AN ANALYSIS OF THE DETERMINANTS OF CREDIT REQUIREMENT IN GIWA, SABON GARI AND ZARIA LOCAL GOVERNMENT AREAS OF KADUNA STATE, NIGERIA.

MAIANGWA, MOSES GEORGE

A Thesis Submitted to the Post Graduate School of Ahmadu Bello University, Zaria, in Partial Fulfillment of the Requirements for the Degree of Master of Science in Agricultural Economics.

**Department of Agricultural Economics and Rural Sociology,
Faculty of Agriculture,
Ahmadu Bello University,
Zaria, Nigeria.**

JULY, 1999.

DEDICATION

This thesis is dedicated to my late mother Mrs. Kande Maiangwa and late sister, Patricia Maiangwa.

DECLARATION

I hereby declare that this thesis was written by me and is a record of my research work. All references made to published literatures have been duly acknowledged. This thesis has not been presented before in any application for a degree.

Moses George Maiangwa

Date: 20-9-99

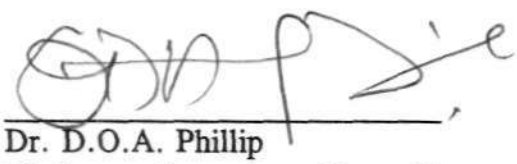
The above declaration is confirmed.

Dr. D.O.A. Phillip
Chairman, Supervisory Committee

Date: 29-9-99

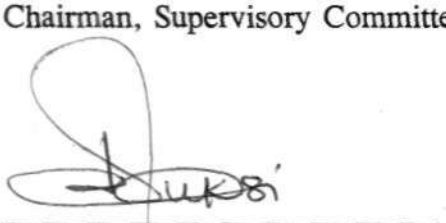
CERTIFICATION

This thesis titled: "An Analysis of the Determinants of Credit Requirement in Giwa, Sabon Gari and Zaria Local Government Areas of Kaduna State, Nigeria", by Moses George Maiangwa meets the regulations governing the award of the Degree of Master of Science of Ahmadu Bello University, Zaria and is approved for its contribution to scientific knowledge and literary presentation.



Date: 29-9-99

Dr. D.O.A. Phillip
Chairman, Supervisory Committee



Date: 30/9/99

Prof. J.O. Olukosi
Member, Supervisory Committee



Date: 30/9/99

Dr. D.O.A. Phillip
Head, Department of Agricultural
Economics and Rural Sociology



Date: 02/05/00

Prof. S.B. Ojo
Dean, Post Graduate School

ACKNOWLEDGEMENT

I wish to express my profound gratitude to my major supervisor, Dr. D.O.A. Phillip for his immense contributions toward the success of this research. I am equally appreciative of the useful suggestions made by my second supervisor, Prof. J.O. Olukosi.

The moral and financial support provided by my elder sister, Mrs. Farida Mustapha also contributed toward the successful completion of this research. Her reasoning has always been that persons of proven academic promise ought to be assisted to have access to the tools and materials they need to forge their destinies.

The material assistance in the form of publications provided by Profs. Ford Runge, Vernon Ruttan, Edward Schuh, Jean Kinsey, Ben Senauer and Michael Boehlje of the University of Minnesota; Uma Lele of the University of Florida; Luther Tweeten of Ohio State University; Drs. Helena Ribe, Ismail Serageldin, Ishrat Husain and William Steel of the World Bank and V. Sundararajan and Peter Montiel of the International Monetary Fund was immeasurable. They had reasoned to the effect that a strengthening of indigenous research capacities and a broader and an unfettered understanding of the development process requires making appropriate publications available to the developing world at no cost.

The assistance of Mr. Joel Maidawa, Mr. Peter Mayaki and the extension services units of Giwa, Sabon Gari and Zaria Local Government Areas in data collection and

analysis is also appreciated.

Above all, I am grateful to God who made it possible for me to pursue a postgraduate programme of study in Ahmadu Bello University, Zaria.

ABSTRACT

Cost-effective and sustainable financial services are critically needed by small-holder farmers and are widely acknowledged to be important instruments for improving productivity by promoting a more efficient allocation of resources among resource-surplus and resource-deficit agents in the economy and also making it cheaper and less risky to trade goods and services as well as to borrow and lend.

The lack of credit has been identified as a limiting factor to agricultural development in Nigeria. The arguement has been that the limited availability of affordable capital delays, if not prevents, the adoption of new production technologies and the use of non-labour inputs such as fertiliser which, in turn, slows down output growth and the development of the agricultural sector.

The specific objectives of this study were to identify the sources of credit available to farmers in Giwa, Sabon Gari and Zaria Local Government Areas of Kaduna State, highlight the problems limiting access to credit, and determine the relationship between the sampled farmers' socio-economic characteristics and their credit requirement.

Data for this study were obtained from both primary and secondary sources. The primary data were gathered from field survey through sets of questionnaires administered to 120 farmers by trained enumerators, while the secondary data were generated from

documents of the Kaduna State Ministry of Agriculture and Natural Resources and those of Giwa, Sabon Gari and Zaria Local Government Areas.

The analytical tools used were simple descriptive statistics and multiple regression analysis.

The study revealed that credit was obtained by the sampled farmers from the formal, non-formal and, in some cases, both formal and non-formal sources.

The main problems identified as limiting access to formal credit were the non-interest costs of acquiring credit, the asset-based nature of lending, illiteracy and unfamiliarity of respondents with lending procedures; while access to non-formal credit was found to be constrained by informal lenders' limited capital base and short-term liability structure, limited savings capacity, fear of exploitation through high loan premiums and the fear of remaining outside the economic mainstream on account of the isolation and segmentation of informal credit markets.

The socio-economic variables: income, farm size, household size, farming experience and age were found to be significantly related to credit requirement in the study area.

Among the recommendations made were the following: the need to explore, identify and introduce mutually beneficial links between informal savings and credit systems and the formal sector with a view to expanding the supply of credit while

preserving the flexibility and information advantages of informal credit arrangements; making more credit available to farmers to procure inputs and expand marketed output; adopting the solidarity principle of joint liability of group members to protect against individual and social risks and as an alternative to the more traditional types of collateral such as land title; reducing transaction costs and lending risks by adopting and adapting informal credit practices; provision of enterpreneurial and managerial guidance and training in respect of farm record-keeping and loan use; encouraging and promoting savings mobilisation and the formation of cooperative credit and savings associations; and the provision and improvement of agricultural support services to farmers.

TABLE OF CONTENTS

CHAPTER

	Title Page	i
	Dedication	ii
	Declaration	iii
	Certification	iv
	Acknowledgement	v
	Abstract	vii
	Table of Contents	x
	List of Tables	xiii
1	**INTRODUCTION**	1
1.1	Problem Statement	3
1.2	Objectives of the Study	5
1.3	Research Hypothesis	6
1.4	Justification for the Study	6
2	**LITERATURE REVIEW**	8
2.1	Meaning of Credit	9
2.2	Role of Credit in Agricultural Growth and Development.....	10
2.2.1	Pre-conditions for Effective Credit Utilization	11
2.2.2	Fungibility of Credit	13

2.3 Programmes and Policies for Extending Credit to Farmers in Nigeria 15

2.4 Rural Financial Markets and Financial Intermediation.....

2.4.1 Sources of Credit to the Farm Sector 22

2.4.2 Concept of Creditworthiness and Forms of Loan..... 25

Security 28

2.5 Factors Affecting Agricultural Requirement and Use..... 33

3 **METHODOLOGY** 60

3.1 The Study Area 60

3.2 Data Collection 61

3.3 Sampling Procedure 61

3.4 Analytical Framework 62

3.4.1 Descriptive Statistics 62

3.4.2 Multiple Regression Analysis 62

3.4.2.1 Model Specification 64

3.4.2.2 Rationalisation of Variables..... 65

3.5 Limitations of the study..... 68

4 **RESULTS AND DISCUSSIONS** 71

4.1 Credit Sources 71

4.2 Problems Limiting Access to Credit 76

4.2.1 Problems Limiting Access to Formal Credit 76

4.2.2 Problems Limiting Access to Non-Formal Credit .. 80

4.3 Determinants of Credit Requirement 84

5 **SUMMARY, CONCLUSION AND RECOMMENDATIONS** 87

5.1 Summary 87

5.2 Conclusion 88

5.3 Recommendations 90

5.4 Suggestions for Further Research 96

REFERENCES 99

LIST OF TABLES

Table 3.1	Credit Sources Available to Farmers	71
Table 3.2	Specific Non-formal Sources of Credit	72
Table 3.3	Specific Formal Sources of Credit	72
Table 3.4	Problems Limiting Access to Formal Credit	77
Table 3.5	Problems Limiting Access to Non-Formal Credit ..	81
Table 3.6	Stepwise Multiple Regression Results from Double-Log Functional Form for the Relationship Between Farmers' Socio-economic Characteristics and Their Credit Requirement.....	86

CHAPTER ONE

INTRODUCTION

Nigeria is largely an agricultural country. It is estimated that more than 80 percent of Nigeria's food supply is produced by small-holder farmers with farm sizes ranging from 0.1 to 2.0 hectares (Olayide and Famoriyo, 1980). A number of factors have, however, been reported to constrain the development of these small farms (Oyatoye, 1983):

(i). lack of effective credit facilities;

(ii). low level of technology and limited application of yield-increasing inputs such as fertilisers and seeds;

(iii). inadequate storage and transportation facilities resulting in poor distribution and utilisation of perishable items;

(iv). poor marketing structure, under which farmers receive poor prices for their produce; and

(v). conservative land tenure system that discourages rapid adoption of available agricultural innovations.

One effective way to tackle these problems has been reported to be the improvement of the financial base of the agricultural sector (Agbo and Phillip, 1991). Access to finance for resource-poor farmers makes it possible for them to:

(i). finance technological and capital improvements and thereby raise productivity;

(ii). acquire working capital to obtain inputs in a timely way;

(iii). take advantage of market opportunities; and

(iv). smooth consumption over time.

Thus, for small-holder farmers, all the 4 features listed above are particularly important. The nature of smallholder crop production means that cash income is generally earned in a 'lumpy way' - when produce is sold after harvest. The opportunity to save surplus income at that time as well as to borrow at the beginning of the planting season to obtain needed production inputs are important short-term financial needs of farmers. In addition, longer-term credit may be needed for fixed capital improvements such as fencing, terracing, tree-planting or small-scale irrigation.

In a survey of farmers in Nigeria, Saito (1994) reported that cash flow problems were cited as a major problem, resulting in inadequate or untimely purchase of inputs, particularly fertilizer, improved seeds, and hired labour. Cash shortage in particular, she argued, was the main reason cited for not using fertiliser by 45 and 48% of female and male respondents respectively and that credit problems in general were cited by 74% of all farmers surveyed in Nigeria.

Over the last 3 decades, governments in many developing countries have intervened heavily in rural financial markets. Their intervention is generally known to have been motivated by the belief that a shortage of affordable credit constrained

agricultural growth and development and prevented the integration of small farmers into the market economy. Among the frequent forms of intervention have been the administrative allocation of funds, interest rate ceilings and the establishment of specialised rural finance institutions. Many donors have actively supported these interventions. For example, about one fourth of all World Bank lending to agriculture during the 1980s, or $9.7 billion, went to agricultural credit (Huppi and Braverman, 1991).

1.1 Problem Statement

The modernisation of agriculture through the use of new and improved production technologies requires considerable amount of capital investment. Small farmers, especially in developing countries are unable to generate enough of this capital from their own savings and have had to raise additional capital through the formal or informal sources of agricultural credit.

In Nigeria in particular, many attempts made to provide credit to small-scale farmers in the last two decades are reported to have had limited effect, even though the need for credit has tended to increase with every passing year due to population increase, the competition by the expanding agricultural and non-agricultural sectors for scarce investible funds, coupled with the inability of existing credit institutions to suit the particular needs of the farmers in their socio-economic set-up (Ijere, 1986).

Resource-poor farmers are generally acknowledged to have limited access to financial services as a result of which donors and governments have had to invest substantially in developing financial services for them. Most of these efforts have been reported to be large-scale, formal, regulated programmes emphasising more rural credit to poor farmers, usually at below-market interest rates.

These efforts have reportedly been justified on several grounds, including the perceived inability of resource-poor farmers to pay market interest rates; formal lenders' unwillingness to lend to farmers because they are high risk; the belief that lenders could be forced to lend to farmers; and the perceived exploitative behaviour of informal lenders (Adams and Graham, 1984). But these perceptions have turned out to be unsubstantiated or only partially correct. According to Holt and Ribe (1991), experience with more than 20 years of donor-supported, regulated, subsidised formal credit programmes strongly suggests that this intervention has rarely achieved its stated objectives. Despite many efforts to channel credit to farmers, it is further argued, only 5% of farms in Africa and 15% of farms in Asia and Latin America have had access to formal credit and that this inability to reach farmers has persisted despite forced government expansion of commercial and agricultural banks in rural areas (Braverman and Guasch, 1984). Even where subsidised credit has reached farmers, programme viability and sustainability are said to have remained questionable because of the reliance on public subsidies to underpin subsidised interest rates coupled with the credit institutions' poor repayment record resulting from inefficient and ineffective screening of clients (Saito, 1994).

Artificially low interest rates and credit regulations have also been found to discourage savings, distort resource allocation, lead to political patronage or corruption in financial services and to weaken financial sectors and institutions. Other particularly serious concerns have been the prevailing misperceptions about resource-poor farmers' credit and savings behaviour, coupled with the fact that, for the most part, traditional subsidised credit programmes have overlooked the most significant obstacles to credit, namely: high transaction costs and collateral requirements.

In view of these apparent shortcomings, as well as the recognition that resource-poor farmers need credit, this research addresses the following questions:

(i). what sources of credit are available to farmers in the study area?

(ii). what problems limit farmers' access to credit from these sources?

(iii). what relationship exists between farmers' socio-economic characteristics and their credit requirement?

1.2 The Objectives of the Study

The main objective of the study is to determine the variables affecting credit requirement at the farm level. The specific objectives are to:

(i). identify the sources of credit available to farmers in the study area;

(ii). highlight the problems limiting farmers' access to credit;

(iii). determine the relationship between farmers' socio- economic characteristics and their credit requirement.

1.3 Research Hypothesis

The following hypothesis was tested:

Null (Ho): There is no relationship between farmers' socio-economic characteristics and their credit requirement;

Alternative (H_1): There exist a relationship between farmers' socio-economic characteristics and their credit requirement.

1.4 Justification for the Study

The importance of this study is primarily underscored by the paucity of empirical work on the sources and determinants of credit requirement at the farm level in the study area. The study therefore seeks to bridge the gap in knowledge in this regard by providing the information base necessary for objective decision-making on the part of all participants in the farm credit market of the study area.

