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The Characteristics of Lending Groups in Murang'a County, Kenya

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Abstract

Availability, accessibility and affordability of rural credit is one of the key elements for transforming rural economies through enhancing agricultural productivity, food security and poverty reduction. A good number of farmers in Murang'a County have engaged micro credit to boost maize production but the difference in productivity between beneficiaries and non beneficiaries have not been evaluated. This study sought to analyze the characteristics of lending groups in Murang'a County, Kenya. Descriptive and econometric analysis, were used to analyze the data. Primary data was collected from 200 respondents randomly selected from credit beneficially and non-beneficially groups in Kiharu constituency using a structured questionnaire. The study uses the "counterfactual" approach using propensity score matching to assess whether households who had participated in microfinance services had increased their maize yield compared to non-participants. The results showed that the household head's literacy level, primary activity, and market participation positively and significantly contributed to small-scale farmer's access to credit. Majority indicated that they had access to credit, and for those who had accessed credit, their preferred source of credit were savings and credit institutions. The savings and credit institutions played a strong role in backstopping operations, providing standard policies and procedures, and co-branding subsidiaries in the network. They supported financial activities and handled funds intermediation, concentrated on agricultural services or joint production and also offered credit/ financial services to farmers. The study recommends that small-scale farmers can work together as a recognized legalized entity in order to improve their bargaining ability and to take advantage of economies of scale.

Keywords: *characteristics, lending groups, Murang'a County, Kenya*

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1.1 Introduction

Agriculture is a vital economic sector that constitutes the foundation of most African economies. Farming gives 60 percent of all work; represents around 60 percent of the mainland's foreign exchange earnings. In contributor 23.9% of National Gross Domestic Product (GDP); and the prevailing supplier of crude industrial materials (New Partnership for Africa's Development-NEPAD, 2013). Agriculture is an inevitable corresponding to the economies of growing nations, with critical multiplier impacts as it assumes a key part in giving sustenance to the populace and providing different sectors industrial raw materials (Food and Agriculture Organization-FAO, 2009). In Kenya farming is a noteworthy sector of the economy and effects food security, poverty reduction and industrial promotion through the supply of inputs.

Maize is a stable food crop in Kenya. It is approximated to contribute more than 25% of job creation and 20% of total agricultural output (Government of Kenya, 2012. It is food crop for 96 percent of Kenya's population with 125 kg per capita consumption and provides 40 percent of the calorie requirements (Byerlee Eicher, 1997) and Raw material for industries, Create employment and Reduce income inequalities contributes to food security and poverty reduction, hence contribute toward achievement of MDG1, currently SDG1, 2 and 3 Sustainability in maize creation was accomplished amid the 1970s when generation was high and surplus was traded. The Current patterns demonstrate that the Kenya maize part is attempting to attain sustainability in maize creation. Growth in maize creation has been low averaging around 2 percent. This is lower than the populace development rate which remains at around 3 percent. On the off chance that the nation is to act naturally adequate residential generation needs to develop at a rate of 4 percent. Absence of food sufficiency is ascribed by causes including absence of profitability improving advancements, environmental change, high frequency of pests invasion, difficulties in getting to credit (Nyoro et al., 2007; FAO, 2012).

Subsequently, cultivate yields are low averaging 1.5–2.6 tons for each hectare. Over the most recent one decade, the nation has encountered years of elevated sustenance weakness and reliance on imports and crisis compassionate help. In 2009, Kenya imported 16.8 million packs of maize (GoK, 2010). Maize request in the nation has been on the expansion exceeding supply. For example, in 2012 maize creation remained at 2.8 million metric tons (33 million sacks) against a national necessity of 4.1 million tons (40 million packs). With the nation's populace anticipated to be 43.1 million by the year 2020, the interest for maize is probably going to be 5 million metric tons. In view of the overarching development rate, 1.2 million metric tons by 2020 (Nyoro et al., 2007). Expanded dependence on imports infers that the outside trade stores and assets reserved for advancement is occupied to obtainment of nourishment.

Increasing maize production in the existing arable land is the surest way to bridge the demand gap as there is limited opportunity for expanding cultivated land without negative environmental consequences. Higher production from a farmers own farm increases access to food and enhances household food security consequently improving the nutritional needs of community (ROK 2013). For those who purchase food, higher production generally means lower food prices and consequently access to a greater quality of food in the markets for a given income level. Traditional farming practices are no longer capable to meet demand and hence, application of scientific and improved farming methods is essential.

