

**EFFECT OF THE CREDIT OUTREACH PROGRAMME ON NON-
PERFORMING LOANS AGRICULTURE FINANCE IN ZAMBIA'S
LUSAKA PROVINCE**

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

By

ENOCK MASHIKINYI

**In Partial Fulfillment of the Requirements for the Degree of Bachelor of Agricultural
Sciences**

© Enock, Mashikinyi, 2011

ACKNOWLEDGEMENTS

My sincere gratitude goes to Ms P Hamukwala my supervisor for her tireless efforts in guiding me to come up with this document. Her efforts and patience displayed enabled me to conclude the necessary and relevant elements of this paper.

Furthermore, thanks go to all Staff in the Department of Agricultural Economics and Extension Education of the University of Zambia for their invaluable support and their various contributions to the success of this work.

This Report is dedicated to my Dad and Mum, Paul and Rose Mashikini and my brothers and sisters for their love and support. Thank you very much and to God be the glory.

TABLE OF CONTENTS

TABLE OF CONTENTS	ii
LIST OF TABLES	iv
LIST OF FIGURES	v
LIST OF ACRONYMS	vi
ABSTRACT	vii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study	1
1.2 Problem Statement	2
1.3 General objectives.....	3
1.4 Specific objectives	3
1.5 Hypothesis	4
1.6 Rationale	4
1.7 Scope and Limitation of the Study	4
CHAPTER TWO:	4
LITERATURE REVIEW	5
2.1 Introduction.....	5
2.2 Balancing Profitability and Client Coverage.....	5
2.3 Impact of Loan Collection Performance on Revenue and Cash Flow of MFIs.....	7
2.4 Relationship Between Average Loan Amount and Non performing Loans.....	8
2.5 Social Impact Analysis of Rural Finance.....	9
2.6 Microfinance Impacts Beyond the Household	10
CHAPTER THREE:	12
METHODS AND PROCEDURES	12
3.1 Introduction	12
3.2 Study Area.....	12
3.3 Sampling Procedure.....	12
3.4 Sample Size.....	12
3.5 Data Collection.....	13
3.6 Definition of terms.....	13

3.7 Data Analysis	14
3.8 Multiple Regression Analysis Model.....	15
3.9 Variables in the Model.....	17
3.9.1 Dependent Variable:.....	17
3.9.2 Independent Variables:.....	17
4.1 Introduction	18
4.2 Demographic characteristics of the sampled farmers.	18
4.2.1 Distribution of beneficiaries by Gender	18
4.2.2 Distribution of Farmers by Age	19
4.2.3 Marital Status of Household Head	20
4.2.4 Education Level of Respondents.....	20
4.3 Regression model results.....	21
4.4 Multiple Regression Analysis.....	21
4.4. Explanation of Factors Affecting Non-performing Loans	23
CHAPTER FIVE:	24
CONCLUSIONS AND RECOMMENDATIONS	24
5.1 Introduction.....	24
5.2 Conclusions.....	24
5.3 Recommendations.....	25
5.3.1 Debt Suspension Program	25
5.3.2 Average Outstanding Loan.....	25
REFERENCES	27
APPENDIX	28

LIST OF TABLES

TABLE 1 DISTRIBUTION OF BENEFICIARIES BY GENDER	18
TABLE 2 AGE OF RESPONDENTS	19
TABLE 3 MARITAL STATUS OF HOUSEHOLD HEAD.....	20
TABLE 4 DISTRIBUTION OF FARMERS BY EDUCATION LEVELS	21
TABLE 5 DESCRIPTIVE STATISTICS AND CORRELATION MATRIX.....	22
TABLE 6 REGRESSION RESULTS FROM DATA.....	23

LIST OF FIGURES

FIGURE 1 BALANCING PROFITABILITY AND CLIENT COVERAGE.....	7
FIGURE 2 INTERACTION OF VARIABLES AFFECTING LOAN PERFORMANCE.....	15

LIST OF ACRONYMS

PROFIT	Production Finance and Technology
FNDP	Fifth national development plan
MFI	Microfinance institution
BAZ	Bankers association of Zambia
RFI	Rural finance institution
MACO	Ministry of agriculture and cooperative
HMDL	Harmos Micro-Enterprise Development Ltd
AMIZ	Association for Micro Finance Institution in Zambia
EGLS	Estimated Generalized Least Squares

ABSTRACT

Effect of Credit Outreach Programme on Non-performing Loans in Agriculture Finance in Zambia's Lusaka Provinces

Enock Mashikinyi
The University of Zambia, 2011

Supervisor:
Ms.P.Hamukwala

Sustainability of funds is crucial in implementing rural credit programs and those relying on their services. Understanding the impact of outreach on nonperforming loans performance would contribute to better information for policy decision making. To investigate the effect of credit outreach on non-performing loans, a study was conducted in Lusaka Province specifically in Chongwe and Kafue. The study specifically targeted Harmos Micro-Enterprise Development Ltd (HMDL) customers. A sample of 576 households was randomly selected from the 2450 beneficiaries in the areas of study. The sample consisted of smallholder farmers that are beneficiaries of these credit facilities.

