

**IMPACT OF VISION FUND CREDIT PROGRAM ON SMALLHOLDER
AGRICULTURAL PRODUCTION IN ZAMBIA'S LUSAKA PROVINCE**

A Research Report Presented to the Department of Agricultural Economics and Extension of
the University of Zambia

By

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LIST OF ACRONYMS

PROFIT	Production Finance and Technology
MFI	Microfinance Institution
RFI	Rural Finance Institution
MACO	Ministry of Agriculture and Cooperatives
AMIZ	Association for Micro Finance Institution in Zambia
OLS	Ordinary Least Squares
WBR	World Bicycle Relief
CSO	Central Statistics Office
IFRTD	International Forum for Rural Transport and Development
NPL	Non Performing Loan
FAO	Food and Agriculture Organisation

ABSTRACT

Impact of the Vision Fund Credit Programme on Smallholder Agricultural Production in Zambia's Lusaka Province.

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The main objective of this study was to assess the impact of World Vision's Vision Fund Credit Programme on smallholder agricultural production. It is based on sample survey data from Kafue and Chongwe districts of Lusaka Province in Zambia. The collected data was analysed in Statistical Package for Social Sciences (SPSS) to generate descriptive statistics. A structured questionnaire was the primary instrument in data collection while frequency distribution tables were generated to calculate each response as a percentage of the total responses available for a particular question. The study considered the social-economic characteristics of the beneficiaries such as the level of education, marital status, sex, age and income.

A Probit model was used and production was regressed against independent variables in which household participation in the credit scheme was found to be significant ($p=0.01$) at 5 percent level of significance and family labour at 0.1 percent level of significance (t ratio 1.715). The significance of household participation in the credit scheme ($p=0.01$) at 5 percent level of significance explains that farmers randomly selected to participate in the credit scheme attained higher production thus incomes than non-beneficiaries of the scheme. This can be attributed to the farmer's market linkage approach which enables them to access markets for their produce. Age did not have a significant relationship with farm production ($p=0.34$). Household size was found to be positive and significant at the 5 percent level of significance (t -ratio 5.87, p -value 0.051). This probably suggests that, the larger the farm household the more it uses family labour thus reducing costs of hired labour and increasing incomes. Education on the other hand was found to be insignificant at the 5 percent level of significance ($p=0.310$).

Some of the recommendations in accordance with the results are the need for financial institutions such as Vision Fund to consider intensifying efforts in terms of monitoring and supervisory visits to farmers under their jurisdiction. This calls for an increase in financial officers to interact with the farmers especially in light of the low financial literacy levels that is found in some farmers. Small scale farmers should be encouraged and educated on the importance of diversifying their agricultural enterprises and activities. There is need for lending institutions to consider broadening loan repayment methods such as crop or product payment modes. Equally important is the need to establish efficient and stable product market linkages for easy access to market for their products.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In Zambia, agriculture represents the main source of household income for the majority. Approximately 92 percent of the population depends on agriculture for their livelihood. Despite this being the case agricultural productivity and growth have been modest during recent years as only 14 percent of the total arable land of 42 million hectares is cropped while only 5 percent of the country's irrigation potential is utilised (PLARD, 2007). This has been accentuated by erratic government funding to the sector, the lack of access to inputs such as fertiliser, improved seed varieties and credit unavailability. A strong financial health and foundation of the agricultural sector is the backbone and basis of its success owing to the imperatively huge investment requirement that goes into a successful agricultural undertaking ranging from machinery, labour, time and unforeseen events considering the unpredictable nature of agriculture. The need for financial resources is a general requirement of both small scale and commercial farmers in Zambia, but the sector is largely comprised of small scale farmers who contribute greatly to its wellbeing, commercial farmers equally play an important role in propelling the sectors efforts to reach maximum capacity and efficiency especially that commercial farmers go a step further from where small scale farmers fall short in terms of processing, product value addition, quality improvement and increased production.

The agricultural sector in Zambia has in the past been experiencing a spiral of underperformance as accentuated by lack of access to farming inputs, erratic funding and credit unavailability until recently when the government and stake holders in development realisation of the important role this sector can play in complementing other sectors in improving the welfare of the economy that they were prompted to begin implementing policies through instruments such as the fifth national development plan, national agricultural policy and draft policy on public private partnerships. The sector has on the other hand had an inflow of donor support from co-operating partners averaging \$38 million per year over the period 2001-2005(Federico, 2008). This is meant to develop the agricultural sector and complement government efforts of improving people's livelihoods.

Cited as a case in point is the Vision Fund's credit support Programme a member of World Vision, whose objective is to economically empower the entrepreneurial poor to improve their livelihood through the provision of appropriate and integrated financial services

Lack of access to credit limits poor people from a fair share of resources in society depriving them of basic needs and opportunities in life. Financial services for the poor enable resources to be shared in society and are considered a human right (Aryee, 1999). Credit allows resources to be shared and distributed to the less privileged groups of people in society according to their potential rather than according to their asset background. In addition to increasing the living standard, pride, dignity and self-development can be improved among less wealthy people. Providing credit to the people helps them to participate and be a part of the development process in a way that they can choose as to what is best for them. They are a part in determining their future and their ways of living. Their capability can be developed and they can become self-reliant in the long run.

1.2 Problem Statement

Most agricultural financing and credit support programmes are tailored to provide access to financial resources for farmers to develop and improve on production capacity, quality, value addition and diversification of products so as to complement other sectors in boosting the country's economy through increased production of agricultural products, constant access to the markets, meeting competitive product quality standards as well as creation of employment which in turn improve farmer's livelihoods and income. In Zambia, agriculture is the largest single recipient of commercial banks loans and donor support in the country amounting to US \$463 million or ZMK 2,216 billion (PROFIT report, 2009) and huge sums of money are being spent on micro finance projects such as the Vision Fund in Kafue and Chongwe . Zambia faces a challenge of alleviating poverty and sustaining improvement in livelihoods of the largest part of the population living in poverty, therefore necessitating the greater targeting of developmental resources and micro finance projects towards the poor and the vulnerable. Despite government and private sectors efforts in increasing productivity through provision and easing access to credit, significant growth in production is only evident among large scale farmers while stagnation characterises productivity among small scale farmers.

