



**EFFECT OF MICROCREDIT ON FOOD SECURITY AMONG THE POOR HOUSEHOLDS IN RWANDA “CASE STUDY OF AB BANK, MUSANZE DISTRICT, NORTHERN PROVINCE”**

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**ABSTRACT**

*The mainstay of the Rwandan economy is agriculture. However, the amount invested in agriculture is insufficient to generate a return or meet the nation's food requirements. It is challenging for rural farmers to obtain financial services from commercial banks because of their limited financial capability. They can therefore obtain those services with the aid of microfinance. The focus of this study was on the effects of microcredit on the food security status of the poor rural household farmers in Musanze District. The main objective of this study was to evaluate the effects of microcredit on the food security status of the poor households in Musanze District. As specific objectives, this study determined the types of products and services related to food security offered by AB Bank Microfinance Institution, to assess the food security status of the rural household farmers, to determine the factors affecting the accessibility of microcredit by the rural household farmers and finally to assess the vulnerability of rural household farmers to food insecurity in Musanze district. A descriptive survey design was used to enable the researcher reach a bigger proportion of the population as well as studying various variables. Out of total population of 624 women and youth customers in the category of women group, individual women and individual youth who had taken credit and saved for more than two times with AB Bank in Musanze district, the researcher selected 240 as a sample size on stratified sampling technique based on the respondent's proportion. Data was collected using self-administered questionnaires and analysed using Statistical package for Social Sciences software. The results of the study were analysed using descriptive and inferential statistics and the results were presented using tables and figures. The research findings showed that 113 representing 75.3 3% of the respondents were women and 37 which represent 24.67% of the respondents were Men. The study findings revealed that 10% and 6.7% of the study respondents divorced and separated respectfully. The study findings showed that 59.33% and 13.33% of the women respondents completed both primary and secondary education. The study findings revealed that the income level of the respondents is statistically significant and thus has high effect in influencing food security of the rural household farmers. The study findings also showed that the educational level of the poor rural household farmers is key in enhancing the food security status of the household farmers in the rural areas. The study findings and recommendations will help the Government to implement policies which can help in the agricultural production in order to improve food security both at national and house hold levels. It was therefore concluded that capacity building is key to the production of food as long as the appropriate training is duly offered and with consistent back up. It can therefore be*

*concluded that any rural household farmer of any education level as long as their capacity for production is enhanced through training can effectively and efficiently contribute in production of food. The microfinance institutions have thereby been urged to be more flexible, reduce interest rates, increase the size of the loan and continuously train, supervise and monitor the progress of the projects of the customers. The study conclusively confirmed that microfinance plays a very big role in influencing the food security status of the poor rural household Farmers in the District. The above analysis of conclusions confirmed that there is a role that is played by microfinance in improving the food security condition of the poor household Farmers in Musanze District. The benefits that accrue to the poor household Farmers have been explicitly discussed and it is important to note that the study will provide one of the very first resource books for loan officers, policy makers and development workers in the field of microfinance in Musanze District.*

**Key Words:** Economy, Agriculture, Microcredit, Food Security

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## INTRODUCTION

The strategies for eradicating hunger and food shortages around the world have gained a lot of interest. As such, the imperative need to reduce food insecurity and famine on a worldwide scale was stressed at both the World Food Conference in 1996, (Kopteva et al., 2020) and the International Conference on Nutrition in 1992 and (State & Security, 2017). Therefore, the need to address the country's food insecurity situation has been raised at the basis of discussion, meetings, and seminars in Nigeria as well as in Rwanda.

Food security, according to the article by Maziya-Dixton et al. (2004) and (In & Natal, 2021) refers to the ability of every person to have adequate food wherever possible, either via self- development or acquisition to live a more vibrant and fit lifestyle. Food security, alternatively, seems to have been emphasized as a necessity but not sufficient prerequisite for achieving excellent dietary requirements for a better, healthier and active social life. People must not only have opportunity to sufficient food, but also obtain, absorb, and devour it.

Thus, food in most cases is defined as anything taken to offer energy and nutrients to the human body in order to live a life that is healthy and

productive (Food et al., n.d.) & (Okolo, 2004). The availability of food stuffs occurs whenever each individual possesses adequate, physical and monetary accessibility to wholesome, nourishing meals in order to meet their daily ration and food preferences, allowing them to live a healthy, active life (Sengooba, 1994) & (Bello et al., 2015).

On the other hand, microcredit is described as the distribution of modest loans to underprivileged women and young people who are informed about various programs (Debnath et al., 2019). As such, the Impact assessment of this above mentioned service (microcredit) conducted in many countries, indicates a dramatic improvement in the household income levels. In Rwanda specifically, microcredit programme has played a very important contribution in the country 's development. Dating back to its 2020 vision, the Government of Rwanda has made efforts and implemented strategies through microcredit programmes directed at the economic empowerment of rural poor (MINECOFIN, 2012).

According to (Badiru, 2015) as well as Rahji & Fakayode (2009), agriculture is the main activity of farmers who are usually living in rural areas. Microcredit programmes have positive impact on agricultural productivity Wadud, (2013) and Asadul

Islam et al., (2015). Households participation in microcredit programmes have increased standard of living and reduced unemployment as per Sherin, (2012). Therefore, the supply of credit helps rural households to invest in agricultural production thereby enhancing their off-farm income according to Asmelash, (2003); Hakim, (2004) and (ESFIM, 2011).

In Rwanda, although a number of microfinance institutions have been implemented, the low access to microcredit programmes by the majority of small farmers is the main barrier for improvement of their livelihood. The lack of capital and collateral security have been considered as the major challenges to this scenario. However, microcredit programme accessibility has the potential benefit at both the macro and the micro levels but exploitation of this potential in Huye District for instance, is still not well documented and no much scientific research has been done to evaluate the microcredit impact on small farmers' livelihood.

