowed. This may be one of the explanations of wife/husband battering in Cental Kenya, reported by the local media. Improvement of the YEDF and WEF structures needs to be re-looked, to adequately provide resources and systems to capture and monitor groups, and be able to put in check; loan diversion, the spouse influence and elements of informal borrowing. Spouses should be encouraged to have all the relevant information concerning the amount and when borrowing is been done, and should be made to appreciate the purpose of borrowing to avoid misunderstanding, misuse and diversion of the borrowed funds. On this regard, there is need to invite spouses to sign for loans in front of the loan officer and ensure ownership documents are attached where collateral is needed for a loan, to reduce cheating and loan diversion.

It was found important to ensure that the WEF and YEDF meet the requirements of the Association of Micro-finance Institutions of Kenya (AMFI-K) and abide by their code of conduct. In addition, loan purpose and capacity for investment should be assessed by all members of a group, and the groups concerned with supervision of other members to

enhance effective loaning operation procedures. The loan applicants should possess relevant knowledge, experience and skills on projects they intend to start.

For the last ten years, youth and women have been the platform on which politicians have played their dangerous games of control and power, feeding on leftovers put across at them by the political class. For the initial government plan to reduce poverty and unemployment among the youths and women who happen to be the majority in the country to succeed, the bad game with the politicians should be put to an end. They should not determine the running of funds as they have done in the past, once certain mechanisms to run them are laid down. Un-healthy use of the youths and some women by the politicians influences their social-economic aspect negatively wasting precious time doing very little that is economical if any. The study recommended the establishment of a consolidated social protection fund to rehabilitate and build youth empowerment centres in all the constituencies.

5.4.2. Recommendations for Further Research

With respect to the findings of the study, the researcher made the following recommendation for further study:

A similar research be carried in other counties particularly counties with rural phenomena like Murang'a County on a larger scale comparison of the findings of the study. A study on effect of WEF and YEDF partnership with the financial institutions and determine whether individual women and youths are being funded as per the agreement should be done. A study can also be carried out to determine the impact of government revolving fund to household/

business income over time when the funding has been made available in both rural and urban set-up.

REFERENCES

Amuya, S., Ouko, C., Huka, G. & Omwong'a, M. (2010). *An analysis of the challenges facing youth enterprise development fund.* aibuma 2011 submission 37 pdf journal.

Barnett, B., Barrett, C. & Skees, J. (2007). *Poverty Trap Index- Based risk transfer. Mississippi* State RetrievedMay11,2013, from http://www.zotero.org journal

Barth, J., Gerard, C. & Ross, L.(2008).*Bank Regula University),* www.palrave.journal. com/ces/50,(537-563) journal.

Begum, S., Bhuiyan, M., Davis, I., Ogusty, J. & Ziemba, E. (2000). *Micro- credit. Is it for health?* www.microfinancegateway.org /journal.

Boynton, A. (2000). *New Competitive Strategies: Challenges to organization and information technology.* .Journal Retrieved May 11, 2013, from https://www.google.com/.

Brau, J.,& Woller, M. (2004). *Micro finance. A comprehensive Review of Existing Literature.* Journal of entrepreneurial finance JEF,ISSN 1551-9570 vol.9

Canterbery, E. (1997). *A vita Theory of Personal Income Distribution,. Florida State University,* journal Vol 46, No.1.

Central Bank of Kenya, (2012). *Banking Review.* Bank Report Retrieved from www.cetralbank.go.ke, 2012.

Chweya, L. (2006) *Constituency Development Fund: A Critique, Department of Political Science and Public Administration,* University of Nairobi http://www.africanexecutive.com/modules journal.

Commins, R.O.,&Hazinski, M.F. (2000).*Guideline Based on Fear of Type I and Type II errors(false negative errors)* Cross mark; (circ.ahajournal.org) downloaded on 1st June 2014.

Cooper,D., & Schindler, P. (2008).*International Edition: Business Research* Methods. (8th ed.); New Delhi; MacGraw-Hill. Bulletin.

Desta, A. (2009). *Do Microcredit Programs Alleviate Poverty and Foster Environmentally Sustainable Development?* A Review of African Case Studies, Professor of Sustainable Economic Development, Dominican University of California

District Development Report, (2007). *Ministry of Planning, Murang'a District, Kenya government* District Development reports issue Bulletin.

Fisher, T. & Sriram, M. (2002). *Beyond Revolving fund: Putting Back into Micro- Finance.* Vistar publication new Delhi Oxfam U.K publication. New economic foundation, London journal.

Gemma,A. (2014). *Creating Youth Empowerment through Entrepreneur Financing*. Is the Uganda Youth Venture Capital Fund on course? Published article 2014

Ghada, O., Teima, R., Neil, P., Ramsden, K., Melina, L. & Mirmulstein, N. (2010). *Access Finance.* Publisher the Financial & Private Sector Development; IFC's SME Banking Knowledge Guide, Vice Presidency of the World Bank Group http://www.ifc.org/smebanking. Issue no. 30 journal.

Giné, X. (2010). *Using Biometric Technology in Rural Credit Markets. The case of Malawi.* Finance PDS Impact, May issue number 11. http://econ.worldbank.org/program/journal.

Giné, X,. Goldberg, J., & Yang, D. (2009). *Identification Strategy: A Field Experiment on Dynamic Incentives in Rural Credit Markets,* Bureau for Research and Economic. Analysis of Development (BREAD); and. National Bureau of Economic Research (NBER), Ford School of Public Policy and Department of Economics, University of Michigan. journal.

Gine, X., Goldberg, J., Sankaranarayanan, S., Sheerin, P. & Yang, D. (2011). *Use of Biometric Technology in Developing Countries* This paper was funded by the World Bank Research Committee, the Korean Trust Fund for ICT4D, USAID's BASIS AMA CRSP research facility, and the USAID Malawi country office. xgine@worldbank.org. journa*l.*

Graig, M., Alain, J., & Elisabeth, S. (2004). *How Rising Competition Among Microfinance Institutions Affects Incumbent Lenders.* Journal Retrieved from http://empac.ucsd.edu/assets/003 on Tuesday May 21st 2013 journal.

Guntz, S. (2011). *Sustainability and profitability of Micro-finance institutions*. George Simon OHM University of applied science Nuremberg, International business program, centre for applied international finance and development (CAIFD), Research paper 4/2011. ISSN 2191-48-58.

Hersey, L. (2010), *Government Funding of Non-profit Organizations: Does this Reflect Democracy? P*repared for:23rd Annual Meeting of the Public Administration Theory Network , May 2010, lnhersey@memphis.edu journal.

Hulme, D., Kashangaki, J., & Mugwanga, H. (1999). *Dropouts amongst Kenyan Micro-*

finance Institutions. Micro Save-Africa and Centre for Micro-Finance, Kampala, Uganda. www/undp.org/sum.Journal Retrieved from http://staging.microsave.net/files/pdf/.