According to FAO 2000 Report, micro financing has proved to improve productivity and thus, the standard of living of the beneficiaries but has the Vision Fund credit programme positively impacted farmer's productivity? NPL in Agricultural sector now exceed 37 percent as compared to 13 percent across all other sectors of the economy (PROFIT, 2010).can this be attributed to low production? This and other aspects therefore set the need to assess the impact of access to micro finance on agricultural productivity among smallholder farmers of Kafue and Chongwe districts under the Vision Fund credit programme. Understanding the impact of access to credit support on agricultural production would provide information and judgements on the effectiveness of credit support on agriculture.

1.3 General Objective

The general objective of this study was to assess the impact of Vision Fund credit programme on smallholder agricultural productivity in Lusaka.

1.4 Specific Objectives

- To determine the differences in production between beneficiaries and non-beneficiaries of agricultural credit and financial support.
- To determine if there is a relationship between production and access to micro finance
- To investigate the social-economic factors that affect smallholder agricultural production.

1.5 Hypothesis

- There is no significant difference in production between beneficiaries and non-beneficiaries of credit
- There is no relationship between production and access to credit
- Farmer's social-economic characteristics do not affect smallholder agricultural production

1.6 Rationale

Little effort has been made to evaluate the effects of Vision Fund credit support programme on agricultural productivity of the smallholder beneficiaries. Therefore, since smallholder agriculture plays an important role in ensuring national food security and economic development, there is need to understand how best credit and financial support is better placed to solve problems causing the sluggish progress of agricultural production among small farmers in Zambia. In addition, the formulation of appropriate and effective credit and financial support policies requires comparative research on their effects as implemented by government and the private sector.

1.7 Scope and Limitation of the Study

The study mainly focused on the impact of Vision Fund credit support programme on agricultural productivity of smallholder farmers under Vision Fund. Thus, the results may not be all encompassing as the study was also only confined to a small geographical area of Lusaka instead of covering many other areas with small farmers. Furthermore, agricultural credit support and financing hinges on a number of factors involving diverse fields and disciplines. Therefore, not all issues related to agricultural credit support and financing were fully explored with the limited time and resources scheduled for this study.

1.8 Definition of Terms

Food Security

The World Food Summit Plan of Action(WFSPA) defines food security in the following terms: “Food security exists when all people at all times, have both physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 1996). There are four dimensions to this definition of food security: Adequacy of food availability (a measure of food that is, and will be, physically available in the relevant vicinity of a population during a given period); physical and economic accessibility(a measure of the population’s ability to acquire available food during a given period); stability of supply(no temporal declines in food productivity) and

quality and safety of food (a measure of whether a population will be able to derive sufficient nutrition during a given period (FAO, 1996;Hoddinott *et.al*, 2002).

Smallholder Farmers

According to the Ministry of Agriculture and Cooperatives (MACO), a smallholder farmer is one who produces from a piece of land between 0.1 and 5 hectares. This group of farmers constitutes the majority of producers in Zambia accounting for about 80% of the total production in the country.

Household

A household is a group of people who are generally bound together by ties, kinship, or joint financial decision, who live together under a single roof or compound, are answerable to one person as the head and share the same eating arrangement.

Microfinance Institution

These are financial institutions that provide micro or small loans to the world's poorest communities or rural areas.

Access

People having adequate income or other resources to purchase or barter for appropriate farm inputs.

Farm Income

Income generated from farming activity accruing to an individual farmer

Nonperforming Loan

A non-performing loan is a loan that is not earning income and i.e. (1) full payment of principal and interest is no longer anticipated, (2) principal or interest is 90 days or more delinquent, or (3) the maturity date has passed and payment in full has not been made.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses several aspects linked to agricultural credit support and financing. It highlights issues of food security and micro financing, rural finance impact analysis, Zambia's agricultural finance market, solutions to constraints in agriculture, Harmos bicycle loan project, link between and non-performing loans and average loan amount, impact beyond the household and the role of government and the private sector in agricultural finance.

2.2 Food Security and Micro Financing

Food shortages have in recent years become a permanent feature in many SADC countries (Wobil, 2008). This has been attributed to high population growth rates averaging about 3% per annum as well as declining food production in the majority of the countries. The decline in food production has been further accentuated by droughts, depletion of the natural resource base as well as a lack of agricultural inputs and a strong agricultural financing capacity. With appropriate access to finance, the agricultural sector can make a significant contribution to global food security (Standard chartered, Annual Report 2010). However, despite such recognition the availability and accessibility to financial resources poses as a challenge for many farmers to respond to the needs of increasing agricultural incomes and productivity.

Microfinance refers to financial services like small loans, savings and in recent times insurance and transfer payment services, provided to low income households and individuals (FAO, 2000). Microfinance has become a popular poverty fighting tool. The motivation behind microfinance is that financial institutions can extend loans to the poor, while at the same time, making a reasonable profit. By charging high interest rates, microfinance institutions can afford the high transactions costs of processing large volumes of loans as small as few hundred thousand kwacha, as well as the high risk resulting from lack of collateral. Microfinance institutions therefore, charge interest rates that are higher than commercial bank loans but lower than informal money lenders. Unlike government credit programs and traditional bank credit programs that emphasize large loans for long repayment periods, microfinance provides small loans that are repaid within short periods of time. They are essentially used by low income individuals and households who have few or do not have any asset that can be used as collateral and are too poor to qualify for traditional bank loans.

Micro finance has been proved an effective tool in poverty alleviation enabling those without access to traditional lending institutions to borrow. Microfinance provides a vehicle that enables poor people to become self-employed so that they can generate their income, thereby allowing them to care for themselves and their families.

