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IMPACT OF VILLAGE COMMUNITY BANK LOANS ON SMALLHOLDER FARMERS' HOUSEHOLD INCOME IN KITETO DISTRICT, TANZANIA.

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ABSTRACT

Purpose: The major purpose of this study was to investigate the impact of Village Community Bank **(**VICOBA) loans on smallholder farmers' household income in Kiteto District, Tanzania.

Design/Methodology/Approach: The study involved 100 smallholder farmers who had accessed VICOBA loans. The study applied a cross-sectional survey design. In the case of the study approach, it was a mixed method. The data were solicited from smallholder farmers through questionnaire, in-depth interviews and FGDs. The collected data were analysed using regression analysis. Prior to data analysis, econometric tests for normality, multicollinearity and goodness of fit of the model were undertaken and no violation of regression model assumptions was found. Also, the reliability test using Cronbach's Alpha was conducted and the coefficient (0.851) signifies that the data collection instrument was reliable.

Findings: The results of this study indicate that loan amount, interest rate, loan accessibility and transaction costs had a significant impact on smallholder farmers' income. On the contrary, the grace period, repayment period and mode of repayment were not significant. The study findings imply that the VICOBA loans had an impact on the income of smallholder farmers, and have improved their living conditions as well as assisted them to climb out of excessive poverty.

Implications/Research Limitations: This study used cross-sectional data to examine the impact of VICOBA loans on smallholder farmers' household income in Kiteto district, Tanzania. Based on the scope of this study, the generalisation of results might not provide a good picture of how smallholder farmers' income is influenced by VICOBA loans.

Practical Implications: The findings of this paper would be useful as will awaken the Government and other institutions fighting against poverty to formulate and integrate the VICOBA development framework into the National Poverty Reduction Strategy as well as to review and reformulate effective cooperative and microfinance policies and guidelines to make them friendlier and accessible to small holder farmers.

Originality/Value: Unlike previous studies, this study considers multi-dimensions of VICOBA loan such as loan amount, interest rate, loan accessibility, the sufficiency of the loan amount, the grace period given to a smallholder farmer, repayment period and mode of repayment, while assuming conducive weather, stable economy and favourable agricultural market conditions for farmers to acquire needed inputs and sell their produce at relatively higher prices.

Keywords: *Households; microcredit; mobile money; small business; VICOBA*

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INTRODUCTION

Worldwide pieces of evidence show that Micro Financial Institutions (MFIs) are the annexes with the most important influence on economic growth, social development and poverty alleviation for the poor (Mia, & Ramage, 2011; Haji, 2013; Tasos, Amjan, Awan & Waqas, 2020). In the essence, microfinance is financial services for people with low income. The microfinance interest group began as an economic development instrument in the late 1970s and gained prominence in the 1980s. It has now grown considerably and hastily gained fame and was successfully implemented all over the world (Microfinance Barometer, 2019). Microfinance in the present day is already a vibrant sector representing millions of people in the world. As the banking industry is outmoded and incapable to respond towards emerging needs of societies, microfinance has proved able to assist in filling the gap by offering transitional support to people in need of enhancing their sources of livelihood. As a consequence, the microfinance industry continues to get bigger and turn out to be exceedingly structured (Lucas & Akkaro, 2016). Microfinance institutions have since benefited poorer individuals and families as well as communities in both developed and developing countries.

Globally, microfinance emerged as a reaction to uncertainties regarding the ability of the governments to distribute subsidised and economical credits to communities with meagre resources (Haji, 2013; Okiocredit, 2005). In the 1970s, governments issued subsidized credits to households with low income for the reason that the government and donors thought that rural dwellers (mostly poor) needed low-cost credits at lesser interest rates. This was conceived as means to promote social and economic development through the improvement of agricultural production and productivity by smallholder farmers. In providing these low-cost credits, donors established credit unions that were enthused by the Friedrich Wilhelm Raiffeisen model developed in Germany in 1864 (Haule, 2015; Lucas & Akkaro, 2016). The focus of these credit unions was mostly on savings mobilisation (Robinson, 2001) and the provision of microcredit to smallholder farmers' households to help them become self-employed as was sighted by Raiffeisen. The model recognised that if smallholder farmers were to fight income poverty successfully had to consider three S, which were translated as Self-help, Self-governance and Self-responsibility.

It is widely recognized that resource-poor people may be trapped in income poverty because of a lack of financial resources needed to undertake productive investments (Okibo & Makanga, 2014; Kwai & Urassa, 2015; Arifin, Suman, Ekawaty & Kaluge, 2020). Researchers (Dean, 2011; Todaro & Smith, 2012; Mecha, 2017) have reported that improved access to financial resources reduces the liquidity restraints that disadvantaged smallholder farmers' households face, thus enabling their engagement in economic activities that generate dynamic growth. Thus, the creation and emergence of rural credit unions such as Village Community Bank (VICOBA), Rotating Savings and Credit Association (ROSCA) and Village Savings and Loan Associations (VSLAs) provided smallholder framers with a premise to organise and manage their microfinance services. With this tool, poor farmers were able to access micro and small loans

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under simple and friendlier conditions, and they were expected to use them to expand their production and hence increase income.

However, empirical literature especially in developing countries is packed with inconsistent visions regarding the impact of microfinance on smallholder farmers' household income and wellbeing (Sengupta & Aubuchon, 2008; Ebimobowei, Sophia & Wisdom, 2012). On one hand, shreds of evidence by some scholars (Agnello & Caramia, 2013; Mago & Cephas, 2014; Gerli, 2015; Prathap, Mahesh & Karthik, 2018; Mustapha, Yusuf & Abdullahi, 2019) advocate that microfinance has a direct and significant influence on the welfare of the household in reducing income poverty and improve the standard of living. This is because microfinance can help to minimize the vulnerability to economic risk by helping the poor to diversify their incomes, and makeup physical, human and social assets. On the other hand, another school of thought observed that microfinance has a non-significant effect on household welfare due to the high-interest rates, the small size of the loan and the little repayment periods (Diagne & Zeller, 2001; Banerjee et al., 2013 and Okurut et al., 2014; Gidigibi, 2021), and due to this, some borrowers are trapped in a detrimental vicious cycle of debt (Bateman & Chang, 2009; Gidigibi, 2021).