Microcredit was developed in order to meet an important need not addressed by formal institutions; namely, providing financial capital to landless and asset-less rural households, who would otherwise be either ineligible to access credit or be locked into the informal credit system. From the beginning, one of the major forces motivating the development of microcredit was to improve the food security of the rural poor. This objective, for example, is clearly enunciated and accepted in the extant literature on microcredit (Imai and Azam, 2012). Microcredit hence seeks to improve food security of the rural poor through various avenues. One avenue is through generating 'investment-led' benefits, which result in greater levels of income, consumption and wealth. Another is through 'insurance-led' benefits that can protect households against unforeseen risk and seasonality. It is thus recognized that participation in microcredit institutions (MCI) and access to microcredit provides a safety net that prevents income from falling to such low levels that households are unable to satisfy their basic consumption needs.

Globally, hunger levels remain alarmingly high. According to the 2022 State of Food Insecurity in the World (SOFI) report, the number of people affected by hunger rose in 2021 to 828 million, an increase of about 46 million since 2020 and 150 million since 2019, before the outbreak of the COVID-19 pandemic. In addition, WFP and FAO warned that acute food insecurity could worsen in 20 countries or areas during June to September 2022. (FAO, 2021)

Africa is currently facing the worst food crisis since 1945. About 21% of people making a total of 282 million people on the continent suffered from hunger in 2020. The collision of climate change, population growth and regional conflict has created massive food shortages across multiple countries in Africa. While the cause varies from country to country, the needs are largely the same i.e., immediate provision of food and water, as well as long-term solutions that address the root causes. However, between 2019 and 2020, in the aftermath of the pandemic, 46 million people became hungry in Africa.

World Relief and our partners are already on the ground in Burundi, Kenya, Malawi, Somaliland, South Sudan and Sudan, serving people in many of the hardest hit regions. (Africa Center for Strategic Studies, 2021)

Food insecurity is rapidly worsening in Eastern Africa- an estimated 81.6 million people including IDPs, refugees and host communities in rural and urban areas are facing high acute food insecurity. This represents about 39 percent increase from the 58.6 million recorded in November 2021. (WFP (World Food Program), 2022).

However, household food insecurity remains a major concern in Rwanda. Over 77 percent of the population still lives on less than a dollar per day, with 86.61 percent being food secure against 13.39 percent being food insecure, with the majority of people consuming less than their nutritional requirements (WBG, 2015). In a similar vein, (Okello et al., 2017) estimate that over 1.3 million

Rwandans are hungry, with 45 percent living below the national poverty line and 24 percent classified as extremely poor. Furthermore, rural households are disproportionately affected by food insecurity. However, 38.2 percent of the population is still impoverished, and more than a fifth of the population is hungry. Rural households are vulnerable to food insecurity due to a range of parameters like years old, family size, and lack of credit availability, according to a research published by (UNHCR, 2019).

The majority of people living in rural areas are subsistence farmers, whose farm incomes are insufficient to support their families' basic needs. This has significant negative consequences for household well-being, including food security (Olson 1999).

Rwanda regardless has seen a significant improvement in its food security status with statistics from the 2018 comprehensive food security and vulnerability analysis showing that 81.3 per cent of the population is food secure. The findings showed that 18.7 per cent of the country's households, approximately 467,000 households, were found to be food insecure.

During the countrywide celebrations for the World Food Day 2019 observed on Wednesday, Jean Claude Musabyimana, the Permanent Secretary at the Ministry of Agriculture and Animal Resources, said that in the next six years the country has committed to getting food for the few remaining households which are food insecure. (Becker et al., 2015) (FAO, 2021) (*Status Report 2003 FOREWORD*, 2003).

Microcredit has demonstrated to really be a successful as well as widely used method of eradicating inequality, according to the International Food Policy Research Institute (IFPRI, 2003). But loan amount to underprivileged people such as agrarian impoverished producers, have gotten less focus than it deserves. Broadly, everything taken that give the human body the vital nutrients it needs for an extremely healthy

existence is referred to as food (Okolo, 2004). Thus, food availability prevails when almost every individual has constant physical and financial access to wholesome, healthy foods in quantities adequate enough to fulfil their own everyday calorie supplies plus meals choices, enabling them in guiding an active, healthier lifestyle (Sengooba, 1994).

The International Food Policy Research Institute (IFPRI, 2003) recently noted how access to microloans has shown to be a successful and well-liked strategy for reducing hunger but it also aids residents in reducing hunger. Nevertheless, lending to underprivileged groups, such as the isolated impoverished farmers, has not received the consideration it needs. As a result, a variety of nonprofit organizations (NGOs) and international donors such as the International Organization for Development (UNDP), have delved into community-based microcredit schemes.

The UNDP's support for microcredit promotion has the following goals: Strengthen traditional financial institutions, government as well as NGOs to provide loans towards the underprivileged population, bolster society organizations' ability to obtain finance, make it easier for all the poor to obtain funds, and encourage sustainable financial intermediaries at the state level, advocating for that the improvement of the favorable conditions for microcredit activity (1998, UNDP).

This same UNDP microloan initiative has been launched during 2005 in Kigali and much of the surrounding regions along with the goal of aiding peasant using agriculture products including grains, pesticides, and manures. They also assisted farmers, particularly women, in obtaining loans from local saving and lending societies. They were able to develop income-generating enterprises as a result of the assistance, allowing them to meet other socioeconomic demands such as child education and healthcare.