According to (FAO 2000) micro credit departs from traditional rural banking in three many ways; it is aimed at a more marginalized (poor) group of borrowers; it generally include non-credit services and employs a group lending approach. Micro credit is therefore not a replacement of traditional banking as it is smaller in scale and differently targeted compared to loans from other lending institutions. It attempts to fill the gap in the credit delivery system that is not addressed by other financial providers. Micro credit aspires to reach potentially credit worthy borrowers who do not meet the formal lenders normal screening criteria and potentially credit worthy borrowers who are geographically isolated. It also offers related services such as basic financial management aimed at increasing the borrower's income generating capacity. Micro finance also aspires to use financial services as a development tool at the household level as well as to catalyse female based entrepreneurship (FAO 2000). A typical micro credit loan procedure according to (FAO 2000) involves, identifying eligible borrowers according to the target criteria and procedures, formation of small groups (five to eight people) of common gender and each member of the group is in turn required to make compulsory savings. One or two group members will then borrow the initial maximum amount which has to be repaid before the next member can borrow. The repaid loans and savings eventually, provide sufficient capital to maintain the revolving loan pool for the members.

2.3 Rural Finance Impact Analysis

Rogaly (1996) argues that the focus of assessing the impact of rural finance through changes in income of clients is flawed because respondents may give false information. It is also very difficult to ascertain all the sources of income of a client, so a causal effect is difficult to establish, and it is also difficult to establish what would have happened if the loan was not given. Therefore a broader analysis is needed that takes more than economic impact into consideration. We have seen that poverty and livelihood security consist of economic and social conditions, therefore, when analysing the impact of rural finance, social impact must be assessed. Kabeer(2003) states that wider social impact assessment is important for an

organization's internal learning process, as an MFI should be aware of the "full range of changes associated with its efforts and uses, thus, to improve its performance". She considers social impact to relate to human capital such as nutrition, health and education, as well as social networks. Impact must be assessed on each of these issues if a true picture of the impact of rural finance is to be obtained. However, Kabeer moves beyond individual or household analysis to state that analysis should also be conducted at community, market/economy and national/state levels (2003). She refers to these as "domains of impact" because societies are comprised of different institutional domains each with their own rules, norms and practices which can be influenced by microfinance interventions in different ways. Kabeer (2003) not only refers to domains of impact but also highlights dimensions of change that should be assessed. She lists cognitive changes, behavioural change, material change, relational change and institutional changes, as dimensions of changes that need to be taken into account if the wider effects of rural finance interventions are to be understood.

Zohir and Matin (2004) make a similar point when they state that the impact of microfinance Interventions are being under-estimated by "conventional impact studies which do not take into account the possible positive externalities on spheres beyond households". They propose that impact should be examined from cultural, economic, social and political domains at individual, enterprise and household levels (2004). McGregor *et al.* (2000, p.3) states that wider social and economic impacts can occur through the labour market, the capital market, the market for goods consumed by poor people, through production linkages and through clients participation in social and political processes. Chowdhury, Mosley and Simanowitz (2004) argue that if microfinance is to fulfil its social objectives of bringing financial services to the poor it is important to know the extent to which its wider impacts contribute to poverty reduction.

2.4 Zambia's Agricultural Finance Market

Zambia's market for agricultural finance is fundamentally dysfunctional. From the farmers' perspective, credit is scarce and expensive and heavily skewed towards the larger, corporate sector. Loan terms are often too short to accommodate the long term nature of agriculture, and the processing of loan applications by banks often takes too long. These problems cause an already-risky sector to become even riskier. From the bankers' perspective, agricultural lending is both risky and expensive. They are reluctant to lend without very high collateral

coverage and a high risk premium. When they do lend, they often lose money. Non-performing loans in the agricultural sector now exceed 37%, against 13% across all other sectors of the economy (draft report, USAID PROFIT Project, 2009). This high level of distress represents a serious loss for banks – one which will make them even more reluctant to lend in future. Thus, the agricultural finance market is caught in a self-perpetuating cycle of risk and loss, which benefits no one.

In addition to the normal risks associated with agricultural production – weather, macroeconomic instability, and price volatility. Five factors account for the fundamental problems facing Zambia’s agricultural finance market:

1. A highly-risky lending environment caused largely by unpredictable Government intervention as well as weaknesses in the legal framework;
2. Limited understanding of agricultural markets and limited expertise in agricultural finance among most banks and other financial institutions;
3. Poor risk management practices and limited financial analysis and management capabilities within the agricultural sector.
4. Lack of Expertise and Poor Communication. In addition to citing the high level of risk in agricultural lending, bankers also complain that some farmers do not take adequate measures to manage risks on their own and that farmers often do not provide them with sound, accurate financial data. PROFIT’s own experience working with farmers at all levels tends to corroborate this impression. Even among relatively large-scale farmers, financial analysis skills are sometimes not very sophisticated. As one would expect, smaller farmers tend to have less financial management capacity than larger-scale farmers. However, it is not clear whether it is a lack of financial acumen that causes the gap between bankers’ expectations and farmers’ ability (or willingness) to deliver the data they require. Other factors, such as a lack of trust or a reluctance to share personal information, could also be at play. At the same time, banks’ uneasiness with agricultural lending could be prompting them to ask for data that is not particularly relevant or useful. It is clear, however, that the lack of expertise does not lie entirely with farmers. All of the bankers whom PROFIT interviewed said that they would like to increase their understanding of the agricultural sector and their ability to lend to

farmers safely and profitably. Several leading banks have taken steps in this direction. One bank, for example, has brought in experts from outside Zambia to work with its local agricultural lending team. Another bank has sent its staff abroad to learn about agricultural lending from colleagues in other countries. All banks believe that there is still room for improvement.

5. Lack of access to affordable and appropriate finance. The high cost of credit, along with the lack of long-term lending, creates a vicious cycle: When interest rates are high, the probability that farmers will fail to repay their loans is increased, since their debt burden is higher relative to their incomes. High rates of non-repayment, in turn, encourage banks to raise the risk premium and charge higher rates. Similarly, when a farmer must repay a loan for purchase of capital equipment over one or two years instead of five, there is a greater chance that the farmer will not earn sufficient revenue to repay the loan on time, thus delinquencies rise, which reinforces the banks' tendency to offer only short-term loans.