In Sub Saharan Africa (SSA) microfinance initiatives were established as a collaboration involving government or municipal authorities and individual investors mostly from developed countries (Haule, 2015). Later in the mid-1980s, microfinance took a new form as credit societies or cooperatives or unions were established as self-help groups among poor smallholder farmers' households. The task was to empower people in need, solely the rural poor "the smallholder farmers" plus the creation of employment, prosperity and social and economic sustainability in rural areas. However, SSA is the only region in the world where income poverty in accounts for the percentage of the poor is rising over time and the poor are worse off than in other parts of the world (Haule, 2015; Haider, 2020; Ofori, Armah, Taale & Ofori, 2021). In Tanzania, saving and credit societies are important since the time of independence. The Tanganyika government identified the three biggest development enemies or stumbling blocks in the country; and these enemies (ignorance, disease and poverty) were passed on to the government of the United Republic of Tanzania (URT) (Nyerere, 1968). Regrettably, the existence of the enemies was relatively more severe in the rural than in urban areas (Haule, 2015; Christiaensen & Hill, 2019; World Bank, 2020). Therefore, the URT government-directed deliberate efforts to the rural areas. Among them was the establishment of VICOBA which are microfinance institution with self-help groups.

The most important intention of creating VICOBA is to unite the unfortunate smallholder farmers and individuals with less income; who in Tanzania form the majority (Wangwe, 2004; URT, 2009; Manongi, 2013; Aikaeli, Garces-Urzainqui & Mdalila, 2021) and most of them found in rural areas (Ahlen, 2012; Haji, 2013; Girabi & Mwakaje, 2013; Haider, 2020). The major purpose of VICOBA is to assist government efforts to increase the income of poor households and eliminate abject poverty (Grant, High & Allen, 2002; Magali, 2013; Kinisa, 2019; Mwaipopo & Dauda, 2019). Through VICOBA, the members are expected to save and

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share the financial and technical resources. Together they save their money in their VICOBA to get soft loans in the future which are attached with a small interest rate; that is considered as income to the VICOBA group (SEDIT, 2008) and each group member. Since its inception, VICOBA has benefited the smallholder farmers who were termed as the "un-bankable" by the formal microfinance and banking sector. Through VICOBA, poor rural farmers have been able to save and obtain loans to help them set up or improve agriculture and other business to boost their income (ILO, 2008; Hillbur & IITA, 2013; Sumari, 2018; Aikaeli et al., 2021).

Despite the contributions of VICOBA in rural areas, more smallholder farmers are still living in poverty in the rural areas. This is supported by EEA (2009), Wangwe & Lwakatare (2004) World Bank (2019), URT (2020) and Aikaeli et al. (2021) who reported that in Tanzania over 80% of the population who live below the poverty line are in the rural areas. It is therefore imperative to examine the impact of VICOBA loans on smallholder farmers' household income. Unlike other studies (Girabi & Mwakaje, 2013; Mhando, 2017; Kinisia, 2019; Mwaipopo & Dauda, 2019), this study considers multi-dimensions of VICOBA loans such as loan amount, interest rate, loan accessibility, the sufficiency of the loan amount, the grace period given to a smallholder farmer, repayment period and mode of repayment, while assuming conducive weather, stable economy and favourable agricultural market conditions for farmers to acquire needed inputs and sell their produce at relatively higher prices. This study was conducted in Kiteto District because the district has a lot of farmers' self-help VICOBA activities (Mhando, 2017). Village community banks started in Kiteto in 2008, initiated by SEDIT and Orgut through a project called Land and Agricultural Management Programme (LAMP). By 2011 There were more than 80 VICOBA groups in Kiteto with 2209 members and a total capital of 539,313,487 TZS 2011 (SEDIT, 2011).

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 The Theory of Empowerment

Empowerment is an ongoing transformation process that entails own-determination in the course of making choices that can progress an individual's wellbeing (Kabeer, 2005; Mosedale, 2005). Poor people's economic empowerment should be defined as "having access to and control over the means to make a living on a sustainable and long term basis and receiving the material benefits of this access and control (Carr 2000; Mosedale 2005). It has been argued that for a poverty reduction, intervention like microfinance to engender change, it should contribute to poor's sense of independence, rather than simply meeting survival needs" (Kabeer 2005). This might enable the poor to make choices that are against established structures or individuals; as a result, those choices limit the pursuit of their interests and potential. For the study, the theory of empowerment provided the analytical tools to examine how smallholder farmers' access to microfinance programmes and their participation in income-generating activities have served them.

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2.1.2 Transaction Cost Theory

The theoretical framework for this study was based on transaction cost theory. The transaction cost approach to the theory of the firm was created by Ronald Coase in 1937, in his article "The Problem of Social Cost". The transaction cost can be conceptualized as the financial cost incurred in credit delivery by the borrower and the lender before, during and after the disbursement of the loan. Lender's costs include; the cost of design and printing credit contracts, the cost of evaluating borrower's repayment capacity, the cost of assessing borrower's project viability, the cost of assessing loan applicants' references, the cost of training staff and borrowers, as well as the cost of monitoring loans. On the other hand, the borrowers who are VICOBA members might expend money on group formation and screening group members (in case of group borrowing), negotiating with the lending institutions, filling out loan application forms, transport, transportation and accommodation to and from the financial institution, the process of project appraisal and participation in group and VICOBA meetings (Bhatt & Shui-Yan, 1998). The stakeholders of a project can decide the rate of the transaction cost. These stakeholders have exclusive duty to condense the risk that they may face now and in the future (Stiglitz, 1990).

2.1.3 Financial sustainability model

Considering the financial sustainability model, Mayoux (2002) posited that microfinance for empowerment has an individualistic focus. Therefore, the goal of any empowerment intervention should expand individual choices for self-reliance. The financial sustainability model presupposes that the accessibility of microfinance by smallholder farmers automatically raises their money-making power and standard of living, which ultimately bring them to social and economic empowerment.

2.1.4 Poverty alleviation model

This theory entails developing everlasting livelihoods, community development and the delivery of social services. The major targets of the poverty alleviation model are the smallholder farmers. Based on poverty reduction, development pioneers have debated for additional smallholder farmers to be engaged in microfinance schemes and programmes because not only poverty is higher in rural communities but also smallholder farmers bear bigger duty for the well-being of the country for food and raw material production (Mayoux 2002). Usually, the poor or poorest use micro-loans accessed from VICOBA for both productive activities and consumption for basic needs (Nourse 2002). Therefore, the microfinance services which are subsidized are considered critical to assist more smallholder farmers to meet their needs for consumption as well as for production. These models underpin the policies and programmes of different MFIs and their outcomes on participants.