The Rwanda Cooperative Agency (RCA) is the microfinance disbursing organization, with the Governmental Office of Central Planning acting as



the coordination hub. RCA offered workshops and trainings, as well as purchasing and distributing farm inputs in kind to beneficiaries. Many academics have assessed the impact of Formal as well as informal micro lending programs on recipient's earnings, efficiency, wellbeing and their finding shows that they include both positive and bad consequences on farmers. Nonetheless, there has always been minimal effort that investigate the effects of development agencies, international donors, non-governmental institutions (NGOs) and microcredit programs concerning the state of the nutritional safety of the targeted beneficiaries. By employing the Propensity Score Matching approach, this study attempted to completely examine the effects of the micro credit program on Musanze district's poor household farmers in order to determine its effect on such specified recipients' food security situation (PSM). previous "evaluations" that just offer qualitative insights into processes without comparing results against specific policy-relevant counterfactuals, according to Ravallion (2005), are now largely regarded as unsatisfactory.

Pufahl and Weiss (2009) employed a semi-parametric Propensity Score Matching technique to examine the effects of agro-environment programs on input utilization and farm output of individual farms in Germany. Nkonya et al. (2009) employed the PSM framework to examine how a Community Driven Development (CDD) initiative in Nigeria affected family income and the purchase of productive capital. This analysis revealed a positive and significant treatment effect of agri-environment programs on the area under cultivation, particularly grassland, resulting in a decrease in cattle livestock densities. According to the study, recipients' income grew by roughly 60%. For this reason, their involvement as in the program (Fadama 11) Earlier thinkers defined food security as a situation in which everyone has continuous physical, social, and economic access to enough healthful and nutritious food to live a healthy and active life (Duffour, 2011; FAO, 2008; 2012). This definition covers the basic

principles of food security as well as three key steps to achieving it (FAO, 2013).

The three aspects to evaluate are food availability, accessibility, and use. The first idea, food availability, implies household self-sufficiency. It refers to a family's ability to consistently obtain nutritious food in adequate proportions, whether through local production or purchase. On both an economic and physical level, food access refers to a household's ability to procure healthful food in adequate quantities to meet the nutritional demands of its members. The intake of nutrient-dense foods that meet the macro- and micronutrient demands of household members is referred to as food utilization. As the above illustrates, food security may not be achieved if individual food access is not appropriately addressed. This underlines the importance of physical and economic availability to food for individuals to overcome food insecurity (FAO, 2010).

Individuals in a home, on the other hand, gain from food security when the household is food secure as a whole. This is due to the fact that food security is a measure of a household's well-being rather than the well-being of individual family members. Food security at home means having enough food at all times (Fawehinmi and Adeniyi, 2014).

The majority of people living in rural areas are subsistence farmers, whose farm incomes are insufficient to support their families' basic needs. This has significant negative consequences for household well-being, including food security (Olson 1999).

Food insecurity could be alleviated by using household credit support as a policy approach. Credit can be used by low-income households to fund income-generating activities and investments that will help them improve their life (Ijaiya and Abdulraheem, 2000). The government has attempted to provide credit services to rural households through a range of programs, one of which is the development of cooperatives (Ugbajah

and Ugwumba, 2013). Cooperatives play a crucial role in ending hunger as well as combating regional disparities (Shiferaw et al., 2014; Zeng et al., 2015). In order to make more money, low-income rural households pool their resources and join cooperatives. Cooperatives pool their members' resources, such as credit, information, and labor, to generate mass production and buy food or meet other basic needs (Tefera et al., 2016). As a result, they make a major contribution to long-term food security (Lecoutere, 2017). On the other hand, several empirical studies on cooperative membership and financial availability have focused on farm productivity, technology adoption, technical efficiency commercialization, and poverty alleviation (Francesconi and Ruben, 2012;

Abate et al. (2014), Verhofstadt and Maertens (2015), Abebaw and Haile (2013). Cooperative membership and finance, on the other hand, may be able to assist rural people in improving their food security by reducing cash limitations. As a result, more research is required to assess the impact of both credit and cooperative participation on food security. There is a paucity of empirical research on the influence of cooperative membership and credit availability on rural household food security, particularly in the country of Nigeria. This study is meant to fill knowledge gap in the literature. As a result, the study has three goals: Its first goal is to determine the key determinants influencing credit availability and cooperative membership; its second goal is to assess rural families' food security; and its third goal is to examine the influence of cooperative membership and credit access on food security in rural families.

#### **Research Hypothesis**

- There're no effects of microcredit on the food security status of the poor households
- There are no microcredit services available for the poor rural household farmers
- There is no insufficient food supply among the poor rural household farmers

- There exist no factors influencing microcredit from being obtained by rural farmers
- There are no vulnerable household farmers to food insecurity

## **LITERATURE REVIEW**

### **Related Literature**

#### **Microcredit**

Microcredit is described as the distribution of modest loans to underprivileged women and young people who are informed about various programs. Microcredit offers a powerful weapon towards empowering women and young people, capacity building, eradicating impoverishment, not forgetting income-generating projects.

Lending facilities might well be viewed as a crucial method for both the poor women and youth to preserve their agricultural production and food insecurity (Debnath et al., 2019) as there is no community with zero hardship, even now in industrialized civilizations (UKPE, 2016)

#### **Food security**

Food security is the measure of the availability of food and individuals' ability to access it. According to the United Nations' Committee on World Food Security, food security is defined as meaning that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life (UKPE, 2016).

#### **Agriculture development**

Agricultural development is defined as the process that creates the conditions for the fulfillment of agricultural potential. Those conditions include the accumulation of knowledge and availability of technology as well as the allocation of inputs and output. (No & Laiglesia, 2006)

#### **Food Insecurity**

Rahman, Matsui, and Ikemoto (2013) defined food insecurity as lack of access to sufficient quality food. Food insecurity may be short term and transitory, experienced for example when an agrarian community misses a rainy season. It may become

chronic due to persistent drought, political conflict, and persistent lack of access to productive land and to food markets (Ashley, 2016; Maxwell & Frankenberg, 1995; Rahman et al., 2013).