Jameela, V.(2003). *Revolving fund, Employment and Diversion of loan Use. Lecture,* Selection Grade, Department of Economics, Sreee Naranjana College, India Journal Retrieved on Wednesday May 30, 2013.

Jemal, A. (2003). *Micro finance Loan Repayment Performance. A case study of the Orima credit and savings share company (OCSSCO) in Kuyu.* Addis Abba University. Journal Retrieved on Wednesday May 29, 2013.

Jennifer, L. (2010). *An Evaluation on the Effectiveness of Micro Finance Institutions.* Journal Retrieved from http://www.indiana.edu/~spea/.

Jorge, L., Rodríguez-Meza, L. (2000). *Group and Individual Revolving fund Contracts: A Dynamic Numerical Analysis Dissertation,.* Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University.

Karki, L. B.& Bauer, S.(2004).*Technology Adoption and Household Food Security. Analyzing Factors Determining Adoption and Impact of Project Intervention.* A case of smaller Peasants in Nepal. Paper presented in Deutscher, held on 5-19 October. Humboldt- University of Berlin.

Karlan, D., & Morduch, J. (2009). *Handbook of Development Finance Chapter 2, volume 5*Dani Rodrikand Rosenzweig, eds journal.

Kenny, D. (2013).*Mediation: Learn How you can do a Mediation Analysis and Output a*

*Text Description of your Results. Mediation (David A.*S. *Kenny).htm/Bulletin retrieved on 16th Dec 2013.*

Kibaara, B. (2006). *Rural Financial Services in Kenya: What is Working and Why? Egerton university.* Tegemeo institute of agricultural policy and development. Retrieved from www.tegemeo.org/documents/conference/ (2006).

Kimando, L., Kihoro, J. & Njogu, G., (2012). *Factors Influencing the Sustainability of Micro-Finance Institutions in Murang'a Municipality*. Journal downloaded on 11/1/2014. www.ijbcnet.com/1-10/IJBC-12-1922.pdf.

Kimani, M., & Musungu, T. (2010). *Reforming and Restructuring Planning and Building Laws and Regulations in Kenya for Sustainable Urban Development,,* 46th ISOCARP Congress.

Kiraka, R., Kobia, M. & Kattulo (2013), *A. Micro, Small and Medium term Enterprise Growth and Innovation in Kenya. A case study on the women enterprise fund.* ICBE- RF Research reportNo.47/13. http://ir.library.strathmore.edu/.

Khaleque, A. (2010). *Diversion of Loan Use: Who Diverts and Why. Institute of Microfinance* Dhaka Bangladesh paper number 26930 posted on 20 November 2010. www.mpru6.uni-muecheir/de/26930.

Lapenu, C., & Zeller, M. (2001).*Distribution, Growth, and Performance of Microfinance Institutions in Africa, Asia, and Latin America.* Retrieved from http://ageconsearch.umn.edu/bitstream journal.

Lemire, B,. Pearson, R., & Campbell, G. (2002). *Women and Credit, Researching the*

*Past, Refining the Future. B*erg edit ional offices150 Cowley Road Oxford New York USA journal.

Linda, P. (2001*) Anatomy of Business Plan; Step by Step Guide to Building and Securing Your Company's Future.* Published by Deemborn Trade Publisher, a Kaplan professional Company. Journal Retrieved on Tuesday may 21, 2013.

Lindermam, K., & Thurmier, K (2000). *Beyond Efficiency and Economy: An Examination of Basic Needs and Fiscal Decentralization "*In Economic Development and Cultural Change, University of Chicago Press.

*M*ahajan, V. & Ramola, B. (1996). *Financial Services for the Rural poor and Women in India: Access and sustainability.* Journal of International Development, 8(2), 211–224.

Mathison, S. & Manger, P. (2006). *Increasing the Outreach and Sustainability of Micro-Finance through ICT Innovation.* The foundation for development congregation (FDC). www.microfinancegateway.org/gm/document/ journal.

Mbachu, H.I, Nduka, E.C, Nja, M.E, (2012). *Designing a Pseudo R-Squared Goodness -of-Fit Measure in Generalized Linear Models.* http://dx.doi.org/10.5539/jmr.v4n2p148

Mishikin, F. & Eakins, S. (2007*). Financial Markets and Institutions* (Pearson international edition). Wesley publisher.

Mitiabmo, P,M.(2011) *The Consistency Development Fund Experience in Kenya, Common Wealth secretariat* Marlborough House United Kingdom, www.thecommonwealth.org/publications, ISBN 978

Mohane, H., Coetzee, G. & Grant W. (2000). *The Effects of the Interest Rate Ceilings on the Micro-Lending Market in South Africa.* Agrekon, 39(4), 730–738. journal.

Mokhtar, H., Nartea, G & Gan, C. (2011). *Determinant of Loan Repayment Problem Among Micro Finance Borrowers in Malaysia.* Journal Retrieved May 11, 2013, from http://www.zotero.org/support/quick_start_guide.

Muathe,M, S. (2010) *The Determinants of Adoption of Information and Communication Technoloy by Small and Meduim Enterprises within the Health sector in Nairobi*, Kenya, PhD Thesis study, Kenyatta University.

Muhammad, Z. (2011). *Cost Structure and Sustainability in Microfinance Institutions: The Case of Bangladesh School of Administrative studies.* Atkinson Faculty of Liberal and Professional Studies. York University 4700 Keele Street, Toronto, ON, M3J 1P3, Canada journal.

Mugenda, & Mugenda, (2003).*Research Methods, Quantitative and Qualitative Approaches.* AcTs press Nairobi.

Mutua, J., & Oyugi, L. (2007). *Poverty Reduction Through Enhanced Rural Access to Financial Services in Kenya.* Southern and Eastern Africa Policy Research Network journal.

Njiru, E. (2010). *Early Warning Indicators of a Loan Default Crisis: An empirical analysis of the Cambodian Microfinance Sector,* Hohenheim University journal

Odudho, A. (2000). *District focus for Rural Development, Bottom -up. concept.* Journal Retrieved May 11, 2013, from http://home.mywebsearch.com

Opiyo,D.(2013). *Default on Government Revolving fund.* Report Retrieved May 13, 2013, from http://www.marsgroupkenya.org/youth.

Peachey, S. & Roa, A. (2004). *Access to Finance. A study for the World Savings Micro -Finance Institutions Institute.* Journal Retrieved May 11, 2013.

Republic of Kenya, (2009).*Youth Fund Status Report. Nairobi, Youth enterprise fund board march 2009, www.youthfund.go.ke.*

Rosemary, A. (2001). *Formal and Informal Institutions' Lending Policies and Access to Credit by Small-Scale Enterprises in Kenya: An Empirical Assessment.* University of Nairobi AERC Research Paper 111 African Economic Research Consortium, Nairobi. November 2001, African Economic Research Consortium. Published by: The African Economic Research Consortium.