2.2 Review of Empirical Literature

2.2.1 Loan Size (amount)

Researchers dispute the provision of small loans as they don't help the poor to increase their income. Studies (Muhammad, Bambale, Ibrahim & Sulaiman, 2019; Moussa, 2020; Thaher,

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Radieah & Wan-Norhaniza, 2021) indicated that most smallholder farmers consider small loans amount to meet necessary households' needs, and are given depending on their savings with MFIs and their previous loan repayment history (Kasoga & Tegambwage, 2021). Most MFIs lent out loans depending on the collection convenience, payment and flexibility with experienced clients whom MFIs tend to meet their need for working capital by providing them with short term small loans (Brown, Mackie, Smith & Msoka, 2015; Banerjee & Jackson, 2017). In a similar point of view, Salifu, Tofik-Abu, Rahman & Sualihu (2018) in their study argued that small loans unlike larger loans decrease proportionately the income of the borrower. As a result, a borrower falls into debt stress due to no adequate income generation because of misuse of loan, which causes the poor capacity to pay. This is supported by, Ahlen (2012) and Chomen (2021) who argued that small loans don't lead to poverty reduction automatically; it depends on how the loans are used. However, Acquah & Addo (2011) explain that individuals who receive a larger loan amount can undertake the planned investment which in turn helps them to fulfil repayment obligations. For instance, Moussa (2020) conducted a research study on the relationship between micro credits from MFIs and the SMEs' financial performance and found positive relationships between the number of microloans and the financial performance of SMEs in terms of liquidity, turnover and net profits. Based on the literature review, this study hypothesized that:

H_1: Loan amount has a positive influence on smallholder farmers' income.

2.2.2 Loan accessibility, interest rate and transaction cost

AGRA-FISFAP (2015) found that across SSA agriculture is a very significant sector that makes up 20–30% of GDP, put 60–85% of the population in work, and nevertheless attracts a lesser amount of 5% of domestic lending. The enormous majority of smallholder farmers cannot access well-thought-out financial services to fulfil their needs, which include short-term to medium-term to long-term working capital and investment, financing of agricultural equipment and implements and savings and risk management services. VICOBA have tried to smooth the situation but still, the problem persists (SEDIT, 2011). Girabi & Mwakaje (2013) revealed that the major factors hindering smallholder farmers' access to credit were reported to be high-interest rates among others. In a similar point of view, Gedion et al (2015) identified that smallholder farmers' challenges in accessing micro loans include the high cost of acquiring the loan, duration of loan repayment and small amounts of loans.

According to Mhando (2017), the cost of hiring land in Kiteto is higher than in other places in Manyara region and is the second higher to Moshi in Kilimanjaro region. The charge for hiring an acre is standing between 100,000 TZS to 200,000/annum depending on the position/location of the land and its fertility. Although the payments are yearly since smallholder farmers depend on rain for their agricultural activities this amount is extremely high. In addition to that, the loan amounts smallholders secure from VICOBA are also small on average and are used mainly for consumption smoothing as opposed to productive investment that can lead to substantial increases in income flows to the households. The interest rate is also high. So, with high-interest rates on VICOBA loans and given the size of loans, smallholders are likely to find themselves in

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a poverty trap of creating a vicious cycle of debt. This is mostly attributed to the borrowers, particularly when they are forced by their circumstances to borrow a greater amount to take more than one loan to pay off earlier loans. This can lead to the deterioration of their income due to the heavy burden of loans. This is supported by Ikpefan et al. (2016), Salifu et al. (2018), Awojobi (2019) and Tasos et al. (2020). However, these results are in sharp contrast to Nichols (2004) and Gedion et al. (2015) who in their study reported that VICOBA loans have a positive and significant effect on the poor's income and hence wellbeing. Also, in Tanzania, Ngalemwa (2013) revealed that most VICOBA members joined the scheme to access credit and they acknowledged to have benefited as per their expectations. Moreover, De Goey (2012) found that the group loans may contribute to positive changes in the income of the poor, but these changes cannot be attributed to the amount of loans alone. The changes in income caused by the loan intertwine with other factors like group dynamics and family features.

H_2: Loan accessibility has a positive influence on smallholder farmers' income
H_3: Interest rate has a negative influence on smallholder farmers' income
H_4: Transaction cost has a negative influence on smallholder farmers' income

2.2.3 Grace period, loan repayment period and mode of payment

Loan default keeps on posing the threat to MFIs and the financial industry at large all over the globe (Amuakwa-Mensah, Marbuah & Marbuah 2017) and Tanzania is not excluded from the incident. Banerjee & Jackson (2017) posited that the lending of MFIs is predominantly short term and low to smallholder farmers due to poor credit repayment, rainfall uncertainties, low income and lack of collateral. Despite being affordable to smallholder farmers low instalment amounts can have a much higher cost of money (Baidoo, Yusif & Ayesu, 2020). This is because the frequency with which instalments have to be made increases and each time borrower pays incurs payment costs. However, high instalments reduce the number of instalments and hence costs associated with payments are reduced, though smallholder farmers due to inadequate loan maturities or inadequate product structure, perceive the cost of money to be high (Villarreal, 2017). The loan repayment period is usually associated with how MFI set its instalments. Short time loans are associated with high instalments which to most smallholder farmers is detrimental (Thaher, Radieah & Wan-Norhaniza, 2021). Baidoo et al. (2020) posited that MFIs' short term loans are not proper for smallholder farmers who entirely depend on climatic conditions to pay the loans. With short-time loans, it is impossible to cater for animal production which took time and is costly and risky. With many MFIs credits given to meet working capital and not for long-run asset accumulation and with a duration of payment of at most 12 months, it is difficult for smallholder farmers to acquire assets for income generation. This mode of payment (short time) was found by Thaher et al. (2021) to have a negative effect on smallholder farmers' income. Chomen (2021) as well point out that long-term repayment plans are linked to ineffective loan collection raising loan default and delinquency rate. Furthermore, larger instalments were reported to improve smallholder farmers' income (Pasha & Negese, 2014).

H_5: The grace period has a positive influence on smallholder farmers' income

ISSN: 2408-7920

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Vol. 8, No. 1 (2022), pp. 280-308
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http://doi.org/10.26437/ajar.03.2022.19

H_6: The loan repayment period has a positive influence on smallholder farmers' income
H_7: Mode of payment has a positive influence on smallholder farmers' income

2.2.4 Impact of microcredit on income poverty

It has been widely accepted that with financial support, small farmers can handle temporary and even long-term cash flow problems, and will thus be motivated in their desire to innovate and get bigger. The perception here is based on the assumption that access to outside finance is essential for poor smallholder farmers, who might certainly not have funds relative to the ambitions they have. They also lack collateral, good references, the ability to repay the loan and insufficient income (Malamsha & Kimaro, 2014; Munguti & Wamugo, 2020). Research regarding the influence of VICOBA on the income of smallholder farmers is enormous worldwide. Some researchers propose that VICOBA improves smallholder poor farmers' income in rural areas (Mago & Cephas, 2014; Duong & Nghiem, 2014; Gerli, 2015). A study conducted in India by Ajit & Anu (2012) shows that the poor improve their consumption, and income thereby appreciating a better quality of life. However, there is also no shortage of studies that blame MFIs for the increased income poverty of poor small farmers in rural areas (Amin, 2003; Awojobi, 2019; Tasos et al., 2020; Gidigibi, 2021). For instance, Amin (2003), revealed that although micro-credit has been victorious in reaching the underprivileged, it is not doing so well in reaching the vulnerable, in particular the group for the most part prone to impoverishment.

