

Original Research

THE EFFECT OF CREDITS ON SMALL SCALE FARMERS PERFORMANCE IN TANZANIA: A CASE OF MERU DISTRICT

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Abstract

This study was conducted to assess the effect of credits on small-scale farmers' performance in Tanzania a case of Meru district. The survey research design was used to reach respondents to gather primary data in this study. Simple random sampling was used to sample small-scale farmers in area to fill the study. The findings shows that small scale farmers with high coefficients of collateral properties (0.61), farmer income before credit (0.015), level of education (0.15) and level of savings within MFI's (0.09) were likely to have more access to credit than others. However, the negative coefficients of family size (-.21), age (-.1.38), small-scale farmers occupation (-.17) and gender (-.03) shown that they were less prospective to access to credit. Also, accessibility to credits assists farmers to meet the basic factors of production and relish themselves all the market compensations. It allowed small-scale farmers to access the agriculture inputs, competent labour, seeds, agriculture markets and other advantages deprived of any intermediary burdens, which all positively contributed to high productivity. Further, the results of this study have revealed that access to credit rose up the income thresholds for the small-scale farmers' production. Furthermore, the study in the area found that small-scale farmers had ability to enlarge and grow more field for agriculture production as the results of acquired credits. Credit availability to small-scale farmers will realize their farming efficiency and increase their performance through getting advanced tools, skills, and knowledge and become exposed to contemporary farming system.

Keywords: *Credit, small-scale farmers, financial organization, agriculture.*

1.0 INTRODUCTION

Small-scale farmers are the group people who engage in farming of crops at small-scale level normally between 1 to 10 acres of land (Obisesan, 2013). These farmers use small and non-expensive leaned technologies, low inputs level, poor transport, and poor marketing and storage facilities (Okeke and Ikponmwosa, 2012). However, small-scale farming is also characterized by use of small capital, manual labor, small sized farms, crop rotation and lower yield per unit area (Clara *et al.*, 2017). The effects of credits to small-scale farmers agriculture performance are visible through enabling the small-scale farmers to get fertilizers, pesticides, transport cost, machines for cultivation, marketing cost, storage equipment and labors costs which many of them demand credits to the farmers, however few farmers afford many of these requirements (Machimu and Kayunze, 2019). There are several studies done in Tanzania, which validate the ability of small-scale farmers to obtain credits and its sound effects on agriculture performance level. The studies done by Mariyono, (2018), Auma and Mensah, (2014), Elias, (2015) and Ismael, (2013) had revealed that small-scale farmers who accessed credits were able to meet essential requirements in their agriculture production and hence good agriculture performance. In Meru district, the research done by Rose (2007) enlightened those credits to farmers' enlarged agriculture production. This study was insufficient because it covered small acreage area of two villages of Malula and Valeska, which could not expound the full pictures of the effects.

The study done by Machimu and Kayunze, (2019) on the same district, described merely effects of financial credits of small-scale farmers with limited analysis of how farmers' income was affected and how operation efficiency was improved as the results. The current research assessed the effects of credits on small-scale farmers' performance on small-scale farmers' productivity level, income level, improvement in operations efficiency and farm expansion level in Tanzania using Meru district as a case study area.

The general objective of this study was to assess the effect of credits on small-scale farmers' performance in Tanzania a case of Meru district. Specifically, the study underpinned on assessing the effects of acquired financial credits on small-scale farmers' productivity, small-scale farmers' income generation capacity, operation efficiency and ability of small-scale farmers to expand their farms.