The performance of most credit programmes has also been widely reported to have fallen short of expectations. Although various factors account for the limited success of these programmes, the failure of these programmes has been attributed to defects within the institutions designated to carry them out, as well as to the assumptions underlying past policies. This study is, therefore, part of a growing body of literature intended to provide alternative ways and forms of managing and channelling credit to rural markets that could eradicate or at least significantly reduce the problems previously encountered.

Given that credit schemes in Nigeria and other parts of the developing world are purely supply-driven, this study also seeks not only to re-focus attention on a much neglected aspect of credit policy, namely: savings mobilisation, but also make some prescriptions as to how these schemes can be transformed into self-sustainable systems. Besides, while market failures in rural financial markets may necessitate government or donor involvement, the realisation that any form of intervention can only effectively counter these deficiencies if adequate institutional structures exist makes it necessary that this study be undertaken so that useful insights can be provided as to how existing rural financial institutions can be strengthened and restructured and obstacles to the efficient functioning of rural credit markets removed.

Other issues of importance to the achievement of increased agricultural productivity will also be highlighted in this study. These include organisational issues of improving agricultural support services to farmers and their access to inputs; policy issues of providing an enabling environment for farmers, particularly an appropriate incentive framework; and technological issues of increasing productivity within the confines of the agroecological environment of the study area.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Meaning of Credit

In agricultural finance, the terms 'credit', 'loan' and borrow have reportedly often been used interchangeably and are assumed to refer to the process of obtaining control over the use of money, goods or services in the present in exchange for a promise to repay at some future date (Miller, 1977). On this score, the lender is assumed to forego the use of the money or its equivalent currently by making a loan or extending credit to the borrower who promises to repay on the terms specified in the loan agreement or debt instrument (Miller, 1977). The obvious implication of this is that the borrower obtains money to use for current production or consumption purposes before saving to repay at some future date.

Finness (1975) defines credit as the means by which enterpreneurs are enabled to acquire commodities against a promise to repay later. Credit, he further argued, is predicated upon confidence in the sense that the request for a loan is usually met on the basis of a promise of repayment by the borrower at a stated time and under given conditions of repayment. Under these circumstances, it is argued, the lender is assumed to have surplus purchasing power and the borrower a deficit, with the borrower acquiring and using the surplus belonging to the lender.

Firth (1964) contended that credit as a capital resource is worth considering from

three functional bases, namely: as a productive asset, as a means of investment and as a facilitator of control over purchasing power.

Freshwater (1990) distinguishes between grants and credit to the effect that grants involve no repayment as a result of which they place minimal burdens on recipients. Grants, he further stated, are often provided to individuals, low-income communities and rural businesses so as to reduce the need to borrow funds in capital markets as well as to offset perceived financial and other market inadequacies.

Miller (1977) reports that a major distinction between traditional and developed agriculture is the kind and amount of capital used by farmers in the production process. The explanation offered in this regard is that as agriculture becomes modernised, the farmer combines his labour with more capital in the form of simple machines, improved seeds, fertilizer, herbicides and pesticides (Ogunfowora, et al., 1972). The result, according to Miller (1977), is a remarkable increase in the amount the farmer is able to produce, both per unit of labour input and per unit of land and that this increase in the ability of each worker to produce more goods and services by combining more capital with his labour is fundamental to economic and agricultural development.

2.2 The Role of Credit in Agricultural Growth and Development

Many scholars have expressed their views on the importance of credit in agricultural development. Brenner (1971) calls it the life-blood of modern society which

plays an important role in the development of agricultural production, the demand for which grows as development progresses. Okorie and Iheanacho (1992) have referred to credit as the pivot on which agricultural development rest and as a resource which can be used to stimulate agricultural development in the desired direction.

Ogunfowora et al. (1972) have enumerated the role of credit in agricultural development as follows:

(i) many innovations in farming inevitably increase capital requirements of farmers such that the low rate of adoption of improved practices is partially due to lack of adequate financial resources for implementing these practices;

(ii) the bulk of farmers produce at the subsistence level as a result of which there are usually no surpluses out of which savings for future investment can be made;

(iii) the seasonal nature of farm production and income generation creates the need for short - and medium - term loans to finance production activities;

(iv) the supply of loans may strengthen the farmer's position in the disposal of his farm produce instead of having the timing determined by the urgency of his need for cash;

(v) credit is needed to expand the scale of farm operation and for introducing supplementary enterprises which could increase labour utilization and promote steady flow of income.

Poor credit availability has generally therefore been hypothesised as both a cause

and a consequence of low agricultural productivity, resulting in low input, low-productivity farm sector (Jayne, et al., 1989). Thus, a technologically stagnant agriculture unable to generate a surplus clearly affects the level of profits and the supply of capital in rural areas (Gonzalez-Vega, 1986; Mellor, 1985). Farmers without access to productivity - increasing technologies and with limited access to markets have been found to be much less likely to fully enter into the cash economy and will thus be unable to participate in the development of rural capital markets (Jayne et. al., 1989). It is important, however, to determine whether the tendency of farmers to attribute failure to adopt new technology to a lack of affordable credit is a common response which reflects a true credit constraint or simply the lack of economically viable technology. So also is it important that credit policy recognises the potential for farmers to finance their own technological change (Mellor, 1985).

2.2.1 Pre-conditions for Effective Credit Utilization (Credit Coordination)

Highlighting the role of credit in agricultural development, Miller (1977) asserted that since lack of credit and scarcity of savings have been identified as major constraints limiting agricultural development, there is the need for increasing the amount of productive capital in agriculture through the use of credit. He, however, cautioned that unless the necessary preconditions such as adequate supply of farm inputs, extension, marketing, processing, and other facilities are provided the impact of credit will be marginal.

467725

The coordination of agricultural credit with other services is therefore particularly useful. According to Schaefer-Kehnert and Von Pischke (1982), the importance of coordination is two-fold: from the technical point of view, the advantage of coordination lies in the fact that the goods and services necessary for productive use of credit are available in sufficient quantity at the right time and that no bottlenecks develop in marketing the increased production, while from the financial point of view, the credit institution's risks are reduced by this coordination which also helps to ensure loans will be used for the purposes for which they are advanced.

Miller (1977) has maintained that the following conditions must be met:

(i) technologies superior to traditional methods must be developed;

(ii) farmers must have confidence that these technologies would be available to them in their villages at the right time and in the amounts required;

(iii) farmers must understand, be ready and anxious to use these technologies;

(iv) the necessary credit to purchase inputs must be made available at the required time;

(v) the marketing of the extra agricultural production at encouraging prices must be possible.

Others have, however, questioned attempts to include loans as part of a package of inputs. They argue that packaging loans and use of other similar non-market rationing devices tends to diminish the most attractive and useful property of finance, namely:

fungibility (Adams and Graham, 1984). Many planners, it is further argued, try to destroy this essential property of finance by allocating loans in fixed quotas, making loans in kind, or trying to specify the ultimate use of the loan (Adams and Graham, 1984).

2.2.2 The Fungible Nature of Credit

The role of credit in financing production as well as consumption for small farmers has reportedly been an issue over which there exist considerable debate. Miller (1977) reports that most formal credit programmes have specifically stated that credit be extended only for productive purposes and that this is an understandable position for the lender because of the problems involved in administering a programme which includes loans for both production and for what, according to him, 'might be labelled essential consumption'.

Stickley (1976) points out that limiting loans to productive purposes sometimes leads to situations which are difficult to defend. The 'productive loan purpose', he contends, could become so narrowly defined that it excludes some of the loan purposes that are most important to small farmers. Whereas feed, shelter and veterinary services for work animals, he contends, have been considered as legitimate productive loan purposes, food, clothing, shelter, and healthcare for the farm labourer and his family are not considered as productive loan purposes. For the small-scale farmer who typically operates a labour-intensive system of farming, he further contends, labour maintenance

represents one of his major farm expenses.

Schaefer-Kehnert and Von Pischke (1982) have questioned the validity of the argument to the effect that financing consumption on small farms is necessarily unproductive, since, according to them, farm and household constitute an integrated whole and that the subsistence of the family is essential to maintaining production and vice versa.

It has been reported that it is the fungibility of credit that allows it to be converted into any good or service and makes it difficult to pinpoint exactly 'which credit is spent where' (Adams and Graham, 1984; Holt and Ribe, 1991). A particularly important issue worth examining here is the diversion of loans to uses other than those for which they were procured. Credit project evaluations in some countries have reportedly found that the use of funds for purposes other than the ones stated at the time of borrowing was a major factor that severely limited the programmes' effects on productivity increases (Braverman and Huppi, 1991).

Lele (1981) reports that a review of evidences that have appeared in literature indicates that although diversion of credit is widespread, it is by no means greater in the case of small farmers and that only the purposes for which it is diverted are different, with larger farmers using borrowed funds for industrial investments, real-estate enterprises and conspicuous consumption. It has also been argued that so long as

borrowers use loans to meet some immediate debt payment or consumption needs and still manage to organise the resources needed to invest in a productive activity that enables them to make timely repayments, the actual use of the loan may not be important (Holt and Ribe, 1991).

2.3 Programmes and Policies for Extending Credit to Farmers in Nigeria.

The main role of government in the development of the agricultural sector has been reported to be the provision of a national policy framework through which it attempts to minimise the constraints facing the sector and to outline projects and programmes to be implemented for the achievement of stated policy objectives (Balogun, 1986). These agricultural policy objectives aim at:

(i) rapid increase in agricultural output to meet domestic food requirements and the demand for raw materials by local industries; and

(ii) expanding the production of export crops with a view to increasing and further diversifying the country's foreign exchange earnings (Balogun, 1986).

Government intervention in the agricultural sector has therefore not only been in the enactment of credit guidelines which favoured agriculture as one of the preferred sectors, but also in the adoption of institutional strategies. These strategies as enunciated by Ijere (1988) are as briefly discussed below:

(a) The Nigerian Agricultural and Cooperative Bank (NACB)

The Nigerian Agricultural and Cooperative Bank was established in 1973 as a Federal Agricultural Bank. The declared objective of NACB was the rapid transformation, expansion and modernisation of Nigeria's agriculture in all its various facets. In the course of implementation of the Third National Development Plan (1975 to 1980), the Federal Government assumed responsibility for the coordination of cooperative activities in the country which until then had been exclusively within state government jurisdiction (Ijere, 1986). The panel on Cooperative Principles, Laws and Regulations in Nigeria drew attention to the important role cooperatives could play in the development of agriculture. The Committee on the Nigerian Financial System therefore recommended that the Nigerian Agricultural Bank (NAB) be re-named the Nigerian Agricultural and Cooperative Bank (NACB) and was directed to be responsible for financing viable cooperative projects of various kinds, in addition to its traditional function of financing agriculture (Ijere, 1986).

The objects clause of the Memorandum of Association of the NACB specifically enumerates the following (Ijere, 1986):

(i) to grant loans for agricultural production and for the purpose of storage, distribution and marketing connected with such production in any state, group of states, or any state institution for on-lending to any state, group of farmers or body corporate, subject to the state or group of state institutions guaranteeing

KASHIM IBRAHIM LIBRARY

repayment of the loan;

(ii) to grant loans to individual farmers, cooperative societies or other bodies in appropriate cases provided that the Bank is satisfied that the schemes for which the loans are requested are viable and that there is adequate security to cover such loans;

(iii) to charge interest on loans to meet the full costs of management including debt servicing and allowing adequate sums to be set aside for general and bad debt reserves before paying any dividends.

(b) The Nigerian Agricultural Credit Guarantee Scheme Fund (ACGSF):

This Fund was established in 1977 to provide seventy-five percent collateral for loans granted by trading banks to agriculture (Balogun, 1986). In particular, the Fund was established as an incentive to banks to finance agriculture by assuring them of repayment in the event of a default on the part of the farmer. Thus, in relation to an agricultural advance guaranteed by the Fund, the Fund is the surety, the bank the creditor and the farmer the principal debtor (Ijere, 1986).

(c) Financing Agriculture Through Trading Banks

Government monetary policy circulars have been reported to have consistently given preferential treatment to agriculture since 1969 (Balogun, 1986). This was undeniably in line with the CBN's classification of agriculture as a priority sector to which preferential treatment in respect of funding had to be extended. These selective

credit policies were aimed at granting credit to designated sectors such as agriculture under more favourable conditions (for example, amount and interest rate) than would have been possible in the absence of such policies (Leite and Sundararajan, 1990). The underlying premise here was that by differentiating interest rates, for example, according to the purpose for which credit is issued, certain investments and lines of production would be better promoted (Schaefer-Kehnert and Von Pischke, 1987).

The 1972 to 1986 period is reported to have been characterised by the most conspicuous Central Bank control of commercial banks' activities through guidelines issued at the beginning of each financial year with respect to the banks' sectoral credit allocations (Okorie, 1988). The central thrust of the guidelines was the need to ensure that credit allocations to the various sectors of the economy were based on CBN specifications. According to Balogun (1986), between 1969 and 1982, the commercial banks were obliged to grant a minimum of eight percent of their total credit to agriculture at six percent rate of interest and that between 1971 and 1977, agricultural loans by commercial banks was an average of three percent to total commercial bank lending to the economy which then grew to approximately seven percent between 1978 and 1984. The mandatory sectoral allocations of loans and advances to agriculture was reviewed upward to twelve percent in 1985, fifteen percent in 1990 and eighteen percent in 1991 (Balogun, 1986).

(d) The Rural Banking Programme

A cohesive strategy adopted by the government to compel the trading banks to grant credit to agriculture was the mandatory rural banking programme of 1977 (Balogun, 1986). The notion of rural banking in Nigeria, according to Agbo and Phillip (1991), is traceable to the strategy proposal for rural transformation by the Okigbo Financial System Review Committee of 1976 and the various CBN appeals to banks to establish rural branches. The Okigbo committee had reportedly made a proposal to the effect that: "the banks should actively facilitate the transformation of the rural environment by promoting the rapid expansion of banking facilities and service as well as banking habits in the rural and near rural communities... they will serve as vehicles for the creation of credit in the rural areas.. this credit will take the form of equity and loans for small-scale farmers and enterprises" (Okigbo, 1984; cited in Agbo and Phillip, 1991). In making this proposal, the Okigbo Committee reportedly drew attention to section 39(ii) of the Central Bank Act of 1958 which had required the Central Bank to "promote and maintain adequate and reasonable banking services for the public" (Agbo and Phillip, 1991).

At the inception of the rural banking programme, the monetary authorities were reportedly quite clear about its objectives, namely (Agbo and Phillip, 1991):

(i) to mobilise the idle resources in the rural areas which in terms of money was more than fifty percent of the total money in circulation:

(ii) to monetise the rural economy and in the process provide necessary support for the sparse industrial base and by induction, minimise, if not entirely obviate the increasing tendency for rural-urban migration.