Girabi & Mwakaje (2013) investigated the impact of microfinance on agricultural productivity by smallholder farmers in Tanzania and indicated that smallholder farmers who take micro-credit realised higher agricultural productivity in comparison to those who did not take micro-credit. This is partly because smallholder farmers who took microcredit became relatively enhanced in looking for and accessing agricultural markets for their produces, and used improved inputs and farming technologies, and hence their income was improved. Similarly, Ahlen (2012) indicates that VICOBA and SACCOS have positive impacts on smallholder farmers' income. Anyelwisye (2007) focused on SACCOS' beneficiaries and revealed that the micro credits have impacted the incomes of smallholder farmers in several positive ways as follows; owning valuable assets, household expenditure on basic needs, incomes from the farm and off-farm activities, and house ownership, toilets and utilities.

2.3 Conceptual Framework

The conceptual framework Figure 1 shows how smallholder farmers can increase their income by accessing microcredit from VICOBA. From the literature review (Ahlen, 2012; Agnello & Caramia, 2013; Mago & Cephas, 2014; Gerli, 2015; Prathap, Mahesh & Karthik, 2018; Mustapha, Yusuf & Abdullahi, 2019; Kinisa, 2019; Mwaipopo & Dauda, 2019; Aikaeli et al., 2021), it is clear that for the smallholder farmers to improve their production hence income it is important to acquire micro loans from MFIs such as VICOBA. Then use the loan to enhance farm productivity with the presence of the good agricultural market condition, good weather and economic stability smallholder farmers' income can be improved.

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Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
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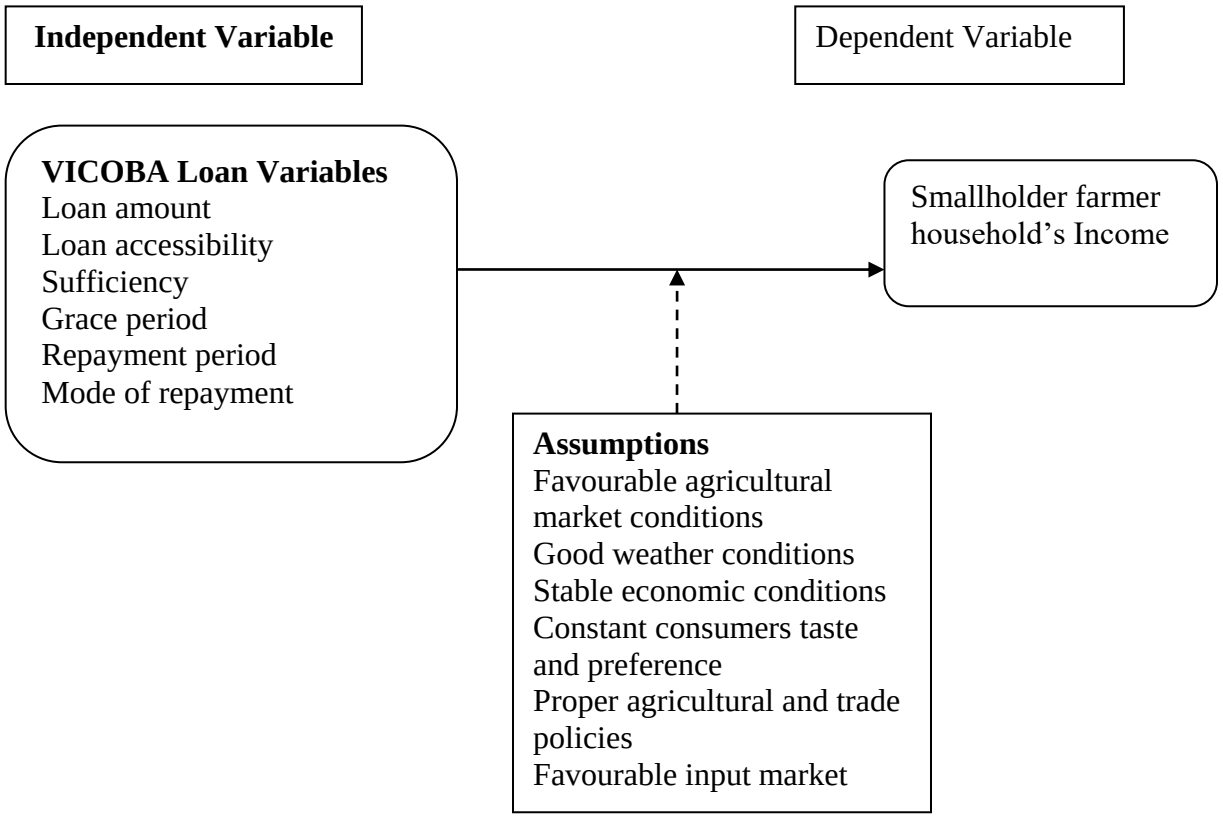

Figure 1: Conceptual Model of VICOBA's Impact on Smallholder Farmers' Income

Source: Own Compilation based on Literature Review, 2021

3.0 RESEARCH METHODOLOGY

3.1 The study area and its characteristics

Kiteto District is located to the South East of Manyara region at 04°55′00″S 37°00′00″ E 5.867°S 36.849°E. Kiteto district is one of the six districts of the Manyara region of Tanzania. Kiteto District is bordered to the north by Simanjiro district, to the east by Tanga region, to the south by Kongwa and Chamwino districts, and to the west by Chamwino and Chemba districts. Its administrative seat is the town of Kibaya. According to the 2002 Tanzania National Census, the population of the Kiteto District was 152,757 (NBS, 2002). It nearly doubled in 2012 when Tanzania National Census recorded a population of 244, 669 (NBS, 2012). The district's major economic engagements are agriculture and livestock keeping. The district is growing very fast and there are a lot of micro financial institutions to serve the rapidly growing population. The district is purposively selected for this study because smallholder farmers have been served by VICOBA since 2008 although smallholder farmers' income is still low (Ahlen, 2012; Mhando, 2017). Moreover, Kiteto is one of few districts in Tanzania where VICOBA as an institution is performing well (SEDIT, 2011; Kinisia, 2019). Administratively, Kiteto is made up of 23 wards *(*National Electoral Commission (NEC) of Tanzania, 2015). For this study, five wards that have

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Vol. 8, No. 1 (2022), pp. 280-308
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http://doi.org/10.26437/ajar.03.2022.19

been served by VICOBA since its adoption was surveyed. These wards are; Dosidosi, Matui, Engusero, Ndiringishi and Loolera.