2.0 LITERATURE REVIEW

The idea of micro credit has a long history since the end of WWII at the mid of the 20th century. However recently the microcredit can be capped in the starting of different financial organization in the 1970th and onwards (Girabi and Mwakaje, 2013). Small-scale farmers who assessed credits were able to live good life include meeting indispensable essential needs of life such as paying house rent, meet clothing needs, able to send their children to school, and cover health cost, CIA. (2013a). The study done by Esmael, (2013) in Rwanda exposed the supremacy of decision making in issues relating to saving, credit borrowing, settlement of loans and loan use by small-scale farmers were on the light path. The policy-making environment according to research done by World Bank (2013) aggregate the part of claim to investors, administrators and donors' failure to invest in rural areas in most developing society of Asia and Africa. The interest to satisfy the urban interest requirements and ideas nominated the policy formulation process (Michael *et al.*, 2018). The greater chance of share was dedicated to the people in city areas leaving the people in most marginalized areas uncovered with credit institutions (Asian Development Bank, 2012). The overall attitude in most developing countries were not in good turn of most rural areas with uncondusive climate in which the financial organization could not operate properly. The drifts of inflation and instability had been an issue of the day in many financial institutions (Njeri, 2014). Financial regulations changing aspects regarding changes in interest rates has been frequently noticeable and instantly affecting the operation systems and sustainability of financial credit programs to achieve the plan in rural areas (Sebatta *et al.*, 2014). The ruling structures making process increased the obstruction of the growth of financial presence in most developing countries because it lacked the enforcement of loans contracts (Obisesan, 2013).

2.1 Effect of Credit Use on Small-Scale Farmers Performance

Credit is very significant to the small -scale farmers to practise sustainable performance in agriculture production (Akudugu, 2016). According to Motsoari *et al.*, (2015) the existence of credit is used as a substitute economic factor which targets poor farmers through the provision of flexible credit services with goals of reducing agriculture production challenges. According to Basara, (2013) signpost that credits has become one of the important powerful forces of realizing the MDGs especially with respect to the target of misrepresentation extreme poverty and hunger by 2025. According to Olwande and Mathenge, (2012) exposed that, farming for small-scale farmers who accessed credit rose their ability to adopt to more advanced technologies and reduce challenge in their agriculture production. They added that, access to credit was linked to smoothing small-scale famers' harvest production. These authors established that small-scale farmers' access to credit expands their production base and ends up in increasing their productivity, improve farming operation activities, expansion of their farms and increase their farming income base.

2.2 Factors Influencing Small-Scale Farmers' Access to Credit

Small-scale farmers as nominees in agriculture sector need long term outlay of credits to ensure the development and sustainability of agriculture (Basara, 2013). They use credit to realize success of their investment, which generate income in future (Akudugu, 2016). According to Alemu and Adesina, (2017), several of factors including borrower- lender behaviour, saving individualities and relationships associated with credit condition, influence credit borrowing.

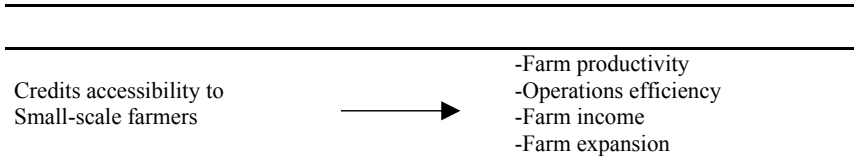
Girabi and Mwakaje, (2013) explained that gender, age, marital status, income levels, wealth, and knowledge on credits are the criteria that influence credit accessibility. In addition, Basara, (2013) revealed that small-scale characteristics such as household size, habitation location, and collateral of small-scale farmers have noteworthy effects on small-scale access to credit from financial organisation. Furthermore, Basara, (2013) identified that education level has influence on credit accessibility. Fundamentally, financial organisation makes their decisions to award credit on small –scale farmers based on level of understanding of credits expenditure (Obisesan, 2013). The behaviour and status of the potential of farmers is among factor which financial organisation consider in giving out the credits (Michael *et al.*, 2004). Financial organisations negate the small peasants’ access credits to have collateral as well as to pay for transactions costs of institutional credit (Abu *et al.*, 2016). Collateral plays an importance role in accessing credits; it assists in prompting the creditworthiness of the famers; gives assurance to the financial organisation regarding the safety of loans and resolve the asymmetric information problems (Michael *et al.*, 2004).

Furthermore, on the other side, lack of collateral, delay approval, non-adoption of new technologies, low pay back ratio, and lack of expertise in utilization of credits decrease ability for small-scale farmers’ access to credit (Cheong and Jansen, 2013; Ibiang *et al.*, 2012). According to Okeke, (2012), Ogubazhi and Muturi, (2014) explained that administrative bottleneck, high transaction cost to credit solicitation, bank rigorous restriction, insufficient credit information, location of lending organization and bureaucratic processes in financial organization let down the disbursement of credits to small-scale farmers.