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Increasing maize production in Kenya can be approached both on farm and at national levels. At the farm level, a number of important measures are necessary. Such measures include early and better land preparation, timely planting, planting of the most appropriate maize varieties, proper fertilization, efficient weeding and improved control of pests and diseases. However, majority of farmers in Kenya are not able to access adequate inputs in order to increase their current yields and to sustain increased yields. According to FAO (2012), better agricultural and post-harvest technologies will improve the quantity and quality of available farmland and to some extent increase access to agricultural inputs which will increase food availability to address food insecurity.

Murang'a county has a potential which has not fully been utilize for maize production .The production has been on decline in recent years .The county has been relying on maize from loitoitock, Karatina and other places of the nation. Some parts of the county also get reliefs foods. The county face a critical food situation. In the year 2016 the county recorded a drop of food security by 15% which stood at 53% from 68% in 2015 (GOK, 2012). The ministry of Agriculture report blamed lack of credit access and technical support from extension officers for the dwindling production.

Farmers in Murang'a, more than than any other part in Kenya , still encounters lots of problems including environmental change, globalization and the current worldwide subsidence, expanded weight on the normal asset base, ominous outside economic situations. The absence of access to imaginative advances, low efficiency of smallholders farmerss, diminished speculation by governments and authority improvement help and the restricted engagement by the private part work log jam the way toward commercializing the horticulture United Nation Development Program (UNDP, 2012). Absence of access to credit and back to empower reception, postharvest (capacity/handling), dry season, restricted accessibility half and half seeds, and most as of late MLN (Maize Lethal Necrosis) are among the significant limitations to maize production in Kenya.

Table 1: Maize production and Consumption in Murang'a

Year	**Area in Ha**	**Yield bag per ha**	**Achieved Production bags**	**Food demand**
2012	61075	12	732900	953960
2013	91416	14	877357	982579
2014	62108	9	540656	1012056
2015	65365	18	1191702	1042418
2016	66336	8	540316	1073690

Source: Murang'a County Government CIDP

Table 2: Projected maize production and food demand

Year	Area (Ha)	Yield (Bags/Ha)	Production 90 kg bags	Food Demands
2017	67000	12	804000	1105901
2018	67670	12	812040	1139078
2019	68346	12	820152	1173250
2020	69030	12	828360	1208448

Source: AFFA

According to the 2011 Economic Review of Agriculture (Ministry of Agriculture) data, the national average yield of maize was nearly 16 bags/ha. Murang'a County yielded <10 bags /ha. against a potential of 30bags /Ha .It is this potential that this project want to exploit.

Despite the key role maize plays in food security and income generation in Murang'a County and the whole country at large, its productivity has not been adequate especially in the past four decades during which stagnation/decline in maize yield led to frequent food security problems The declining production for small scale farmers has to a large extent been caused due to several factors including lack of proper or non-utilization of farm inputs and poor preservation and storage. Declining maize output and loss of post-reap yields has consequences on welfare as far as food provision amount of lost income is concerned thus contributing to poverty.

The country's ability to fully utilize its agricultural production potential depends on the innovativeness of actors in the agricultural sector, particularly farmers. The capacity of farmers and actors along the agricultural value chain to innovate in their production activities is contingent on the availability of technology. Access to credit through group is a local innovative initiative deemed very important in order for rural households to access farm inputs, improved technology and financial capital (Owour , Shem 2012).

With regards to credit access, farmer organizations are efficient since they can reduce collateral use as they rely on social capital. In addition, they enable farmers access inputs, acquire important market data, secure access to new advancements and take advantage of high-esteem output enabling them to contend with bigger established agribusiness (GOK, 2013). Access to credit enables farmers to afford pesticides and other chemical inputs for pests and diseases management, thereby reducing destruction of crops and losses to the farmers. In the long run, access to credit enhances agricultural productivity, food security, creation of new business and poverty reduction (FAO, 2012).

The challenges farmers face is accessing loans from formal credit institutions. This has made them rely on the unregulated informal credit sources such as the Grameen type institutions that peg lending to memberships in social networks such as groups and cooperatives. Traditionally, non-governmental organizations (NGOs) and microfinance institutions were the only sources for microfinance, but nowadays commercial banks, savings and credit co-operative societies (SACCOs) have taken up provision of microfinance to Kenyans.