Regression analysis was used to determine how the non-performing loan ratio of Harmos microfinance Development limited (HMDL) branches can be explained by the debt suspension program implementation and the average loan of customers. Results of the multiple regression analysis tests showed that debt suspension program and average loan were both statistically significant at $p\text{-value} = 0.05$ i.e. they were 0.000 and 0.039 significant respectively, meaning that the both hypotheses were accepted. It was also shown that debt suspension program has negative impact on the non-performing loan ratio of HMDL branches, while average loan has positive impact on the non-performing loan ratio of HMDL branches. The marginal effect of average loan indicates that one kwacha change will result in an increase in the non-performing loan by 0.117 percent, while the marginal effect of debt suspension programme indicates that year of implementation will result in a decrease in the non-performing loan by 0.209 percent

Criteria should be set for branches concerning the expansion of total outstanding loans. Expansion of loan amount should go together with the expansion of number of borrowers. Thus, reaching out to poorer customers (higher outreach depth) can go together with lower nonperforming loan ratio..

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In Zambia, agriculture represents the main source of household income for the rural majority. Approximately 92 percent of the population depends on agriculture for their livelihood. Despite this being the case agricultural finance in Zambia has been caught up in a self-perpetuating cycle of risk and loss owing to high non-performing loans in the banking sector and the agricultural sector now exceed 37 percent as compared to 13 percent across all other sectors of the economy (PROFIT, 2010). Agriculture is one of the government's priority growth sector as documented in the Fifth National Development Plan (FNDP) but lack of access to finance has stagnated growth of small-scale farmer, who produce approximately 80 percent of food in the country.

There is also a high-risk lending environment for the agriculture sector caused largely by unpredictable government intervention as well as weaknesses in the legal framework, limited understanding of agricultural markets, limited expertise in agricultural finance among most banks and other financial institutions, poor risk management practices and limited financial analysis and management capabilities within the agricultural sector has also negatively impacted agricultural financing. Zambia's market for agricultural finance is fundamentally dysfunctional.

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 is considered a human right (Aryee, 1999: 1). 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. The Positive results cannot exist in the long run without the sustainability of the financial institutions involved.

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. “Key ingredients in a successful development strategy are ownership and participation” (Stiglitz, 1998: 15).

Clear policy and objectives on the operations of financial institutions for the poor should be well designed for financial sustainability. If these financial institutions cannot function efficiently, they would have to limit their role because of the limited funds they have. This would cause many poor people to turn to informal lenders who charge much higher interest rates. It is the Banks and microfinance institution (MFI)’s role to reduce the cost of borrowing and improve the conditions of millions of agricultural families in Zambia.

If credit outreach leads to a higher rate of non-performing loans, Banks and MFIs self sufficiency could be affected. Thus, the outreach goal and the self-sustainability goal could be in conflict. Reaching the target groups may affect loan collections and trying to have a high loan collection rate may mean that less outreach has to be achieved. If credit outreach affects non-performing loans positively then outreach could not be extended without limits. In contrast, if credit outreach is negatively related to nonperforming loans, any concern that credit outreach contributes to bad debts and lower self-sufficiency would be proven a bad excuse for low credit outreach performance and credit outreach could be encouraged. If they are not related, credit outreach goals and loan collection goals may be set independently.

1.2 Problem Statement

Zambia has a competitive advantage in agriculture as evidenced by the fact that 15 to 25 percent of most bank’s lending portfolios were to the agriculture sector (Saviour Chibiya, BAZ chairman). The agriculture sector accounts for the single largest recipient of commercial banks’ loans in the country with about US \$463 million (ZMK 2,216 billion) while the Mining and Quarry had ZMK 610 billion and the Manufacturing industry had ZMK 1,305 billion (ZNUF

PROFIT Agricultural Finance Final Report, 2009) see the appendix. Despite this been the case Agricultural finance in Zambia is characterized by high non-performing loans. Agricultural finance in Zambia has been caught up in a self-perpetuating cycle of risk and loss owing to high non-performing loans in the banking sector and the agricultural sector now exceed 37 percent as compared to 13 percent across all other sectors of the economy (PROFIT, 2010). Therefore the ability to reach a large number of poor people with quality service while trying to encourage less dependency is a major problem of Banks and MFIs in Zambia

Credit outreach is a major goal of rural financing. It is important that Banks, Rural finance institution (RFIs) and Micro-finance institutions (MFIs) reach a sufficient target number of customers in order to justify support from sponsors and to justify the existence of the organization. Jacob Yaron (1994: 49-70) suggests two objectives necessary for successful rural finance institutions: financial self-sustainability and substantial outreach to the target rural population. Sustainability of funds is crucial in implementing rural credit programs and those relying on their services. Understanding the impact of outreach on nonperforming loans performance would contribute to better information for policy decision making in financial institutions. This study, therefore, intended to determine the effect of credit outreach on non-performing loans which highly affect financial sustainability of Banks and MFIs in Agriculture finance in Zambia.

1.3 General objectives

The general objective of this study was to determine the effect of the credit outreach on non-performing loans among smallholder farmers in Lusaka Province.

1.4 Specific objectives

The specific objectives were:

- To determine the relationship between average loan amounts and non-performing loans among the beneficiaries.
- To determine a model of balancing profitability and client coverage in rural financing.

- To determine the effect of the debt suspension programme implementation on non-performing loans among beneficiaries.

1.5 Hypothesis

- Non-performing loan ratio is negatively related to debt suspension program implementation.
- Non-performing loan ratio is positively related to average loan per customer with debt year t-1.