3.2 Research Design

The study adopted a cross-sectional survey design because the study, data were collected from different smallholder farmers at a single point in time. The cross-sectional design allows the collection of data from multiple sources and cases at the same time (Denscombe, 2010). For instance, this design can be used to collect both qualitative and quantitative data simultaneously in a single phase (Terrell, 2011). Moreover, the use of survey design was dictated by lower costs in data collection. The data collected through survey design can also be used to generalize the findings from a sample of responses to the population (Creswell, 2003). The study employed a mixed-method approach whereby both quantitative and qualitative methods were applied in an approach where quantitative method dominated the study and qualitative methods were used to help explain quantitative findings (Clark & Creswell, 2001; Creswell, 2014). The motive to use the approach was to be able to describe methodically and precisely the circumstances in the study area regarding the effect of VICOBA on smallholder farmers' income.

3.3 Types of Data and Data Collection Tools

Only primary data were collected. Quantitative Primary data were gathered from smallholder farmers using a structured questionnaire that was administered by the interviewer. The questionnaire was pre-tested by the author on 20 respondents. Questionnaire pre-testing allowed the researcher to measure the average interview time, relevance of questions to be asked and how easy the questions could be understood by the respondents. A total of 248 questionnaires were distributed during the data collection process and all questionnaires were returned and used for data analysis, which is a 100% response rate. Moreover, qualitative primary data were collected from Key Informants (KIs) using an interview guide and from farmers' households using the checklist in a focus group discussion (FGD). The KIs in this study include District Community Development Officer, District Agricultural, Irrigation and Cooperative Officer, Ward Executive Officers and VICOBA leaders and trainers. As Kothari & Garg (2014) suggested the KIs were sampled purposively and conveniently based on their knowledge regarding a topic under scrutiny and willingness to participate in the study. Moreover, five FGDs were conducted each in every ward. The FGDs comprised 6 discussion members including both men and women smallholder farmers. FGD was used to gather information that was not easily accessible during KIIs and questionnaire surveys. Participants' consent to use a voice recorder was requested and granted. The FGD was conducted until saturation of information was reached.

3.4 Sample size and sampling techniques

The target population in this study is all smallholder farmers who are members of VICOBA in Kiteto district. The sampling frame of this study comprises all smallholder farmers' households who have been benefiting from VICOBA micro-credits for at least a year. Therefore a sample size was drawn from this frame. According to VICOBA registers, Kiteto district has a total number of 2209 VICOBA members that are benefited from the micro loan services (SEDIT,

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http://doi.org/10.26437/ajar.03.2022.19

2011). Both probability and non-probability sampling were used. Kiteto district and five wards to be studied were purposely selected for their concentrated VICOBA activities. In each ward, a village was selected randomly. Then a comprehensive updated list of VICOBA loan beneficiaries was developed with the help of VICOBA leaders and VEOs. The list of smallholder farmers in the selected villages was around 1624. Thereafter, a simple random sampling was employed to select a smallholder farmer household to be surveyed and that was included in a sample. Then, the household head or representative was approached for an interview. The sample size of smallholder farmers to be surveyed was obtained by using the Yamane (1964) formula: n= N/ (1+Ne2). Where n = Sample size, N=Total number of smallholder farmers with certain characteristics, e= precision factor coefficient (5%), n = (1624) / 1+ (1624) (0.052) = 248. Therefore the total sample size for smallholder farmers required to be surveyed was 248.

3.5 Data analysis plan

Qualitative and quantitative data analysis as described in the following sections:

3.5.1 Qualitative Analysis

Thematic analysis was used to analyze data from interview transcripts to recognize patterns of frequent themes and sub-themes that correspond with the research questions. Themes are patterns within qualitative data obtained during an in-depth interview with key informants, which are very significant to the narration of a phenomenon under investigation and are usually associated with the specific research questions. Procedures for analyzing qualitative data were informed by the works of Lacey & Luff (2001) and Creswell et al. (2004).

3.5.2 Quantitative Analysis

This study adopted descriptive statistics and multiple linear regression models. Cross-sectional data analysis largely follows OLS linear regression models (Torres-Reyna, 2007) and descriptive statistics. In this study, descriptive statistics measured the extent of VICOBA loans in supporting smallholder farmers' income-generating activities. The multiple linear regression techniques were used to estimate the impact of VICOBA loans on smallholder farmers' households' income. To run regression analysis independent variables derived measured in five points Likert scale were entered in the regression model to estimate their impact on smallholder farmers' households' income. Regression analysis was applied because the dependent variable was continuous (numerical) measured by smallholder farmers' households' income. A multiple linear regression model was adopted because it is a statistical method that is used to predict the value of a dependent variable based on the values of two or more independent variables (Bryman and Cramer, 1990; Uyanik & Guler, 2013) similar to the current study, which is comprised by a single independent variable 'smallholder farmers' households' income' and seven dependent variables 'loan amount, interest rate, VICOBA loan accessibility, sufficiency, grace period, repayment period and mode of repayment. It is a statistical tool that allows researchers to examine how multiple independent variables are related to a dependent variable. Besides, allow for much more powerful and accurate predictions of independent variables' effects on dependent variables (Polit, 2010).

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

3.5.3 Econometric tests for regression assumptions

In using multiple linear regressions models to analyse data, testing assumptions is very essential. Thus, before data analysis was done the data diagnostic tests were performed. These tests were carried out to check for suitability of data for modelling and econometric analyses. In this study, data were found to be normally distributed based on skewness and kurtosis results. Also, multicollinearity was tested using VIF and Tolerance. The criteria for multicollinearity free model the VIF should be <10 (or Tolerance >0.1) for all variables in the regression model. In this study, VIF for all predictor variables was <10 and Tolerance >0.1, hence the regression model is free from multicollinearity. Moreover, F-ratio in ANOVA shows that the overall regression model is a good fit for the data F (7, 140) 214.164, p (0.000). Thus, no violation of multiple linear regression assumptions was found. Hence, the data fitted well in the regression equation model.

3.5.4 Reliability of mobile money microcredit

The independent variables 'VICOBA loan accessibility, the sufficiency of VICOBA loan, grace period, repayment period and mode of repayment were tested for reliability. The results in Table 1 show that the overall Cronbach's alpha for the 5 items used to explain the VICOBA loan is 0.785. This indicates that the items are a reliable measure of mobile money microcredit.

Table 1: Overall Reliability Statistics for Mobile Money Micro Credits

Cronbach's Alpha	N of Items
.785	5

Source: Field data, 2020

In this study, validity was attained through pre-testing of data collection instruments and training research assistants until they are well equipped and with language, wording and tools. Moreover, validity was attained by applying probability sampling in selecting respondents for the study and discussing with my colleague and other researchers; this improved the research results.