In implementing the objectives of the Rural Banking Programme, the Central Bank reportedly took the view that the answer to inadequacy of banking services, particularly in the rural areas, was to tie-in the opening of urban branches by the existing banks to the establishment of rural branches (Agbo and Phillip, 1991). By this procedure, it was reasoned, the metropolitan banks would multiply their branch network and serve the credit needs of the rural communities.

To get the banks to expand to the rural areas, the banks were required by section 4 of the Banking Decree of 1969 to obtain prior approval of the Central Bank before they could open new branches and this provision was reportedly applied by the denial to banks of approval for their request to open more branches in urban centres unless it was certified that such requests were matched by proposals to open branches in rural locations (Agbo and Phillip, 1991).

To facilitate effective execution and control, it was decided to phase the programme. In the first phase (July 1977 to June 1980), a total of one hundred and ninety two bank branches were known to have been opened as at December 18, 1980 and in the second phase (July 1980 to December 1983), three hundred and twelve bank

branches were opened (Agbo and Phillip, 1991).

(e) The Nigerian Agricultural Insurance Company (NAIC)

The Nigerian Agricultural Insurance Company (NAIC) was established by the Federal Government in 1987 with the following specific objectives (Nmadu, 1998):

(i). offer protection to the farmer from the effect of natural disasters and ensure prompt payment of appropriate compensation, sufficient to keep the farmer in business after suffering a loss;

(ii). increase the flow of agricultural credit from lending institutions to farmers since agricultural insurance contracts would be expected to serve as collateral;

(iii). minimise federal and state governments burden of having to provide relief in the event of emergencies;

(iv). promote agricultural production since there would be more confidence in the adoption of new and improved farming practices.

The establishment of NAIC is reported to be for the express purpose of providing security for all categories of farmers (small, medium and large-scale), either in groups or as individual farmers and the insurance cover is deemed to be mandatory for farmers who are beneficiaries of agricultural credit schemes operated by approved lending institutions or agencies for the agricultural items covered under the scheme with effect from January 1st, 1989 (Nmadu, 1998). And just like the ACGSF, the issue of security cover was not waived by NAIC (Nmadu, 1998).

The importance of NAIC is underscored by Ogunbiyi's (1991) assertion to the effect that a contractual right to assistance in the event of crop or livestock failure does enable the farmer not only to rehabilitate his holdings and thereby continue production, but also improves his creditworthiness for the extension of credit, in addition to providing lending institutions with the opportunity for making larger and better loans, since their borrowers are expected to have more stable incomes and to be better placed to offer more tangible security for such loans.

(f) Export Finance

In relation to export financing, the Central Bank of Nigeria was mandated to loan finance the marketing operations of the commodity boards, since 1968 (Ijere, 1988). These loans which attracted one percent interest rate were guaranteed by the Federal Government (Balogun, 1986).

2.4 Rural Financial Markets and Financial Intermediation

Financial markets, according to Sullivan (1990), "are composed of institutional and non-institutional suppliers of credit and other financial services and the households, businesses and governments that demand these services".

Tinnermeier (1976) defines rural financial markets as "all the rural institutions which affect the accumulation of savings and their use, the allocation of investment capital (public and private), the flow and the holding of funds in the rural sector and the

integration of rural financial markets with national and international capital markets".

Shaffer and Pulver (1990) have pointed out that one of the functions of financial markets is to discriminate between good and poor capital requests and that if a business has difficulty obtaining finance because it is risky or has a poor investment plan, the capital market should not be faulted; but that if businesses have difficulty obtaining funds for reasons that reflect excessive costs of acquiring and processing information or capital provider limitations (for example, small size or restrictive loan policies), then the financial system can justifiably be considered inadequate. Financial markets are, therefore, adjudged as performing adequately when all users have the same access to financial capital, after adjusting for the riskiness of specific firms (James and Davidson, 1982).

Bhatt (1986) reports that the function of a sound financial structure is to move financial resources efficiently from surplus to deficit non-financial units, and from activities yielding low social returns to those yielding high social returns. This movement of funds, according to him, requires appropriate institutions and institutional philosophy; financial instruments that are consistent with savers' and borrowers' preferences and needs, and a rational structure of positive real interest rates.

It has been argued by Hettige (1992) to the effect that savings and investments in an economy may not necessarily be undertaken by the same economic units due to

differences in their initial endowments, skills and expectations. While savings, according to him, may depend on the willingness of households and enterprises to set aside part of their earnings, efficient investments may depend on enterpreneurship, knowledge of opportunities and willingness to take risks. A mechanism, he further pointed out, is therefore needed to link savings and investment decisions in the form of either direct transfer of funds between surplus and deficit units through bond or capital markets, or direct transfer through financial claims (deposits) or assets (loans) of financial intermediaries. It is this means or mechanism of channelling funds from savers (surplus - spending units) to borrowers (deficit-spending units) that constitutes financial intermediation. The economic entities with the responsibility of mobilising funds from the surplus - spending units in the economy and on-lending such funds to the deficit-spending units for investment and, by implication, with the responsibility of increasing the quantum of national savings and investments are termed financial intermediaries (Barau, 1987; Ebhodaghe, 1992).

Financial intermediation is known to serve many useful purposes (Barry, Hopkin and Baker, 1973):

(i). it makes possible the pooling of funds from individual savers into quantities that are adequate in meeting the needs of borrowers.

(ii). it provides liquidity to suppliers of funds by allowing savers to withdraw their savings from the market without having to recall funds loaned out;

(iii). the process pools the risk of individual loan contracts and transfers much of the

risk from the saver to the financial intermediary.

2.4.1 Sources of Credit to the Farm Sector

On the basis of source of credit, Miller (1977) classifies lenders as either formal or informal, or as institutional and non-institutional. He identifies the formal credit sources as including government credit institutions, cooperatives and commercial banks which, according to him, are formal in the sense that their operating procedures and loan terms tend to be standardised and subject to Central Bank control. Informal lenders, on the other hand, are listed as including professional money lenders and pawn brokers, trades people, money collectors and keepers and associations of acquaintances, that is, friends and relatives, including credit associations (Miller, 1977; Holt and Ribe, 1991). Credit transactions among these lenders, it has been reported, are on a personal basis, with the rate of interest charged, security required and lending procedures varying widely (Miller, 1977).

Credit from institutional sources tend to be generally available only to large farmers with established credit experience. The cheap interest rate charges on institutional credit (held low as a stimulus to investment) and the greater ability of formal credit sources to provide term finance and larger credit and to mobilise savings have been some of the common attractions for institutional credit (Steel and Takagi, 1983; Holt and Ribe, 1991).

Institutional providers of credit have been discouraged from engaging in rural lending on the grounds that lending in rural areas often implies servicing a geographically dispersed clientele with the associated substantial unit costs in processing and administering small loans coupled with the frequent absence of collateral, difficulties in enforcing contractual obligations and the often unjustified belief that small agents are bigger risks than large farmers (Huppi and Braverman, 1991). The transactions cost of receiving credit disbursed to individual farmers in small amounts and through frequent transactions has been reported to often amount to as much as sixty to one hundred percent of the credit advanced (Gonzalez-Vega, 1986). Besides, the administratively imposed ceilings on interest rates have often prevented commercial lenders from passing on fully these costs to borrowers (Huppi and Braverman, 1991).

The absence of strong formal credit markets is known to have given rise to informal financial markets in rural areas of many developing countries (Huppi and Braverman, 1991). Although reliable data are lacking, it has been argued that a large proportion of the rural credit in developing countries is provided by non-institutional sources even where governments have established agricultural credit institutions (Miller, 1977; Schaefer-Kehnert and Von Pischke, 1982). The observed preference of rural borrowers for credit from non-institutional sources is informed by certain characteristics of informal lending arrangements which give them advantage over formal lending, namely:

(i). immediacy of disbursement;

(ii). low transactions cost for borrowers because of lenders' proximity;

(iii). knowledge of clients better than by formal banks which reduces the farmer's information costs;

(iv). interest rates are not regulated which permits adjustment to market forces;

(v). are often much better placed than banks to identify new opportunities for financial transactions;

(vi). are not subject to reserve requirements;

(vii). are cash-flow lenders rather than asset - based lenders whose funds are hard to embezzle because of the existence of local social control mechanisms that prevent fraud and default;

(viii). existence of flexible repayment schedules because the lender is familiar with the borrower's situation (Bhatt, 1986; Lycette and White, 1989; Bailey, 1990; Dessing, 1990).

Holt and Ribe (1991) have argued to the effect that the attribute of informality associated with non-institutional credit sources does not mean that these systems lack structure or financial viability. The by-laws of credit associations, according to them, tend to be strict and commonly include fines for members who fail to fully cooperate or participate and that informal arrangements have often met key tests of financial performance by economising on transactions cost, lengthening term structures, and managing risks effectively.

Despite their popularity and potential, most forms of informal finance are known to have limitations which cannot be overlooked or ignored. Financially they tend to be isolated from larger markets which curtails lenders' access to funds and reduces competition (Holt and Ribe, 1991). Informal finance is also hardly adequate for large investment plans and cannot easily provide medium and long-term loans for such plans (Schaefer-Kehnert and Von Pischke, 1982). It has also been argued that as long as small-scale resource-poor farmers depend on informal markets, they will remain outside the economic mainstream (Holt and Ribe, 1991). Interest rates in informal credit markets have also been found to be substantially above the rates prevalent in the organised financial system (Leite and Sundararajan, 1990). The obvious reason for this is that informal credit markets do handle high-risk loans and consequently require a higher premium to cover their expected losses by default, coupled with the limited diversification of loan portfolio and monopoly rents (Wai, 1956; Bottomley, 1963; Bhaduri, 1977; Huppi and Braverman, 1991). Another weakness of informal financial markets is that they serve a weak indigenous sector operating on the margin of survival with limited prospects for growth (Siebel, 1989).

2.4.2 The Concept of Creditworthiness and Forms of Loan Security

The concept of credit worthiness, according to Schaefer-Kehnert and Von Pischke (1982) is fundamental to efficient credit allocation. Credit-worthiness, they further contended, is generally regarded as a function of ability and willingness to repay, with ability to repay ordinarily measured against two criteria:

(i) the value of the security offered; and

(ii) the increased income available for loan repayment.

Miller (1977) has argued to the effect that the intermediation process is not simply a one-way flow of funds from savers to users through intermediaries. The borrowers, according to him, must provide some evidence of a debt obligation to the intermediary in return for the loan, in which case there is a reverse flow of securities such as promissory notes or mortgages from borrowers to the intermediaries that provide the loans.

An often cited distinction between formal and informal lenders is the fact that the former are asset - based, rather than cash-flow lenders as are the latter. The implication of this distinction is that loans from risk-averse institutional lenders is predicated on the fulfilment of collateral requirements, in contrast to unsecured loans from non-institutional sources which, according to Miller (1977), is often based merely on the good reputation and financial position of the borrower.

Boehlje (1990) has enumerated three key determinants of whether collateral lending will result in low levels of risk, namely:

(i). is the collateral relatively liquid and easily marketable?

(ii). does the lender have a first security position in the collateral?;

(iii). is the cash flow generated by the collateralised asset or enterprise relatively

certain? If the answer to these three questions, according to him, is in the affirmative, then a collateral loan will typically be a very low risk loan.

Loans, according to Miller (1977), may be secured by different means, such as by mortgages on land or permanent buildings, liens on livestock or machinery, the pledging of tree or food crops and by the personal guarantee of other individuals or groups.

The lack of tangible security is often regarded as an obstacle to agricultural credit programmes for small farmers (Schaefer-Kehnert and Von Pischke, 1982). This obstacle, it is argued, usually arises from the absence of registered land titles or tenancy contracts and that even where owners' or lenders' claims are registered, laws or procedures that make registration or foreclosure difficult can impede the flow of credit (Schaefer-Kehnert and Von Pischke, 1982). Even when no legal restrictions exist, it is further argued, banks are often cautious about extending mortgage loans to small farmers because of the risk that the auction of defaulters' farms may be boycotted (Schaefer-Kehnert and Von Pischke, 1982).

Subsistence farmers, it is argued, represent a particularly high credit risk in areas lacking institutional insurance arrangements (Jayne et al., 1989). It has also been argued that farmers may not be able to borrow against a project even with high returns in the future if creditors have no protection or recourse, as a result of which missed

opportunities tend to abound (Shaffer et al., 1983). This situation, it has been reported, often generates a gridlock in which creditors are reluctant to lend to farmers with little collateral, and these farmers build up little equity and collateral because they lack access to credit (Jayne et. al., 1989).

Bromley and Cernea (1991) have, however, questioned the logical necessity of having secure title to land in order to obtain long-term credit. Their argument, captured by what they call the investment fallacy, is two-fold. First, they argue to the effect that there is no compelling reason why agricultural credit cannot be extended to farmers in the absence of land as collateral. Since interest rates, according to them, are the price of money - including the risk of default - there is a market - clearing price for agricultural credit for farmers able to pledge only their crop or their bullock as collateral. Agricultural credit markets, they further contended, have operated throughout history without private ownership of land and that the local saving societies (or circles) so frequent in most developing countries have default rates significantly below those of the formal credit sector for which titles seem so essential. If the argument is that land as collateral is a necessary condition for adequate levels of agricultural lending, they further argued, then that is an empirical question that can be addressed in different settings in which the term adequate is defined and in which other policy instruments for mobilising credit are also considered.

Second, the assertion that farmers will not invest without a secure title, that is,

ownership, fails to admit, according to them, that a lease for 15-25 years provides security for tenure over a planning horizon that is relevant under most reasonable assumptions of farmers' rates of time preference. At a discount rate of 10 percent, they argued, future benefits beyond 20-35 years are essentially zero and it becomes therefore unnecessary to provide security beyond that time. Leases, they further argued, can easily have rollover provisions that protect some reasonable planning horizon for the farmer and that the necessary condition for security is an enforceable lease, not deed of ownership.

Schaefer-Kehnert and Von Pischke (1982) have argued that intangible sureties such as guarantees by third parties can be especially useful in agricultural credit. Even when the estimated increase in income available for repayment is the important criterion of credit-worthiness, the creditor may still seek security to safeguard his position and that the corporate liability of groups and associations could become particularly interesting as a means of enhancing credit access.

Holt and Ribe (1991) and Schaefer-Kehnert and Von Pischke (1982) have pointed out that one of the prerequisites for increasing resource-poor farmers' access to financial services is to reduce transaction costs for lenders and borrowers by way of decreasing lenders' risks and administrative costs and for borrowers, by finding non-traditional methods of overcoming collateral requirements and decreasing the costs of intermediation with financial institutions. The strategies for achieving these objectives, according to them, sometimes, but not always involve group lending. If properly developed, group

lending has been found to support several objectives simultaneously: it permits savings in credit administration by reducing the administrative costs of reaching dispersed individuals and processing loans; reduces borrowers' costs by enabling borrowers save on fees for collateral registration, expenses on certificates needed for loan applications and transportation costs for visiting lenders; reduces risks and collateral requirements when some form of joint liability is imposed on the group on the basis of the premise that one member's failure to repay jeopardises the group's access to future credit; provides scope for active grassroots participation and delegation of responsibility to low-income farmers and offers human resource development for highly disadvantaged members (Huppi and Feder, 1989; Lele, 1981; Holt and Ribe, 1991). The success of group lending has, however, been reported to depend on members' confidence in each other as reflected in social cohesion, on management, on local sanction and on the economic homogeneity of the groups (Lele, 1981; Holt and Ribe, 1991).