Sabir, P. (2009). *Micro- Insurance, Impairing Access to Insurance for Underserved* Jakarta Indonesia. www.microinsurance.coop/Journal.

Sagwe, J., Gacheru, S. & Mahea, T. (2011). *Youth and Women Enterprises Preparedness in Kenya. Kenya institute of management publication*, Tristart business Evaluation tool. Journal Retrieved on Tuesday May 14, 2013.

Sarah, G. (2011). *Micro-Insurance, Impairing Access to Insurance for Underserved.* Jakarta Indonesia. www.microinsurance.coop/Journal.

Saunders, M. Lewis, P. & Thornhill, A. (2009). R*esearch Methods for Business Student*, 5th edition, Great Britain, Prentice Hall.

Siddique, H. (2007). *Sustainability and Profitability of Microfinance institutions*, George

Smmon University Nuremberg University, research paper , ISSN 2191-485

Sosa-Escudero, W.(2009). *Econometrics Analysis*, Final remarks, Spring 2009, Econ 507 http://www.econ.uiuc.edu, downloaded on 1june 2014.

SME policy index,(2012). *Eastern Partner Countries 2012. Progress in the Implementation of the Small Business Act for Europe.* Study developed within the framework of the Eastern Partnership, an initiative launched by the European Union in May 2009. Bulletin Retrieved on Jan 30, 2014.

*S*rivastava, P. (2004). *Scaling-up Access to Finance for India's Rural Poor.* Parisila Bhawan, 11 Indraprastha Estate, New Delhi - 110002 (India) Tel: +91-11- 23379861-3 journal Steel, www.worldbank.org journal.

State of Hawaii. (2009). *A report to the governor of the legislature of the state of Hawaii*. (Report number 09-11-dec 2009)

Stuhldreher,. A. & Jennifer, T. (2006). *Breaking the Financial Service Barrier.* The Centre for Financial Services Innovation/afr/wps/india. Journal Retrieved on Tuesday on May 21, 2013.

Thorsten,. B. & Augusto, M, (2006) (2006). *The Basic Analytics of Access to Financial Services.* Journal Retrieved May 11, 2013, from http://www.mozilla.org

Torres-Reyns, O. (2009).*Getting Started in Logit, Ordered Logit Regression Version* 3.1 beta. Priceton University. Journal Retrieved June 6, 2014, from http://www.dss.priceto.edu/training .

Venkatesh, V., Morris, M.G., Davis, F.D., and Davis, G.B. (2003) "*User Acceptance of*

Information Technology: Toward a Unified View," *MIS Quarterly*, 27, 425-478.

Walker, T., Tschirley, J., Low M., Pequenino, T., Boughton, E., Payongayong, R. and Weber, M.(2002). *Determinants of Rural Income, Poverty, and perceived well-being in Mozambique* in 2001-2002 journal.

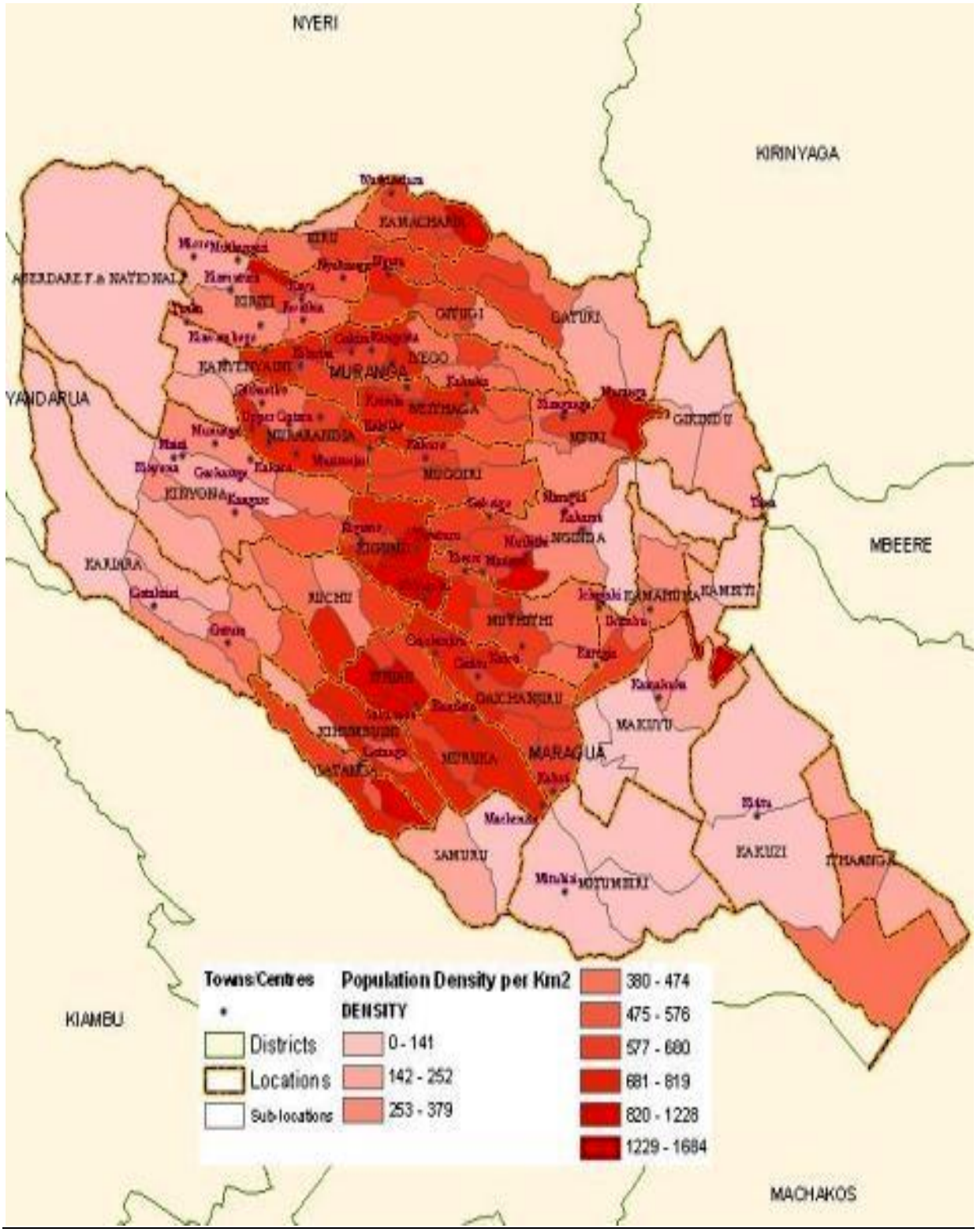
Wakuloba, R. (2006). *Causes of Default in Government Micro- Credit Programmes.* Journal Retrieved May 13, 2013.