2.3 Conceptual Framework of the Study

Table 1: Demonstrates the theoretical context for which credit accessibility by small-scale farmers’ effect farm productivity, income generation, farming operation efficiency and the farm size expansion. The structure starts with credit accessibility, which looks numerous sources from which credits might be borrowed. The model supremely, has offered the conceptual basis of this study. It elucidates the effects of access to credit on the performance of small-scale farmers. In addition, it also boards to describe how the relationship of the independent and dependent variables works.

Table1: The conceptual framework between independent variables and dependents variables for the research.



Source: Primary data, (2021)

2.4 Independent Variables

The independent variable in this study was credit accessibility, which effected indirectly and directly farm productivity, operation efficiency, farm income and farm expansion tendency. Ogubazhi and Muturi, (2014) defined credit accessibility as the capacity of the individual to acquire credit from financial organization.

The credit accessibility as independent variable can be affected by dependent variable and the overall effects of independent and dependent variables were obtained by aggregating the mean score measure of the items.

2.5 Dependent Variables

In this study, the dependent variables were exemplified as the levels of small-scale farmers' performance indicators. These variables were farm productivity, farm operation efficiency, farmers' income, and farm expansion levels among sampled small-scale farmers with access to credits. Farm productivity was the measure of the output from the farm and it has been measured based on the ratio of agricultural output to input. Farm operation efficiency refers to capability of farmers to accomplish agricultural activities in cost effective manner. Farm income refer to profit or losses in farm business. Farm expansions refer to the increase in farm size as the results of effective utilization of credits.

3.0 METHODOLOGY

3.1 Sampling Techniques

The survey research design was used to reach respondents to gather primary data in this study. Simple random sampling was used to sample small-scale farmers in area to fill the study questionnaires. A total of 175 small-scale farmers were interviewed from different area with agriculture production potential where 107 were females and 68 were males. This is as shown in Table 2.

Table 2: A sample of small-scale farmers in Meru district with access to credits

Respondents	Population	Percentage (%)
Males	68	38.9%
Females	107	61.14%
Total	175	100%

Source: Primary data, (2021)

The qualitative and quantitative technique of data analysis was used. The qualitative approach tangled the analysis of data using description and then equating them and aggregating into the information document (Kothari, 2004). The quantitative data involved manipulation of figures, numbers, use of pie charts, bar charts, histograms and percentages in analyzing data before valuations. The data was examined using Statistical Package for Social Sciences (SPSS) version 26 and excel software. The regressed variable in this study (dependent variable) was a dichotomous variable with possibility to take two possible values when measured or observed whereas independent variables were either discrete or continuous. A discrete variable was a variable which obtained by counting and continuous variable was a variable obtained by measuring (Gujarati, 2004).

4.0 RESULTS

This part presents the results of respondents in this study area. Interviewees' biodata and their background such as gender, level of education, marital status, land ownership, extension contacts, and the occupation is shown in **Table 3**. These analyses have assisted in generating confidence in reliability of data collected and vividly the findings of the study.

Table 3: Socio -Demographic Characteristics of Respondents

Variable	Frequency	Percentage
Gender		
Female	107	61.1
Male	68	38.9
Educational level		
No formal Education	12	6.8
Primary	109	62.3
Secondary	51	29.1
Diploma	0	0
Bachelor	3	1.7
Marital Status		
Single	25	14.3
Married	150	85.7
Land Ownership		
Self-Ownership	25	14.3
Rent	36	20.6
Family Land	114	65.1
Extension Contact		
Yes	55	31.4
No	120	68.6
Main Occupation		
Farming	172	98.3
Others	3	1.7

Source: Primary data, (2021)

4.1 Factors influencing access to credit by small-scale farmers

Table 4. Shows the result of statistical analysis on independent variables compelling to the small-scale farmers access to credit. Using Probit model the test provided the results as summarized in the **Table 4.**

Table 4: Factors influencing access to credit by farmers (n=175)