### **Theoretical review**

#### **Household Food Security Survey Model (HFSSM)**

For the examination of agricultural producers' food availability in the study area, this USDA (United States Department of Agriculture) Household Food Security Survey model was used. A built food security scale is used to categorize households in this strategy. This scale is a number continuum that ranges from 0 to 18 on a linear scale. The scale assigns a single numerical value to the level of starvation that residents are experiencing. The method for determining a household scale is heavily reliant on household replies to standardized survey questions. These questions cover four different scenarios or events, all of which are relevant to the broad meaning of food security.

These factors encompass both qualitative and quantitative characteristics of a household's food supply, as well as psychological and behavioral responses of household members. It reflects the position of the households throughout the previous 12 months.

The food security scale score is determined by a household's overall pattern of response to a set of indicator questions, and the scale score is used to categorize households into one of the food security status-level categories.

A home with a scaling factor of 6 has responded "yes" to several queries about food shortages than a household with a scale value of 3. A home would receive a scaling range of zero if it still hasn't experienced any of the food insecurity situations covered by the key questions, while a resident who has gone through all of them will receive a scale value close to 18. Generally, the queries integrate proportionately to provide a measurement instrument for determining the degree of food uncertainty. experienced in a home with significant sensitivity. Coleman-Jensen, Rabbitt, Gregory, and

Singh (Coleman-Jensen, Rabbitt, Gregory, and Singh, 2014). According to a study conducted in Cross River State on the productivity and food security of urban crop growers, Ibok (2012) employed a household food security survey an approach to estimate the state of crop production Fakayode, Rahji, Oni, and Adeyemi (2009) employed a household food security survey technique to investigate the food security of agricultural households in Ekiti State. It was used to assess the severity of food insecurity in these households.

#### **Sustainability theory**

Sustainability theories seek to prioritize and integrate social responses to environmental and cultural issues. An economic model is concerned with the preservation of natural and financial capital; an ecological model is concerned with biological diversity and ecological integrity; and a political model is concerned with the realization of human dignity in social systems. With symbolic, critical, and motivational resources for cultural transformation, religion has entered the debate.

Economic models advocate for the preservation of opportunity, which is frequently in the form of capital. "We should view of sustainability as an investment dilemma, in which we must employ returns from the use of natural resources to create new opportunities of equal or better value," according to the basic definition given by economist Robert Solow (1991).

The theoretical foundation of sustainability theory is forms of advancement that meet current needs without jeopardizing future generations' ability to meet their own (Shahan, 2009). One of the main problems of economists is how to make optimal use of scarce natural resources by combining them with alternate applications in order to assure 67 human sustainability and enhanced environmental quality (Hoffman & Ashwell, 2001).

In terms of natural resources such as land and its deposits, forests, air, and water bodies, sustainability refers to a balanced use of these resources throughout time without jeopardizing the



natural resource base's inherent ability to support future generations.

A system that is environmentally sustainable must have a stable resource base, avoid over-exploitation of renewable resource systems or environmental sink functions, and deplete non-renewable resources only to the degree that appropriate alternatives are invested in.

Sustainability has emerged as a critical concept in addressing global resource and environmental concerns, particularly in the management of natural resources (McGee, 2006).

According to Olowookere (2010), sustainable agriculture is the ability of farmers to produce food constantly while minimizing the impact of their agricultural activities on the environment and surrounding ecosystem.

This research looked at how farm households use available resources (microcredit) to achieve food security.

### **Empirical Review**

According to study conducted by Haque, 2021. Insights from Bangladesh on the role of microcredit in enhancing poor women's food security. This study's main goal was to evaluate the effect of microcredit on Bangladeshi rural poor women's family food expenditures. Sampling was employed for the analyses, and the (SRS) technique was used to choose the samples. The effect of microcredit on household food expenditure was evaluated using the Propensity Score Matching (PSM) method. The opinions of the borrowers regarding the contribution of microcredit to improving their level of food security were evaluated using binary logistic regression.

The results of this study demonstrated that the utilization of microcredit increased the borrowers' household food expenditures significantly. Originality/value - This study assists in the development and effective implementation of food security initiatives for rural poor women in

developing nations. Key words: women, women's empowerment, food security.

Investigator et al., 2013 studied the role of Credit in Food production & Food security in Bangladesh with the purpose to investigate the relationship between credit and food security, to understand the link between credit and dietary diversity and to analyze the relation between credit and food production. A multi-stage stratified sampling methodology including both quantitative as well as qualitative methods are used to understand the relationships between credit and food security/dietary diversity/agricultural production. The study reveals that, access to credit has given the opportunity to marginal & small farmers to plough their small plot of land and also made the lease of additional land possible an in-depth analysis of a number of major agricultural credit programs (1996-2011) reveals as well that farmers who have access to formal credit prefer credit of NCB/NSB than Private Commercial Banks/NGOs.

The impact of credit access and cooperative membership on food security of Rural Households in South-Western was examined in a paper by Kehinde & Kehinde, 2020.

The study's goal was to determine how cooperative membership and credit availability affected the food security of rural households in south-western Nigeria.

300 rural homes were chosen for the study using a multistage sampling technique.

A food security indicator, binary logit model, propensity score matching (PSM), and augmented inverse-probability weighting model were used to analyze the data (AIPW). According to the binary logit estimates, factors such as age, household size, years of education, farm size, farm income, and non-farm income significantly influenced the likelihood that rural households would belong to cooperatives, whereas factors such as household size, years of education, farm size, gender, household assets, and farm income significantly

influenced the likelihood that rural households would have access to credit.