2.5 Factors Affecting Agricultural Credit Requirement and Use.

There exist in literature a number of studies which have dealt with the factors affecting the need for agricultural credit. A common feature of these studies is that credit requirement and use is hypothesised as a function of a mix of variables.

Falusi (1973), for example, reported that the demand for credit is a function of interest rates, returns on investment, risk and accessibility to credit institutions. These variables, according to him, are governed by socio-economic and environmental factors

such as attitudes and value systems, the subsistence nature of production, technological stagnation, land tenure problems, lack of, or restricted market outlets and social organisation.

Long (1968) hypothesised that the demand for credit is a function of farmers' management ability, interest rate, owned working capital, transactions cost and tenancy.

Melichar (1965) found years on farm, age, value of farm, type of farm, value of annual sales, off-farm work, off-farm income, race, geographical location and the nature of production, whether contractual or non-contractual, to be positively or negatively related to credit requirement.

Matlon (1978) reported the existence of an inverse relationship between net loans received and income. The volume of cash loans received by low-income households, according to him, does not differ significantly from the borrowings of middle-and high-income households and that extension of cash loans varies directly and strongly with household income. Possible explanations as to why value of cash loans received does not reflect a strong inverse relationship with respect to income, he contended, could be attributed to lack of personal familiarity with creditors, greater perceived risk of default and lower community status.

Saito (1994) in an examination of factors affecting farmers' decision to use credit

found distance to bank, existence of cooperatives in villages, existence of permanent markets and electricity, types of crops grown, size of land holdings, wages, education and age to be pertinent.

Barau (1987) in the evaluation of the effects of credit terms, debt and farm size on financial performance of dairy farms in Ontario, Canada, reported cost of credit, expectations for income and for changes in asset values, structure of farms; attitude toward risk taking, personal networth of the farmer for meeting downpayment requirements and taxation policy to be important in influencing credit demand.

Nwagbo and Mohammed (1986) categorised the factors affecting the desire for credit by farmers into the economic, the sociological and the technical. The economic factors, according to them, include interest rate, wealth, management, return or investment, income of the farmer, years of farming, type of farm, value of annual sales, marketing facilities and off-farm work and income; the sociological variables include tenancy, religious and societal attitudes and values, familiarity with creditors, age of farmer, form of education received and community status; and the technical variables include the level of technological used in production as reflected in use or non-use of fertilizer, use or non-use of improved seeds and other components of improved technology.

A review of studies on the determinants of credit demand at the farm level will

be better appreciated if the theoretical and empirical ramifications of some of these variables in relation to credit demand as have appeared in literature were examined and highlighted:

(a) Farm Size: The demand for credit is known to be influenced by such component features of farm structure like size and type of ownership. The underlying assumption here is that the bigger the farm, the greater the input requirements which, quite often, cannot be met from current earnings, thereby necessitating borrowing. Barau (1987) reinforces this view to the effect that as the farm size increases and farms become more specialised, the need for large investments in the latest technologies increases and that to accomplish this, a majority of farmers would have to borrow.

In respect of ownership, farmers'access to credit has also been found to be limited by their not having enough collateral in the form of registered land titles and other explicit land tenure arrangements to satisfy risk - averse lenders.

Kula and Rogers (1991) have reported that farmers can gain access to land through ownership, leasing or a combination of the two, and that leasing or renting can be for a fixed cash payment in which the farmer assumes all of the risk or for a share of the crop and inputs whereby the farmer and owner split the risk or some other combination of cash and share renting. Ownership of land, they argued, is not only a means of obtaining equity in a tangible, usable asset but also helps eliminate the costs and risks of negotiating leases or the risk of having a lease terminated, in addition to

giving the owner a fuller set of rights than is likely to come with leasing and an intangible measure of satisfaction from owning land.

Leasing, it is argued, however, provides a range of opportunity for acquiring farmland while spreading risk and cash flow to the extent that many producers in some agricultural settings have found that they can lower their financial risk and gain management flexibility through leasing rather than through mortgaged ownership (Kula and Rogers, 1991). Leasing in such peculiar circumstances, it is further argued, eliminates the need for farmers to finance the current worth of future land earnings embedded in land prices and enables the tenant to use his equity capital for financing necessary machinery, equipment and other inputs (Kula and Rogers, 1991).

Inheritance, according to Cleaver and Schreiber (1992) has emerged as the most significant form of acquisition of agricultural land in traditional rural societies, with rights to such land being very secure and the security of tenure strengthened by continuous occupation and cultivation. Restrictions on the sale of inheritable land, they further pointed out, is applicable in some systems and that in others land has been sold for half a century or more and can be mortgaged or leased. Purchases, it has also been argued, are becoming an increasingly important means of acquiring land and that this is occurring not only in countries with a history of land registration and government intervention in land matters but also in countries where governments have been less active in providing and enforcing a well-defined legal framework for land transactions

(Migot-Adolla et. al., 1991; Cleaver and Schreiber, 1992).

Feder et. al. (1985) and Saito (1994) have hypothesised the existence of a relationship between individual land rights, productivity and improved access to credit to the effect that increased individualisation of land rights not only improves the credit worthiness of farmers and enhances their chances of obtaining formal credit, but also improves farmers' ability to reap returns from investments on land, resulting in greater demand for land improvements and complementary inputs.

Private ownership of land however, has been reported to be a relatively new concept in Africa to the extent that there exist a continuum from community-controlled land to individualised ownership (Saito, 1994). A recent study reportedly found that where population pressure and commercialisation have increased, the indigenous tenure systems have evolved from a system of communal property rights toward one of individualised rights (Migot-Adolla et. al., 1991).

(b) Farmers' Attitude to Risk: Farmers, like anyone else in a business situation, are faced with a variety of risks and the types of risk reportedly differ in terms of how well they can be managed or insured against (USDA, 1987). The risks a farmer faces have been identified to be in three main categories: weather or climate risk, business risk and financial risk (USDA, 1987; Barau, 1987). Business risk, according to Barau (1987), is the risk associated with incorrect forecasting of annual net cash flows of revenue over

the entire economic life of an investment project and that it has two parts to it: technical risk and market risk. Technical risk is known to relate to the probability of actual yields being below expected levels due to pests and diseases or other natural disasters (Barau, 1987), while market or price risk, as reported by USDA (1987), is associated with a variety of market situations, ranging from uncertainty about future direction of prices or price variability to the possibility of a complete lack of market outlets or demand. The impact of price risk, it is argued, is seen in diminished strength and accuracy of signals to producers on the status of markets for their products, as a result of which farmers' response to changes in market demand tends to be slow, inaccurate or inappropriate (USDA, 1987).

The third variant of risk, financial risk, is known to relate to the possibility of losses in equity capital and credit reserves arising from high debt-to-equity ratios especially in periods of adverse conditions and can, it is argued, be particularly severe in a situation in which the values of farm assets are declining (Barau, 1987).

It has been argued that with regard to credit, risk aversion could be manifested through the farmer's unwillingness to borrow no matter how low the costs of credit may be. The farmer's unwillingness to rely on credit as a source of liquidity is on the strength of the fact that such reliance could expose him to risks in terms of the likelihood of future interest rate increases and/or restrictions in the supply of credit as lenders respond to changing conditions in agriculture and in financial markets that influence their

lending decisions (Barau, 1987).

It is further argued that the risk-averse farmer may, alternatively, show his aversion to risk through the holding of substantial credit in reserves as a source of liquidity and by requiring a higher rate of return to induce him to invest his resources in a risky venture (Barau, 1987).

It has also been pointed out that in trying to minimise his level of exposure to the risks confronting him, the farmer tends to reduce his level of resource use and in doing so forego potential benefits from otherwise profitable investment opportunities (Barau, 1987).

(c) Interest Rate: Barau (1987) reports that the cost of credit to farmers is determined by the interest rates charged by lenders, combined with any subsidies made available by governments. Interest payments in particular have been recognised as one of the several factors that influence loan use decisions (Adams and Graham, 1984). Modern economic thinking is, therefore, reported to have acknowledged the role of interest rate policy as one of the most important instruments of macroeconomic management and as a demand management technique for achieving both internal and external balance and for ensuring the efficient allocation of financial resources in an economy (Khatkhate, 1986; Leite and Sundararajan, 1990). The specific functions interest rate performs in an economy have also been widely reported (Wai, 1956; McKinnon, 1973; Shaw, 1973; Miller, 1977;

Khatkhate, 1986; Blejer and Cheasty, 1986; Khatkhate and Villanueva, 1978; Leite and Sudararajan, 1990; Leite, 1982).

Miller (1977) argued to the effect that lenders charge interest on loans because of the alternative opportunities they have for the use of the funds to the extent that they are seen to be rewarded for their loss of control over their funds for the length of the period of the loan agreement. The possibility of loss of part or all of the money loaned if the borrower defaults, coupled with the recognition of a possible loss in purchasing power of the money loaned on account of inflation have equally been reported as some of the reasons for interest rate charges on loans.

It has been argued, however that it is not in all cases that lenders charge interest on loans. While it is not uncommon for friends and relatives to lend at zero interest or even negative rates in real terms, money lenders, for example, have been reported to charge two hundred percent or more (Ijere, 1986; Huppi and Braverman, 1991).

A number of arguments have been advanced for: the imposition of low interest rates (negative real rates of interest), maintenance of interest rate ceilings and floors on loans and the adoption of highly subsidised or concessionary credit policies and programmes for farmers. These measures have reportedly been achieved primarily through government use of a number of techniques and policies and other inducements; the nationalisation of banks, the establishment of specialised agricultural credit

institutions; subsidised interest rates for priority sectors, differential rediscount rates, and the mandatory requirement of formal lenders to ignore their profit and loss considerations and serve some social objective or target group not reached through market criteria (Shetty, 1978; Hettige, 1992).

The major justification for the above measures have been reported to be on the following grounds: the perceived inability of resource-poor farmers to pay market interest rates; formal lenders' unwillingness to lend to small-scale farmers because they are high risk; the perceived exploitative behaviour of informal lenders; the notion that investments in agriculture do not produce a high yield and require cheap credit to encourage innovation; the perception that most farmers need cheap loans and supervision to adopt new technologies and make major farms investments; the perception that cheap credit is an efficient way of offsetting production disincentives caused by low product prices or high input prices, the desire to improve the allocation of investment among sectors and the desire to keep financial costs down so as to avoid the possible inflationary effects of interest rate liberalisation (Miller, 1977; Schaefer-Kehnert and Von Pischke, 1982; Adams and Graham, 1984; Leite and Sundararajan, 1990).

Holt and Ribe (1991) have reported that experience with more than twenty years of regulated and subsidised credit programmes have indicated that these measures have rarely achieved their stated objectives to the extent that only five percent of farms in Africa have had access to institutional credit and that even where subsidised credit has

reached the resource-poor farmer, programme viability and sustainability have remained questionable.

The perception that cheap credit is critical to the adoption of new farm technologies has been reported to be contentious in the light of emerging evidences to the effect that product or input prices have been found to be stronger incentives for the adoption of new technologies than are interest rates, coupled with the recognition of a much wider impact of prices among the farming population in subsistence economies than do credit programmes (Miller, 1977; Adams and Graham, 1984).

The continuous availability of cheap funds and ceilings on interest rates have also been found to prevent lenders not only from recovering their operating expenses and loan losses, but also from mobilising rural savings and thus building up their own sources of funds, as a result of which specialised lending institutions have reportedly never truly developed into true and viable financial intermediaries between net savers and net borrowers (Huppi and Braverman, 1991). In some more specific terms, the impact of cheap credit on financial intermediation is to constrain the expansion of the financial frontier (separating borrowers considered not credit worthy by the formal financial sector and other prosperous entities that have access to formal finance) by limiting the number of borrowers, discouraging savers and thereby inhibiting intermediation (Von Pischke, 1991).

The belief that low interest rates stimulate investment and growth has been vigorously attacked by some researchers (Mckinnon, 1973; Shaw, 1973; Barau, 1991 and Hettige, 1992, amongst others). They have shown that ceilings on deposits depress the supply of funds below and raise the demand for funds above their equilibrium levels. A more explicit behavioural characterisation of interest rate in this respect as enunciated by them has shown that if real interest rates are reduced below market equilibrium levels, demand for investment will no doubt increase, but actual investment will decrease since at low interest rates insufficient savings will be generated to finance these investments. The resulting excess or unsatisfied demand for investible funds, according to them, will require the rationing of credit by financial intermediaries by means other than the interest rate, with preference in most cases for borrowers with substantial security, clout and an established reputation to the exclusion of small-and medium-scale farmers and new investors. Gonzalez-Vega (1984) has also argued that preferential treatment for some borrowers as quoted above is also explicable in terms of purely economic considerations related to the profit maximising behaviour of private lenders and to the survival behaviour of public lenders.

The possibility that a borrower will be rationed has been hypothesised as depending on the relationship between the marginal cost and the demand functions faced by the lender as well as on the nature of the restrictions imposed on rates of interest (Gonzalez-Vega, 1984).

When, however, the ceilings imposed on interest rates become more restrictive on account of inflation, increased lending costs, or the frequent practice of granting preferential rates for specific activities, the size of loans granted to non-rationed borrowers tends to increase and the size of those granted to rationed borrowers tends to decrease, reflecting what Gonzalez-Vega (1976) designates as the 'iron law of interest rate restrictions'. The implication of this law as postulated by Gonzalez-Vega (1984) is that the size of loans granted to large farmers increases and the size of loans granted to small farmers decreases as interest ceilings become more restrictive, leading in turn to a reduction in both the absolute and the relative shares of credit small farmers receive from formal lenders, to the extent that the ceilings are seen to redistribute the credit portfolios in favour of large farmers thereby contributing to the concentration of income in the rural areas of low income countries. On account, too, of the high cost of lending to rural clients, the ceilings have tended to exclude the majority of the small farmers in low-income countries from access to formal credit and it is these excluded farmers that have reportedly suffered the most significant loss as a consequence of the ceilings (Gonzalez-Vega, 1984).

Artificially low interest rates and credit regulations have also been found to distort both loan demand and resource allocation and to often lead to political patronage and corruption in financial services bordering on both loan and interest waivers (Holt and Ribe, 1991; Adams and Graham, 1984). The underlying premise here is that if expected interest rates are negative, the borrower may realise an income transfer by taking a loan,

investing the money in an asset that increases in value at the same pace as inflation, and later liquidating the asset to repay the loan. In the event of the occurrence of such circumstances, some loan demand tend to be for the acquisition of this income transfer rather than for making productive use of the loans (Adams and Graham, 1984). The excess loan demand stemming from the negative interest rates could also cause the lender to create a number of administrative hurdles that raise the loan transaction costs for potential borrowers who are not profitable clients, thus effectively discouraging loan demand for such potential borrowers without violating policy directives (Adams and Graham, 1984).