1.6 Rationale

Awareness of the problems affecting rural finance in Zambia is essential to successful development and implementation of the major agricultural credit policies in Zambia. It also adds to the existing body of knowledge, because it is of the essence to know what the major financial companies can do to better support and implement the existing policies and enforce laws to ensure constant agricultural credit for the rural poor in the country. With global financial crisis, credit management in agriculture should be implemented and rural finance is the major tool.

1.7 Scope and Limitation of the Study

The study mainly focused on the effect of credit outreach programme on nonperforming loans in Lusaka province in Zambia. Thus, results may not be all encompassing .The study was also only confined to a small geographical area Chongwe and Kafue instead of covering all the areas in Lusaka. Furthermore, nonperforming loans hinges on a number of factors involving diverse fields and disciplines. Therefore, not all issues related to non-performing loans has been fully explored with the limited time and resources scheduled for this study like; income of household, loan staff, interest rate, type of loan, saving, staff training, group pressure, amount of loans installment, flexibility for borrower to use of borrowed money, management information system, knowledge of borrower et

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses several aspects linked to non performing loans and credit outreach. It highlights issues of loan collection, outreach and sustainability potential solutions to problems encountered credit outreach.

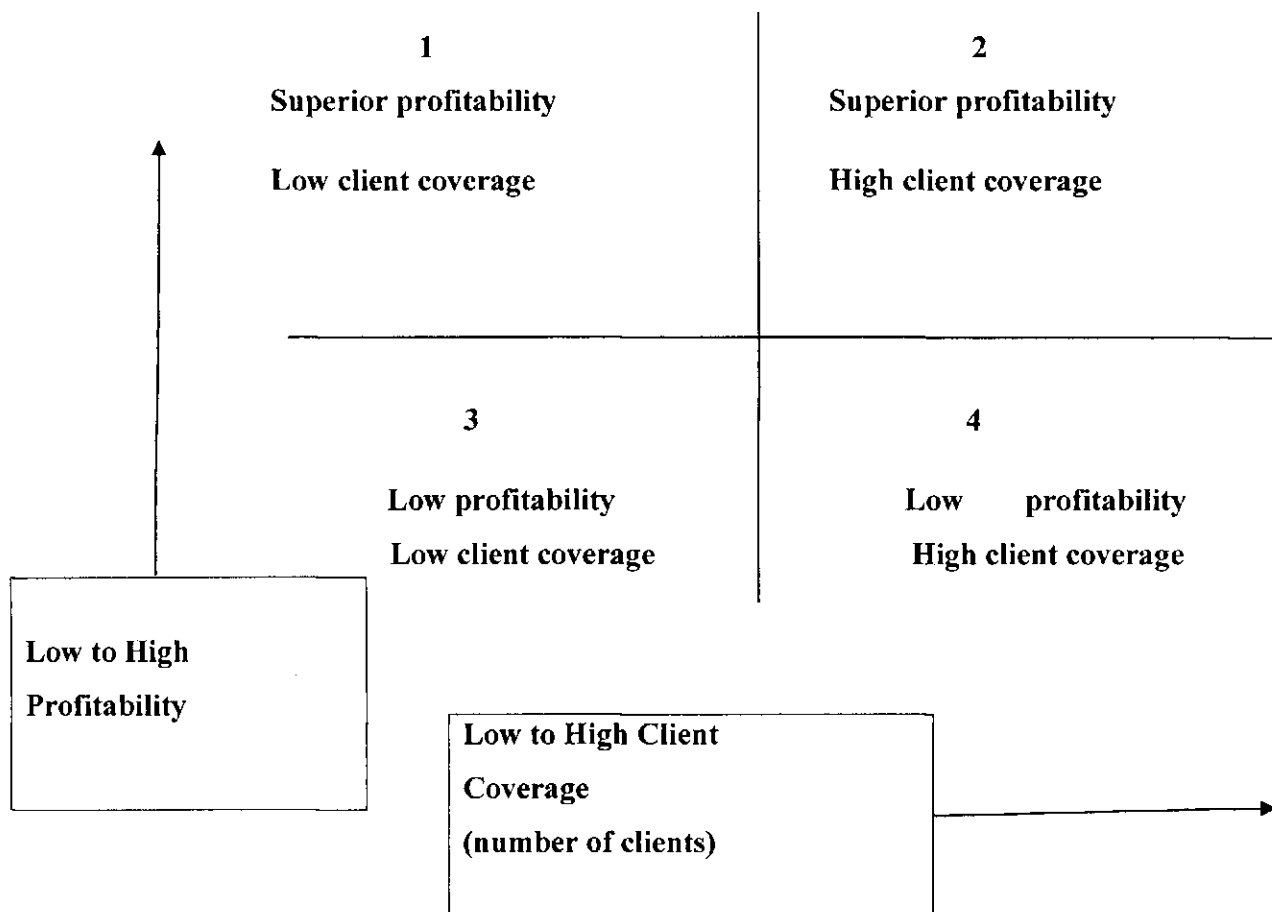
2.2 Balancing Profitability and Client Coverage.

Jacob Yaron (1994: 49-70) suggests two objectives necessary for successful rural finance institutions: financial self-sustainability and substantial outreach to the target rural population.