In Murang'a County, lack of affordable credit constitutes a big challenge to accessing better inputs and modern technologies in farming (Bekele, 2007). Constraint in accessing credit to acquire agricultural inputs like fertilizers and agrochemicals can in turn reduce the productivity of farming enterprises. This will in turn affect production as even hybrid variety crops may not attain their potential production (Mbugua, 2009). The low participation of farmers in the credit market is an indication of poor output, savings and investment in production assets. These are likely to cause vicious cycle of lower rates of adoption of improved inputs which in turn will reduce productivity and commercialization. One way to address decreasing maize production due to diminishing arable land is to unlock access to credit (Njoroge et al., 2015; Kosura and Karugia, 2005; Mbugua, 2009).

Murang'a County has more than 500 farmer-groups and cooperatives registered with social and gender office (GOK, 2014). The expensive and unaffordable credit and subsequent reluctance of farmers to take up loans from formal credit has contributed to a rise in alternative financial institutions which cater for Small and Medium Enterprises (SMEs) and

farmers. Examples of microfinance institutions in the county include farmers' cooperative unions such as Mugama Farmers Sacco, Murata Sacco and Unaitas, among others.

Investing in agricultural enterprises through provision of microcredit services has the potential to increase the income and food sufficiency rural homes in Kenya (Olwande, 2012). Several approaches on increasing farmers' access to credit have been proposed; one form is through farmers organizations, such as farmer groups, cooperatives, common interest groups and merry go rounds (Olwande, 2012). Small-holder farmers at times rely on group credit offered by Micro-Finance Institutions (MFIs). The groups offer social collateral on behalf of individual members who in the long run get to credit, which they would not have gotten to on the off chance that they worked independently (Owuor and Shem, 2012). The MFI programme can increase maize productivity and effectively make the country self-reliant in maize production with the surplus produce exported. Therefore, the study hopes to investigate the impact of group microfinance on small holder maize farmers' productivity in Kahuro Sub-County in Murang'a County, Kenya. The research brings out unfulfilled potential for integrating microcredit organizations into the rural financial frameworks.

1.2 Statement of the Problem

Maize is an important staple food in Kenya and provide food security availability of raw materials in many households .There is a chromic deficit in the supply of maize in Kenya which can be filled through increasing farm productivity (ROK 2014) .Muranga is among the producer of maize whose potential has not been exploited. The low productivity is causing household food insecurity, raw materials and poverty. According to the 2011 Economic Review of Agriculture (Ministry of Agriculture) data, the national average yield of maize was nearly 16 bags/ha. Murang'a County yielded <10 bags /ha. against a potential of 30bags /Ha .It is this potential that this project want to exploit.

Microfinance services has the potential to reduce vulnerability, improve the income and food security of rural households in Kenya (Olwande2012, IFAD 2009). Despite the Kenya government promoting MFI there is limited participation of maize farmers in the commercial credit market (FAO. 2013). Maize farmers have challenges of accessing loans from formal credit institutions. To fill this gap small and resource poor farmers have developed local innovative initiative credit access strategies that peg lending to memberships in social networks such as groups Owuor and Shem (2012), The group credit lending model is popular among the farmers and has been operating for the last ten years

A good number of farmers have engaged micro credit to boost maize production but the difference in productivity between beneficiaries and non-beneficiaries have not been evaluated. With this in mind, this study seeks to assess access to credit and the impact of emerging and innovative rural finance model on smallholder maize productivity in Murang'a County so as to appraise its contribution to improving the production and productivity of small-scale farmers.

1.3 Objective of the Study

To analyze the characteristics of lending groups in Murang'a County, Kenya

2.0 Literature Review

2.1. Theoretical Review

Impact evaluation is an approach to approve the theories that helped with planning the program and to affirm regardless of whether the impression of recipients and the truth are

adjusted. Assessment ascertains affect through basically taking the distinction between the circumstance of the recipients prior and then afterward the program and the channels through which it rises. Knowing this data is significant for enhancing the program's outline, for its possible adjustment to various groups, and for the distinguishing proof of best practices being developed (Copestake et al., 2001).

The real effect of a program relies on upon its potential, obviously, however it is likewise inseparably connected to its usage conditions. A program may not achieve its maximum capacity affect because of blemishes in the usage procedure. Along these lines, knowing the potential effect of a program is not a purpose behind not assessing it. An effect assessment is as yet important to comprehend the genuine effect on recipients and helpful to illuminate policymakers about the need to enhance the procedure of execution. Needy individuals' lives can be enhanced if the advancement group gained all the more efficiently from its endeavors – specifically, if more thorough effect assessments of what works being developed were done, if their outcomes were made generally accessible and comprehended and if policymakers and program chiefs utilized that proof to enhance policy and practice.