According to the food security index, 66 percent of households experienced food insecurity.

Purnawan and others, 2021 conducted a research upon on the Financial support program for small farmers, & its impact on local food security and the prime objective of the study was to address the implementation of the Kawasan Mandiri Pangan (KMP) program, a microfinance program for farmer groups, assessing whether the program affects farmers' decisions concerning production, marketing, and consumption or not, and its impacts on household food security along three dimensions: food availability, food access, and food utilization. The researcher used qualitative study approach in order to accomplish the goal. Hence the data was examined utilizing PLS – SEM (partial least square) - Structured Econometric Models (SEM). The findings of the research found that the most significant institutions for advancing women 's economic empowerment are financial institutions. Their offerings, including micro-savings, micro-insurance, plus micro-lending, have a very good impact on the empowerment of women. The good impact of microfinance services on female empowerment is proved to reduce their susceptibility.

In accordance with Kawira's research 2016, which examined how access to credit affected the quality of life for the poor in Tharaka Nithi County, the goal of their own study was to ascertain how these microcredits influenced the standard of living for the poor there.

In order to examine the data, several approaches were employed, including statistical software testing, formulating and conducting a survey for microfinance services clients.

The analysis revealed that one strategy to raise living standards in the study region is by providing credit facility and by obtaining the skills required to handle money in order to earn additional revenue and make earnings.

## METHODOLOGY

The researcher used both descriptive statistic and correlational research design for data collection and analysis. However, descriptive statistic was used to explain and summarize the basic features of the study while, the correctional research design was used to explain the relationship between Microcredit and Food security. The researcher also used both quantitative and qualitative to test and described the relationship, examine the effects of interaction of the variables. The target population of this study was 240, comprising of (Women group = 40, Individual women=120 and individual youth= 80). This was the total number of females and young people who had succeeded in taking credit and also invested for at least twice with AB Bank within Musanze district, Rwanda. The study population included all rural farmers in Musanze District who had contracted financial services (loans) from AB Bank between 2016 and 2022. The sample size for data collection was determined by the researcher using Slovin's formula:

$$n = \frac{N}{1 + Ne^2}$$

where;

n= Sample size

N= Population size

e= Assumed error type1

$$n = \frac{240}{1 + 240 (0.05)^2} = 150$$

The researcher used questionnaires with 150 respondents from women's group, individual women and individual youth of AB Bank Microfinance in Musanze District, Rwanda for primary data. The researcher used only primary data and this primary data was collected from 150 respondents from AB Bank Microfinance's clients in Musanze District, Rwanda using questionnaires. The researcher analyzed the data collected using descriptive and inferential statistic.

The descriptive statistic method was employed to analyze bio data and the tools to be used for data analysis were descriptive and inferential statistic using correlation and linear regression model. The mean, frequency and standard deviation was

determined using descriptive statistic in order to determine the impact of micro lending, examine microcredit effect, saving and establish the contribution made by orientation on rural poor farmers in AB Bank MFI.

The correlational research design was employed to clarify the association between the predictor factors (Food security plus Agriculture development interventions with indicators of microcredit, saving, insurance, orientation and training) and

empowerment of rural poor farmers (with selected indicators of increased business income, increased household assets, inclusive decision making, increased economic activities, job creation and right participation). Linear regression analysis was also employed to predict how the value of Agriculture development interventions like microcredit, saving, orientation and training as independent variable influences food security among the rural poor farmers which is the dependent variable.

## RESULT

**Table 1:** Financial Factors

Objective one looked at determinants (financial resources, interest rate & short grace period) of the types of products and services offered by AB Bank microfinance institution to the rural household farmers in Musanze District.

		Did you get credit?	
		Disagree	Agree
		%	%
Financial resources affect food security among the rural poor household farmers	Neutral	0.0%	0.0%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	20.0%
	Agree	6.7%	3.3%
	Strong Agree	24.7%	28.7%
Interest rate affect the rate which poor rural farmers borrow credit for agricultural production	Neutral	14.3%	3.3%
	Strong Disagree	0.0%	16.7%
	Disagree	10.3%	0.0%
	Agree	6.7%	38.5%
	Strong Agree	0.0%	10.2%
Interest rate should be considered before applying for loan from AB Bank Rwanda	Neutral	4.7%	48.7%
	Strong Disagree	0.0%	16.7%
	Disagree	20.0%	0.0%
	Agree	6.7%	3.3%
	Strong Agree	0.0%	0.0%
Acquisition for loan from the rural farmers requires a collateral	Neutral	4.7%	8.7%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	0.0%
	Agree	26.7%	43.3%
	Strong Agree	0.0%	0.0%
Short grace period affects repayment of loans among the poor rural farmers in Musanze	Neutral	24.7%	48.7%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	0.0%
	Agree	6.7%	3.3%
	Strong Agree	0.0%	0.0%

This table above shows the information from farmers 'opinions. The majority of people who got the credit said "strongly Agree" for the first statement, the same with people who didn't get it (28.7% and 24. 7% respectively). Secondly, the majority of people who got the credit are in "Neutral" state for the second statement with 48.7% against 20% of people who didn't ask for credit that said "Disagree". etc.

From the above table, it can be confirmed that financial resources acquisition (credit/loans) is key in influencing food security among the poor households as represented by 28.7% of the

respondents in support thus it is therefore in agreement with the findings of (Haque, 2021) a researcher who conducted a study on the Role of Microcredit in Improving the food security status of the poor women: Evidence from Bangladesh. The study showed that microcredit intervention made a significant contribution to increase Households consumption expenditure of borrowers.

In summary, specific type of MFI products and services offered to the MFI clients depended on the ease of acquiring loans, the interest rate charged and grace period of loan repayment indicated in the table 6 as agree above.