Outreach is a major goal of rural finance and micro-finance programs. Outreach achievement is important politically for politicians and programs that would like to have more support from donors or governments. It is important that rural finance institutions (RFIs) and micro finance institutions (MFIs) reach a sufficient target number of customers in order to justify support from sponsors and to justify the existence of the organization. The ability to reach a large number of poor people with quality services while trying to encourage less dependency is a major concern of the supporters or donors. Outreach can be roughly measured by the “volume of annual lending and savings activities (scope), and the population it serves (depth of market penetration)” (Ravicz 1998: 12). Average loan is a proxy that indicates whether the loans are extended to lower or higher income customers and can also indicate whether loans are more distributed among more customers or concentrated among lower number of customers, provided a given amount of money. Sustainability is related to “the ability of a program to continuously maintain its activities and services in order to meet its objectives” (Khandker, et al., 1995: 32). Sustainability is “repeating performance in the future” (Schreiner, 1996: 1). The measurements for sustainability are arrears and default rates and the size of the subsidy required to sustain operations (Ravicz, 1998: 12). “Goals of client coverage and profitability are not mutually exclusive” (Rock, et al., 1998: 18). There might be a problem if dual maximization of objectives is to be achieved – to reach the poor and to achieve financial sustainability. From a

mathematician's view (Rhyne, 1998: 6) there is no single solution to a problem of dual maximization. According to Rhyne, one objective can be maximized when the other is treated as a constraint. A curve can be derived to show the tradeoff between the objectives. More of one means less of the other; this is generally known as the production possibility frontier in economics. If the situation is inside the curve it should be possible to achieve more of both outreach and sustainability. Outreach and sustainability can also be viewed as complementary or even to the extent that sustainability serves outreach since sustainability of micro-finance programs provides funding for institutions in the long run to serve higher numbers of poorer people. As shown in figure one, an institution with both outreach and financial sustainability objectives, would try to move to high profitability and high client coverage (Rock, et al., 1998: 19). It is politically desirable for MFIs to expand the services to serve as many people as possible, but the growth of MFIs has to be carefully planned since many problems may follow after a period of expansion.

Figure 1 Balancing Profitability and Client Coverage



Source: Rock, et al., 1998: 19.

2.3 Impact of Loan Collection Performance on Revenue and Cash Flow of MFIs

Researchers (for example Yaron, et al., 1997 and Seibel, 2000) have stressed that loan collection performance of MFIs is crucial for the sustainability of the financial institutions. It has impact on the revenue and cash flows of MFIs directly. Cheap sources of funds from government, international institutions and donations will not guarantee sustainability. It is not access to cheap finance sources that makes financial institutions successful since it may only be a tool for politicians to gain electoral support (Yaron, et al., 1997: 116). The MFIs and the clients might not be working hard enough for efficiency. Politicians often propose programs that are not

Economically sound for MFIs since they know that MFIs get financial support from the government or the donors. Clients, on the other hand, might not be working hard enough in trying to pay back the debt knowing that the politicians will find ways to assist them. Able borrowers might also feel that they too have the right to assistance from the MFI or the government on their debt after witnessing other clients benefiting from not paying back. Loan collection performance has been considered an important factor for sustainability of MFIs and loan repayment rate has been used as an indicator of MFIs' success and sustainability.

A high loan repayment rate is crucial for MFIs' sustainability in the long run. Sound credit practices determine the self-sustainability (Sacay and Randhawa, 1995: 23). Available funds for future loans, as well as the interest income, depend on loan repayment (Bhatt, 2002: 81).

2.4 Relationship Between Average Loan Amount and Non performing Loans

Larger loans have greater risk exposure, so the variable costs per-dollar is higher (Schreiner, 2001: 7). 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: 21). According to Schreiner (2001: 10), 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: 12). 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: 157). 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. Loans 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: 119-122). Friends of credit officers or privileged figures are usually the ones who receive large size loans based on favoritism, overlooking the capacity to pay back. Khandker (1998: 132) 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: 26; Wright, 2000: 50). 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

2.5 Social Impact Analysis of Rural Finance

Traditionally, the impact of rural finance projects was assessed by the changes in the income or well being of the clients. Mansell-Carstens, cited in Rogaly (1996) argues that such a focus 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 analyzing 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 these 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, behavioral 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 is 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 fulfill 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.

2.6 Microfinance Impacts Beyond the Household

Various findings show that the positive impacts microfinance interventions can go beyond client households. Imp-Act (2004b) gives examples where the impact of microfinance.

Projects goes 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, p.318) 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 (Zohir and Matin, 2004). 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)

Kabeer (2003, p.110) refers to a study conducted by the Grameen Bank which showed that nonmembers of a Grameen village were significantly more likely to use contraception than non-members in a non-Grameen village. This was due to a diffusion of the "small family norm" of Grameen women through social networks within the village as the Grameen Bank emphasizes women's productive roles, as opposed to their reproductive role, and non-members picked up this norm from members.

Studies have also shown that Grameen-style projects, based on collective activism, can lead to a greater level of legal and political awareness among clients, with a greater likelihood of clients taking part in political campaigns the longer they had been a member (Kabeer, 2003, p.111). Zohir and Matin (2004) state that the interaction within MFI groups can create co-operation and trust that not only facilitates the microfinance activities, but also contributes benefits beyond the service provided, such as a greater sense of community, trust and reliance on the group in times of crisis. These networks can lay the foundations for other social capital developments in the community. They state that examples of cultural impacts of social intermediation that affect the greater community could be a change in attitude of society towards the acceptable age of women's marriage, domestic violence, dowry, etc. (ibid.). Therefore, impact of microfinance projects should not just focus on the individual and household levels if the true impact is to be assessed. Microfinance can have a far wider impact than the household level and this must be assessed if a true representation of microfinance projects is sought.