The perception that selective reductions of interest rates to preferred sectors of the economy will significantly improve the allocation of resources has reportedly been contradicted by emerging evidences to the effect that selective credit policies exert some undesirable effects on domestic savings mobilisation and financial development such that in most cases in which this hypothesis was tested, selective credit policies were found not to have had the desired impact; in situations in which it did, the impact was reportedly minimal (World Bank, 1989; Leite and Sundararajan, 1990). The key problem here relates to the fungible property of money, the possibility of misclassification of loans by lenders to meet quota requirements or to comply with lending directives and the difficulty in monitoring and enforcing loan rationing policies when hundreds of thousands of formal loans are made in widely dispersed areas (Khatkhate and Villanueva, 1978; Adams and Graham, 1984; Leite and Sundararajan, 1990; Hettige, 1992).

Critics of cheap interest rate policies have questioned the rationale and validity of arguments for the adoption of such measures. According to Barau (1987), there has not been any real justifiable basis for the low rates of interest charged on agricultural loans relative to other categories of loans on the grounds that the credit programmes have not had an effective criteria that would enable them to be properly designated farmer-targeted credit programmes and that, because they lack features to make them clientele or utilisation-specific loans which invariably would have facilitated client identification and verification, these programmes have tended to become cheap loans for merchant traders and contractors rather than the newly small-scale farmers, reflecting in his words a case of "how not to help" peasant farmers.

The rationale for providing credit at below-market rates has reportedly been undermined by evidence to the effect that resource-poor farmers are willing to pay market interest rates (Holt and Ribe, 1991). A review of studies on rural financial markets in some developing countries which experimented with lending at annual interest rates ranging from twelve percent to thirty-six percent reportedly found that small farmers' demand for loans remained relatively inelastic up to an interest rate of about thirty percent, coupled with the discovery that poor farmers borrowed routinely on the informal market where interest rates have historically exceeded formal market rates (Holt and Ribe, 1991).

It has been argued that despite the remarkable expansion of credit in rural areas

of most developing countries, the distribution of official credit has remained skewed in favour of large farmers to the extent that an estimated five percent of farms in Africa and about fifteen percent in Asia and Latin America have had access to formal credit, with five percent of borrowers (predominantly large borrowers) often receiving as much as eighty percent of the credit (Huppi and Braverman, 1991). The obvious reason reported for this is that large farmers generally borrow larger amounts than small producers and have often benefitted more from credit subsidies than the latter. An important explanation in this regard is that when interest rates do not reflect the true cost of capital, the distribution of benefits from official loans has reportedly tended to be even more regressive (Huppi and Braverman, 1991). Charging commercial interest rates would therefore enhance small farmers' prospects of getting credit by limiting big farmers' investment opportunities and in the process, restricting their demand for credit (Schaefer-Kehnert and Von Pischke, 1982).

One argument often advanced in favour of credit subsidies as reported by Adams and Graham (1984) is that they compensate farmers for the adverse effects of other policies. This has, however, been questioned on the ground that subsidised credit does not make investments in agriculture more profitable to the extent that such funds could well be diverted to other more lucrative undertakings and that even to the extent that subsidised credit does compensate producers for urban-biased policies, it only benefits the few who actually have access to such funds (Huppi and Braverman, 1991).

The degree and magnitude of credit subsidisation in most countries has reportedly taken its toll on the amount of resources available for other vital programmes in such areas as agricultural research, basic infrastructure to lower the costs and risks of marketing, and improved educational services for the rural population amongst others, and that, unfortunately, it is precisely in these areas that major efforts must be undertaken to improve the economic rate of return of farming (Adams and Graham, 1984).

The liberalisation of interest rates for lending to agriculture, according to Huppi and Braverman (1991) would help foster the following: allow rural financial intermediaries to cover their operational costs so that they are able to operate as financial entities facing what they called "bonifide profit constraints"; encourage financial intermediaries to effectively mobilise rural savings which would make them more independent from external financial sources while making them responsible for managing their own funds; and decrease the incentives for patronage and arbitrary decisions in a way which would help improve the regressive character of subsidised credit programmes. So also would interest rates determined in competitive markets assist credit agencies to build up their capital base and attract savings deposits so that their financial position becomes strengthened and their sphere of activity widened (Schaefer-Kehnert and Von Pischke, 1992). In an assessment of the profitability and liquidity of Indonesia's Unit Desa Credit System, Boomgard and Angell (1990) reportedly found that, with interest rate charges that covered costs, the above credit system reached its break even point

eighteen months after inception, after which it generated steadily increasing profits such that by 1989, the system had become self-financing with deposits surpassing loan requirements (Holt and Ribe, 1991).

It has also been reported that borrowers' loan transactions cost may be more important in determining loan demand among small and new borrowers than are interest rates. Borrowers, it is argued, may be more interested in the non-interest borrowing transactions costs, the timeliness of loan disbursement, the flexibility of loan repayment procedures and the dependability and availability of additional loans from the lender (Adams and Graham, 1984). This view has been reinforced by Huppi and Braverman (1991) to the effect that though deregulated (liberalised) interest rates can be expected to decrease overall demand for credit so that small farmers' access to funds is improved, high transactions costs and the lack of significant collateral may still prevent them from borrowing the desired amount so that intervention in their favour may be called for. Such intervention, it is argued, should however be such that does not replicate the deficiencies in existing credit schemes by which efforts to direct the allocation of credit have been reported to have suffered from abuse and misuse of preferential funds for non-priority purposes, increased the cost of funds to non-preferential borrowers, contributed to swelling budget deficits, involved a decline in financial discipline that resulted in low repayment rates with the resultant distortions in incentives among both borrowers and lenders (Vittas and Je Cho, 1994).

(d) Income: Acharya (1981) and Vocke (1987) have reported that most developing countries are primarily agricultural and that the key to more rapid growth, swifter alleviation of poverty, improved balance of payments and a stronger basis for industrialisation lies with increasing productivity and incomes in agriculture. Walton (1990) has reported that the incomes of resource - poor farmers mainly come from unskilled labour on their own small plots of land, agricultural employment and low-paid work in the rural non-farm and urban informal sectors. The total disposable income of agricultural households is therefore depicted as comprising its total production of agricultural commodities plus income obtained by family members working outside the agricultural sectors plus non-labour income received by the household from outside agriculture (Johnson, 1988).

It has been argued that farmers may choose to engage in off-farm employment in view of the multiple roles it plays for farm households: improves household cash flow for investing in the farm enterprise, balances seasonal incomes, raises total household income and is able to reduce income variability and increase total income or both (Kula and Rogers, 1991). The decision to work off-farm itself is reported to be a function of farm and off-farm employment opportunities, the respective returns to the farmer's labour on and off the farm, and returns to land and capital from either purchasing or renting more farmland (Kula and Rogers, 1991).

There exist in literature two differing perspectives on the relationship between

income and credit demand: that there exist a direct association between income levels and credit demand and that income levels and credit demand are negatively related.

A major argument advanced to support the hypothesis of the existence of an inverse relationship between income and the need for credit is that the nature of small holder crop production in which cash income is generally earned in a lumpy way when produce is sold after harvest, coupled with the seasonal nature of agricultural operations in which cash flows and cash needs of rural producers are not synchronised has meant that the opportunity to save surplus income at the time of harvest as well as to borrow at the beginning of the planting season to obtain needed production inputs tend to be short-term financial needs of farmers (Huppi and Braverman, 1991; Saito, 1994).

Fabiyi and Idowu (1991) in an analysis of the implications for policy and research of the investment behaviour of farmers in South-Western Nigeria found that farmers were not making investments in capital improvements on their farms on account of the limited funds available to them in the form of unspent farm incomes and the current level of credit supply and that the little investments that were undertaken were generally those of recurrent expenses on the farms. The implication of this is that farmers have been unable to invest in farm production beyond the limits of their subsistence income levels. Economic investment models have reportedly suggested that apart from interest rates and relative prices, income is a particularly important factor that influences farmers' decisions to invest in land improvements (Nielsen et al., 1989).

The existence of a positive relationship between income levels and credit demand have also been widely reported. Araujo (1967), for instance, reported that credit use was associated with higher than average economic performance and that credit users were relatively in high income groups. Barau (1987), in a review of factors impinging on credit demand pointed out that if farmers' cash incomes both on a gross and net basis, were to grow in real terms, it would enhance their credit worthiness and facilitate the use of more and larger amounts of credit. Even if real cash incomes were to drop considerably, he pointed out, the demand for credit would still be high were there to be both actual and expected capital gains on assets. The scenario, he further argued, represented one in which the annual increase in the values of farm assets by far exceeded annual net farm income.

(e) Level of Technology Used in Production: Olukosi and Ogungbile (1991) have reported that if consideration were given to a whole range of agricultural resource constraints (both exogenous and endogenous), a farmer in Nigeria is typically resource-poor, as reflected, amongst others, in scarcity of funds to purchase inputs, lack of collateral to secure loans from financial institutions, dependence on family labour and the level of technology being biased toward low-risk and low-production traditional techniques. These observations are supported by Saito (1994) to the effect that small holder agriculture is characterised by labour-intensive technology and low labour productivity, with the average and marginal productivities of labour somewhat perpetually low because farmers lack the complementary inputs that will raise their labour

productivity.

In a further characterisation of the resource-poor farmer from the point of view of pattern of resource use, it has been reported that even in areas where partial mechanisation is possible in the form of animal traction and hired tractorisation, human labour is still required up to about seventy percent of all operations (Olukosi and Ogungbile, 1991). It has been pointed out that in numerical terms, only about 1% of farm tasks in Africa are performed by mechanical means, about 10% by animals and the rest 89% by human power (Ajayi et al., 1990). Capital investment in farming tools and equipment has been reported to be very low with expenditures on purchased inputs like fertilisers, pesticides and improved seeds constituting a minor component of the total cash expenditure (Olukosi and Ogungbile, 1991). Whereas only about half of the value added in small holder agriculture in Asia is by labour, in most African countries the proportion is reportedly close to 80 percent, reflecting the low level of capitalisation of agriculture (Lele and Adu-Nyako, 1991).

The Nigerian small-scale farmer has also been reported to have very low income which, according to Ijere (1986), is symptomatic of the poverty of his occupation, his use of crude implements and manual labour and the low returns from his sales due largely to market forces over which he has no control. The separate and mutually reinforcing effects of these resource-constraints have tended to accentuate the demand for more credit.

(f) Household Size: A typical household size, according to Atala (1984), is constituted by the summation of the number of wives, children, relatives and dependents living with the farmer in his household at the time of any investigation. Olukosi and Ogungbile (1991) have reported that the average family size in Nigeria is about six to seven persons per family and that because production under the peasant farming system is labour-intensive, family labour forms the main source of labour supply. Where hired labour is used, they argued, cost of hired labour has amounted to over seventy percent of the total cost of production.

Household size has been reported to influence the amount of family labour available for farm work (Adekanye, 1983). Given that the amount of farming activity that takes place is determined by the amount of labour that a family can afford during the peak labour demand season, a farmer who has a large family will be assumed to have less need for hired labour and, by implication, much less need for borrowing than a farmer with a smaller family (Olukosi and Ogungbile, 1991; Adekanye, 1983). The existence of a large family also implies that there are more mouths to feed so that more credit becomes needed for consumption purposes (Adekanye, 1983).

(g) Existence of Farmer Organisations: The presence of farmer institutional arrangements have generally been regarded as the means by which farmers relate to one another to pursue common interests (Schuh, 1991). An important form of such institutional arrangements is a farmer cooperative association. The basic philosophy

underlying all cooperative action has been reported to be the fact that through joint effort and acting in mutual self-interest, individuals may collectively achieve what is unattainable by individuals acting alone (USDA, 1987).

Braverman et. al. (1991) report that after independence, the plight of the rural sector, coupled with a change of philosophy led many donors and governments in Africa to search for alternative institutional ways of serving their rural populations. Increasing attention, they contended, became focussed on the potential of rural cooperatives as service organisations and, more importantly, as vehicles for agricultural development and socio-political change. By joining forces and organising, they asserted, cooperatives sought to achieve two broad objectives: improved bargaining power vis-a-vis external agents and scale economies in commercial production or market transactions, in addition to allowing for gains through risk sharing. Increased bargaining power and scale economies, according to them, provided members with services that they lack or receive at much less advantageous terms and that assumed access to loan facilities and savings and more effective input supply and marketing are examples of the most frequent benefits for rural producers.

In an analysis of the factors influencing the adoption of improved production technologies by small-holder farmers, Njoku (1991), showed that cooperative membership enhanced access to credit for the purchase of inputs and payment of hired labour and that it was easier for government assistance in the form of credit and material

inputs reaching widely dispersed small holders when they organise themselves properly into coherent groups such as cooperatives.

(h) Education: Resource-poor farmers in the developing world have generally been regarded as lacking assets especially land and human capital as represented by skills and education (Walton, 1990). Education has increasingly, therefore, been recognised as an important form of human capital for the agricultural sector (Schuh, 1993). The level of educational attainment of an individual is generally adjudged to be measurable in terms of the number of school years completed (Teixeira and Swaim, 1991).

Studies by Aneke (1981) and Ibezim (1985) have shown that farmers' illiteracy rate in the southern zone of the country varies from 60 to 80 percent and that this could be worse in the northern zone.

Limited education and familiarity with loan procedures have widely been reported as limiting farmers' access to credit. Ijere (1986), and Holt et. al. (1991) have reported that small-scale farmers' relatively low levels of literacy and numeracy make it difficult for them not only to organise their business activities in such a manner that the bank is supplied with adequate information about their businesses but also in overcoming the basic procedural barriers of taking out a formal loan in terms of compliance with the requirements of formal banks such as completing application forms or formulating investment or cash-flow projections. Gabianu (1990) in a review of the potentials of

indigenous credit for financing businesses outside the formal banking system found that farmers, traders and the like preferred informal group loans with higher interest rates to formal bank loans, partly because informal lending was much less inundated with formalities as does formal lending. Farmers' access to credit and their ability to comprehend and meet lending requirements involving the filling out of application forms and the keeping of adequate records becomes, therefore, severely compromised when they lack basic education.

(i) Farming Experience: The more experienced farmer is assumed to be much more familiar with credit sources and to be better placed to manage resources, evaluate credit programmes and adjust to changing circumstances in the farm production environment. According to Abdulsalam (1997), the years of experience of a farmer in farming does affect his managerial ability and decisions in many farm operations, in addition to influencing his perception and understanding of the socio-economic factors that affect farming. This argument is shared by Mohammed (1984) to the effect that the more experienced the farmer, the better his understanding of the general and specific factors which affect his farm business and that years spent in farming cannot be conceived to be a function of age because two or more persons of the same age but who have started farming at different time periods cannot be considered to have the same farming experience.