**Table 2: Personal characteristics**

Objective two put emphasis on elements considered when assessing the food security status of the rural household farmers in Musanze District

	Did you get credit?		
		%	%
The level of education determines the poor rural farmer's ability to participate in agricultural productivity	Neutral	%	10.0%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	0.0%
	Agree	7.7%	7.3%
	Strong Agree	23.7%	34.7%
Religious affiliation affect the poor rural farmers in the process of applying for Loan in AB Bank Rwanda	Neutral	10.7%	0.0%
	Strong Disagree	0.0%	16.7%
	Disagree	14.0%	40.0%
	Agree	6.7%	3.3%
	Strong Agree	0.0%	8.7%
Poor rural household farmer's age determines their ability to participate in agricultural production activities	Neutral	24.7%	%
	Strong Disagree	0.0%	16.7%
	Disagree	2.0%	46.7%
	Agree	8.7%	3.3%
	Strong Agree	0.0%	0.0%
Tradition African belief hinders agricultural productivity	Neutral	22.7%	0.0%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	48.7%
	Agree	6.7%	3.3%
	Strong Agree	0.0%	0.0%

This table above shows the information from farmers 'opinions. The majority of people who got

the credit said "strongly Agree" for the first statement, the same with people who didn't get it

(34.7% and 23. 7% respectively). Secondly, the majority of people who got the credit said to be in a “Neutral” state for the second statement with 40% against 14% of people who didn’t ask for credit that said the same. etc.

In brief, in the eve of assessing the farmers’ food security status, it is found that education is leading in influencing the food security status of the rural household farmers represented by 34.7% who agreed with this notion, followed by existence of African traditional beliefs as shown in the table 7 above.

### Demographic Characteristics of the respondents

Objective three talked of determining the contributing factors (Age & marital status) affecting the accessibility of microcredit by the rural household farmers in Musanze District as shown in table 4 below

This section provided the demographic characteristics of the respondents selected for the study and collected data. The target respondents were categorized inform of gender, age, marital status, level of their education and business experience.

**Table 3:** Distribution of age-group and marital status

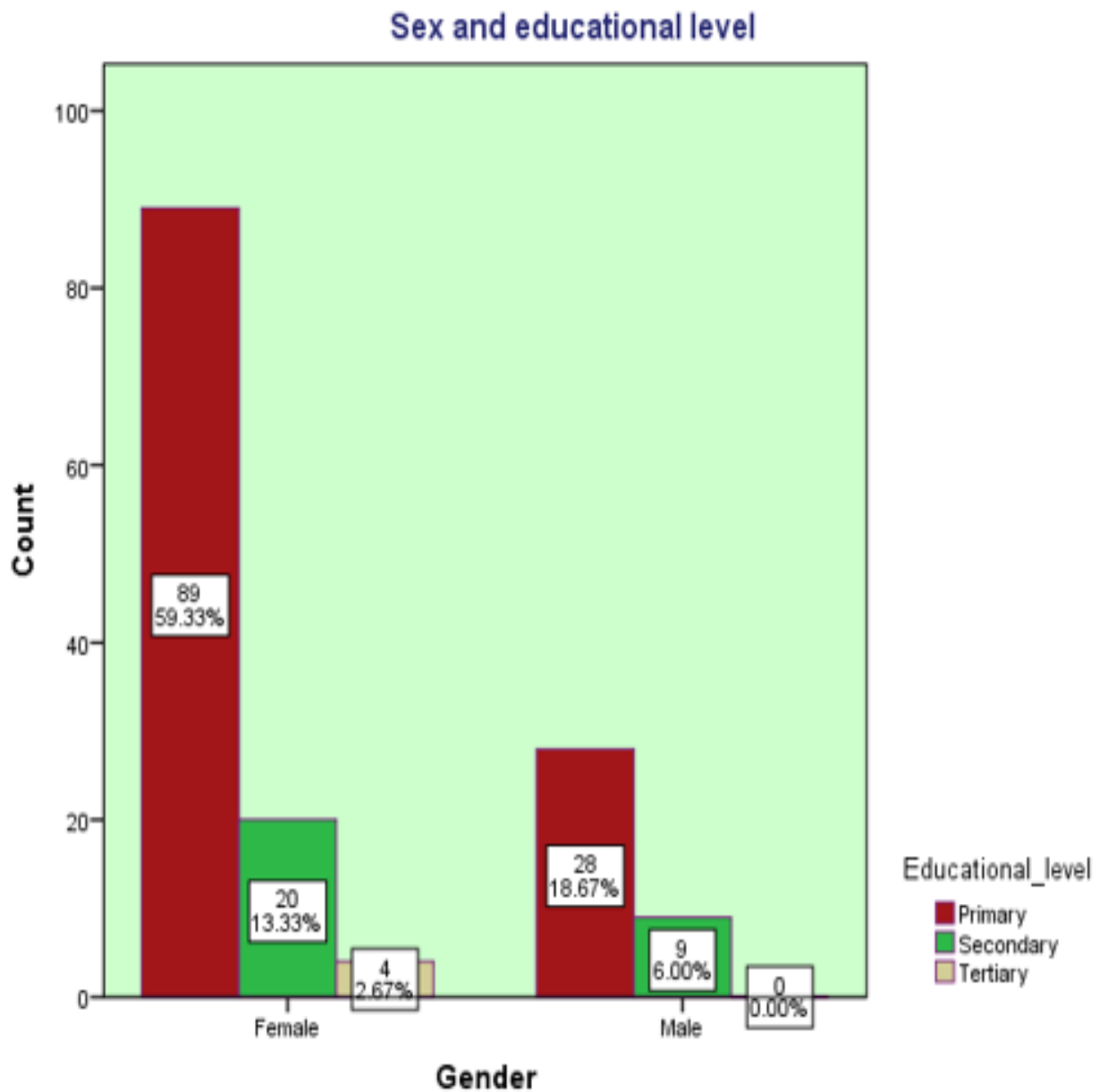
		Marital status			
		Married	Single	Divorced	Separated
		%	%	%	%
Age group	25-35	30.7%	10.0%	0.0%	3.3%
	35-45	19.3%	0.0%	0.0%	0.0%
	45-55	16.7%	6.7%	0.0%	0.0%
	55-65	6.7%	0.0%	0.0%	6.7%