CHAPTER THREE: METHODS AND PROCEDURES

3.1 Introduction

This chapter outlines the methods and procedures to be used to achieve the stated objectives. It gives information on the data collection, sample size, limitations of the procedure and data analysis tools that will be applied in the study.

3.2 Study Area

This study was conducted in Lusaka Province specifically in Chongwe and Kafue. The study specifically targeted Harnos Micro-Enterprise Development Ltd (HMDL) customers. The sample consisted of smallholder farmers that are beneficiaries of these credit facilities. The majorities 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 HMDL.

3.4 Sample Size

The population under study consisted of beneficiaries of a credit scheme and the data ranged from the year 2008 to 2010. Since the study included three years of data, two years' data was assigned for both dependent and independent variables because of the possible time lapse for the causal effect. A sample of 576 households was randomly selected from the 2450 beneficiaries in the areas of study. Random sampling was done using a list of beneficiaries. A farm household was used as a sampling unit.

3.5 Data Collection

A sample of respondents was randomly selected from Lusaka districts. The respondents were those benefiting from the credit facilities of HMDL. Secondary data was used in this study. Secondary data was collected from various institutions such as the Ministry of Agriculture and Cooperatives (MACO), HMDL and Association for Micro Finance Institution in Zambia (AMIZ).

3.6 Definition of terms

Nonperforming loan

A simple definition of non-performing loan is: A loan that is not earning income and: (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.

Microfinance institution: these are financial institutions that provide small loans to the world's poorest communities or rural areas.

Credit outreach: this is to reach or extend financial services to the rural communities where commercial Banks cannot operate or exceed to go beyond a limit.

Access: people having adequate income or other resources to purchase or barter for appropriate farm inputs.

Smallholder farmers

The Ministry of Agriculture and Cooperatives (MACO) defines a smallholder farmer as 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.

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).

Household: 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.

Farm income: Income generated from farming activity accruing to an individual

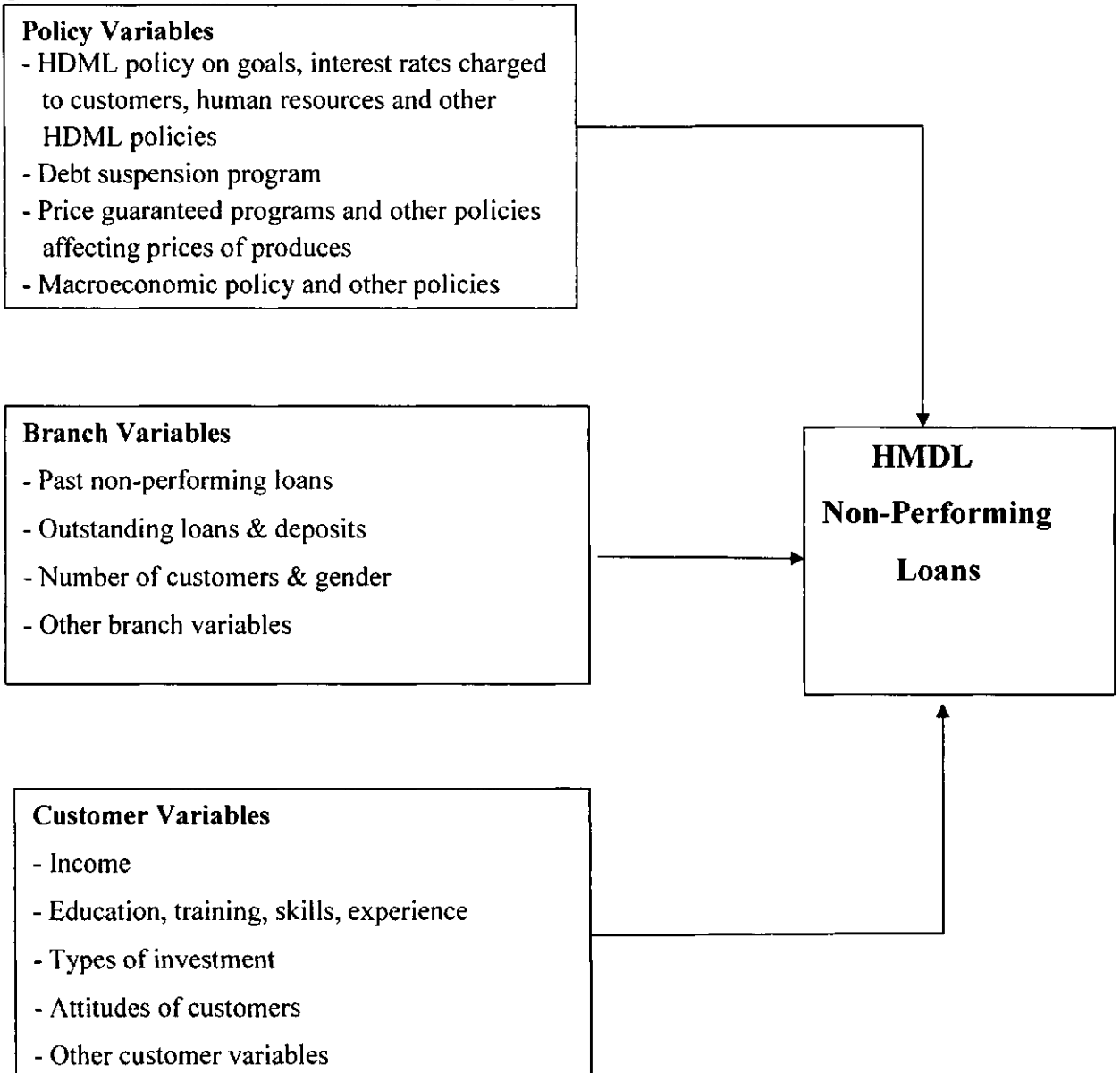
3.7 Data Analysis

Data was analyzed using SPSS packages while making use of Estimated General Least Square (EGLS) and Multiple Regression analysis.