World Bank, (2004). *Leasing: An Underutilized Tool in Source of Financial Institution fund.* Washington, DC, World Bank, Agriculture and Rural Development Department report.

World Bank, (2012).*A Guide to Regulation and Supervision of Microfinance.Consenus Guideline Washington, Dc 20433. wwwc.cgao.org*

Zaiontaz , S. (2013). *Real statistics using excel. Real Statistics Resources*.www.real-statistcs.com.

APPENDIX 1 : **Map showing boundaries of Murang'a County**



APPENDEX2 (a) : Research Clearance Letter

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

9th April, 2014

NACOSTI/P/14/7076/1203

John Njangiru Mungai
Kenyatta University
P.O.Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Loan repayment and sustainability of government funded Micro-Credit Initiatives in Murang'a County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Murang'a County** for a period ending **30th June, 2014.**

You are advised to report to **the County Commissioner and the County Director of Education, Murang'a County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

SAID HUSSEIN
FOR: SECRETARY/CEO

Copy to:

The County Commissioner
The County Director of Education
Murang'a County.

APPENDEX 2(b): Research permit 2

THIS IS TO CERTIFY THAT:
MR. JOHN NJANGIRU MUNGAI
of KENYATTA UNIVERSITY, 4548-1002
Thika, has been permitted to conduct
research in *Muranga County*
on the topic: *LOAN REPAYMENT AND SUSTAINABILITY OF GOVERNMENT FUNDED MICRO-CREDIT INITIATIVES IN MURANG'A COUNTY, KENYA*
for the period ending:
30th June, 2014

Permit No : NACOSTI/P/14/7076/1203
Date Of Issue : 9th April, 2014
Fee Recieved :Ksh 2,000

Applicant's Signature

Secretary
National Commission for Science, Technology & Innovation

APPENDIX 3 : Group Executive Member Questionnaire

This questionnaire is aimed at collecting data on loan repayment and sustainability of government revolving funds in Murang'a County. It intends find out your satisfaction on the government revolving fund initiative at your disposal. Kindly respond to the following questions as honest and accurately as possible. The information you give will be useful only for the purpose of this research.

SECTION A: PRELIMINARY INFORMATION

Division _____ Name of Group (optional) _____ Number of members _____

1 Kindly indicate your Gender

Male [ ] Female [ ]

2. Group Position Held (Tick): Chairman ☐ Treasurer ☐ Secretary ☐
Marital status

Single ☐ Married ☐ Widowed ☐

3. What is your highest level of Education of most of your group members? (Tick as applicable)

a) Diploma [ ]

b) Degree [ ]

c) Post graduate [ ]

d) Others (specify) ……

4. Indicate the period in (years), you have been a member of this group.

i. Less than one year [ ]
ii. 1-3 years [ ]
iii. 3-7 years [ ]
iv. 8-10 years [ ]
v. Above 10 years [ ]

5. Number and average age of majority of your group members

Age bracket	**Total in number**
a. Age 15- 25_____	Between 1- 5 _____

b. Age 26- 35 _____ Between **6**- 10 _____
c. Age 35- 45 _____ Between 11- 15 _____
d. Above 45 _____ 16 and over _____

6. In your opinion, for better group management, what would you suggest would the ideal number of members?

i. Between(3 – 5) group members ☐
ii. Between(6 – 10) group members ☐
iii. Between(11 – 20) group members ☐
iv. Above 20 group members ☐
v. Not sure ☐

7. To what extent do the following factors influence micro credit loan repayment?

Statement	5	4	3	2	1
Members that are single and not married are able to repay their loans promptly					
Members with young children Between (1 - 3) and at ages between (1 - 10) are more committed to group activities and are committed in repaying loans					
Members with children between (4 -5) at ages between (11- 15) are more committed to group activities and are committed in repaying loans					
Members with children between (6 -10) at ages between (16 - 18) are more committed to group activities and are committed in repaying loans					

1-not at all, 2-low extent, 3-moderate extent, 4-great extent, 5- very great extent

8. From your records, who among the group members repay their loans promptly?

Those earning incomes;

a) Between (Ksh 0 - 3000) ☐
b) Between (Ksh 3001- 5000) ☐
c) Between (Ksh 5001-10000) ☐
d) Between (Ksh 10001-20,000) ☐
e) Above 20,000 ☐

SECTION B: LOANING PROCEDURE AND REPAYMENT

9. To what extent do you agree with the following statements on loaning procedure influence on revolving fund loan repayment?

Statement	5	4	3	2	1
Personal account is important and vital to loan repayment					
Number of other loans an individual has affects repayment, the more the loans the more it becomes difficult to repay					
Ability to repay loans depend on which institution the borrowing was done					
Administration fee charged on borrowed amount determine the amount borrowed by revolving fund members and also affect repayment					
Delay in loan processing influence borrowing and repayment of micro- loans					

Business plans are essential to effective borrowing and payment and should be made mandatory. Those who prepared business usually repay promptly					
Flexibility of revolving fund institutions on loan lending determine the influence repayment					
The borrowing terms put in place determine revolving fund loan repayment					
Quality of service provided by the revolving fund institutions determine repayment					

1-means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).

10. The following are reasons for not saving resulting to poor repayment of revolving fund repayment. To what extent do the following forces influence micro- credit repayment?

Statement	**5**	**4**	**3**	**2**	**1**
Members strong preference for current consumption to future consumption results to low savings					
There are no pre-commitment measure to ensure the preference of savings dominates					
There is no motivation for savings to build a reserve fund to fall back					
There is no knowledge of advantages of maintaining a financial buffer in our group					

(1-means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).

11. Revolving fund institutions in my constituency are failing to reduce multiple lending and borrowing because:- (tick)

a) Credit officers are irresponsible in their service and do not discourage the vice. They do it to meet the target laid down ☐
b) Revolving fund institutions ask for elaborate business plans before the issue loans but for formality sake. ☐
c) Revolving fund institutions have no standard reporting requirement and difficult to know what their competitors are doing ☐
d) They do not provide training to borrowers and depositors on how to run a business and consequence of not repaying loans. ☐

e) All the above (comment)_____

12. To what extent do you agree with the following assertion on dissemination of revolving fund information

Statement	**5**	**4**	**3**	**2**	**1**
Micro credit officers should visit groups daily					
Micro credit officers should visit groups weekly					
Micro credit officers should visit groups daily					
Micro credit officers should visit groups once a year					
Not necessary to make visitation					

1-not at all, 2-low extent, 3-moderate extent, 4-great extent, 5- very great Extent