3.5.5 Econometric Model Specification

The multiple regression model which was used to measure the impact of the VICOBA loan on smallholder farmer's income is expressed as follows:

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \mu \quad (1)$$

Where:

Y = income of smallholder farmer

X_1 =Loan amount

X_2= Interest rate

X_3= Loan accessibility

X_4= Sufficiency

X_5= Grace period

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

X_6= Repayment period
X_7= Mode of repayment
μ= error term (assumed to be normally distributed with mean=0 and variance=1)
β_1 - β_6= vector of parameters/parameters estimates of variables X_1-X_7

After data analysis the equation was:
$Y = 1.253 + 1.160X_1 + 1.089X_2 + 0.700X_3 - 0.664X_4 + 0.334X_5 + 0.023X_6 - 0.147X_7 + 0.79$

4.0 RESULTS AND DISCUSSION

4.1 Social and Demographic features of smallholder farmers

In this study, a set of personal characteristics namely; the smallholders' sex, age, marital status, education level, other income-generating activities and their types, were examined due to their importance when evaluating how VICOBA loan has improved smallholders' household income.

4.1.1 Distribution of respondents' sex

The findings in Table 2 show that 68% (n=167) of the randomly sampled smallholder borrowers were females while 32% (n=81) were males. Many MFIs predominantly those that serve the underprivileged clients in the villages contend to have a social duty. Their alleged purpose is to assist in the struggle against poverty by giving power to households to elevate their incomes and enhance their living conditions. The general temperament and the degree of poverty in society are said to be engendered, and researchers, as well as policymakers, portray poverty as having a "woman's face" (Kiiru, 2007; Churk, 2015; Bradshaw, Chant & Linneker, 2017). This is because empirical studies have indicated that a lot of women are more economically disadvantaged than men (McFerson, 2010; Sigalla & Carney, 2012; Ledgerwood et al., 2013; Ugiagbe, 2014). In their mission to decrease poverty and as established by the current study, MFIs target a lot more women than men (Prathap et al, 2018; Mwaipopo & Dauda, 2019). Some microfinance institutions have decided to exclusively lend to women (Kiiru, 2007) such as Kenya Women Finance Trust (KWFT). This is because most of the world's poor are women (Handley, Higginsm, Sharma, Bird & Cammack, 2009; Bradshaw et al., 2017) and form the largest percentage of members in microfinance (Harns, 2007; Hussain, Mahmood & Scott, 2019).

4.3.3 Distribution of respondent's age

Results in Table 2 revealed that the surveyed smallholder farmers were divided into five age groups where 10% (n=25) were between 18-27 years, 24% (n=60) were between 28-37 years, 32% (n=79) were between 38-47 years, 30% (n=74) were between 48-57 years and 4% (n=10) were above 58 years. The minimum age was 20 and the maximum age was 69 years. The mean age was 39 years. This implies that the majority of clients involved were still economically active. Therefore, the findings of this study affirmed that the majority of smallholders fall mainly into the economically active age group of 26-54 years. Outside this spectrum was a few (≥4%) above 55 years old. It was imperative to examine respondents' age because age composition in a country offers a depiction of the altitude of age dependence in the economy and also acts as an

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

important variable for estimating economic growth within the country. It also provides a signal of the intensity of understanding and accountability among the general public. Older people have the level of maturity in that sense make proper use of VICOBA loans compared to young ones. The findings confirm Adu-Gyamfi & Ampofo (2014) results that the older people with 50 years and above benefited much due to the reason that they are settled compared to the youth group.

Table 2: Distribution of Demographic Characteristics of Respondents

Variable/parameter	Measurement	Frequency	Percentage
Sex	Male	81	32.0
	Female	167	68.0
Age	18-27 Years	25	10.0
	28-37 Years	60	24.0
	38-47 Years	79	32.0
	48-57 Years	74	30.0
	58+ Years	10	04.0
Education level	No formal education	20	08.0
	Primary education	104	42.0
	Secondary education	79	32.0
	Diploma/Certificate	30	12.0
	University degree	15	06.0
Marital status	Married	208	84.0
	Not married	40	16.0
Other IGA	Business	206	83.0
	Paid employment	42	17.0
Types of business	Garments	30	12.0
	Food vendors	94	38.0
	Bar	07	03.0
	Retail shops	100	40.0
	Saloon	5	02.0
	Others	12	05.0

Source: Field data 2020

4.3.4 Education levels of respondents

The results of this study in Table 2 show that 8% (n=20) of surveyed smallholder farmers had no formal education, 42% (n=104) had primary school education, and 32% (n=79) had a diploma or certificate level of education. This implies that most smallholder farmers have to lack competent farm management skills. As the majority possesses standard seven educations, translations of policies and regulations as well as agricultural innovation in the market are very minimal. However, in the case of form four education, this level is sufficient to successfully run and operate farmland and or a business enterprise. According to Adu-Gyamfi & Ampofo (2014), Kanoni (2015) and Bwamwojo (2013), education is one of the most important features that might affect a person's mindset and the way of perceiving and comprehending any socio-economic issues. In a way, the response of an individual is likely to be determined by his educational status and therefore it becomes imperative to know the educational background of the respondents. The education level of respondents was considered in this study to determine whether smallholder

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

farmers' level of agricultural and business understanding influences their engagement in their income-generating activities. These results were also found by Mbalani (2007) and Haule (2015).

4.3.5 Marital status of respondents

Among the surveyed households of smallholder farmers, 84% (n=208) were married while 16% (n=40) were not married (Table 2). The findings are similar to Kasoga & Tegambwage (2021). Knowledge regarding the marital status of smallholders farmers was essential to establish their echelon of commitment and responsibilities to themselves, their families and society as a whole. They are more concerned about getting employed, through self-employment to support their husbands or wives to solve financial difficulties in their families. Usually, the general perception is that married individuals have a lot of households responsibilities to meet, and thus require high financial and social commitments. These findings are in line with the study by Ablorh (2011) who affirmed that married borrowers in small enterprises take the greater share of the study, and have responsibility for taking care of their various homes hence this category needs financial liberation.

Moreover, most VICOBA believes lending to unmarried women could be risky (Mtamakaya, Kessy, Jeremia, Msuya & Stray-Pedersen, 2018). The status of being not married could lead to a change of locality or profession and a possibility of default. During a focus group discussion with farmers at Engusero village, the study was informed that participation in VICOBA is dominated by married couples compared to un-married since married couples have many responsibilities that required money. When asked how they use the money which they obtained from VICOBA as a loan, they all agreed that they use money from VICOBA to pay school fees for their children, buy agricultural inputs mainly seeds and use it to buy food because what they produce does not enough to have surplus for selling because households, for the most part, produce for subsistence.