This table above describe the allocation of group-ages and marital status among all 150 respondents. In the range 25-35 years’ old there was a high percentage of married with 30.7%, followed by 35-45 with 19.3% ,45-55 with 16.7% and the last was 55-65 with 6.7%. this study found single people in range 25-35 and 45-55 with 10% and 6.7% respectively. None was divorced and separated

people were found in the range of 25-35 and 55-65 with 3.3% and 6.7% respectively.

In conclusion, age and the marital status of the respondents have great influence affecting the accessibility of microcredit as showed in the table where, the young and married are less affected compared to the old, the single and the divorced.





**Figure 1:** Gender and educational level distribution

This figure provides information about Gender and educational\_level of the respondents.

As such, a percentage of 59.33% women managed to complete primary level of education whereas 18.67% of the opposite sex (men) completed primary education as well.

However secondary education presents a percentage of 13.33% women who have completed

secondary level of education, while the percentage of men who also managed to complete secondary education is 6.00%

And finally, 0.00% indicates the percentage of men who succeeded in completing tertiary education as shown in the table above.

**Table 4: Cultural factors**

Lastly, objective four focused on assessing the vulnerability of the rural household farmers to food insecurity (citing land ownership & polygamy effect) in Musanze District.

		Did you get credit?	
		%	%
Cultural aspects like ownership of land and polygamy affect food security status of the rural poor household farmers	Neutral	0.0%	0.0%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	0.0%
	Agree	6.7%	3.3%
	Strong Agree	24.7%	48.7%
Married Women usually get support from their husbands in the fight for food insecurity eradication	Neutral	14.4%	0.0%
	Strong Disagree	0.0%	36.7%
	Disagree	10.3%	28.7%
	Agree	6.7%	3.3%
	Strong Agree	0.0%	0.0%
Husbands allow their wives apply for loan for investing in agricultural production	Neutral	4.7%	0.0%
	Strong Disagree	1.3%	16.0%
	Disagree	0.0%	0.0%
	Agree	25.3%	52.7%
	Strong Agree	0.0%	0.0%
Husbands share household responsibilities with their wives to enable them participate in food production activities	Neutral	0.0%	0.0%
	Strong Disagree	0.0%	16.7%
	Disagree	0.0%	0.0%
	Agree	9.7%	13.3%
	Strongly Agree	24.7%	35.7%

This table provides the information from farmers 'opinions. The majority of people who got the credit said "strongly Agree" for the first statement, the same with people who didn't get it (48.7% and 24.7% respectively). Secondly, the majority of people who got the credit said "strongly disagree" for the second statement with 36.7% against 14.4% of people who didn't ask for credit were in "Neutral" state. Etc.

Further discussion as per the above findings, revealed that the vulnerability of the poor household farmers especially women is largely due to their dependence on their husbands for support in the fight for food insecurity indicated by 28.7%. These findings therefore agreed with the findings of one scholar (Kawira, 2016) who conducted a study on The Effect of Micro credit in raising the level of livelihood for the underprivileged in Tharaka Nithi County. He found out that, financial support is one option to improve living conditions in the research

area as well as teaching people the skills they need to manage money in order to earn additional revenue and make dividends thereby reducing the state of their vulnerability.

The findings also revealed that cultural factors like land ownership has contributed a lot in affecting the food security status of the rural poor household farmers represented by 48.7% seconding the assertion. This finding is hence in line with the findings of researcher (On, 2017) who conducted a research on the determinants of household food security of small scale farmers in the locations of geraf and rahad. The findings matched these very findings of this study which narrated, that agriculture land was significantly related to the probability of a household being food secure.

In conclusion, vulnerability to food insecurity is high among the rural farmers due to poor land ownership policy, lack of support for women from

their husbands as illustrated in the table 5 above though agree and disagree statements.

**Table 5: Normality Test**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Number of meals per day	.337	150	.009	.746	150	.060

a. Lilliefors Significance Correction

Ho: Normality

H1: Non Normality

From Normality test table, the null hypothesis was retained since the p-value for Shapiro-Wilk of 0.60 is greater than 0.05 and conclude that dependent variable (Number of meals per day) was normally distributed in all groups.

**Table 6: Variables in the Equation**

		Score	df	Sig.	
Step 1 <sup>a</sup>	Variables	Gender	9.477	1	.002
		Marital status	3.700	1	.004
		Family Size	1.402	1	.236
		Family Income	1.601	1	.006
		Educational level	13.307	1	.001
		Did you get credit?	1.672	1	.016
	Overall Statistics	34.673	6	.003	

The "Variables in the Equation" table shows the contribution of each independent variable to the model and its statistical significance. The statistical significance of the test is found in the "Sig." column. From these results you can see that gender ( $p = .002$ ), Marital status ( $p = .004$ ), family income ( $p = .006$ ), Educational level ( $p = .001$ ) and Did you get credit? ( $p = .016$ ) added significantly to the model/prediction, but Family Size ( $p = .236$ ) did not add significantly to the model.