13. To what extent do you agree with each of the following statement on revolving fund borrowing and repayment

statement	**5**	**4**	**3**	**2**	**1**
Screening mechanism on revolving fund borrowers is vital and should be encouraged					
Micro-insurance which not in place in the moment should be introduced to the YEDF and the WEF					
Every revolving fund institution should demand for business plans before issue of borrowed fund					
Amount lent out should be multiplied (its currently very low) to reduce multiple borrowing					
Administrative fee charged of 5% is too low and should be reviewed upwards					

(**1- strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree)**

14. Please indicate one of the screening processes that take place in your micro credit institution.

i. Loan application and integrity checks ☐
ii. Technical assessment ☐
iii. Approval by secretariat based on ability ☐
iv. Ability to insure the loan ☐
v. Collateral security checks ☐
vi. Proposed development criteria check ☐
vii. Site eligibility check ☐

15. Please provide information on rounds of issue overtime since inception for your group and the amount borrowed

Round of issue of loan	**Amount borrowed by the group**
Round 1 ☐	☐
Round 2 ☐	☐
Round 3 ☐	☐
Round 4 ☐	☐

Amount

1- Between 10,000 and 100,000, 2- Between 101,000 and 200,000, 3- Between200, 001 and 300,000, 4- Above 300,000

16. Do your group members attend training training/workshop/seminar for financial literacy?

Yes ☐ No ☐

If they do, provide the following information

Date /month of the training	**Service provider (chose from below)**	**Time taken for training**	**Fees paid (if any)**	**Sponsor**
Last year ☐	☐	☐	☐	☐
Jan – April 2013 ☐	☐	☐	☐	☐

May – Aug 2013 ☐	☐	☐	☐	☐
Sep – Dec 2013 ☐	☐	☐	☐	☐

Time taken

1-Below 2 hours, 2- Between 2 - 4hours, 3- Between 4 - 6hours, 4- Above 6 hours

Service provider

1-Public officer, 2-Youth fund credit officer, 3- Women fund credit officer, 4- Sacco office, 5- others.

Sponsor

1-Government, 2- Youth fund organization, 3-Woman fund organization, 4- NGO, 5- Others.

SECTION C: SOCIO-ECONOMIC EFFECT TO MICRO CREDIT LOAN REPAYNENT

17. What are the main sources of income to most of the group members?

Sources of income	**Average Income received (monthly)**	**Rank in order of importance**
Crop income ☐	Between 1000 – 4000 ☐	
Non-crop income/self employment ☐	Between 5000 – 8000 ☐	
Livestock income ☐	Between 9000 – 14000 ☐	
Wage income ☐	Between 15000 – 19000 ☐	
Business income ☐	Between 20000 above ☐	

18. Please provide the above information on structure of the land ownership to most of your group members

		Tenure system (tick one)					
	Average Size	Owned	Rented	Rented out	Communal	Average Income from land per month	**Registration Title**
Acres of land	☐	☐	☐	☐	☐	☐	Yes ☐ No ☐ N/a ☐

Income range to chose from

1-Between 2,000 – 5,000, 2-Between 6,000 – 8,000, 3-Between 9,000 – 12,000, 4- Between 13,000 – 16,000, 5-Above 16,000

Size of acreage

1-(Less than an acre) 2-(Between 1 – 2 acres) 3-(Between 3 – 4 acres) 4- (Over 4 acres)

19. To what extent do you agree with each of the following statements of socio-economic factors on revolving fund loan repayment?

Statement	**5**	**4**	**3**	**2**	**1**
Size of the farm do not determine revolving fund repayment					
Land registration is vital for Security and has been used as collateral by most group members					
Distance of the revolving fund institution has effect on borrowing and repayment					
The more frequent the visit to the micro- credit institution by the members the better for information and loan repayment					
It is important to know other group members. It helps to build cohesiveness, which has effect to micro loan repayment					
Continuity in a group determines the level of repayment and loan sustainability					

Time of maturity of investment determines the repayment and loan sustainability					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).**

SECTION D: BORROWER' CHARACTERISTICS TO REVOLVING FUND LOAN SUSTAINABILITY

20. Are there group members that have diverted their loan from the proposed purpose you know of?

Yes ☐ No ☐

How many are they in number?

i. Between 1 – 5 members ☐
ii. Between 6 – 10 members ☐
iii. Between 11 – 15 members ☐
iv. Above 15 members ☐

21. To what extent do you agree on the statements below on loan diversion?

Statement	**5**	**4**	**3**	**2**	**1**
Poor business performance is the man cause of loan diversion					
Domestic problems are the main cause of loan diversion					
Literacy and low level of education are the main cause for loan diversion					
Prevailing shocks in the economy are the main causes of loan diversion					
Circumstances compel the group members to divert loans					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).**

22. Do you have spouse loan influence in your group?

Yes ☐ No ☐

Please rate the influence

5 4 3 2 1

High ☐☐☐☐☐ Low

23. To what extent do you agree on the statements below on loan spouse influence on loans?

Statement	**5**	**4**	**3**	**2**	**1**
Spouses have strong influence on most loans borrowed					
Spouses should not dictates on the use of borrowed loans despite being not responsible for its repayment					
Loan should not be a means to separate spouses, they are one and should all decide on the use of the funds and take part in repayment together					
Husbands/wives who borrow without the knowledge of their spouses are on the rise					

Spouses should be independent when borrowing, use and repaying of borrowed revolving funds					
Irresponsible borrowing is the main cause of distress and divorces among spouses					
Irresponsible borrowing has caused death to some group members around					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).**

24. Are there money lenders or credit funds around where you live?

Yes ☐ No ☐

. If yes, to what extent do you think they flourish in your vicinity?

Reasons	**5**	**4**	**3**	**2**	**1**
They provide loans quickly unlike others who are very slow					
They provide their services to all unlike others that are gender bias					
Do not demand mandatory savings and other cost that are common with other sources					
Despite of their high interest rate, they are convenient and funds readily available to the extent of the borrower					
There is a lot of discouragement and yelling from credit officers and members are trying to avoid this					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).**

25. To what extent do you agree with the following statements in your vicinity?

Extent	**5**	**4**	**3**	**2**	**1**
Many people have taken government revolving funds as grants and are not repaying					
Some people are not paying loans because others are not paying too (snowballing)					
Credit funds are on the rise in the recent past due to limited access of YEDF					
Informal credit agencies are on the rise in our vicinity due to limited access of the WEF					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree)**

SECTION E: TECHNOLOGY EFFECTS TO DEFAULTS OF REVOLVING FUND LOAN FOR SUSTAINABILITY

26. To what extent do you agree with each of the following statement on use of innovations for loan repayment

Statement	**5**	**4**	**3**	**2**	**1**
Finger prints for all members of revolving fund should be taken and kept in a data base					
Signing against our names is enough for data mining					
Taking the details of groups is enough					
Smart cards or biometrics should be introduced to every revolving fund institution for data mining of the borrowers					
The Credit Reference Bureau that was meant for commercial banks has been extended to most revolving funds institutions to reduce multiple borrowing and lending.					
Micro- credit Institutions are still in suspicion amongst themselves and Credit Reference Bureau may not work					