Parameter	Probit Estimation coefficients	Std. Error	Z-statistics
Constant ^a	-3.82	.27	-27.56
Age of respondents	-1.38	.15	-1.65
Gender of respondents	-.03**	.17	-.43
Education level of respondent	.15**	.23	.1.27
Marital status of farmers	.09**	.25	.0.70
Household size	-.21	.15	-2.55
Main Economic occupation	-.17	.27	-1.22
Farming experiences	.02**	.02	2.76
Farm income	.015**	.06	1.10
Collateral properties	.61***	.21	-0.68
Level of Savings with MFI's	.09	.06	.77
Chi-square		220.65	
Number of farmer received credits		69	

Source: Primary data, (2021)

1. Corresponds to the grouping variable = Access to microcredit (yes=1; otherwise=0),
 ***= significant at 1.0%; **= significant at 5.0%; *= significant at 10.0

The probit model has indicated the results of variables, which most are either positive or negative. The variables with positive marks specify that their greater values increase the odds that the small-scale farmers had to access to credit whereas the negative marks designate that the probabilities of small-scale farmers to access to credit decrease. The table shows that small scale farmers with high coefficients of collateral properties (0.61), farmer income before credit (0.015), level of education (0.15) and level of savings within MFI's (0.09) were likely to have more access to credit than others. Small-scale farmers based on their rulings on the ability to repay the credit; they inferred that small-scale farmer with securities properties, adequate savings and high knowledge were more trusted to get a loan since they may be more self-assured in repaying loans if they are given. However, the negative coefficients of family size (-.21), age (-1.38), small-scale farmers occupation (-.17) and gender (-.03) shown that they were less prospective to access to credit. The probabilities of small-scale farmers to access credit reduced with family of more members. This is possible because large size families, which lead to have low reimbursement capacity resulting from slighter, expected per capita revenue, which also lowers the chance of obtaining credit. This denied to the findings of CIA, (2013) and IFAD (2013) who established that likelihood of access to formal credit rises with family size. In the study area, male-headed families had more admittance to credit than female, founded to their control and decision authorities they have on family financial incomes. Microfinance institutions offer small credits paid in short term, concentrating on collaterals gives guarantee to financial organisation for loan payment.

4.2 Effects of credits on agriculture productivity

Hundred percent 100% of small-scale farmers who accessed credit have testified that credit had a positive influence on the increase on farm productivity and home food security. This impression is perceived in the upturn of the farmer abilities to meet the necessities in their farming needs. **Table 5**, present the effects of credit on agriculture productivity measured in the total contribution of credits to the agricultural outputs.

Table 5: Effects of credits on agriculture production (n=175)

Rank	Effects of credit in agriculture productivity (measured in TFP)	Mean	Std. Deviation
1	Access to inputs (fertilizer, pesticides, improve seeds)	2.58	0.56
2	Access to modern agricultural technology	2.45	0.57
3	Access to improved seeds	2.23	1.02
4	Hiring competent labor	2.1	1.13
5	Buying or increase size of my land	1.72	1.29
6	Access agric. Products market	1.54	1.35
7	Access to agriculture skills (trainings, seminars)	1.37	1.35
8	Access to modern agri. Materials (tractor, mechanic)	0.89	1.27
9	Buying livestock (cow, goats, and sheep)	0.46	1.02

Source: Primary data, (2021)

Accessibility to credits has assisted the farmers to meet the basic factors of production and relish themselves all the market compensations. It allowed small-scale farmers to access the agriculture inputs, competent labor, seeds, agriculture markets and other advantages deprived of any intermediary burdens, which all positively contributed to high productivity. This finding is consistent to the findings of Cheong and Jansen (2016), and Akinbode (2013) which portray that access to credit cuts the contract cost and rise the use of agricultural inputs to increase productivity. In addition, the same authors, explained that absence of access to credit is an impairment to productivity, which might significance from the fact that small-scale farmers should not have means to procure improved seeds, hire skilled labor and chemicals.

4.3 Effects of credits on farmers' income

The availability and use of credit in agriculture investment had confirmed to have positive effect on the small-scale farmers income. Grounded on the responses to questionnaires credit has contribute to value to the farmers' income as indicated in **Table 6**.