4.3.8 Other income-generating activities

Other income-generating activities of smallholder farmers were considered in this study to determine their multiple means of earning a living. Smallholders were asked to mention the type of activities they were running besides farming. The results in Table 2 indicate that 83%; (n=206) were engaged in business activities besides being farmers, and the remaining were engaged in paid employment. Of those who were involved in business ventures, the majority were in retail shops business [40% (n=83)] and the food vending business [38% (n=78)]. This study conforms to a study conducted by Ismail (2016) at Kibaigwa international maize market found that smallholder farmers are mostly involved in food vending, retail shops as well as cash crops.

4.2 The impact of the VICOBA loan on the income of smallholder farmers

The impact of VICOBA loan on household income was estimated using a linear multiple regression model and the econometric results are presented in Table 3 and Table 4. The F-statistic which measures the overall significance of the estimated parameters is statistically significant (Prob> F (7, 240) = 214.164, p (0.000), which implies that the estimated parameters

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

are not jointly equal to zero; hence it is a good model. In other words, the regression model is a good fit for the data. The R-squared of 0.862 and adjusted R-squared of 0.858 are consistent with collected cross-sectional data. Since there is a small discrepancy between the values of R-squared and Adjusted R Square, the model fits well. The standard error of estimates shows that on average, our estimates of VICOBA loan was wrong by approximately 0.8 which is the ignorable amount given the scale of loan provided by VICOBA in the study area.

Table 3: Organizational Behaviour Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.928[a]	.862	.858	.78642

Source: Field Data (2020)

a. Predictors: (Constant), Loan Amount, Loan Accessibility, Interest Rate, Loan Sufficiency, Grace Period, Repayment Period, Mode of Repayment

Table 4: ANOVA[a] Test for Organizational Behaviour

Model		*Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*
1	*Regression*	*662.252*	*7*	*132.450*	*214.164*	*.000[b]*
	Residual	*106.374*	*240*	*.618*		
	Total	*768.625*	*247*			

Source: Field Data (2020)

a. Dependent Variable: Smallholder Farmers' Household Income
b. Predictors: (Constant), Loan Amount, Loan Accessibility, Interest Rate, Loan Sufficiency, Grace Period, Repayment Period, Mode of Repayment

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The results in Table 5 show that standardized coefficients indicate that the interest rate of VICOBA loan is the highest contributing (0.464) predictor to explain the income of household farmers, followed by loan amount (0.448) and lastly repayment period (0.010). These are useful measures to rank the predictor variables based on their contribution (irrespective of sign) in explaining the outcome variable. The findings give you an idea that VIF for all predictor variables was < 10 and Tolerance > 0.1. According to Dhakal (2018), the criteria for a multicollinearity free model the VIF should be < 10 (or Tolerance > 0.1) for all variables in the regression model. Therefore, since all predictor variables in this study met the criteria, and then there was no multicollinearity in the estimated model. The results in Table 5 illustrate that the constant 1.253 is the predicted value for the dependent variable if all independent variables take a value of zero. It means that an average smallholder farmers' *household income* would be 1.253 when all predictors are equal to zero.

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

Table 5: Regression Results for Organizational Behaviour

Model		Un-standardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	S.Error	Beta			Tolerance	VIF
1	(Constant)	1.253	.405		3.094	.002		
	Loan amount	1.160	.085	.448	13.641	.000	.745	1.343
	Interest rate	1.089	.075	.464	14.595	.000	.797	1.255
	Loan accessibility	.700	.074	.307	9.434	.000	.762	1.312
	Transaction cost	-.664	.194	-.297	-3.419	.001	.519	1.929
	Grace period	.334	.190	.135	1.764	.080	.670	1.492
	Payment period	.023	.076	.010	.303	.762	.777	1.287
	Mode of repayment	-.147	.125	-.034	-1.179	.240	.960	1.042

Source: Field Data (2020)

a. Dependent Variable: Smallholder Farmers' Household Income

4.6.1 Loan amount

Table 5 shows that loan amount has a positive and significant impact p(.000)<0.05 on the income of smallholder farmers. Also, the un-standardized coefficient for the loan amount is 1.160, which means for every unit increase in loan amount from VICOBA, there is a 1.160 increase in smallholder farmers' income and the chances that the result estimation could be wrong is very small at 0.085. Therefore, the first hypothesis *H_1: Loan amount has a positive influence on smallholder farmers' income* is supported. The positive relationship between the amount of VICOBA loan and smallholder farmers' income was also observed by Odongo (2014), Salifu et al. (2018) and Moussa (2020) who posited that the amount of VICOBA loan influences the overall income of smallholder farmers.

Furthermore, the findings were corroborated during the KIIs that loan amount is a very essential determinant of smallholder farmers' income. The study was informed that when farmers get a larger loan amount they can fulfil their plans such as buying inputs and either starting or improving their businesses, which in the end improves their income. Moreover, in FGD with smallholder farmers also the quantitative results were corroborated as one of them said that;

> *"The problem with VICOBA loan is that the amount you get is not predictable because it depends on whether group members have bought assets/stocks VICOBA and those with the loan have repaid their instalments on time... so most of the time you end up getting lower amount than anticipated, which cannot pay for all planned expenses"*

Similarly, the results agree with Muhammad et al. (2019) and Thaher et al. (2021) who revealed the difficulties to improve household income due to the dwindling amount of loans provided to MFIs members including VICOBA members. Also, after examining the impact of VICOBA loans on household income in Tanga City, Bakar (2014) found similar results.

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

4.6.2 Interest rate

The results in Table 5 demonstrate that interest rates are positive and significantly p(.000)<0.05 related to smallholder farmers' household income. The un-standardized coefficient for interest rate is 1.089, which means for every unit increase in the interest rate of VICOBA loan, there is a 1.089 increase in smallholder farmers' household income and the chances that the result estimation could be wrong is very small at 0.075. This means that the third hypothesis *H_3: Interest rate has a positive influence on smallholder farmers' income* is supported. The findings of inferential statistics corroborate with qualitative findings which revealed that the higher interest rates attract high commitment of borrowers lest to lose their assets/stocks. This is contrary to the common belief that a higher interest rate erodes borrowers' income. This is supported by scholars (Ikpefan, Taiwo & Isibor, 2016; Salifu, Tofik-Abu, Rahman, & Sualihu, 2018; Awojobi, 2019; Tasos et al., 2020; Nyingo, 2020) have advocated that higher interest rate discourages smallholder farmers from borrowing, and hence deprived of agricultural investment opportunities which would have helped them improve their income. On the contrary, the finding of this study corroborates with Zulfiqar & Ud-din (2015) and Odalo, Achoki & Njugna (2016) who found an increase in interest rate increases the income of smallholder farmers.