High interest rates have an impact on the financial viability of farming where finance costs represent a significant drain on gross margins and if the average finance costs are actually greater than gross margins, Farmers pay their banks more than they earn themselves. While output prices can change rapidly, interest rates (i.e. finance costs) remain fixed, as do the costs of most inputs (e.g. labour, seed and overhead). When prices drop, farms can very quickly become insolvent. High interest rates combine with volatile commodity prices (spurred in part by unpredictable Government interventions) to make Zambian agriculture very risky indeed. In this manner, the riskiness of agriculture becomes a self-fulfilling prophecy. Some banks, seeing the high level of risk in the sector, seek to avoid or contain the risk by increasing interest rates, reducing the loan term, and moving to foreclosure in the event of repayment problems. But these actions actually increase the risk to both farmers and bankers. Ideally, banks would work together with farmers to identify, mitigate and manage risks by offering a wide range of tailored and flexible financial products including credit, insurance, price risk mitigation products and others but this is not the case in Zambia.

2.5 Solutions to Constraints in Agriculture

To address these underlying constraints, the USAID draft Report, 2009 recommends that farmers, along with lenders and Government work together to reduce some of the structural risks inherent in the Zambian agricultural sector, strengthen understanding and expertise in

agriculture among bankers, and improve financial management practices among farmers. Specific recommendations include the following:

1. Strengthen the enabling environment for *Zambian* agriculture;

Some risks inherent in agriculture, such as weather and global commodity price fluctuations, are to a large extent uncontrollable. Farmers themselves can reduce some of these risks through crop diversification and investment in irrigation but a more systemic approach to reducing risks in agriculture would involve the fostering of a more conducive enabling environment for profitable and competitive agricultural growth. There are four main steps that can be taken that can mitigate some of the risks inherent in *Zambian* agriculture:

- Reduce Government intervention in agricultural markets and make it more predictable.
- Identify strategies for reducing the costs of agricultural production
- Strengthen the legal and regulatory framework for agricultural finance.
- Move towards a more transparent and secure agricultural marketing environment.

2. Strengthen understanding and expertise in agricultural finance

With so many agricultural loans in distress, *Zambia's* banks are facing a major challenge and the challenge to the sector is to prevent the cycle of risk and loss that has occurred with disturbing regularity over the past decade. But the current crisis also presents an opportunity to improve lending skills by capturing lessons learnt through loan workouts. The Report recommends that banks take three steps to improve their agricultural portfolios:

- Train lenders in the fundamentals of agricultural economics in *Zambia*
- Create specialised agricultural units with in-house agricultural risk assessment skills
- Engage the agricultural sector to improve understanding, increase information flow, and assess risks

3. Develop and test new financial products and lending approaches to spread, manage and mitigate risks; Agricultural finance can be profitable – even in a country like Zambia – as banks in other countries have demonstrated. But the agricultural sector demands a specialised, innovative approach. Loan terms must be matched to the agricultural cash cycle, for example, and mechanisms must be built in to guard against the risk of unforeseen changes in prices. Examples of such developments could include the use of non-traditional forms of security, agricultural equipment leasing, developing the agricultural insurance market, developing hedging mechanisms, explore the use of international lines of credit and risk mitigation

4. Improve financial management in the agricultural Sector

While banks improve their understanding of agriculture, farmers can make themselves more attractive to banks as clients through developing and demonstrating financial proficiency. Farmers and their development partners might wish to enhance their ability to conduct financial skills training for its members, including sessions on how to approach banks, prepare and manage a successful loan application.

2.6 Harmos Bicycle Loan Project

World Bicycle Relief partnered with a USAID-funded, World Vision-led coalition of relief organizations to address the HIV/AIDS crisis in Zambia. Project Zambia was aimed to provide 23,000 bicycles to community home-based care volunteers, disease prevention educators and vulnerable households. The organization also planned to provide training and equipping and more than 400 bicycle mechanics in the field. This \$2.9 million program was expected to reach more than 500,000 adults, orphans and vulnerable children by the time the project was phasing g out (WBR, 2008). World Bicycle Relief has also partnered with established institutions to build and test the micro financing model utilizing there improved-quality bicycle. The first pilot programs are located in Zambia and Tanzania, with parallel tests in Ethiopia, Uganda, Rwanda, Kenya and Malawi (WBR, 2008).

In Zambia WBR has partnered with a Micro finance institution, HMDL to provide bicycle loans to the needy. Under this loan facility HMDL sourced for bicycles from World Bicycle Relief which it then gave to its clients in form of loans across its branches; Nakonde,

Solwezi, Kitwe, Chongwe, Gwembe, Munyumbwe, Sinazongwe and Kembe. HMDL targeted self-employed entrepreneurs, running micro or small businesses in Peri-Urban and Rural areas as well as small scale farmers across its branches (HMDL, 2008). Bicycles in agriculture have been used to transporting milk churns and other agricultural produce to the market in Kolkata, India. They have also been used to; address stove marketing problems faced by woman producer groups in Kenya. (IFRTD, 2008).

2.7 Link between Non Performing Loans and Average Loan Amount

Loans which are too large for business needs may result in the use of loans for personal needs and results in the inability to pay from income (Norell, 2002). Larger loans have greater risk exposure, so the variable costs per-dollar is higher (Schreiner, 2001). If lenders don't take extra care, there could be more loan defaults. Greater loan size means less depth of outreach for the borrower, but usually means more profitability for the lender (Schreiner, 2001). Average balance, a proxy for depth of outreach, is directly proportional to revenue and default risk. Average loan size to GNP, as a proxy of depth of outreach, was found to have a statistically significant inverse relationship with financial self-sufficiency (Woller, 2002). The amount of loans could be a factor causing NPLs, as it directly relates to risk. Many MFIs have had problems with the repayments of clients whose loans issued exceed their capacity to repay (Wright, 2000). Higher loan size on the average may imply the overestimation of borrowers' repayment capacity. On the other hand, higher loan size could mean that the borrowers have higher capacity to earn and to repay the loans. Friends of credit officers or privileged figures are usually the ones who receive large size loans based on favouritism, overlooking the capacity to pay back. Khandker (1998) claims that loan recovery rate for larger loans may be lower than small loans. One of the reasons of the possible relationship between high repayment rate and the small loans could be higher risk distribution. With a given amount of funds available, smaller loans enable the MFIs to serve more customers. Smaller loans may be necessary for new customers since they don't have a credit history. The small size of loans reduces credit risk for new borrowers (Holt and Ribe, 1991; Wright, 2000). A sound credit record should be built before bigger loans are granted to customers. It may be an important incentive for the customers to receive more loans in the future if they have good payment records and MFIs tend to award higher loans to those with good credit history.