(j) Age: A positive relationship is known to exist between age and credit demand

(Adekanye, 1983; Nwagbo and Mohammed, 1986). The underlying assumptions are two- fold. First is the notion that the older the farmer, the greater his awareness about the availability of credit, the better placed he is to meet lending requirements and the greater therefore his access to credit. Second is the assumption that the older the farmer, the much more likely he is to have a large household and the greater the tendency for him to expand production for consumption and for sale to meet the other requirements of clothing, shelter, health and so forth. Such increased production, whether through expansions in farm size or increases in yield will necessitate borrowing for the procurement of relevant farm inputs and technologies, given subsistence farmers necessitous circumstances and the fact that their earnings do not closely match the timing of their expenses.

CHAPTER THREE

METHODOLOGY

3.1 The Study Area

This study was conducted in Kaduna state which is located between latitude 9°N and 12°N and longitude 6° and 9° East of the prime meridian. The state is currently made up of 22 Local Government Areas, namely: Soba, Birnin Gwari, Lere, Giwa, Makarfi, Ikara, Gwagwada, Sanga, Jema'a, Zango Kataf, Kauru, Kaura, Kudan, Kubau, Jaba, Kachia, Chikun, Kaduna South, Kaduna North, Igabi, Sabon Gari and Zaria City Local Government Areas. The choice of Giwa, Sabon Gari and Zaria Local Government Areas is essentially on the basis of proximity to the researcher.

The climate of the state varies from north to south. In the extreme north, the climate is typically sahelian with a relatively low and unpredictable rainfall pattern while in the south, there is abundant rainfall which lasts for over seven months in a given season. The rainfall decreases in duration and intensity as on moves from the northern to the southern parts of the state. The vegetation in the northern parts of the state is the northern guinea savannah type, while the southern part has the southern guinea savannah vegetation.

Agricultural production is carried out predominantly by small scale farmers whose labour force, capital and management originate mostly from the household. Agricultural productivity in the area is generally low (Olukosi and Ogungbile, 1991). The cropping

pattern in the area is dominated by mixed cropping, although sole cropping is also practiced.

3.2 Data Collection

Two major types of data were used for this study, namely: primary and secondary data. Primary data based on the 1997/1998 farm season were generated from field surveys by administering structured questionnaires to credit users (borrowers) in the study are. Secondary data, on the other hand, were obtained from documents of the Kaduna state Ministry of Agriculture and Natural Resources and those of the 3 local government areas under consideration.

3.3 Sampling Procedure

The essence of sampling is to be able to use information from selected observation units to reach conclusions about the population (totality of the unit base). Both the purposive and random sampling methods were used in this study.

First, three local government areas namely; Giwa, Sabon Gari and Zaria were selected from the 22 local government areas in Kaduna State on the basis of their proximity to the researcher. Second, data were obtained from a random sample of 40 farmers in each of the three local government areas selected who actually borrowed from the formal, non-formal or both formal and non-formal credit sources. Thus, a total of 120 farmers were surveyed. The sample frame (basal population) consisted essentially of farmers who borrowed credit in each of the three local government areas, the implication of

which is that non-borrowers were ignored.

3.4 Analytical Framework

The analytical tools used in this study were:

3.4.1 Descriptive Statistics:

These have generally been used to summarise and describe a body of data in a form that best reveals the major characteristic features of the sample. In this study, descriptive statistical measures of central tendency such as means, percentages and frequency distributions were used to achieve objectives (i) and (ii).

3.4.2 Multiple Regression Analysis:

This is usable to quantify an economic parameter or test a hypothesis concerning a parameter value or set of values, with the estimated relationship often used to forecast the value of the dependent variable for given values of the independent variable.

The first step in applying regression analysis includes the specification of the independent variables and the functional form of the model as well as a set of assumptions regarding the randomness of disturbances and the dependent variable, linearity of parameters, and other properties of the disturbance term and independent variable.

Ordinary least squares (OLS) provides estimates of the model coefficients that minimise the sum of squared deviations of the actual observations and the model predictions of the dependent variable. However, certain critical assumptions must be met to estimate appropriately the population parameters and to conduct tests of hypotheses under the OLS framework. These assumptions are as follows;

(i). For each set of observations, the mean value of the error term is 0. That is , for x_t1, $x_2 2$, ..., $x_t K$, $Eu_t = 0$ for all t. (The regression estimates for the intercept β_1 is adversely affected if this assumption is invalid; estimates for the remaining β's are unaffected).

(ii). For each set of observations, the error or disturbance term has a constance variance of σ^2, that is, $VAR(u_t) = \sigma^2$ for all t. (Disturbances are said to be homoskedastic when this assumption is valid; heteroskedastic when it is not).

(iii). For any two sets of observations, the error or the disturbance terms are uncorrelated, that is, COV $(u_t, u_s) = 0$ (Disturbances are said to be non-autocorrelated when this assumption is fulfilled and autocorrelated when it is not).

(iv). Each independent variable is uncorrelated with the disturbance term. Thus, for each x_k, COV $(x_k, u) = 0$. (The averages of regression parameter estimates over many samples are accurate or unbiased when the assumption is valid but biased when the assumption is invalid).

(v). No exact linear relationships exist among the independent variables.

(Perfect multicollinearity is said to exist if this assumption is invalid).

(vi) The number of observations must exceed the number of explanatory variables, including the intercept. That is, T must be greater than K. (Estimation is impossible if we have fewer years of observations than parameters to estimate).

With the classical assumptions fulfilled, model coefficients estimated with ordinary least squares have desirable statistical properties including unbiasedness and efficiency. Being efficient and unbiased means that the β-estimates have the smallest standard errors (or variances) of any other unbiased estimators. The Gauss-Markov theorem has proven that OLS estimators for the β's are unbiased and efficient as long as the model is specified correctly and assumptions (i) through (vi) are satisfied (Johnston, 1984).

3.4.2.1 Model Specification:

The specification of the general form of the regression model requires that the variable to be explained (dependent variable) Y is specified as a function of k independent variables - X_1, X_2, X_3, ..., X_k. The regression model being considered can be specified in implicit form as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, e)$$

where:

Y = Amount of credit required by the respondent;

X_1 = Age of the respondent;

X_2 = Farming experience of the respondent;

X_3 = Household size of the respondent;

X_4 = Level of educational attainment of the respondent;

X_5 = Farmland tenure status of the respondent;

X_6 = Farm size of the respondent;

X_7 = Income of the respondent;

X_8 = Membership of rural associations by the respondent;

X_9 = Interest charge on loans paid by the respondent;

e = Error term.

The specification of the chosen double-logarithmic functional form of the regression model is as follows:

$$\mathbf{LogY = Log\ a + b_1LogX_1 + b_2LogX_2 + b_3LogX_3 + b_4LogX_4 + b_5LogX_5 + b_6LogX_6 + b_7LogX_7 + b_8LogX_8 + b_9LogX_9 + e}$$

where:

a = intercept or constant term;

e = error term;

b_1-b_9 = the regression coefficients (parameters);

Y and X_1-X_9 are as defined in the implicit form of the regression model.

3.4.2.2 Rationalisation of Variables.

(a) The error term: This is denoted by the letter e, and is included in the model to

account for specification errors arising from the model not containing the correct variables or not having the correct functional form as well as accounting for measurement errors emanating from inaccurate recording of observations, improper data collection techniques or inaccurate responses to surveys or to the use of proxy variables to represent variables that are not measurable.

(b) The dependent variable (Y): This was measured in naira (₦) as the total amount of credit required by the respondent for production, marketing and related activities.

(c) The independent variables (Xs):

(i) Age (X_1): This was measured as the age in years given by a respondent at the time of the study. It has been included in the model to confirm or reject the assumption in literature to the effect that the older the farmer, the much more familiar he is with credit sources and their lending requirements and the better placed he is to evaluate the strengths and weaknesses of credit schemes, all of which are likely to positively influence his requirement for credit.

(ii) Farming experience (X_2): This was measured as the number of years a respondent has been involved in farming. Its inclusion in the model is to reject or confirm the assumption that the more experienced the respondent is in farming, the much more efficient he is likely to be in the management of resources including credit and the much more flexible he will be in the adoption of new farm technologies and related

innovations, all of which may positively influence his desire for credit.

(iii) Household size (X_3): This was measured as the total number of persons living with the respondent at the time of the study. It has been included in the model to accept or reject the assumption to the effect that the larger the household size, the lesser the need for credit for the hiring of labour.

(iv) Level of education (X_4): This was measured as the number of years of formal schooling attained by the respondent and was included in the model to reject or confirm the notion in literature that low levels of literacy make it much more difficult for respondents to overcome the basic procedural barriers of taking loans in terms of the filling out of loan application forms and the formulation of investment and cash flow projections.

(v) Farmland tenurial status (X_5): This was measured using a dummy or binary variable as follows: If a farm owned the land on which farming takes place, a value of 1 was assigned to the tenure variable and a value of 0 otherwise. It has been included in the model to confirm or reject the assumption that increased ownership of land improves a respondent's creditworthiness and enhances his chances of obtaining credit.

(vi) Farm size (X_6): This was measured in hectares as the total farm holdings of the respondent. It has been included in the model to reject or confirm the assumption that

the bigger the farm, the greater the inputs needed and the greater the amount of credit that will be required.

(vii) Income (X_7): This was measured in naira (₦) as the total income accruing to the respondent from both farm and non-farm sources and has been included in the model to accept or reject the assumption that the smaller a respondent's income, the greater will be his desire for credit and vice versa.

(viii) Membership of rural associations (X_8): This was measured in terms of the number of rural associations to which a respondent belongs. It has been included in the model to reject or confirm the assumption that increased membership of farmer associations and other rural organisations will not only improve respondents' bargaining power but also enhance their access to credit and other loan facilities for the procurement of inputs and payment of hired labour.

(ix) Interest charge (X_9): This was measured in naira (₦) as the interest paid on loans by respondents and was included in the model to reject or confirm the notion that the higher the interest charge on credit, the lower the amount of credit that will be required.

3.5 Limitations of the Study

(1) The study was limited to only Giwa, Sabon Gari and Zaria Local Government Areas of Kaduna state on account of financial and time constraints. A more

detailed study covering Kaduna state or Nigeria as a whole would have been more representative and permitted, for example, a better understanding of the sources of credit and problems limiting access to credit for farmers about which general statements can be made. The conclusions drawn and recommendations made are location-specific and should, accordingly, be treated with caution, considering that prescriptions found adequate in the study area may not be appropriate elsewhere.

A study of this nature will require the accurate measurement of relevant variables. But there were variables for which only approximations were obtained and others for which dummy variables were used. For instance, an index representing tenurial status was constructed by considering the extent of control a farmer has over a farm plot in terms of ownership. If a farmer owned the land on which farming takes place, a dummy value of 1 was assigned to the tenure variable and 0 otherwise. Also, because most of the farmers kept no records, and had farm plots in different locations, variables such as farm size, income and the precise amount of credit needed by farmers based perhaps on their cash - flow projections were difficult to determine. The reliance on farmers' memory recall abilities made data vulnerable to lapses in memory recall.

The problems constraining farmers' access to credit as analysed in this study were those identified by the researcher in literature and were therefore, not obtained open-endedly. The fact that farmers' responses were somewhat circumscribed

does mean that the problems limiting access to credit as analysed in this study are by no means exhaustive.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Credit Sources

The study shows that a significant fraction of the respondents (credit users) sampled obtained their credit from the formal source (53%), followed by those who got theirs from both the formal and non-formal sources (30%), who, in turn, are followed in ranking by those who got credit from the non-formal source (17%).

Credit demand from the non-formal source was from friends and relatives (64%) and money lenders (36%), while credit demand from the formal source was from the Nigerian Agricultural and Cooperative Bank (70%), First Bank Plc (20%) and Union Bank Plc (10%).

Table 4.1: **Credit Sources Available to the Farmers**

Source	Number of Farmers	Percentage	Ranking
Formal	64	53.33	1st
Non-formal	20	16.67	3rd
Both formal and non formal	36	30.00	2nd
Total	120	100	

Source: Field Survey Data, 1998.

Table 4.2: **Specific Non-Institutional Credit Sources**

Source	Number of Farmers	Percentage
Friends and relatives	36	64.3
Money lenders	20	35.7
Total	56	100

Source: Field Survey Data, 1998.

Table 4.3: **Specific Institutional Credit Sources**

Source	Number of farmers	Percentage
Nigerian Agricultural and Cooperative Bank (NACB)	70	70.0
First Bank Plc	20	20.0
Union Bank Plc	10	10.0
Total	100	100

Source: Field Survey Data, 1998.

These findings are to some extent in agreement with Saito's (1994) to the effect that though small-holder farmers are not well served by formal financial institutions, institutional lending still remains an important source of funds for agricultural production. In a survey conducted in 1991, she further pointed out, it was found that 30 percent of the farmers in Nigeria had obtained credit and that of the total loans received, some 13 percent were from banks.

In a similar study conducted in the 1982/83 farm year in Sokoto state, Mohammad (1984) found that 73.3 percent of the farmers sampled got loans from formal credit sources only, 26.6 percent from non-formal credit sources and 13.3 percent from both the formal and non-formal credit sources, the implication of which is that the formal credit sources were more important than the non-formal credit sources.

The limited importance of the non-formal credit sources is likely to stem from their short-term liability structure and limited capital base, reportedly on account of the fact that their ability to mobilise funds is limited to small groups in a geographically confined area (Hettige et. al., 1992). Similarly, because informal lenders typically live in the same environment as borrowers, adverse shocks in the local economy as is currently prevalent in Nigeria tend to affect both (Saito, 1994). Besides, informal credit institutions that primarily mobilise deposits, for example, money collectors and keepers, have been reported to do relatively little lending and only of a very short-term nature and that those that lend regularly, for example, money lenders, are not involved in mobilising deposits and thus have a narrow capital base (Hettige et. al., 1992).

The proximity of farmers in the study area to a specialised agricultural credit institution, namely: the NACB as well as to trading banks with credit facilities may have also been contributory to the preference for formal rather than non-formal credit by the sampled farmers. In a study on the role of women's traditional savings and credit cooperatives in small-farm development in Anambra and Benue States of Nigeria, Nweze (1991) found

that small-holder farmers borrowed enthusiastically from institutional credit sources at even deregulated rates of interest for the simple reason that these institutional sources were more accessible to them.

The dominance of friends and relatives as relatively more important sources of non-formal credit than money lenders might be a reflection of the view to the effect that it is not uncommon for friends and relatives to lend at zero interest or even negative rates in real terms (Huppi et. al., 1991).