**Table 7: The model**

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	Gender	1.950	.663	8.646	1	.003	7.031
	Marital_status	-.499	.218	5.256	1	.022	.607
	Family_Size	.375	.207	3.299	1	.069	1.456
	Family_Income	.505	.225	5.025	1	.025	1.658
	Educational level	-2.404	.733	10.750	1	.001	.090
	Did you get credit?	.255	.408	.390	1	.032	1.291
	Constant	2.101	.903	5.413	1	.020	8.177

a. Variable(s) entered on step 1: Gender, Marital\_status, Family\_Size, Family\_Income, Educational level, did you get credit?

The logistic regression equation is:

$$\text{Log (p/1-p)} = 2.101 + 1.950 (\text{Gender}) - 0.499 (\text{Marital\_status}) + 0.505 (\text{Family\_Income}) - 2.404 (\text{Educational level}) + 0.255 (\text{Did you get credit?})$$

#### Interpretation:

**Family\_Income** - The coefficient for the variable is **0.505**. This implies that for a one-unit increase in Family\_Income, we expect an increase of **0.505** in the log-odds of the dependent variable, holding all other independent variables constant and the effect of Family\_Income on dependent variable is statistically significant since its p-value of **0.025** is less than **0.05**.

The statistical significance of family income as a finance resource, has successfully answered objective one which talked of the determinants of product and services offered by AB Bank MFI to the rural household farmers in Musanze District.

**Did you get credit?** - The coefficient for the variable is **0.255**. This implies that for a one-unit increase in **Did you get credit?** we expect an increase of **0.255** in the log-odds of the dependent variable, holding all other independent variables constant and the effect of **Did you get credit?** on dependent variable is statistically significant since its p-value of **0.032** is less than **0.05**.

The above discussion responded to objective one that looked at determining the types of products and services for instance (credit/loan) offered/accessed by the rural household farmers in Musanze District.

**Gender** – The coefficient for the variable Gender is **1.950**. This means that for a one-unit changes in Gender, we expect a **1.950** increase in the log-odds of the dependent variable which is “Number\_of\_meals\_per day”, holding all other independent variables constant and the effect of Gender on dependent is statistically significant since its p-value of **0.003** is less than **0.05**.

Here, objective two which talked of assessing the food security status among the household farmers was analyzed as revealed the number of meals that

can be afforded by the rural household farmers in Musanze District.

**Educational level** - The coefficient for the variable is **2.404**. This implies that for a one-unit increase in **Educational level**, we expect an increase of **2.404** in the log-odds of the dependent variable, holding all other independent variables constant and the effect of **Educational level** on dependent variable is statistically significant since its p-value of **0.001** is less than **0.05**.

This therefore indicated that, educational level is key in assessing the food security status of the rural household farmers as requested by objective two of the study.

**Marital\_status** - The coefficient for the variable is **0.499**. This means that for a one-unit changes in marital status, we expect a decrease of **0.499** in the log-odds of the dependent variable, holding all other independent variables constant and the effect of marital status on dependent variable is statistically significant since its p-value of **0.022** is less than **0.05**.

As indicated in the result above, marital status in the form of married, single, divorce and separated all had great influence in the ease of assessing the microcredit by the household farmers thus responding to objective three.

#### CONCLUSION AND RECOMMENDATION

Microfinance have significantly improved the standard of living of the poor rural household farmers for instance their total annual income. In conclusion, the study found out that the poor rural household farmers who had participated in microfinance services in Musanze District had increased considerably their annual total income, and it was deduced that the use of microfinance services is one of the best ways to escape food insecurity/famine, poverty in Musanze District and instead to increase household livelihoods.

Since the primary goal of this study was to assess the effects of microcredit on the level of food security of the underprivileged rural household

farmers in Musanze District, it was anticipated that the rural household farmers covered by microcredit would use this loan to pursue income-generating activities as well as increasing their income and food consumption expenditure. This study found that microcredit had a beneficial effect on raising rural poor household farmers' expenditures on food.

The majority of the respondents to this survey believed that the involvement of microcredit programs had improved their situation in terms of food security, which was another finding. The key drivers behind this accomplishment were proper credit disbursement to the impoverished household farmers in rural areas, borrowers' use of credit to generate revenue, and efficient support from NGOs. This study has also demonstrated that other factors, like as land ownership, play a key role in determining the borrowers' better food security position. Additionally, the study showed that obtaining a respectable degree of education can help fight and reduce food insecurity.

The study further recommended that policymakers should emphasize on the following aspects to improve the food security status substantially among the poor rural household farmers: Firstly, land being a scarce resource, hinders productivity. Rural farmers especially women their possession of natural resources such as land can play a vital role in boosting the food security status of the entire households. Necessary steps need to be taken for initiating the provision of land leasing system, ensuring land rights of the rural household farmers and arranging training on land management system. Secondly, policymakers should also emphasize on

the timely disbursement of credit and receipts from the debtors. A proper management of time in these matters can ensure a better outcome of the microcredit programs. Monthly installment facility with longer repayment period put the borrowers in a situation of ease. Adequate amount of credit disbursement as per the needs of the borrowers is also essential to increase investment and employment opportunities of the rural household farmers. In addition to providing credit, focus should be given on arranging training for skill development of the rural poor women which is meant to increase their efficiency. Finally, development of rural infrastructure (e.g. roads, culverts, bridges, banks, markets, etc.) can play an important role in enhancing the mobility and access to information of the rural poor household farmers. It will further help them to establish linkage with the stakeholders and increase their networking capacity. This will lead to greater participation of rural household farmers in income-generating activities. Moreover, government and NGOs should work together involving these rural household farmers in multiple income generating activities at the same time which may result in sustained higher income inflows. This increased income shall cause a rise in the food consumption expenditure of the entire family and help to attain food security.

The study further recommended that giving clients, primarily women and young people, financial literacy training is key in aiding them to acquire the necessary knowledge and tools required to compete in the market and advance their fundamental bookkeeping and financial management abilities.

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