2.8 Impact beyond the Household

Various findings show that the positive impacts microfinance interventions can go beyond client households. Imp-Act (2004) gives examples where the impact of microfinance Projects go beyond clients. They refer to studies on CERUDEB, an MFI in Uganda, which show that loans given to small farmers have resulted in substantial increases in part-time and permanent wage labour of non-clients (ibid.). Even though the clients themselves were usually above the poverty line, the people they employed were not, thereby showing the positive knock-on effects of such an intervention, even if the poorest were not targeted. Mosley and Rock (2004, p.467) in a study of six African MFIs found similar results. They concluded from their study that MFI services provided to the non-poor can reduce poverty by “sucking very poor people into the labour market as employees of microfinance clients”. They also state that microfinance services often enhance human capital through increased spending on education and health that may extend to poor households through intra-household and inter-generational effects (ibid.).

Zohir and Matin (2004), state that many MFI loans are used for agricultural production, trading, processing and transport, resulting in an increase in the use of agricultural inputs and increased output of agricultural production. This leads to enhanced employment opportunities in these sectors for the wider community and a reduction in the prices of such produce due to increased supply. They also state that trading activities financed by MFIs can help to establish new marketing links and increase the income of traders, and this can lead to reduced migration due to increased employment opportunities and increased income. From a social perspective, they state that reduced migration increases family cohesion and greatly contributes towards improving child-upbringing (ibid.). Women’s well-being is defined in terms of three sets of capabilities: (i) the degree of autonomy with which women can live their lives, (ii) their ability to control decision making within the family and (iii) their relative access to household resources such as food, education, etc. (Osmani, 1998)

2.9 Role of Government and Private Sector in Agricultural Finance

Governments in many countries intervene in agricultural markets to some degree – often for valid reasons – but they strive to make their intervention predictable, so that farmers and

other market players can plan effectively, and to reduce the degree to which their intervention distorts price signals. Unpredictable behaviour by the state, however, adds another dimension to price determination other than supply and demand, which again creates uncertainty when seen through the lens of agricultural financing.

Ideally, banks should work together with farmers to identify, mitigate and manage risks by offering a wide range of tailored and flexible financial products including credit, insurance, price risk mitigation products and others. The two should proactively engage with each other to identify common interests, provide a forum for information sharing and feedback, and lobby jointly for changes to Government policy that will benefit both the agricultural sector and the financial sector. If lenders and borrowers can work together with Government and other stakeholders to solve common problems, provides the confidence that the vicious cycle of risk and loss that afflicts Zambia's agricultural finance market can be reversed through launching a 'virtuous circle' of growth and profit, based on mutual understanding and trust.

CHAPTER THREE

METHODS AND PROCEDURES

3.1 Introduction

This chapter outlines the methods and procedures used to achieve the stated goals. It gives information on the area of study, research design, sampling procedure, data collection and data analysis tools used in the study.

3.2 Study Area

This study was conducted in Lusaka Province specifically in Chongwe and Kafue districts. The study specifically targeted Vision Fund clients. The sample consisted of smallholder farmers that are beneficiaries of these credit facilities and non beneficiaries. The majority of the farming households are resource poor farmers who practice small-scale farming.

3.3 Sampling Procedure

The simple random sampling method was used. The sampling unit was a household. The sampling frames were obtained from Vision Fund.

3.4 Sample Size

The population under study consisted of beneficiaries of a credit scheme and non-beneficiaries and the data ranged from the year 2011 to 2012. A sample of 60 households was randomly selected from the 327 beneficiaries in the areas of study. Random sampling was used to generate 60 non beneficiaries to give a total of 120 respondents. A farm household was used as a sampling unit.

3.5 Data Collection

The study made use of both primary and secondary data collected from respondents and Vision Fund respectively. Other relevant information was collected from bulletins, books, journals, publications, reports from the Ministry of Agriculture and Cooperatives (MACO),

Vision Fund and Association for Micro Finance Institution in Zambia (AMIZ). Data was collected on socio-economic and demographic characteristics of program beneficiaries.

3.6 Data Analysis

Data was analysed using SPSS packages while making use of Ordinary Least Square Technique and Multiple Regression analysis.

Objective One:

To examine the effect of access to credit on agricultural household production, total household production was calculated from values of farm sales, amount consumed by the household, value of stored commodities minus variable cost. The model was specified as shown below.

$$PR = \int_{i=1}^n \{ \Sigma \{ PiYi + RiQi + ZiKi \} - \Sigma_{j=1}^n \Sigma_{i=1}^n WjXj \} (1)$$

$i = 1, 2, 3....n$
 $j = 1, 2, 3....n$

Where;

- PR = Total Household Production per Year
- P = Price of Commodity Sold
- Y = Quantity of Commodity Sold
- R = Market Price of Commodity Consumed
- Q = Quantity Consumed
- Z = Market Value of Commodity Stored
- K = Quantity of Commodity Stored
- W = Price of Variable Input Used
- X = Quantity of Input Used

To test the significant difference in means between the household farm production for the beneficiaries and non-beneficiaries of credit, a t - test was used. The model took into account the fact that there is a tendency to consume part of the produce in periods when consumption needs have to be met. This has a negative effect on increasing household farm production.

Objective Two:

To determine social economic characteristics that affect household farm production an OLS regression model was used to determine the significance of the selected social economic characteristics that affect farm production

The model was specified as shown below.

$PR = f(\text{Age, HS, Education, Gender, Land Size, Family Labour, CSP}) \dots\dots\dots (2)$

The final specification of the model is represented as shown below.