2.2 Empirical Review

2.2.1 Collective Group Credit Lending

The history of agriculture demonstrates that for whatever length of time that individuals have occupied with agribusiness, farming has been at any rate halfway group in nature (Slow, 2013). Formation of farmer organizations enables smallholder farmers accumulate resources and market their goods together, and hence reduce transaction costs. Collective action can enhance their access to assets, for example, inputs, credits, trainings, transport and information, increase their power (Bosc *et al* ,2002) and improve their marketing opportunities by facilitating certification and labeling.

Group lending is regarded as innovation idea, practice, perceived as new by individual farmers and other stake holders for adoption and possible replication by other farmers. The study used the model to show what microfinance can contribute to rural, Group lending was a local community initiative made without prior framework, staff, clients, or portfolios. Groups for lending were formed through common ownership and management without central organizing bodies and associations. The members suggested that association in other areas played a solid part in backstopping on operations, giving standard policies and methods, and co-marking backups in the system. They supported financial activities and handled funds intermediation, concentrated on agricultural services/ joint production, and offered credit and other financial services to farmers.

The groups were either local farmer initiatives, government or NGOs sponsored. Group credit lending was intended for a definitive objective of enhancing the peoples lives. Unlike commercial banks which relied on collateral at the center of credit transaction, microfinance institutions and groups had customer friendly mechanisms for smallholder farmers to secure credit. These microfinance groups operated democratically where each member had one vote for election of group leaders. Leadership was voluntary and no professional staff were hired for day-to-day operations. Members contributed equity in the form of an initiation fee and regular capital contributions. The amount a member could borrow was based on available funds and equity contribution, which constituted most of the lending funds. Benefits were circulated to individuals as profits in light of their value commitment or held to expand the association's capital. This guaranteed benefit went to individuals as opposed to outside

mediators and their shareholders. In spite of the fact that credit cooperatives regularly inferred quite a bit of their subsidizing from capital commitments, they could likewise take stores. Self-financing was a wellspring of quality since it strengthened the discernment that individuals had a stake in the establishment and along these lines added to great reimbursement execution.

Different gatherings additionally regularly relied on upon outside assets, for example, business sources as private banks, however more frequently they were provided by pinnacle establishments (that is, national or provincial umbrella associations) or improvement banks, which thus got them from the legislature or from global giver offices. Loaning gatherings are less thoroughly sorted out and are normally made to get a credit from an outside source. A moneylender may give assets to the gathering all in all, which then dispenses the advance to individual individuals as per concurred criteria. In such a case, the gathering is mutually at risk for the whole measure of the advance. Then again, assets might be loaned to individuals independently, in which case the gathering together ensures all advances or basically outfits data about individual members.

Well-working loaning bunches have powerful administration frameworks. Self-guided gatherings performed superior to gatherings whose exercises were overseen by untouchables, for example, expansion specialists or workers of the money related middle person. Self-administration energizes aggregate cohesiveness, trade relations, and may in this manner make it simpler to apply weight on potential defaulters.

Rural financial systems are hampered by the high cost of conveying the administrations to little, generally scattered clients, difficult financial environment, high covariant dangers, missing markets for hazard administration instruments, absence of appropriate security and poor managerial skills and recordkeeping. Bad debt was viewed as the biggest challenge. Some borrowers viewed MFI loans as grants and therefore borrowed with intention to never repay, or repay at their own schedules, which affects the quality of MFI service delivery. Some of the groups offered more expensive loans those offered by commercial banks. Informal credit markets where the poor can access credit is confronted with many problems such as asymmetric information, adverse selection and contract enforcement problems which make lending complex and lead to frequent credit rationing (Owour, 2012).