Table 6: Effect of credits on small-scale farmers income (n=175)

Monthly income	Before access to microcredit (%)	After access to microcredit (%)
<50000	97	4
50001-200000	43	94
200001-350000	27	48
350001-500000	4	17
>500000	4	12

Source: Primary data, (2021)

The results of this study have revealed that access to credit raised up the income thresholds for the small-scale farmers production. Based on **Table 6**, the proportion of low-income families has reduced while the number of high-income families has increased after access to credits. Furthermore, those small-scale farmers who accessed credits had more chance to expand their farming and other business activities. These results are similar to those conveyed by Ajagbe (2012) who also depicted that credits access to credits empowered farmers to increase the income and saving for future families' expenses. The study has equally revealed that there is a high association between monthly income of farmer and quantity of credit accessed from the financial sources (R=63%). The increase of farmer revenue based on admittance to credits is remarked when other features like increase in price and others are held constant. However, these outcomes are not linked to the income of no received credits because they have not specified anything on the development of their income.

4.4 Effects of credit to small-scale farmers' operation efficiency

All sampled 175 small-scale farmers who had access to credits by 100% approved those credits have very high contribution in achieving various farming operations (Table 4.15)

Table 7: Showing operation efficiency of credits by small-scale farmers

Farm preparation ability	79	45.14
Planting ability	5	2.86
Weed management ability	19	10.86
Pest and disease management ability	53	30.28
Harvesting management	6	3.42
Farm products transport ability	9	5.14
Markets search and marketing ability	4	2.28
Total	175	100.00

Source: Primary data, (2021)

These results were entailed with those of Mulinga, (2013) who did study in Rwanda and found that credits access had high impact on farm preparation for 42% and disease control 27% and contribution to other factors like produce transport, marketing, weeds management, and planting of crops during planting seasonal. According to Njeri,(2014) report similar evidence in Kenya, that there is a substantial connection between credit financing in agriculture and accomplishing different agriculture activities in maize production. Further portrays that farmer was more capable to do several of activities like weeding, planting, harvesting and marketing as the results of financial availability.

4.5 Effects of credits on farm size expansion

The study in the area found that small-scale farmers had ability to enlarge and grow more field for agriculture production as the results of acquired credits. The status of land holding validates that majority of the small-scale farmers in the study area have satisfactory amount of land to nourish their families and make income by selling the agricultural harvests and big chance for accessing credit as it can be used as collateral as well.

Table 8: Showing effects of credits on farm size expansion

Yes	123	70.28
No	52	29.72
Total	175	100.00

Source: Primary data, (2021)

5.0 DISCUSSION OF THE RESULTS

The result of this study shows that 100% small-scale farmers who had access to credit their agriculture production were high compared with those who did not finance their agriculture activities. Finance enabled farmers to buy various agriculture inputs such as fertilizers, insecticides, and pesticides, use of more advanced technology, buy advanced tools of production, which all influenced the productivity levels. These findings were similar with the study done by Infodev, (2012) which reported similar production of high level of productivity for the small-scale famers who invested monies in agriculture production compared to those who did not finance their agriculture activities.

Also in this research was found that credits were enabling farmers in hiring labours, improved family welfare, health care and better nutrition all which has positive influence on agriculture productivity. These findings were also consistent to IFAD, (2013) who found that credits were enabled to hire competent labor prior to the actual realization of production.

In addition, the same authors' state that credits may not have a direct impact on production, but it could have a positive and significant indirect impact through its positive influence on agricultural technologies adoption, increased capital for farm investment, hired labour, and improved household welfare through improved health care and better nutrition.