Production= b0 + b1 (age) + b2 (HS) + b3 (Education) + b4 (Gender) +b5 (Land) + b6 (Family Labour) + b7 (CSP) + μ

- Where:
- Production = Total Household Farm Production (Kwacha)
- b0 = Constant Term
- b1 = Age of the Respondent (years) (+)
- b2 = Household Size (+)
- b3 = Education Level of the Household Head (Farmer) (+)
- b4 = Sex of the Household Head Farmer (Dummy) (+/-)
- b5 =Land Size (Hectare) (+)
- b6= Family Labour (+)
- b7 = Participation in CSP (Dummy) (+)
- μ = Error Term.

The model is not all inclusive as other factors that influence production in credit schemes such as extension, market linkages and household assets could not be included in the model. The signs in parenthesis represent prior expectations of the researcher on the variables that influence income.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter focuses on the findings from the study on the assessment of the impact of Vision Fund credit programme on smallholder agricultural production. The chapter alsodiscusses the socio-economic characteristics of the sampled farmers and gives an explanation of the impact of micro credit on household farm production.

4.2 Demographic Characteristics of the Sampled Farmers.

The socio-economic characteristics included in the study were, gender, marital status of farmer, age, and educational level of farmers. Other characteristics included family labour and farm sizes.

4.2.1 Distribution of Farmers by Sex

65 percent of the beneficiaries of Vision Fund credit program were male respondents while 35 percent were female. The non-beneficiaries comprised 55 percent male and 45 percent female respondents as shown in table 1 below.

Table 1: Distribution of Farmers by Sex

SEX	BENEFICIARIES		NON BENEFICIARIES	
	Number	Percent	Number	Percent
Male	39	65	33	55
Female	21	35	27	45
Total	60	100	60	100

From the results, it was found that there were more male small scale farmers than female farmers in both groups of farmers. There was low participation of females’ in the credit program which could be attributed to the fact that most households are headed by males including the aspect of gender biased stratification which involves exclusion of females from making farm decisions and lack of adequate land, credit and labor among females, thus the

lower proportions of females participating in commercial activities (Smale and Heisey, 1994; Kherallah *et al*, 2001).

4.2.2 Distribution of Farmers by Age

A large number of beneficiary farmers in the credit scheme were aged between 31 and 40 years compared to 41 and 50 years in the Non beneficiary category. Those aged between 21 and 30 years represented 25 percent and 20 percent in the credit scheme and Non-beneficiary category respectively. In both the groups few farmers were aged between 51 and 60 years. Meanwhile only 10 percent were aged above 60 in the non-beneficiary category unlike among the beneficiary category which had non above 60 years.

Table 2: Age of Respondents

AGE	BENEFICIARIES		NON-BENEFICIARIES	
	Number	Percent	Number	Percent
21-30	15	25	12	20
31-40	24	40	15	25
41-50	12	20	18	30
51-60	9	15	9	15
Above 60	0	0	6	10
Total	60	100	60	100

Despite age being considered insignificant by Shapiro *et al*, 1992; Baidu-forson, 1999 it is one of the factor that affects production activities while attached to farmer experience. However, Savadogo *et al* (1998) considers the aspect of age of the farmer to be significant.

Therefore, it is believed that younger the farmer the more effective and enthusiastic they are about issues of credit. There was no significant difference between beneficiaries and Non beneficiaries with respect to age at 95% confidence level (p=0.34). The presence of lower age groups in the scheme may be due to Vision Funds targeting of viable farmers for its sustainability.

4.2.3 Marital Status of Household Head

According to the results in table 3 below, 70 percent of the beneficiaries and 85 percent of the non-beneficiaries were married. The other farmers were either single or widowed as presented below.

Table 3: Marital Status of Household Head

MARITAL STATUS	BENEFICIARIES		NON BENEFICIARIES	
	Number	Percent	Number	Percent
Single	8	13.3	3	5
Married	42	70	51	85
Widowed	10	16.6	6	10
Total	60	100	60	100

4.2.4 Education Level of Respondents

50 percent of the beneficiaries in the program and 46.6 percent of the Non- beneficiaries attained primary education which indicates the majority of farmers. 20 percent and 16.6 percent attained secondary education in the credit scheme and Non- beneficiary’s category respectively.13.3 percent in beneficiary category and 10 percent non-beneficiary category attained tertiary education. However, 16.6and 26.6 percent of people in the credit scheme and Non-beneficiaries category indicated that they had never been to school respectively. The test to assess if there was any significant difference between credit and Non-credit scheme with respect to their education level was insignificant at 95% confidence interval ($p=0.310$) . The results for educational level are shown in table 4 below. Considering the increasing net primary school enrolment ratio through governments efforts and target to achieve universal primary education by 2015, may be the reason for high number of primary educated farmers.

Table 4: Distribution of Farmers by Education Levels

EDUCATION LEVEL	BENEFICIARIES		NON BENEFICIARIES	
	Number	Percent	Number	Percent
Primary	30	50	28	46.6
Secondary	12	20	10	16.6
Tertiary	8	13.3	6	10
No Education	10	16.6	16	26.6
Total	60	100	60	100

The insignificance of education in this study cannot be overlooked because it helps in ensuring that farm decisions are based on input and output prices rather than on physical quantities. According to Mangisoni (1989), education compliments technical services as educated people can understand agricultural instructions quite well and be able to apply technical skills imparted to them better than uneducated ones. Farmer education must therefore endeavour to deliver knowledge on credit schemes with content that can be understood by the farmers. This may involve use of local language in delivering knowledge on credit and trying as much as possible to simplify any technical terms that the farmers can barely understand.

4.2.5 Landholding Sizes

The majority of the farmers of 80 percent in the credit scheme cultivated between 1-2 hectares of land, 8.3 percent cultivated between 2-5 hectares while 11.6 percent of the farmers cultivated less than one hectare. In the Non-beneficiaries category 68.3 percent cultivated between 1-2 hectares of land, 6.6 percent cultivated between 2-5 hectares while 25 percent of the farmers cultivated less than one hectare. The smaller size of the cultivated fields shows that the research dealt with small scale farmers. The implication is that further increases in output can be increased through acquisition of credit thus more land and through improved land productivity and development. There was a significant difference between credit scheme beneficiaries and Non beneficiaries with respect to farm size at the 0.1 level of significance (p=0.036).