2.3 Conceptual Framework

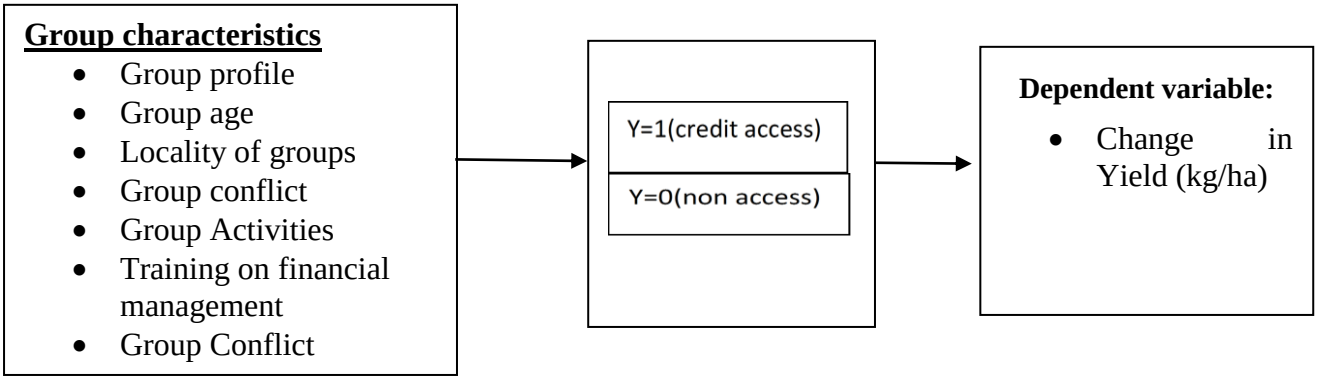

Figure 1 Conceptual framework

2.3.1 Chacharacteristics of Lending Groups and Credit Cooperatives

The assessed the characteristics, of lending groups in Murang'a County, Kenya. To address this objective, descriptive statistics was used as the main way for analysis of the data. Correlation techniques (measure of association) and binary logit regression were employed to establish relationships among the study variables. The Logit model specifically allowed the researcher to analyze the binary response. Binary logit regression measured the relationships between the categorical dependent and independent variables using the probability scores as the predicted value of the dependent value (Katsura, 2008). A comparison of groups was done using Pearson's Chi-square at 5 % probability levels. The logit model was employed to analyze the dependent variable (participation in group credit) against the independent variables (credit access) (Shariff, Zaharin & Sopian, 2009). The outcome of a binary logit analysis was represented as:

$Logit\ P(Y) = \alpha + \sum\beta_i X_i + \sum\beta_2 X_{2+} \sum\beta_3 X_{3+} \mu_i$

where:

P= Probability of the event occurring (Participation)

α = Constant term (intercept)

β_i's = Effects (estimates) of the independent/ explanatory variables on group credit initiative

μ_i = Error term

Xs = Independent/explanatory variables (Farmer group characteristics)

The logistic regression generated by running the various factors against the outcome, participation in group credit initiative. The backward model-building was used and removing one after one variables that do not add relevance to the model (Davis & Negash 2005). Since the model selects the best possible explanatory variables, it will drop from the equation those factors which do not significantly affect the outcome. By using the backward type model building with the wald statistics, the study could establish factors that contributed significantly in the group credit lending institution (Meyers *et al*., 2006).

3.0 Research Methodology

The area under study was Murang'a County. Survey research design was used in this study. The target population for this study was 17,880 small scale maize farmers. A sample size of 202 small scale maize farmers was calculated using Cochran formula (1963). The study employed both primary and secondary data. Questionnaires were sorted to check for completeness and consistency of data, then the data was keyed in an excel spreadsheet. Thereafter, responses were coded for analysis using STATA 12. Descriptive statistics employed were means, standard deviations and frequencies/percentages.

4.0 Results and Discussion

4.1 Summary of Respondent Socio-Economic Characteristics

This section presents bio data like gender of the respondent, age of the respondent, level of education and years worked in their current position. Table 3 presents the summary of socio-economic characteristics.

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Table 3: Summary of Respondent Socio-Economic Characteristics

Characteristic	Category	Credit access	No credit access	Fishers' Exact test (p- value)
Position head	Household head	88(62%)	41(72%)	**NS**
	Household spouse	55(38%)	16(28%)	
Age	Below 20	3(2%)	0(0%)	
	21-30	6(4%)	4(7%)	
	31-40	31(22%)	10(18%)	**NS**
	41-50	72(50%)	33(58%)	
	51-60	31(22%)	10(18%)	
Education	No formal training	14(10%)	2(4%)	
	Primary	93(65%)	31(54%)	*
	Secondary	25(17%)	20(35%)	
	Advanced	10(7%)	3(5%)	
	Tertiary	1(0.01%)	0(0.00)	
	Others	0(0.00%)	1(0.01%)	
Source of finance	Own saving	53(36%)	48(84%)	
	Credit	80(57%)	8(14%)	***
	Friends/relative	8(3%)	0(0.00)	
	Other	2(1%)	1(0.01%)	
Cost of credit	Very expensive	35(26%)	52(92%)	
	Expensive	40(28%)	2(3%)	***
	Affordable	56(42%)	1(2%)	
	Very cheap	12(5%)	2(3%)	

N=200,*association significant at p=0.05,**association significant at p=0.01,*** p=0.0001,NS=Not significant

4.2 Characteristics of Lending Groups

On access to group credit, majority of the groups indicated that they had accessed loans (72.5%) while only 27.5% had not. Chi-square test performed on access to group credit and maize yield revealed that access to credit had a significant effect on maize yield (p=0.00). Table 4.2 brings out the proportion of farmers who accessed credit.