Conceptual Model

The variables related could be summarized and used to form the following model.

Figure 2 Interaction of variables affecting loan performance



Source: Authors creation

3.8 Multiple Regression Analysis Model

Although there are a large number of variables affecting non-performing loans, many of them are not quantified at the branch level, not in the data bank, incomplete, unattainable with limited time or problematic in multiple regression technique. The limitation of variables used in multiple

regression is a major problem of this study as some important variables contributing to non-performing loan ratio could be missing despite the use of dummy variables to attend to the problem of the fixed factors of the branches. The major variable of study is the depth of outreach. Average loan amount per customer of branches representing the depth of outreach may affect the nonperforming loans as large loans tend to bear more risk. Understanding the relationship between average loan amount and non-performing loan ratio can help MFIs to balance the total outstanding loan amount and number of customers.

Debt suspension program is included in the models although it may not be a permanent factor. The data were collected from branches in Chongwe and Kafue. In the model the data from both the branches were used in the test in order to find the results that could generally explain both the branches.

Test model:

$$NPL = \beta_0 + \beta_1 DSP + \beta_2 LPC + \beta_3 D_1 \dots + B_{n+2} D_n + E$$

Where

NPL = Pooled data of non-performing loan ratio

DSP = Pooled data of dummy value for years with or without debt suspension program implemented.

LPC = Pooled data of the ratio of total outstanding loan amount to total customers with debts

E = the random error term.

D = Year dummy variable (1 if 2010, and 0 otherwise)

n = number of branches in the test model except one branch

The regression and correlation was used to see the correspondence of directions and relationships in total of the branches. The regression and correlation will be on the data of the two branches. Understanding of the impact of independent variables in these areas will be beneficial in designing more specific policy in different.

3.9 Variables in the Model

3.9.1 Dependent Variable:

The dependent variable is the non-performing loan of branches from the latest three available years. The data on non performing loans, debt suspension and average outstanding loan of June 30th of years 2008, 2009 and 2010 (accounting years 2007, 2008 and 2009) was pooled together. The ratio form of the dependent variable showed the change in the proportion of non-performing loans when affected by independent variables. The non-performing loan amount could naturally increase over time with outreach thus the non-performing loan amount alone did not give the clear understanding of the change resulted from the independent variables.

3.9.2 Independent Variables:

Two main independent variables and dummies used were.

1) A dummy variable for debt suspension program implementation:

When the debt suspension program was implemented were assigned a value of “1” while “0” will be assigned when there is no program.

2) Average loan amount per customer year t-1:

The ratio of total loan outstanding to total number of customers with debt of March 31st year 2008, 2009 and 2010 was used. The unit is hundred thousand kwacha.

3) Dummy variables for specific characters of branches:

A dummy variable were assigned for all the branches except for one branch.

defined, may also have led to relatively younger farmers participating more in the programme to allow the programmes continuity.

4.2.3 Marital Status of Household Head

The marital status of the households is illustrated in table 3 below where 65 percent of the credit scheme respondents were married. The other farmers were either single or widowed as presented below, 12.5 percent and 22.5 percent respectively.

Table 3 Marital Status of Household Head

Marital Status	Number	Percent
Single	72	12.5
Married	374	65
Widowed	130	22.5
Total	576	100

Source: HMDL 2010 data. Author's computations

4.2.4 Education Level of Respondents

The majority, 72.5 percent of the beneficiaries in the credit scheme attained primary education and 15 percent attained secondary education in the credit scheme. It was observed that no one attained tertiary level of education. 12.5 percent of people in the credit scheme had no formal education (see table 4). The higher levels of primary school attendance can be explained by promotion of free primary education by the government of Zambia as well as the drive to achieve universal primary education by 2015 as reflected by the net enrolment ratio in primary school reported at 78 percent in 2005 compared to 70 percent in 1990 (UN, 2005). Perhaps the low education can be the reason for high default rate in terms of repayment of the loan.

Table 4 Distribution of Farmers by Education Levels

Education	Number	Percent
Primary	418	72.5
Secondary	86	15
Tertiary	0	0
No education	72	12.5
Total	576	100

Source: HMDL 2010 data. Author's computations

Education helps in ensuring that farm decisions are based on input and output prices rather than on physical quantities. It is an essential element to comprehending certain technologies. According to Mangisoni (1989), education compliments extension advice in that, educated people can understand agricultural instructions quite well and be able to apply technical skills imparted to them better than uneducated ones. Individuals in the study area did not have much educational. Extension services must therefore endeavour to deliver knowledge on the credit schemes with content that can be understood by the farmers. This may involve use of local language in delivering knowledge on credit, management and marketing of produce

4.3 Regression model results

Five hundred and seventy six farmers were randomly selected from Chongwe and Kafue districts and non-performing loans were regressed against average outstanding loans, debt suspension programme and year.