(**1-means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree**)

27. Have you been provided with a smart card?

Yes ☐ No ☐

28. To what extent do you agree with each of the following statement on use of smartcards?

Statement	**5**	**4**	**3**	**2**	**1**
Piloting of smartcards recognition system was rolled out to all micro- credit institutions					
Smartcards has helped to determine whether loan applicants are already enrolled under different indemnity reducing rate of defaulting					
Finger prints technology for data have exposed to us more than face recognition.					
Individual after data collection on smart cards have been taking smaller loans that they are able to repay					
Benefits acquired from use of smartcards have been able to cover the cost of acquiring the devices.					
Loan defaulters should be identified early and prosecuted for sustainability to be realized					

(1-**means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree).**

29. Some researchers have recommended the use of Biometrics to reduce defaulting of loans, what is your general recommendation on the use of Biometrics in the revolving fund institutions?

(*Chose one*)

i. It is a waste of time and the ideal should brushed away ☐
ii. It's a costly affair that revolving fund institutions cannot afford and should not be given any thought ☐

iii. It should be enforced to all revolving fund institutions ☐
iv. Government to sponsor biometrics to all revolving fund institution ☐
v. Use of smart cards is sufficient and status quo should remain ☐
vi. Government should instead demand compulsory use of smart cards to all revolving fund institutions ☐

SECTION F: MICRO- CREDIT LOAN SUSTAINABILTY

30. To what extent do you agree with each of the following statement on efforts to improve loan repayment and sustainability?

Statement	**5**	**4**	**3**	**2**	**1**
Doing a lot of advertisement in the local media will help to improve awareness and consequently loan repayment and sustainability					
Visitation of the groups regularly will help to improve information dissemination and consequently reducing default rate and sustainability					
Members should be encouraged to visit the lending institution on their own.					
Reducing of rigidity in service delivery and lending terms has influence in repayment and sustainability					
Calling for seminars and workshops regularly to make aware of service and products to improve repayment and sustainability					
Loan supervision has been low overtime and should intensified					

(**1-means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- Strongly agree).**

31. Which saving plan would you recommend to improve the groups' portfolio? Chose the best applicable to your group.

Saving plan	(Tick)
Saving of the group members which should be out of will	
Coerced/mandated requirement saving which will help to reduces the level of defaulting better	
Bribed to save/provided an incentive in order to save to improve savings which will reduce level of defaulting	

Sponsored saving plan/saving plan done by someone on behalf of another is the best to improve loan repayment	

32. What kind of procedures/policies has been put in place to ensure sustainability of government revolving funds?

a) Have championed for a lower interest rate to ensure defaulting is reduced ☐
b) Have introduced incentive mechanism to encourage borrowers to repay loans ☐
c) Have set stiff rules and conditions of access of future loans ☐
d) Advise borrowers to acquire loans in small sizes at a time instead of large size which will pose a challenge to repay ☐
e) Number of loans/projects that an individual or group is servicing is outlined before the loaning is done ☐
f) Importance of joint liability is voiced out always to ensure participation to many in repayment ☐
g) Outline any non refinancing threat put forward by your micro- credit agency

_____

33. Please provide the following information on group revolving fund borrowing and Repayment

Number of group members composition		**Amount borrowed by the group**	**Amount repaid by the group**
Males	Females		

Amount borrowed and repaid (Pick)

1-Between 10,000 and 50,0000, 2- Between 50,001 and 90,0000, 3-Between 90,001 and 140,0000, 4- Between 140,001 and 180,000, 5-Above 180,000

34. How would you rate the general government funded micro- credit services in Kenyan?

5 4 3 2 1

Excellent ☐ ☐ ☐ ☐ ☐ **Below Standard**

35. Please provide the information from the group as per the period indicated (start from time of commencement)

Year	**Amount borrowed**	**Amount un-recovered**	**Amount diverted to other uses**	**Cash from other investments**	**Grants for the year and source**	
					Amount	Source
2007						
2008						
2009						
2010						
2011						
2012						
2013						

SECTION G: EFFECT OF SMEs REGULATORY FRAMEWORK

36. Is there a body that supervise your group activities?

Yes ☐ No ☐

37. If yes in 38 above indicate by ticking the regulatory framework that is prevalent to your revolving fund group

a) Supporting the establishment of stronger businesses associations ☐
b) Establishing tailored trainings for group members ☐
c) Sharing knowledge and field experience ☐
d) Publishing lending policies ☐
e) Holding regional outreach events for group members for information ☐

38. Specify the effect of the SMEs regulatory framework to your group

Statement	**Tick**
Have no effect, we have not heard about this institution	
Will make the group managers to more proactive to group affairs and will become more transparent	
Will make the group members to be more committed to repaying their revolving fund loans promptly	

39. To what extent to you agree with the following statements?

Statement	**5**	**4**	**3**	**2**	**1**
Improving access to revolving fund institutions should be encouraged and should be voluntary					
There should be improved services level to micro-enterprise through new lending codes and rules					
Micro- credit institutions should initiate a pre-refinancing code and rules regularly					
Revolving fund institutions should post alternative sources of finance available to groups and individuals for client satisfaction					

(**1-means strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- Strongly agree).**

40. What would be your recommendation on revolving fund institution services?

i) ----------

ii) ----------

iii) ----------

iv) ----------

v) ----------

THANK YOU

APPENDIX 4: Constituency Credit Co-ordinators Interview Schedule

Sub-county _____Constituency ---------- Marital status

_____

Name (optional) _____ Age (optional) _____Gender: M ☐ F ☐

1. Since inception, how many rounds of loans provided?
2. How do you monitor groups/procedure?
3. How do acquire information on borrowers?