4.6.3 VICOBA loan accessibility

The findings in Table 5 be evidence that VICOBA loan accessibility was found to have a positive and significant p(.000)<0.05 impact on smallholder farmers' household income. The beta coefficient for value was 0.7, which means that with every unit increase in loan accessibility household income increases by 0.7 units. The standard error of the estimate reveals a very small chance of 0.075 that the estimate could be wrong. Hence, hypothesis *H_2: Loan accessibility has a positive influence on smallholder farmers' income* is supported. The results suggest that loan accessibility is the determinant of effective utilisation of VICOBA loans in the sense that availability and stability of loans facilities ensure the effectiveness of loans to smallholder farmers. As loans become accessible to farmers, they make rational decisions on how to use them effectively so that they can repay and re-borrow for other uses. Similarly, Mng'ang'a, Nyabakora & Nyagali (2020) and Bika, Subalova & Locke (2021) reported that loan accessibility is very essential for effective loan utilisation and hence income improvement. Accessibility of VICOBA loans helps smallholder farmers to acquire the resources they want at an affordable price. Hence, to increase efficiency in income generation activities of smallholder farmers as evidenced by the regression model results, VICOBA needs to improve the availability of loans to farmers. These results corroborate the qualitative findings. The KIs informed the study that accessibility of VICOBA loans is one of the very important issues to consider if effective use of the loan in improving household income is to be attained. The findings of this study corroborate with Ruslan (2018), Ochonogor (2018) Toromo (2020) and Munguti & Wamugo (2020) who reported that loan accessibility encourages quick income generation.

4.3 Grace period

Regarding the predictor *grace period*, the finding in Table 5 shows a positive but not significant p(.080)>0.05 impact on the dependent variable *smallholder farmers' household income*. The

ISSN: 2408-7920

African Journal of Applied Research
Vol. 8, No. 1 (2022), pp. 280-308
http://www.ajaronline.com
http://doi.org/10.26437/ajar.03.2022.19

finding in Table 5 gives an idea that the predictor variable grace period does not add a substantial contribution to explaining *smallholder farmers' household income* because there is no substantial evidence to explain the relationship between the two variables (grace period Vs *smallholder farmers' household income*). This means that the fifth hypothesis *H_5: Grace Period has a positive influence on smallholder farmers' income* is not supported. Although not significant, researchers (Madole, 2013; Mahmood, Zahari & Zin, 2015; Salia, 2016; Mutuma & Omagwa, 2019) have acknowledged the importance of the grace period in the lending business. This is the amount of time given to the borrower by a lender to build the business and realise increased income before starting repaying the loan. It is universally agreed that a longer grace period had a positive effect on profit and investment in business and could increase income.

4.3.1 Transaction cost

Table 5 indicates that transaction cost is another variable that shows a negative and significant influence on the *smallholder farmers' household income*. This is indicated by B=-0.664, p=0.001. This means that transaction costs are important determinants of *smallholder farmers' household income*. The results indicate that, when transaction costs increased by one unit, it decreases *smallholder farmers' household income* by a factor of 0.664. Therefore, the fourth hypothesis *H_4: Transaction cost has a negative influence on smallholder farmers' income* is supported. During the FGD in the study areas, it was revealed that the successful *smallholder farmers' household* is those which have fewer transaction costs for acquiring VICOBA loans. High transaction costs emanate from loan application procedures. The finding of this study is similar to Muhammad, et al. (2019) and Thaher et al. (2021) who reported that acquiring small loan sizes increases the cost per loan to both borrowers and lenders. However, lenders tend to shift a huge proportion of their costs to borrowers through application fees, which in the end the larger burden falls on a borrower. This reduces the number of loans and thus lowers borrowers' ability to invest and generates more income. Moreover, some of MFIs charge a high-interest rate which also raises costs to borrowers and so decreases the ability to generate more income. This is supported by Ikpefan et al. (2016), Salifu et al. (2018), Awojobi (2019) and Tasos et al. (2020).

4.3.2 Repayment period

The findings in Table 5 show that there is a positive but not significant p(.762)>0.05 relationship between repayment period and smallholder farmers' household income. The standard error of the estimate reveals a very small chance of 0.076 that the estimate could be wrong. Thus, hypothesis *H_6: Loan repayment period has a positive influence on smallholder farmers' income* is not supported. This means that the predictor variable *repayment period* no more adds a considerable contribution to explaining *smallholder farmers' household income* because there is no substantial evidence to explain the relationship between the two variables.

4.3.3 Mode of payment

Similarly, Table 5 presents a result that reveals the predictor *mode of payment* has a negative but not significant p(.240)>0.05 relationship with the dependent variable *smallholder farmers' household income*. The standard error of the estimate reveals a small chance of 0.125 that the

ISSN: 2408-7920

estimate could be wrong. Hence the hypothesis *H_7: Mode of payment has a positive influence on smallholder farmers' income* is not supported. This means that the predictor variable *mode of payment* is no more adds a considerable contribution to explaining *smallholder farmers' household income* because there is no substantial evidence to explain the relationship between the two variables.

5.0 CONCLUSION

5.1 Conclusion and recommendations

The current study concludes that the VICOBA loans had influenced smallholder farmers' income, thereby improving their living standards and assisting them to climb out of extreme poverty. Therefore, the VICOBA loan has contributed to the reduction of poverty in Kiteto district by raising the smallholder farmers' income. The researcher has recommended that there is a need for VICOBA to lower interest rates, to reduce bureaucracy in the provision of loans which adds unnecessary costs to borrowers, and need for the government authority concerned with the provision of licenses and tax assessment to revisit rules and regulations to cope with trade and economic liberalization. Also as VICOBA is an effective development model, Government should support all VICOBA implementing agencies.

5.2 Implications

The findings of this paper would be useful as will awaken the Government and other institutions fighting against poverty to formulate and include the VICOBA enhancement model into the National Poverty Reduction Strategy. Moreover, the findings provide policy makers with options that will be of greater value in the review of cooperative and microfinance policies, as there is a need to make them effective and friendlier to smallholder farmers.

5.3 Areas for Further Research

This study investigated the impact of VICOBA loans on smallholder farmers' household income in Kiteto district, Tanzania. The study used cross-sectional data drawn from smallholder farmers. Based on the scope of this study, the generalisation of results might not provide a good picture of how smallholder farmers' income is influenced by VICOBA loans. Therefore, it is suggested that further research should cover a larger geographic area (more districts) segmented into zones so that it can be able to generalise results to all smallholder farmers in Tanzania. Also, it is suggested that future studies should cover other areas with different geographical conditions to compare results and assess variations of how VICOBA loans can impact smallholder farmers' income.

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