4.4 Multiple Regression Analysis

Table 5 below was used to determine the relationship and direction between the dependent variable non performing loan (NPL) and the independent variable debt suspension programme (DSP) and average loan per customer (LPC). The Non-performing loan ratio (NPL) was negatively related to debt suspension program (DSP) and positively related to average loan

(LPC). The table also illustrates the descriptive statistic of the beneficiaries. The average of the NPL as of November 2008, 2009, and 2010 (NPL) was 4 percent. The mean of average loan per customer (LPC) was K210, 760.00

Table 5 Descriptive Statistics and Correlation Matrix

Variable	NPL	DSP	LPC
NPL	1.000	-0.866	0.153
DSP		1.000	-0.292
LPC			1.000
Mean	4.00	0.33	210.76
SD	1.634	0.472	166.456
Min	2	0	0.047
Max	6	1	845
N	576	576	576

*P<.05

Table 6 also show that the non-performing loan ratio (NPL) was negatively related to debt suspension program (DSP) and positively related to average loan (LPC). The coefficients were - 0.209 and 0.117 respectively.

The result showed that the model was significant (Sig.F = .000) and 85.3 percent of the variation in the dependent variable could be explained (R2 = .853).

4.4. Explanation of Factors Affecting Non-performing Loans

Table 6 Regression Results from Data

Variable	Beta	t	Sig.t
DSP	-0.209	-7.317	0.000
LPC	0.117	2.080	0.039

R² = .853, SEE = 3.924, F = 11.115 , Sig. of F = .000

Note: Coefficients of dummy variables are excluded

Table 6 shows that the t value of -7.317 of the DSP and t value of 2.080 were observed at 0.05 level of significance. Thus, the coefficient 0.117 for LPC was found to be statistically significant and therefore, had significant effect on the nonperforming loan. The coefficient of -0.209 for DSP was also found to be statistically significantly at 0.05 level of significance, hence had a significant effect on the nonperforming loan.

The goodness of fit for the model was found to be 0.853 as shown in table 6 above. The R squared of 0.853 implies that 85.3 percent of the variation in the non-performing rate is explained by the variation of debt suspension programme and average outstanding loans. Only 14.7 percent of the total variation is due to other unknown factors as well as the random error.

The overall significance of the regression is given by the F test in the ANOVA table 6 above. This table shows an observed F value of 11.115 which is higher than the tabulated F value of 0.00 at 0.05 level of significance. This implies that the variation in regression variables is significant and it makes the regression reliable for prediction

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 Conclusions

The following conclusions have been drawn from the study.

The regression model was significant. The results from the tests showed that at .05 level debt suspensions program was negatively related to the dependent variable in the tests while average loan was positively related to nonperforming loan. Harmos Micro-Enterprise Development Ltd (HMDL) might be facing problems with the attitude of general customers who tend to demand more and more of government support on their loans. If more HMDL customers perceive that the HMDL will somehow support their debts, their commitment in paying back and the willingness to pay back may be affected. Even though a support program may be aiming at a target group of customers in a certain area, customers in other areas may demand government support too. There will be no end of such demands by HMDL customers, if more of these programs would be introduced.

The significant of the relationship between average loan (LPC) and nonperforming loan ratio in the two areas showed that attention has to be given and suitable policy is necessary when the average loan is too high. The higher the average loan of branches, the higher the non-performing loan ratio of branches implies that loan amount expansion of branches has to be done with caution. Thus branches with higher ratio of average loan per customer should increase the number of borrowers or reduce the expansion of outstanding loan. Expansion goals in terms of loan amounts of branches should not be set up merely by political interest but should be well accompanied with measures to control the non-performing loan.

5.3 Recommendations

5.3.1 Debt Suspension Program

The debt suspension program is useful in helping many small borrowers but it could be sending the wrong message to the borrowers as to their responsibility in loan repayment, so the effect of the debt suspension on the program should be well understood. Thus HMDL should be aware that they cannot rely on debt suspension, because the budget spent on interest and capital payment support may not be as significant a factor as the dependency of the poor people on HMDL assistance. It has been one of the most popular policies but very dangerous if the social and economic impact is not well studied. HMDL nonperforming loans and other credit projects such as the well known village funds project of the government might be seriously affected if the people grow to believe that they can always rely on the government on debt suspension.

5.3.2 Average Outstanding Loan

Branches with higher outstanding loans may have been expanding too fast in order to reach the target set. Higher outstanding loans could be related to the performance evaluation of the managers of the branches. Expanding quickly could be a short-term objective of the administrators of the branches as it could also bring in more interest profits while trying to keep the customer management cost down. Expansion of loan amount might not be as easy if the branches has to reach out for more new customers and tried to keep the dropout rate low. Criteria should be set for branches concerning the expansion of total outstanding loans. Maximum loan or credit line given to each customer should have a ceiling so that the big customers cannot get too much credit. Branches with higher average loan per borrower or higher non-performing loan ratio should be allowed less expansion of lending in terms of loan amounts. Expansion in loan amount should be encouraged to go together with the expansion of number of customers. Customers with large investment required large loans and were more susceptible for risk during economic fluctuations. The loan management and monitoring of large investments might have been much more complex than small loans. Loan staff might have to be better trained than those handling small loans, as big businesses required understanding of technology in terms of