4. Please state the number of borrowers you have in the sub-county/ constituency under different products eg CYES(agri-vijana, Agua- Chicks, Rausha, EYES(swift and smart), Vuka Loan etc from 2009 – 2013.
5. Do you get information of borrowing from other micro credit institution? e.g banks, deposit taking institutions, Saccos etc? How do you use the information in question?
6. Please indicate the screening of loans mechanism put in place? Is it a must to have a business plan in order to borrow fund for business in the groups that you oversee? Do you think it's all that important to have one and why?
7. Please confirm the existence and compliance of micro–insurance for your group. How does it work (if available)?
8. There is an accusation that multiple borrowing has been on the rise as officers try to meet the target thus provide loan irresponsibly, what are your comments on this? Have you experienced deaths and distress of some of your group members due to multiple borrowing?
9. Do you have records of borrowers indicating their loan repayment history? (Please provide a copy for perusal)
10. Please provide any documented guideline where financial information related to the loans is kept.
11. Are there groups' disintegration that you are aware of; what is the rate of new group formation and rate of disintegration? In your opinion is the amount recovered able to cover administrative cost, loss of loans (default) and enough for reinvestment to other borrowers. Do think this fund is sustainable? (Any Comments on the same)
12. In your opinion what should be done to make the loan sustainable for other borrowers?
13. Do you have spouse loan influence that you have come across in your group members? What do you suggest should be done on this influence?
14. What is our response on arrest and prosecution/blacklisting of micro-loan defaulters?
15. What are the challenges that you face daily? How can the challenges be overcome?
16. Is there loan diversion element that you have come across among the groups under your jurisdiction? Estimate the rate

17. In your opinion what should be done to make the revolving fund loan sustainable for other users.
18. Does SMEs regulatory framework have effect on loan repayment and sustainability in your group? Do you receive officials from said body in your group? Any document to guide your operations?

APPENDEX 5 : Performance of Joint Loan Board Funds in Kenya (2000-2004)

Financial Year	**Loan Disbursed (Kshs)**	**Amount Recovered (Ksh**)
2000/01	23,684,000.00	17,438,003.80
2001/02	5,385,000.0014,	717,455.65
2002/03	11,336,557.00	14,215,918.20
2003/04	18,585,000.00	15,431,083.20
2004/05	21,227,000.00	11,543,646.50
Total	**90,217,577.00**	**59,346,107.35**

Source: Wakoloba (2006)

APPENDEX 6 : Amount Lent out and Repaid 2013 and 2012 report

Amount lent out and repaid (YEDF- 2013 and 2012 interview report)

YEDF SUMMARY 2013 IN MURANG'A County					
CONSTITUENCY	**DISBURSED AMOUNT**	**AMOUNT DUE**	**RECOVERED**	**RECOVERY RATE**	**Loan cost 5%**
MATHIOYA	3,953,499.00	2,548,491.00	2,007,059.00	78.75	197,675
KANDARA	4,280,000.00	2,870,249.00	2,079,988.00	72.47	214,000
GATANGA	5,150,000.00	2,766,700.00	1,580,670.00	57.13	257,500
MARAGUA	3,700,000.00	3,058,354.00	1,689,249.00	55.23	185,000
KIHARU	3,634,000.00	2,541,521.00	1,326,091.00	52.18	181,700
KANGEMA	2,468,000.00	1,768,835.00	753,802.00	42.62	123,400
KIGUMO	3,744,000.00	2,157,340.00	857,524.00	39.75	187,200
TOTALS	**26,929,499.00**	**17,711,490.00(a)**	**10,294,383.00 (b)**	**58.12%**	1,346,475 **(c)**
YEDF SUMMARY 2012					
CONSTITUENCY	**DISBURSED AMOUNT**	**AMOUNT DUE**	**RECOVERED**	**RECOVERY RATE**	**Loan cost 5%**
MATHIOYA	2,903,499.00	2,179,362.00	850,877.00	39.04	145,175
KANDARA	3,380,000.00	2,112,523.00	1,588,543.00	75.20	169,000
GATANGA	2,550,000.00	1,779,153.00	608,495.00	34.20	127,500
MARAGUA	2,800,000.00	2,235,881.00	1,138,349.00	50.91	140,000
KIHARU	2,634,000.00	2,254,000.00	852,460.00	37.82	131,700
KANGEMA	1,968,000.00	1,798,000.00	594,882.00	33.09	98,400
KIGUMO	2,494,000.00	2,086,501.00	782,594.00	37.51	124,700

TOTALS	**18,729,499.00**	**14,445,420.00(a)**	**6,416,200.00 (b)**	**44.42%**	936,475 **(c)**

Source: Survey data (2014)

Computed values after substituting a,b and c for year 2013 and 2011

i) $OSSR_{(2013)} = \frac{b}{a+c} = \frac{10,294,383.00}{17,711,490.00 + 1,346,475} = 0.54 :1$

ii) $OSSR_{(2012)} = \frac{b}{a+c} = \frac{6,416,200.00}{14,445,420.00 + 936,475} = 0.417 :1$

APPENDEX 7: Composite Index Computation

Mean Business Plan (Xi)

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

	strong preference consumption	pre-commitment measures	motivation for savings	Knowledge of advantages	failure to reduce multiple borrowing	visit daily	visit monthly	visit weekly	visit yearly	not necessary
N Valid	261	261	261	261	261	261	261	261	261	261
Missing	0	0	0	0	0	0	0	0	0	0
Mean	**4.37**	**4.21**	**4.25**	**4.18**	**3.75**	**2.24**	**3.74**	**2.32**	**2.44**	**1.25**
Std. Error of Mean	.045	.051	.052	.057	.068	.069	.157	.073	.094	.041
Std. Deviation	.788	.886	.909	1.001	1.189	1.21	2.734	1.27	1.647	.720
Kurtosis	1.586	1.196	.881	.710	-.651	-.463	154.88	-540	-1.331	13.19
Std. Error of Kurtosis	.278	.278	.278	.278	.278	.278	.278	.278	.278	.278
Minimum	1	1	1	1	1	1	1	1	1	1
Maximum	6	6	6	6	5	5	44	5	5	5

Mean micro-insurance(X_2)

	importance of screening	micro-insurance introduction	Micro-institutions demands	use of technology	Multiply Amount lent out	review administrative fee	loan application
N Valid	261	261	261	261	261	261	261
Missi	0	0	0	0	0	0	1

ng							
Mean	**4.67**	**4.42**	**4.31**	**4.02**	**4.47**	**3.42**	**1.35**
Std. Error of Mean	.046	.047	.052	.073	.053	.103	.060
Std. Deviation	.801	.827	.917	1.271	.917	1.797	1.045
Kurtosis	8.627	3.952	2.193	.182	2.682	-1.600	11.783
Std. Error of Kurtosis	.278	.278	.278	.278	.278	.278	.279
Minimum	1	1	1	1	1	1	1
Maximum	6	6	6	6	6	6	7

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Mean loan screening procedure(X_3)

		personal account vital	number of other loans	loans and institutions borrowed	administrative fee	Delay in loan processing	Business plan	Flexibility of revolving fund	borrowing terms	Quality of services
N	Valid	261	261	261	261	261	261	261	261	261
	Missing	0	0	0	0	0	0	0	0	0
Mean		**3.45**	**3.88**	**3.70**	**3.86**	**4.21**	**4.28**	**4.30**	**4.31**	**4.29**

Std. Error of Mean	.079	.069	.075	.071	.053	.049	.048	.047	.052
Kurtosis	-1.267	-.691	-1.119	-.572	2.486	2.483	2.948	3.327	3.257
Std. Error of Kurtosis	.278	.278	.278	.278	.278	.278	.279	.278	.278