In case of intensification of small-scale income generation capacity, average monthly return as the results of sell output from agriculture production increased substantially. This result was also confirmed by Byaruhanga (2013) who did study on correlation between credit and the income of agricultural cooperatives in Rwanda. During the analysis using descriptive statistic at 95 percent confidence interval, credits had shown to enhance great output and hence high income among small-scale farmers. With regardless of sources of credits all 175 samples of small-scale farmers who had credits to accomplish various agriculture production accomplishments strongly agreed that credits had high influence in annual agriculture income. One hundred percent of all small-scale farmers who had access to credits from diverse sources accepted that credits increased annual income level. It can be confidently certain that the income of small-scale farmers from agricultural activities is highly enhanced by the availability of credits. These findings were in the same line with the findings done by Byaruhanga, (2013) who found a significant and positive relationship between credits and income earning capacity among the agriculture cooperatives ($r = 0.419$, $P < 0.01$).

On other hands, small-scale farmers' operation efficiency as the result of access to credit contributed highly to operation of agriculture activities. In case of farm preparation, farmers were able to employ advanced tool like use of tractor to prepare their farms compared to those who did not access credits. In addition, the farmers were able to sow seeds using hired labors and simplify more activities compared to family for those who did not access credits. Weeds, diseases, and pest control were shown to be well controlled by small scale- farmers by farmers because the farmers were able to buy weed killer chemical like round up, and able to buy insecticides, pesticides and fungicides for pest and diseases control. Farmers also agreed that the harvesting operation were more simplified as the result of credits access because the farmers were able to hire more people to support their harvesting operation.

On other side, the farmers presented that they were able transport of agriculture yields using cars and were able to distribute the harvest to more great market of on Arusha city compared to those who were only selling to intrude men around the farmers at lower price at local level. The contribution of credits for the farming on different agriculture process were high and all 175 farmers agreed that credits had positive result on their agriculture activities.

These finds were consistent to the findings done by (Awotide et al, 2015) that credit was vital in marketing and hiring labours and procuring necessary inputs like insecticides, pesticides and fertilizer which are vital in pest and disease control.

In addition, the findings in this study were consistent with the study by Feder *et al.* (2012) that describe that credit enabled small-scale farmers to satisfy the cash needs required in production operation which characterize agriculture like land preparation, planting, cultivation, transport of products, marketing and harvesting.

Besides that, a total of 123 small-scale famers who attained credits strongly agreed that credits lead more to farm enlargement and renting a new land for farm expansion. The credits allowed getting sufficient inputs to invest in new expanded farm and use of more advanced technology for more production. These findings were also discussed by (Deininger and Derek, 2013) who did their study in Southern Regional of Tanzania found that out of 400 hundred small scale famers 280 small-scale famers who accessed credits were able to expand their field. This is corresponding to 70%, which is similar to the current study. Also according to Basira, (2013) who did study in Kenya characterized that famers who had credits were able to increase their farming scale to large scale because credits enhanced them to acquire large land ownership which were utilized for activities. In addition, credits enabled handling large outputs from large farms, marketing, and transport logistic engagements, management of farm and recruitment of labour who could be used to complete various deeds at large farm. In addition, 52 small-scale farmers, which is equivalent to 30% of all samples, experienced no changes for farm expansion as the results of credits attainment, therefore these famers upset those credits were lead to farm expansion under the reasons that the lands were not a factor because of inheritance of land. Also claimed to get small amount of loans by average less than 200,000/= hundred thousands, which were not sufficient to buy or rent land for farm expansion. This low amount of funds credits was coined from voluntarily formed groups with better information on each and with fear to avoid risk among members and they have a better information on each other. The key feature of this is a joint liability where is one member of group default also other members of the groups are treated as default and all become reliable to repay back a loan. This low amount of funds acquired were not helpful even to get innovative tools, rent farm, adopt to technology which could assist to invest on large farm, recruit labors and buy necessary inputs which are required to endure large, expanded farms.

5.0 CONCLUSION AND RECOMMENDATION

For agriculture, sector to continue as backbone of the economy of the country financial and non-financial organization should channel finance capitals to small-scale farmers who create more than 80 percent of the total population in the agriculture segment. Availability of credit facilities to small-scale farmers will realize their farming efficiency and increase their performance through getting advanced tools, skills, and knowledge and become exposed to contemporary farming system. Through this mode, agriculture productivity level, income generation through small-scale farming, operation efficiency, and farm expansion will be viable in long run among small-scale famers as results of credits from financial organizations being invested in agriculture.

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