Table 5: Distribution of Hectares Cultivated by Farmers

HECTARES CULTIVATED	BENEFICIARIES		NON-BENEFICIARIES	
	Number	Percent	Number	Percent
Less than 1ha	7	11.6	15	25
1-2 ha	48	80	41	68.3
2-5 ha	5	8.3	4	6.6
Total	60	100	60	100

4.3 Factors Affecting Household Farm Production.

A linear regression model was used to determine the effects of the variables determining household farm production where production was regressed on a set of socio-economic characteristics and the results found as shown in table 6 below.

Table 6: Results of Factors Affecting Household Farm Production.

VARIABLE	BENEFICIARIES		NON BENEFICIARIES	
	Regression coefficients	t-ratio	Regression coefficients	t-ratio
Constant	1.040	1.102	0.532	0.023
Age	-0.028	-0.521	-1.20	-1.122
Gender	0.121	1.451	0.016	0.201
Household Size	0.325	4.57	0.645	7.431
Level of Education	-0.142	-1.276	0.144	0.831
Family Labor	0.231	1.715	0.293	1.125
Farm Size	0.100	1.413	0.102	0.318
CSP	0.545	4.773	-	-
R	0.915		0.904	
R ²	0.917		0.533	
Adjusted R ²	0.814		0.731	
F	35.202		15.314	
N	60		60	

4.4 Explanation of Factors Affecting Household Farm Production.

Coefficients and the Significance of Variables

Household participation in the credit scheme was found to be significant (t-ratio 4.773) at 5 percent level of significance and family labour at 0.1 percent level of significance (t ratio 1.715). The significance of household participation in the credit scheme (t-ratio 4.773) at 5 percent level of significance explains that farmers randomly selected to participate in the credit schemes attained higher production thus incomes than non-beneficiaries of the scheme. This is can be explained by the farmer's availability of credit and other issues of market linkage approach which enables them to access markets for their produce. Age did not have a significant relationship with farm production ($p=0.34$). Household size was found to be positive and significant at the 5 percent level of significance (t-ratio 4.57, p-value 0.051). This probably suggests that, the larger the farm household the more it uses family labour thus reducing costs of hired labour and increasing incomes. Education on the other hand was found to be insignificant at the 5 percent level of significance ($p=0.310$).

Coefficient of Variation, R^2

The coefficient of variation, R squared, gives the amount of variation in production that is explained by the variation due to participation in the credit scheme. In this study, R squared was found as 0.917. This implies that 91.7 percent of the variation in production was attributed to participation in the credit schemes. Thus, meaning that the credit schemes have assisted farmers in improving farm production.

F- Test and its Significance

At the 5 percent level of significance the hypothesis that socio economic characteristics did not affect farm income was rejected. ($F= 35.202$) for participants of the credit scheme and ($F= 15.314$) for non-participants of the credit scheme. Thus, socio economic characteristics of farmers do have a bearing on farm production. This may further be explained by the fact that since the programme accounts for the riskiness of credit schemes the beneficiaries of the credit scheme were selected on the basis of being viable farmers to ensure sustainability and continuity of the scheme.

Differences in Means for Beneficiaries and Non Beneficiaries

Comparing the significant difference in means between household farm production of beneficiaries and non-beneficiaries of the credit schemes was found to be significant ($p=0.012$) according to the results and for the beneficiaries of the credit scheme. The t test also indicated that the result was significant as shown in table 6. Therefore, the null hypothesis that there is no significant difference in household farm production between beneficiaries and non-beneficiaries of the credit scheme was rejected. Therefore, the credit scheme has significantly led to increase in farm production.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusion and recommendations of the study based on the findings and interpretations of the study.

5.2 Conclusion

In light of the governments objective of empowering its people and ensuring poverty alleviation through increased developmental programmes, there has been commendable success in terms of stakeholder's participation in the cause were Vision Fund has made great strides in complementing government efforts in poverty alleviation by providing the much needed financial support for many of the small scale farmers. The variables which were significant were Household participation in the credit programme with ($p=0.01$, t ratio 4.773) at 5 percent level of significance, household size ($p=0.051$, t ratio 4.57) and family labour (t ratio 1.715) at 0.1 percent level of significance. However, other variables were not significant such as age of the farmer with $p=0.34$ at 95 percent confidence interval and education ($p=0.310$). The credit programme was found to be of importance and help in most beneficiaries' ability to improve productivity and incomes which was unlikely for non-beneficiaries of the credit scheme. Therefore, credit plays a vital role in the success of the farmer's agricultural activities resulting in increased production and consequently better incomes for the farmers as verified by the significance of household participation in the credit scheme (t-ratio 4.773) at 5 percent level of significance. However, it is worth noting that other factors equally contribute to the outcome of agricultural activities and these factors pose constraining effects on the farmer's level of productivity. Lack of access to extension and technical services, timely acquisition of agricultural inputs are among some of the constraining factors.

5.3 Recommendations

In light of the findings, there is need to vigorously encourage small scale farmers to take part in progressive financial credit schemes and programmes in order to broaden their credit sources. Financial institutions like Vision Fund must consider intensifying efforts in terms of monitoring and supervisory visits to farmers under their jurisdiction. This cause for an increase in financial officers to interact with the farmers especially in light of the low financial literacy levels that is in some farmers. Small scale farmers should be encouraged and educated on the importance of diversifying their agricultural enterprises and activities. There is need for lending institutions should consider broadening loan repayment methods such as crop or product payment modes. Equally important is the need to establish efficient and stable product market linkages for easy access to market for their products.

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APPENDICES

Appendix 1: Questionnaire

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Years	Children		Dependants	
	Male	Female	Male	Female
Between 0 – 15				
Between 15 – 36				
Above 35				
Total on each section				

10. What is the total size of your farm?
11. What size of your farm do you put to use?
12. What economic farm activity do you use the land for?
 - a) Livestock/Dairy[]
 - b) Vegetables/Fruits []
 - c) Grains/Cereals[]
 - d) Other, Specify
- 13 How much non labor input (value) is used on the farm?
14. Do you use hired labor?
 - a) No []
 - b) Yes [] if yes go to 15
15. How much paid labor (value) is used on the farm?
16. How many farm laborers does the farm hire during the farm season?
 - a) Males
 - b) Females
17. Do you use family labor on your farm?
 - a) No []
 - b) Yes[] if yes go to 18
18. How many family members take part?
19. What is the total value of farm produce in a farming season?
20. How much (value) of total farm produce is sold?
21. How much (value) of total produce is consumed?