Farmers who obtained credit from both the formal and non-formal sources reported that credit obtained from the formal sources was generally inadequate and had to be supplemented with credit from non-formal sources. This finding is consistent with Schaefer-Kehnert and Von Pischke's (1982) to the effect that in most developing countries, non-institutional credit does remain an important element of rural financial markets and, at the least, should be regarded as a supplementary source of financing in agricultural credit policy.

Considering that both the formal and non-formal credit sources are important in the study area, exploring and identifying the informal credit and savings systems that are working for smallholder farmers together with ways of linking them to formal financial systems is particularly important. One possibility, according to Saito (1994), is to use the informal financial sector as 'financial retailers' by which a commercial bank or government financial institution lends to an affiliation of informal financial schemes

which would then on-lend to borrowers. This arrangement, it is argued, will not only help preserve the characteristics of the informal sector that constitute its strength - that is, flexibility, rapidity, transparency of procedures, personal relationships and low transaction cost, but also help overcome the financial limitations of informal schemes, and expand access to credit for good borrowers, in addition to maintaining the advantages of more formal systems such as interest - bearing deposits (Saito, 1994; Holt and Ribe, 1992).

Successful credit programmes such as those of the Grameen Bank in Bangladesh have been reported to have improved on the desirable features of informal financial institutions and to have integrated rather than opposed local traditional practices and institutions and that the process of integration and of upgrading existing informal institutions can be an important form of mobilisation of indigenous resources (Dessing, 1990).

The targeting of credit through existing credit institutions and farmer cooperative credit institutions with proven lending capabilities to the agricultural sector for the benefit of farmers is also desirable. The consensus of agricultural experts has been reported to be that such targeting of credit in the context of a reforming financial sector will accomplish the following: facilitate access by groups traditionally ignored by the formal financial sector such as small-scale farmers; help overcome obstacles such as poor information, lack of lender experience and expertise in lending to these groups or in

assessing certain agricultural technologies, and absence of lender confidence as well as assist where the formal financial sector is shallow (Cleaver, 1993).

4.2 Problems Limiting Access to Credit

The problems limiting access to credit were analysed in two perspectives: those limiting access to formal credit and those constraining access to non-formal credit. These problems were identified in literature as barriers to aecess to credit and the extent to which they were prevalent and/or limited farmers' access to credit in the study area investigated. These problems were therefore, not obtained open-endedly. Research itself is an organised quest not only for acquiring new knowledge, but also for supporting, refuting or modifying existing hypotheses about things around us based on the application of scientific method (Okigbo, 1991).

4.2.1 Problems Limiting Access to Formal Credit.

In relation to formal credit, the main problems which were identified as limiting access to formal credit were the non-interest costs of acquiring credit (33%), illiteracy (17%), the unfamiliarity of respondents with lending procedures (15%) and the asset - based nature of institutional lending (10%).

Table 4.4: **Problems Limiting Access to Formal Credit**

Problems	Number of Farmers	Percentage	Ranking
1. Asset-based nature of lending	12	10.00	4th
2. Illiteracy	20	16.67	2nd
3. Unfamiliarity with lending procedures	18	15.00	3rd
4. Distance and non-proximity of banks to clients	5	4.17	8th
5. Incidental and opportunity cost of dealing with banks	40	33.33	1st
6. Lack of information about the availability of credit	6	5.0	7th
7. Inadequacy of formal loans	7	6.67	5th
8. Interest cost of loans	8	5.83	6th
9. Fear of indebtedness	4	3.33	9th
10. Social and cultural barriers	0	0.00	10th
Total	120	100.00	

Source: Field Survey Data, 1998.

These findings are in agreement with those of Aku (1981), Bhatt (1986), Iheanacho (1989), Nweze (1991) and Saito (1994) to the effect that the main credit - related problems cited by farmers surveyed in Nigeria have been the non-availability and inadequacy of bank loans, lack of collateral and lack of awareness about the availability

of formal credit and that much potential savings is not mobilised from the rural areas because the transactions cost of acquiring deposit instruments in urban banks as reflected in cost of travel, time spent and unfamiliar language and formalities is high.

The fact that the incidental and opportunity costs of acquiring formal loans and the asset-based nature of institutional lending significantly limited access to formal credit, makes it necessary that ways of overcoming collateral requirements and of decreasing the costs of intermediation with financial institutions be found. One way of achieving these objectives is through group lending. According to Holt and Ribe (1991), group lending supports several objectives simultaneously: it reduces the administrative costs of reaching dispersed individuals and processing loans; decreases borrowers' costs; reduces risks and collateral requirements when some form of joint liability is imposed on the group and offers human resource development for highly disadvantaged members.

Successful group lending programmes have reportedly shown that factors such as homogenous borrowing groups that are jointly liable and assume themselves some managerial and supervisory responsibilities, a common bond other than credit, and denying access to the whole group in case of default by any member are crucial elements (Huppi and Braverman, 1991).

The identification of illiteracy and unfamiliarity with lending procedures as other barriers to formal credit makes the development of institutional and borrower skills

particularly important. According to Harrison (1990), credit schemes for small-scale farmers on account of these limitations must be accessible, have simple procedures and carry low management costs. A key challenge in respect of this study therefore relates to the simplification of lending procedures that involve minimal paper work, the expeditious handling of loan applications and the provision of appropriate advisory services particularly in respect of loan source and use. The operational procedures of the Grameen Bank in Bangladesh are particularly instructive here. The Bank incorporates a training programme for borrowers with minimal paper work, community-based operations, reliance on peer pressure in preference to collateral and prompt handling of loan forms as local bank workers have full authority to grant loans (Kohli and Sood, 1987).

Anyanwu (1987) reports that agricultural extension has important roles to play in credit administration, management and utilization by assuming its linkage role and acting as a liaison between the credit sources and the users of credit. At the credit institution end of the link, he argued, the role of extension could be advisory and informative relating amongst others to the identification of clients who are qualified and competent to use credit, identification of prospective viable projects with respect to local, national and international market conditions and agreeing with lending institutions on appropriate supervision and monitoring strategies for credit-sponsored projects. At the farmer end of the link, the role of extension at all levels, he further argued, could relate to mounting awareness campaigns to inform clients about credit sources; organising workshops and

specialised and intensive training programmes for credit clients; helping farmers identify prospective viable projects and make profitable economic decisions; helping farmers determine their qualification or otherwise for credit and stimulating group action.

Learning about credit source and use has also been shown to increase clients' confidence in themselves and in credit agencies and that training and confidence - building are particularly important for resource-poor farmers who are likely to have less formal education and familiarity with lending procedures (Holt and Ribe, 1991).

Ijere (1987) argues to the effect that the promotion of cooperatives and cooperative education is one other good instrument toward the attainment of this educational farm policy. Cooperative education, according to him, is functional education which teaches thrift, responsibility and accountability and that cooperatives possess reliable mechanisms to ensure that loan applications are well prepared; loans received are properly used and payments are made regularly. Through audit, supervision and arbitration, he further argued, cooperatives endeavour to check fraud and promote proper credit use and administration.

4.2.2 Problems Constraining Access to Non-Formal Credit

Access to non-formal credit, on the other hand, was found to be constrained by the inability of informal lenders, to provide long-term finance (38%), their limited capacity for savings (21%), fear of exploitation through high loan premiums (29%) and

farmers' fear of remaining outside the economic mainstream (13%) which Berger (1989) and Holt et al. (1991) have attributed to the reliance of borrowers on informal credit markets as well as to the segmentation and isolation of informal credit markets which curtails lenders' access to funds and reduces competition.

Table 4.5: **Problems Limiting Access to Informal Credit**

Problems	Number of Farmers	Percentage	Ranking
1. Limited ability to provide long-term finance and large loans	45	37.50	1st
2. Limited savings capacity	25	20.80	3rd
3. Fear of exploitation	35	29.17	2nd
4. Fear of remaining outside the economic mainstream	15	12.50	4th
Total	120	100.00	

Source: Field Survey Data, 1998.

Financial markets have been widely reported to be commonly segmented in developing countries, both in terms of access to credit and its cost (Abdi, 1978; Byerlee et. al., 1979; Karhal, 1967; McKinnon, 1973; Nisbet, 1967; and Wai, 1957). One reason financial markets remain segmented, according to Aryeetey et. al. (1992), is that information possessed by some segments is often not available to other segments. While money lenders, for example, are able to assess the character of potential borrowers more thoroughly than banks, such information, they argued, is controlled by money lenders

and inaccessible to banks whose operational norms and institutional structures do not permit intimate knowledge of clients. Similarly, while banks, they further argued, may be equipped to analyse the feasibility of projects and obtain clearer impressions of projected cash flows, such information cannot readily be obtained by barely educated informal lenders. The result, according to them, is that the risks associated with lending tend to be higher than in the case of more complete information and that the market is fragmented because the resultant prices of financial services offered by the various segments appear to be independent of one another as operators face different sets of risks, conditioned by the limited information they possess.

The mobilisation of financial and other resources by both the formal and informal credit systems is also important considering that the lack of savings capacity limited access to informal credit. Besides, no credit was obtained by the sampled farmers from savings and credit societies. According to Dessing (1990) and Holt and Ribe (1991), when risks are high and access to funds is limited, it may be appropriate to start financial service programmes with deposit facilities and that savings mobilisation is an important feature that enhances the success of a lending programme for several reasons: it provides the basis for a sound financial institution; increases the capital of the loan fund (expansion of activities); discourages haphazard loan use, risky business ventures and poor repayment morale; establishes a savings habit as a psychological basis for investment behaviour; helps remove the capital constraint for borrowers, giving them more security (emergency fund) and a greater sense of self-esteem; effectively enforces

the self - help principle; helps lenders screen borrowers; and helps establish the credit agency's reputation for reliability by adding an element of scrutiny into its management.

Savings and credit are linkable either by setting up a dual-purpose financial institution, or making loan disbursements conditional on meeting specified savings requirements, part of which is depositable with a bank as collateral for a contractual loan-savings scheme or is usable for direct re-lending. In this case, a flexible ratio is applicable which varies with the amount of savings deposited and the number of satisfactory repayment cycles. According to Siebel (1989), this has the potential of encouraging both savings and prompt repayment.

Other arrangements with potentially good prospects of succeeding are those in which members contribute a mutually acceptable sum to a fund, part of which is given to them on a rotating basis and another put into a general fund for loans as well as those in which borrowers save some percentage of the face value of their loan allotments for some specified time period which helps to capitalise the loan fund, insure against default and give borrowers a source of funds.

Though savings requirements vary substantially between credit programmes, certain characteristics are pre-requisites for savings programmes, namely: deposits must be secure, accessible and yield a good return (Holt and Ribe, 1991).

The desirability of these arrangements is underscored by arguements to the effect that conventional approaches to agricultural credit policy considered only the demand for funds and over-looked the supply of savings, but that more recent approaches to agricultural credit policy seek to activate rural savings potential and to take the non-institutional aspects of savings and credit into account (Schaefer-Kehnert and Von Pischke, 1982; Stiglitz, 1993).

4.3 Determinants of Credit Requirement

Empirical results of the determinants of credit requirement were obtained by means of multiple regression analysis. Regression analysis essentially reflects the interaction among variables as they would naturally occur in the real world (Koutsoyiannis, 1981). When using regression, a set of independent variables is used to explain variations in some dependent variable. It must be acknowledged however, that even under the best modelling conditions, only part of the variation is explained by the regression, with the unexplained portion occurring because the regression does not perfectly predict the dependent variable.

Nine independent variables (X's) were regressed with credit requirement, the dependent variable (Y). These independent variables were age (X_1), farming experience (X_2), household size (X_3), level of educational attainment (X_4), farmland tenurial status (X_5), farm size (X_6), income (X_7), membership of rural associations (X_8) and interest charge (X_9).

Given that various functional forms are consistent with the statistical assumptions of the classical regression model, relevant data from the field were fitted into three functional forms, namely: The linear, the semi-log and the double-log. On the basis of the t, F and R^2 values, the double-log functional form was chosen as giving the best fit to the data. About 72% of the variability in the credit requirement was accounted for by the explanatory variables included in the model. The F-values of all the equations were found to be significant at 1% level of probability.

Inorder to determine the influence of each of the explanatory variables on the dependent variable, a step-wise multiple regression analysis was done (Table 4.6). Farm size, X_6, was found to have had the greatest influence on the credit requirement of the sampled farmers (R^2-change value = 0.27381). The second and third most important variables which were found to have accounted for the variation in credit requirement of the respondents were: age, X_1, (R^2- change value = 0.23907) and income, X_7 (R^2-change value = 0.12255). These three variables: farm size (X_6), income (X_7) and age (X_1) together accounted noticeably for 88% (combined R^2-change value = 0.63543) of the overall R^2 (0.72075), the implication of which is that these three variables had the greatest influence on the amount of credit required by the sampled farmers. The other explanatory variables included in the regression models were also found to have accounted for the variability in the credit requirement of the respondents. In decreasing order of importance in terms of strength of influence on the dependent variable, these explanatory variables are as follows: household size (X_4), farming experience (X_2),

interest charge on credit (X_9), level of educational attainment (X_7), membership of rural associations (X_8), and farmland tenure status (X_5).

Table 4.6: Stepwise Regression Results From Double-log Functional Form for the Relationship Between Farmers' Socio-economic Characteristics and Their Credit Requirement.

Independent variables	Regression Coefficients	t-values	R^2	R^2-Change
Age (X_1)	1.47904 (0.24292)	6.089*	0.23907	0.23907
Farming Experience (X_2)	0.61337 (0.25623)	2.394*	0.27459	0.03552
Household Size (X_3)	-0.51309 (0.18292)	-2.805*	0.32067	0.04608
Educational Level (X_4)	0.07807 (0.16739)	0.466	0.32195	0.00128
Farmland Tenure Status (X_5)	-0.20290 (1.6553)	0.174	0.32213	0.00018
Farm Size (X_6)	1.44631 (0.16528)	8.751*	0.59594	0.27381
Income (X_7)	0.44732 (0.06406)	6.983*	0.71849	0.12255
Membership of Rural Associations (X_8)	-0.19500 (0.58752)	-0.332	0.71877	0.00028
Interest Charge (X_9)	-0.01699 (0.02021)	-0.841	0.72057	0.00180

$\underline{R}^2 = 0.72057$
$R^2 = 0.69770$
F-ratio = 31.51702
Constant (a) = 2.68649
Degrees of Freedom (DF) = 119
* Indicates Significance at 1% level of probability
Standard Errors of the Coefficients are in Parentheses
Source: Field Survey Data, 1998.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study has sought to identify the sources of credit available to farmers in Giwa, Sabon Gari and Zaria Local Government Areas of Kaduna state of Nigeria, the problems constraining farmers' access to credit from these sources, as well as determine the relationship between farmers' socio-economic characteristics and credit requirement. The study revealed that credit was obtained from the formal, non-formal and in some cases both formal and non-formal credit sources. In terms of ranking, the formal sources constituted the most important credit source (53%). The second important source of credit was acquisition from both formal and non-formal sources (30%) and the third in ranking is acquisition from the non-formal source (17%).