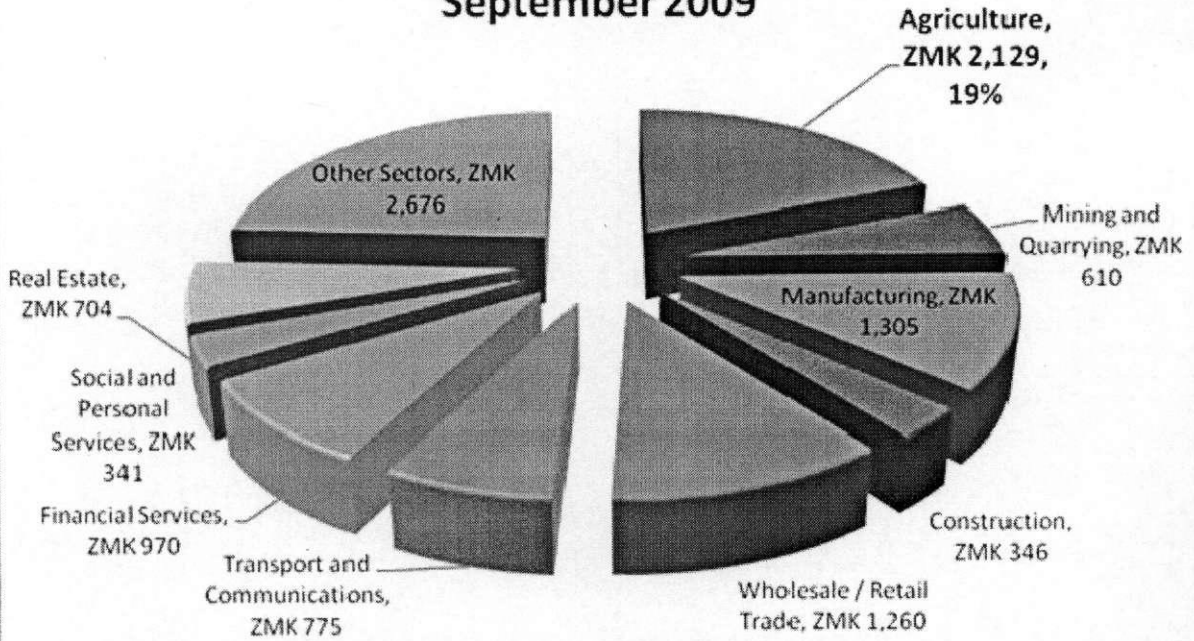
production and information systems, as well as the international market system. It was also quite likely that bigger customers were better connected to politicians and HMDL, which might have discouraged branches staff from being strict. This problem can be solved by lowering the maximum loan amount granted for each customer, or by rationing the funds for large customers rather than rationing among the small borrowers. If the loan amount is not sufficient for an investment, a joint lending with commercial banks may benefit HMDL in order to reduce the risk and increase expertise. Outstanding loan amount of branches should be maintained at a suitable level in relation to the number of customers with debt. Expansion of loan amount should be accompanied by an expansion in number of borrowers. The branches with higher ratio of average loan per customer should increase the number of borrowers or reduce the expansion of outstanding loan. Lending outreach policy of HMDL should be to maintain a good balance between the amount of outstanding loans and the number of borrowers. An appropriate ratio of outstanding loan per borrower should be set for branches. If the average loan is low the depth of outreach is better. Thus, reaching out to poorer customers (higher outreach depth) can go together with lower nonperforming loan ratio.

REFERENCES

- Aryee, I. k. (1997). *Micro-Finance as a Human Right:CEPA discussion working paper no. 29*. Ghana: Centre for Policy Analysis.
- khandker, S. R. (1995). *sustainability of a Government Target Credit Program*. Washington D.C: The World Bank.
- Rhyne, E. (1998). *The Yin and Yang of Microfinance:Reaching the Poor and Sustainability*. china.
- Schreiner, M. (2002). *Aspect of Outreach: A Framework for the Discussion of the Development*. St.Louis: Washington University in St. Louis Campus.
- Stiglitz, j. E. (2002). *Toward a New Paradigm for Development:Strategies, Policies and Processes*. Geneva: UNCTAD.
- Yaron, J. (1994). *What makes Rural Finance Institution Successful*. New York: The World Bank.
- Yaron, J., M. Benjamin, and P.L. Gerda (1997). *Rural Finance*. Washington.D.C: The World Bank.
- Ali, M. (1995). *Institutional and Socioeconomic Constraints on the Second Generation Green Revolution: A Case Study of Basmati Rice Production In Pakistan Punjab*. International Rice Research Institute, University of Chicago, USA.
- Baidu-Forson J, (1999) *Factors Influencing Adoption of Land-Enhancing Technology In The Sahel: Lessons From A Case Study In Niger*, Agricultural Economics, Volume 20.
- Mangisoni, J.H., (1989). *A Survey of The Socio-Economic Constraints to Smallholder Dairy Production In The Lilongwe Milk Shed Area in Malawi: Implications For Dairy Production Policy*. Bunda College of Agriculture, University of Malawi.

APPENDICES

**Aggregated Commercial Bank Loan Portfolio
(ZMK bn)
September 2009**



Source: ZNUF PROFIT Agricultural Finance Final Report, 2009