Loan Information

22. Are you a beneficiary of Vision Fund loans?

- a) No []
- b) Yes [] if yes go to 23

23. In what form are the loans?

Specify

24. What is the highest value of a loan you have ever acquired from Vision Fund?

Specify

25. How helpful are the loans to your farm?

- a) Very helpful []
- b) Less helpful []
- c) Not helpful []

26. Do you think access to loans increase farm production levels?

- a) No []
- b) Yes []

27. Have you ever defaulted on a loan?

- a) No []
- b) Yes [] if yes go to 28

28. What was the reason for defaulting?

Specify

29. What reasons do you think can cause you fail to settle a loan?

- a) High interest []
- b) Amount of loan []
- c) Poor harvest []
- d) Duration of repayment []
- e) Other, specify

30. Are you willing to continue to acquire more loans in the future?

- a) No []
- b) Yes []

31. How flexible are the loan conditions to you?

- a) Very flexible []
- b) Less flexible []
- c) Not flexible []

32. Do you think Vision Fund loans are affordable compared to other options?

a) No []

b) Yes []

33. How readily available is information on loans to you?

a) Very available []

b) Slightly available []

c) Not available []

34. What are the sources of your awareness for the Vision Fund loan programme?

	Sources of awareness of the Vision Fund loan programme	<i>Tick applicable</i>
No.	Description	
1	Friends	
2	TV	
3	Radio	
4	Magazines	
5	News papers	
6	Govt. Extension Workers	
7	NGOs	
8	Posters	
9	Brochures	
10	Other (specify	

35. What is your main source of income?

On Farm Income	(Tick)	Off-Farm Income	(Tick)
a)Sale of crops		a)Salary (formal)	
b)Sale of livestock		b)Gifts	
c)Sale of farm assets		c)Other businesses	
d)Others, specify.....		d)Others, specify.....	

36. What is your household's annual income (in Kwacha)?
37. Have you been a farmer throughout your life?
- (a) Yes..... []
- (b) No..... [] if no go to 38
38. What were you doing before you started farming?
39. What else do you do apart from farming?
40. Do you receive any technical or extension services on farming?
- a) No []
- b) Yes [] if yes go to 41 and 42
41. If yes to 40, who provides these services?
- (a) Government []
- (b) NGOs..... []
- (c) Friends..... []
- (d) Others, specify..... []
42. How much do you spend on extension services (in kwacha)?
43. Do you have access of the following from anywhere other than Vision Fund?
- | | Yes | No |
|---------------------------------|--------|--------|
| a) Technical assistance | [] | [] |
| b) Credit services | [] | [] |
| c) Incentives in form of inputs | [] | [] |
| (Seed or fertilizer) | | |
44. If yes, from who? Specify.....
45. Where do you get your farming inputs (Fertilizer and seed)
1. Own..... []
2. NGOs..... []
3. Cooperatives..... []
4. Government..... []
5. Others, Specify..... []
46. Do you rent any land for your farming?
- a) No []
- b) Yes [] if yes go to 47
47. How much do you rent the land (in kwacha)?

48 Does the farm have enough irrigation water?

a) No []

b) Yes []

49. What system of irrigation do you use?

a) furrow/gravity []

b) Sprinkler []

c) Drip []

d) bucket/can []

e) Other, specify

50. Do you have adequate market for your produce?

a) No []

b) Yes []

51. Who are your main customers for your produce?

Specify

52. What is the market price of your produce?

Nature of the farm

53. What are some of the assets do you have on the farm?

Asset type		Does the farm have this asset? a)No→ Go to next asset 1)Yes- tick	How many ... does the farm own?
Asset	Name/description		
1	Tractor		
2	Truck/pick up		
3	Tractor trailer		
4	Other tractor-drawn implements		
5	Ox cart		
6	Other ox-drawn implements		
7	Cattle		
8	Donkeys		
9	Sheep		
10	Goats		

11	Pigs		
12	Chickens		
13	T.V		
14	Radio		
15	Other (specify		
16	Bicycle		
17	Land under shadow netting		
18	Packaging, cleaning, grading shed		
19	Cold storage		
20	Access to electricity		
21	Bank account		

54. How far is the farm from the nearest market town?

55. How far is the farm from the main (surfaced) road?

56. What mode of transport do you use on the farm to market produce?

a) Bicycle []

b) Ox cart []

c) Tractor []

d) Motor cycle []

e) Van []

57. For how many months in a year is the nearest main road accessible?

58. What is the roofing material for the main farm house and structures made of?

1) Iron/metal [] 3) Tiles [] 5) Grass/straw []

2) Asbestos [] 4) Corrugated iron sheets [] 6) Other,

(specify).....

59. What is the wall material for the main farm house and structures made of?

1) Burnt bricks [] 4) Pole/bamboo [] 7) Grass/straw []

2) Concrete blocks [] 5) Pole and dagga [] 8) Iron sheets []

3) Mud bricks [] 6) Mud (mud hind) [] 9) Hard board []

60. What is the floor material for the main farm house made of?

1) Cement [] 3) mud [] 5) other (specify)

2) Concrete [] 4) Bear earth []

61. How would you compare the workforce between credit beneficiary and non beneficiary?

Credit beneficiary	Non beneficiary	Tick
High	Low	
Same	Same	
Low	High	

62. How would you compare the inputs quantities required between credit beneficiary and non beneficiary per ha is used

Credit beneficiary	Non beneficiary	Tick
More	Less	
Same	Same	
Low	More	

63. I now would like to ask you a few questions about social facilities, distance to each of the facility and the mode of transport to the facilities (see codes below.)

Type of facility(see codes Below)	Distance to facility	Mode of Transport
School		
Clinic		
Market		
Church		
Other (Specify)		

64. Do you experience any post harvest losses?

- a) No []
b) Yes []

Thank you for your participation.