Table 4: Credit Access

Farmer accesses credit	Percent	p-value
No	27.5	
Yes	72.5	**0.000**
Total	100	

The majority (41%) indicated that their main source of credit were savings and credit institutions. About 17% indicated that their major source of credit were informal creditors, 8.5% responded that commercial banks were their major source of credit, 5% indicated

relatives/ friends while 28.5% indicated other sources. Chi-square test performed between group micro credit lending sources and maize yield revealed that credit lending sources had a significant effect on the maize yield (*p*=003) as shown in table 5.

Table 5: Group Microcredit Lending Sources and Maize Yields

	Percent	**p-value**
Savings and credit institutions	41	
Informal	17	
Commercial	8.5	**P=0.003**
Relatives/friends	5	
Other	28.5	
Total	**100**	

4.3 Group Characteristics and their Effects on Lending Participation

The results showed that there was a positive and significant relationship between group membership and credit borrowed *(Exp(B)*= 0.1933, *P*=0.019). Thus, there existed a probability of 0.1933 that those members who had been in groups for a longer time tended to receive more credit than those who had been in the groups for a shorter period. Similarly, the results indicated that interest on loan and credit borrowed had a positive and significant relationship *(Exp(B)*= 0.6604, *P*=0.000). Thus the probability of those who had paid more interest on loan to receive more credit was 0.6604. In addition, the results revealed that more frequent group meetings had a positive and significant effect on the credit borrowed. Members' frequency of attendance in group meetings increased the odds of credit access, at 1.443. The overall regression model was significant (*p*=0.0000). Table 6 brings out the group characteristics that influenced participation in group microcredit.

Table 6: Group Characteristics that Influenced Participation in Group Microcredit

Credit borrowed (Yes, no)	**Coef.**	**Std err**	**z**	**P>|z|**
Credit lend group	-0.04	0.85	-0.05	0.96
Membership years	0.19	0.08	2.34	0.02
Credit access group	0.92	0.61	1.50	0.13
Interest on loan	0.66	0.17	3.85	0.00
Membership MFI	-0.37	0.56	-0.66	0.51
Group meeting frequency	1.44	0.61	2.35	0.02
Constant	-3.35	1.73	-1.93	0.05
No. of observations	200			
LR chi(6)	142.45			
Prob>chi2	0.00			
Pseudo R2	0.60			
log likelihood	-48.30			

5.0 Conclusions

The study assessed the characteristics of group microcredit lending sources. Majority indicated that they had access to credit, and for those who had accessed credit, their preferred source of credit was savings and credit institutions. The savings and credit institutions played a strong role in backstopping operations, providing standard policies and procedures, and co-branding subsidiaries in the network. They supported financial activities and handled funds intermediation, concentrated on agricultural services or joint production and also offered credit/ financial services to farmers.

Most of credit lending funds came from members' deposits and share capital. Self-financing was a source of strength as it reinforced the perception that members had a stake in the institutions and thus contributed to better loan repayment practices. Some other groups relied on external funds such as from commercial sources like private banks, development banks or apex institutions (either, local, national or regional umbrella organizations). Other sources of external funds was from government or international donor agencies. Some lending groups were less rigorously organized as they relied on external sources to fund their operations.

Based on the findings above, the study concluded that majority of the farmers borrowed loans so as to improve their farming activities. The major source of credit for farmers were savings and credit institutions. The study also concludes that the proportion of land allocated to maize production, group membership, interest on loan and frequency of meetings had a positive effect on access to credit.

6.0 Recommendations

The study recommends that small-scale farmers can work together as a recognized legalized entity in order to improve their bargaining ability and to take advantage of economies of scale. Small-scale farmers finds themselves at a disadvantage due to high transaction costs and low bargaining ability. For this reason, small-scale farmers can work together as a recognized legalized entity in order to improve their bargaining ability and to take advantage of economies of scale.

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Map of Kenya showing the study area