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Mean financial literacy(X_4)

	N	Minimum	Maximum	Mean		Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error
Rounds of issue	261	1.00	5.00	**1.8328**	.05156	.90042	1.295	.278
Amount borrowed	261	1.00	5.00	**1.6644**	.05349	.91402	3.473	.284
Date and month of training	261	1.00	6.00	**3.4932**	.07785	1.33031	-.921	.284
Time taken for training	261	1.00	6.00	**2.4178**	.07694	1.31477	-.021	.284
Training fees paid	261	1.00	6.00	**3.9623**	.04584	.78339	8.240	.284
Service provider	261	1	6	**2.74**	.086	1.469	.597	.284
Sponser	261	1	6	**3.03**	.116	1.977	-1.257	.284

Valid N (listwise)	261							

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Livestock and crop income (X_{11})

		sources of income	Average income received	Ranking	Average size of land	land ownership	average income from land	registration title
N	Valid	261	261	261	261	261	261	261
	Missing	0	0	0	0	0	0	0
Mean		**3.50**	**2.8493**	**3.50**	**2.2131**	**2.34**	**2.24**	**2.11**
Std. Error of Mean		.087	.08928	.092	.10703	.117	.124	.057
Std. Deviation		1.480	1.52569	1.581	1.82586	1.990	2.120	.978

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Employment and others sources income (X_{12})

		size of the and repayment	land registration as a security	distance effect on borrowing	frequency of visit by group member and repayment	knowing others for cohesiveness	group continuity and repayment	time of maturity and repayment
N	Valid	261	261	261	261	261	261	261

	Missing	0	0	0	0	0	0	0
Mean		**3.92**	**3.84**	**3.82**	**4.30**	**4.32**	**4.36**	**4.18**
Std. Error of Mean		.066	.070	.079	.051	.049	.055	.061
Std. Deviation		1.119	1.199	1.355	.876	.841	.934	1.043

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Loan Diversion(X_{21})

		number of groups	poor business performance cause for diversion	domestic problems and loan diversion	literacy and low level	prevailing shocks and loan repayment	circumstance compel to divert	rating spouse influence
N	Valid	261	261	261	261	261	261	261
	Missing	0	0	0	0	0	0	0
Mean		**2.99**	**4.88**	**4.71**	**4.63**	**4.76**	**4.71**	**3.4674**
Std. Error of Mean		.108	.055	.068	.076	.061	.071	.10812
Std. Deviation		1.835	.943	1.163	1.292	1.042	1.212	1.84432

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Spouse Influence(X_{22})

		spouse influence on loans	spouses dictating on use of borrowed funds	loans not a means to separate spouses	wife's who borrow without knowledge	spouses should be independent	irresponsible borrowing and deaths
N	Valid	261	261	261	261	261	261
	Missing	0	0	0	0	0	0
Mean		**3.65**	**4.12**	**4.42**	**4.10**	**3.74**	**4.03**
Std. Error of Mean		.089	.071	.047	.063	.087	.074
Std. Deviation		1.514	1.203	.807	1.071	1.484	1.264

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Informal and credit scheme borrowing (X_{23})

	Provide quick loans	Not gender bias	Demand mandatory savings	Are convenient	A lot of discouragement	people taking government initiatives as grants	presence of snowballing	limited access to yedf	credit agencies rise due to access to wef

N	Valid	261	261	261	261	261	261	261	261	261
	Missing	0	0	0	0	0	0	0	0	0
Mean		**4.65**	**4.56**	**4.18**	**4.49**	**4.19**	**4.26**	**4.26**	**4.26**	**4.26**
Std. Error of Mean		.056	.055	.079	.059	.082	.068	.066	.064	.062
Std. Deviation		.948	.942	1.345	1.005	1.394	1.163	1.133	1.100	1.061

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Data mining(X_{31})

	finger prints taking vital	signing is not enough	taking group details	credit bureau extension	suspicion of micro credit institutions
N Valid	261	261	261	261	261
Missing	0	0	0	0	0
Mean	**4.21**	**4.24**	**4.22**	**3.90**	**4.22**
Std. Error of Mean	.050	.045	.052	.071	.053
Std. Deviation	.857	.767	.882	1.200	.904

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Credit bureau(X_{32})

		piloting of smartcards	use of smarts cards	finger prints have been used better than face recognition	credit granting decision	individual taking smaller loans	benefits able to cover the costs	loan defaulters prosecution
N	Valid	261	261	261	261	261	261	261
	Missing	0	0	0	0	0	0	0
Mean		**2.49**	**2.76**	**3.03**	**3.24**	**3.77**	**3.22**	**4.06**
Std. Error of Mean		.083	.085	.087	.078	.068	.084	.071
Std. Deviation		1.402	1.434	1.470	1.326	1.146	1.430	1.205

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Smart cards and biometrics(X_{33})

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
use of biometrics	261	1	6	**3.43**	.084	1.420
Valid N (listwise)	261					

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Sustainability(Y)

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Doing a lot of advertising	261	1	6	**4.43**	.047	.798
regular visitation	261	1	6	**4.45**	.041	.694
Members encouraged to visit	261	1	6	**4.46**	.040	.679
Reducing of rigidity	261	1	6	**4.37**	.043	.718
Calling of seminars	261	2	6	**4.46**	.042	.709
Loan supervision	261	1	6	**4.31**	.055	.935
Saving plan to recommend	261	1	5	**1.88**	.075	1.270
Policies put in place	261	1	8	**3.51**	.089	1.505
Group composition	261	1.00	6.00	**2.1930**	.07878	1.33002
Amount borrowed	261	1.00	5.00	**2.4877**	.08445	1.42563
Amount repaid	261	1.00	6.00	**2.4772**	.10035	1.69413
Rating of government Funded micro	261	1	6	**3.88**	.077	1.302

credits						
Year of commencement to now	261	1.00	4.00	**2.6000**	.04950	.86450
Amount borrowed overtime	261	1.00	6.00	**3.1213**	.10419	1.81959
Amount un-recovered	261	1.00	6.00	**3.1475**	.13763	2.40364
Cash diverted to other uses	261	1.00	6.00	**3.0590**	.13742	2.39993

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis

Moderating variable

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
regulatory framework put in place	261	1	6	**2.97**	1.317	-1.051	.300
pre-financing code and rules	261	1	6	**4.39**	.808	5.497	.300
post alternative sources of funds	261	1	6	**4.40**	.883	5.162	.300
new lending codes	261	1	6	**4.41**	.747	5.481	.300
improving access to be encouraged	261	1	6	**4.48**	.721	6.860	.300
Valid N (list wise)	261						

Note- if the mean>3, value is equated to 1, otherwise 0 for logit regression bivariate analysis