With respect to the credit-related problems limiting access to credit, the non-interest costs of acquiring credit as reflected in transportation costs, bribes, legal and title fees, paper work expenses; time lost waiting in line and dealing with these demands; the asset-based nature of institutional lending; illiteracy and the unfamiliarity of respondents with loan procedures were the most limiting problems to credit demand from formal credit sources.

Credit demand from the non-formal credit source, on the other hand, was found to constrained by the latter's short-term liability structure and limited capital base (38%),

limited savings capacity (21%), fear of exploitation (29%) and the fear of remaining outside the economic mainstream on account of the isolation and segmentation of informal credit markets (13%).

As for the determinants of credit requirement, the results of the regression analysis showed age (X_1), farming experience (X_2), household size (X_3), farm size (X_6), and income (X_7) to be significantly related to credit requirement in the study area. The null hypothesis stated to the effect that there exist no relationship between farmers' socio-economic characteristics and their credit requirement was therefore rejected.

5.2 Conclusion

From the findings of the study, the following conclusions are pertinent:

(i) Credit is critically needed by farmers in the study area such that the availability of inputs and technologies will be to no avail unless farmers have the means to obtain or use them;

(ii) both the formal and non-formal credit sources are important to farmers in the study area as a result of which links need to be forged between them with a view to drawing on the strengths of both the formal and non-formal credit systems particularly in relation to resource mobilisation, client information, flexible lending procedures, low transactions cost and low default rates - all of which can

improve intermediation in the farm credit sector as a whole.

(iii) the problems limiting access to credit from both the formal and non-formal sources such as high transactions cost, the asset-based nature of lending, illiteracy, limited savings capacity, and the short-term liability structure and limited capital base of some credit agencies can be addressed through the following ways: an enlargement of the functions of existing credit institutions in terms of provision of enterpreneurial and managerial guidance; the channelling of funds through groups of mutually liable farmers; increase in financial allocations to the credit sector; the simplification of lending procedures and the encouragement of the formation of credit and savings associations by which members may be required to contribute an agreed sum to a fund, part of which is disbursable on a rotating basis and another put into a general fund for loans.

(iv) the identification of the determinants of credit requirement such as farm size and income will help highlight areas and the forms in which interventions are necessary and can be implemented. For example, given that agricultural output growth in Africa has predominantly been achieved through expansions in cultivated area and increases in yield, land expansion and the associated increases in input requirements can provide a major sources of output growth in the study area. Thus, for farmers in the study area with limited earnings and lacking in assets, this can only be achieved through improved access to finance. Similarly,

improved farm earnings even if on a gross basis can improve the farmers' credit worthiness more especially in situations in which eligibility for credit is based on farmers' cash - flow projections and the viability of farmers' business proposals.

5.3 Recommendations

The following recommendations are pertinent for this study:

(1) There is the need to forge links between formal and informal finance with a view to deepening the financial sector and improving intermediation. Greater interaction between the formal and non-formal financial systems is reported to have been experimented with in Burkina Faso and Kenya with notable success (Cleaver, 1993). It has, however, been pointed out that it is important that the strengths and weaknesses of both the formal and non-formal systems be thoroughly analysed before any links are forged between them and that whatever links are forged, local control and equity interests should be seen to be retained (Holt and Ribe, 1991).

(2) There is the need to make more credit available to farmers to increase the sizes of their farmlands, procure needed inputs as well as encourage greater participation in farming and related activities. As has rightly been observed by Lele (1981), Johnson (1988) and Saito (1994), agricultural output growth in Africa generally derives from expansion in cultivated area and increases in yield

and that anything that increases the ability of farmers to purchase inputs at given prices such as increased availability of credit tends to facilitate the expansion of marketed output. Similarly, for Nigeria and most African countries, the key to more rapid growth, swifter alleviation of poverty, improved balance of payments and a stronger basis for industrialization has been said to lie with increasing productivity and incomes in agriculture (Acharya, 1981).

(3) The Agricultural Credit Guarantee Scheme Fund (ACGSF) should be made much more functional through the expeditious settlement of claims of banks involved in the scheme. To encourage greater participation in the scheme, the Central Bank should be made to provide 100 percent guarantee to commercial banks in the event of default by borrowers rather than the existing practice by which the Central Bank provides only 75 percent protection for loan disbursement to borrowers, with commercial banks having to shoulder the risks associated with lending for the outstanding balance of 25 percent. It has been argued that its important also that ways be found to compensate the banks involved in the scheme in respect of losses accruing from high administration charges, uncompetitive rates of interest and high inflation rate (Ijere, 1986).

To be able to maximise the benefits of the insurance - credit linkage in Nigeria, it may be helpful, according to Phillip et al. (1996), to extend insurance

policies to cover both farm and non-farm enterprises and that the community banks and the rural branches of commercial banks can be encouraged to give more rural loans if both farm and non-farm economic activity loans can benefit from insurance covers. Available evidence is also said to have suggested that the rates of return on capital in non-farm businesses often exceed the rates on farm businesses (Ezeugoh, 1991).

(4) There is the need to adopt financial innovations that reduce transaction costs for both lenders and borrowers. For lenders, it will entail decreasing their risks and administrative costs by adopting and adapting informal practices and for borrowers, it will mean finding non-traditional methods of overcoming collateral requirements and decreasing the costs of intermediation with financial institutions. An appropriate approach is to use the solidarity principle to protect against individual and social risks. Using a solidarity group approach with joint liability for borrowing assumed by a group of borrowers has been found to be a viable alternative to the more traditional collateral required by banks. It has also been argued that given the importance of social insurance in the rural sector, insurance schemes or deposits with a tied - insurance element - hold some promise, with the 'money - back' scheme in Ghana which combines informal group-based savings and lending with the safeguards and offerings of more formal financial institutions as a successful example of such a linkage (Saito, 1994).

5. Farmers need to be educated on the use of bank accounts, the filling out of

application forms, the appropriate sources and use of loanable funds and their associated lending prescriptions, as well as impress on farmers the need for farm record - keeping. In addition to purveying credit and mobilising deposits, credit institutions should be in a position to provide enterpreneurial and managerial guidance to agriculture, coordinating their functions closely with the agencies that provide financial and non-financial assistance to this sector.

There is the need, therefore, for developing a workable process in which agricultural extension, for example, will play a major role in credit provision, distribution, utilisation, and repayment. The lending institutions could engage extension staff on ad-hoc basis to supervise, monitor and render periodic progress report on credit-sponsored projects, with the credit institutions bearing part of the cost of these activities, such as the travel expenses of supervisors. According to Anyanwu (1987), extension can contribute more significantly to credit administration and utilisation by encouraging the adoption of new and proven crop production techniques by farmers; organising and executing relevant farm practice demonstrations in cooperation with their bank counterparts from which credit beneficiaries can take a cue to establish their own projects; organising local level visits by credit beneficiaries to successful credit-supported projects and developing in cooperation with lending institutions some type of recognition for successful users of credit by occasionally selecting and recognising successful farmers and credit-sponsored projects.

These assertions are to some appreciable extent supported by Aku (1981) and the FAO (1959) to the effect that merely advancing loans to farmers without teaching their productive use increases rural indebtedness and that the combination of the provision of credit with appropriate technical assistance and advisory services is the best means of minimising risks, both in respect of borrowers and lenders.

The above arguments are further reinforced by Olukosi et al. (1991) to the effect that credit is not in itself a solution to agricultural problems and a means of rural progress but rather is an important element in an integrated approach which also covers advisory services for improving production and productivity, marketing and other aspects and that these elements are inter-related to the extent that none of them can produce lasting satisfactory result without being supported by the others.

(6) The encouragement of the formation of credit and savings societies as well as the cultivation of saving habit among farmers should be given adequate attention. Studies in rural areas of Nigeria and other developing countries have reportedly shown that even small producers in poor areas can and do save significant amounts if given the opportunity to do so (Huppi and Braverman, 1991).

Similarly, indigenous group-based savings and credit activities are said to have proven to be capable of uniting local people to identify their needs and mobilise their own resources and by so doing enable rural dwellers to provide for themselves what the government and other agencies can not (Seibel and Damachi, 1982; Ijere, 1988).

It has been argued that there is the need to tie up the rural savings scheme with rural credit scheme and that the Nigerian Agricultural and Cooperative Bank's mandate should include a savings component, that is, a savings bank that emphasises savings mobilisation and direct individual loan extension in rural areas (Olukosi, 1988).

Besides, the seasonal nature of agricultural operations makes it much less likely that earnings will closely match the timing of expenses, hence the need for farmers to save enough cash earnings for investment at the beginning of each cropping season so as to limit the possible losses in farming time and returns that may be associated with both lateness in the receipt of credit and inadequate loan receipts.

(7) There should be sustained and greater government commitment to the agricultural sector particularly in terms of the provision of good roads and transport facilities, efficient research and extension services, local availability of supplies and

equipment, production incentives for farmers and good health and education services.

It has been argued that widespread and sustained agricultural development and a fuller realisation of the impact of credit is possible only when these complementary factors are available and that this largely informed the World Bank's introduction of the "New Africa Agricultural Services Initiative" in 1988, specifically intended to improve agricultural credit, research, extension, animal health, input supply, forestry, rural roads and other agricultural services in many African countries (Saito and Weidemann, 1990).

The commitment sought should also be seen to be reflected not only in the recognition of the needs and circumstances of farmers in national development policies, but also in their involvement in the design and implementation of credit policies and programmes. As Lele (1972) has rightly noted: "factors related to the development of an efficient agricultural credit system requires proper organisation and effective implementation of numerous functions embracing the agricultural sector as a whole".

5.4 Suggestions for Further Research

(1) There is the need to investigate the extent to which the diversion of loans to

purposes other than those specified at the time of borrowing as a result of the fungible nature of credit affects credit demand by borrowers. Serious concerns have been expressed to the effect that the poor management of funds and other resources by farmers, derived partly from the diversion of loan funds to non-productive purposes, illiteracy and poor supervision, has often culminated in loan defaults with particularly serious consequences for future loan deliveries, receipts and repayment.

(2) An appropriate modelling and determination of the following is also necessary: the extent to which farmers' demand for and access to credit is affected by the risks confronting him, for example, those relating to the incorrect forecasting of annual net cash flows of revenue over the entire economic life of an investment project and to uncertainties about future directions of prices; level of technology employed in production as reflected, for example, in the use or non-use of fertiliser, use or non-use of improved seeds and other components of improved technology.

(3) There is the need for research on the evolution of quasi-formal innovative institutions capable of providing financial services to farmers. Emphasis should be laid on evolving institutions and programmes that are poverty - oriented and will intermediate socially in ways traditional banks would not or will experiment with ways to combine commercial and social banking objectives; and will be

capable of investigating prospective clients to assess their needs and develop a service delivery model suitable to local circumstances. The importance of the recommended social component of credit programmes is underscored by Boomgard's (1989) arguement to the effect that to judge all credit and savings programmes on the basis of whether their operations are financially self-sustaining is to ignore the important social and development benefits that are not reflected in profit statements.

REFERENCES

Abdi, A.I. 1978. Commercial Banks and Economic Development: The Experience of East Africa, New York: Praeger.

Abdulsalam, Z. 1997. "Socio-economic Analysis of the Production of Selected Main Crops Involved in Cross-Border Trade in Katsina State of Nigeria", M.Sc. Thesis, Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria.

Acharya, S. 1981. "Development Perspectives and Priorities in Sub-Saharan Africa", Finance and and Development, 18(1): 16-19.

Agbo, C.I. and D.O.A. Phillip. 1991. "The Nigerian Concept of Rural Banking and Credit Needs of Small Farm Agriculture". The Nigerian Journal of Rural Economy and Society, 1(1): 9-15.

Adams, D.W. and D.H. Graham. 1984. "A Critique of Traditional Agricultural Credit Projects and Policies", pp.313-328, in Agricultural Development in the Third World, C.K. Eicher and J.M. Staatz, (Eds.), The Johns Hopkins University Press., Baltimore, Maryland.

Adams, D.W. and G.I. Nehman. 1979. "Borrowing Costs and the Demand for Rural Credit", Journal of Development Studies, 15: 165-176.

Adekanye, T.O. 1983. "Agricultural Credit in Africa: Implications of the Nigerian Experience", Journal of Administration, 14(4):203-211.

Ajayi, F., S. Anza, B. Ephson, C.L. Morna and K.Y. Anseck, 1990. "Tools of the Trade: Do Farmers Have the Right One?", African Farmer, (5): 5-13.

Aku, P.S. 1981. "Problems in the Implementation of the Agricultural Credit Guarantee Scheme Fund: A case study of selected Credit Institutions in Kaduna state of Nigeria", Unpublished M.Sc. Thesis, Dept. of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria, Nigeria.

Aneke, S.O. 1981. "Sources, Uses and Problems of Small-Scale Farmers in Ukaru and Udi Local Government Areas of Anambra state", Unpublished B.Sc. Research Project, Dept. of Agricultural Economics, University of Ibadan, Nigeria.

Anyanwu, A.C. 1987. "The Role of Extension in Agricultural Credit Administration in Nigeria", CARDOSO, 5(1):17-22.

Araaujo, P.F.C. 1967. "An Economic Study of Factors Affecting the Demand for Agricultural Credit at the Farm Level", M.Sc. Thesis, Ohio State University, Ohio, United States of America.

Aryeetey, E. and W.F. Steel 1992. "Incomplete Linkages Between Formal and Informal Finance in Ghana", pp.65-91, in Financial Deepening in Sub-Saharan Africa: Theory and Innovations W.F. Steel, ed., Industry Series Paper No.62, The World Bank, Washington, D.C.

Ashe, J. and C.E. Cosslet. 1989. Credit for the Poor: Part Activities and Future Directions for the United Nations Development Programme, UN Discussion Paper. New York: United Nations.

Atala, T.K. 1984. "The relationship of socio-economic Factors in Agricultural Innovation and Utilisation of Information Sources in Two Nigerian Villages", The Nigerian Journal of Agricultural Extension, 2(1 & 7):1-10.

Bailey, L.E. 1990. Final Report: Informal Markets in Uganda and Potential Implications for Monetary Policy, Robert Nathan Associates Inc., Washington, D.C. 1990.

Balogun, E.D. 1986. "Agricultural Development Strategies in Nigeria: Past, Present and Future", in The Nigerian Agricultural Outlook, A. Okorie and M.O. Ijere, eds., A publication of the Nigerian Association of Agricultural Economists (NAAE), June 1986.

Barau, A.D. 1987. "A Simulation Analysis of the Effects of Credit Terms, Debt and Farm Size on Financial Performance of Ontario Dairy Farms", Unpublished Ph.D. Dissertation, Dept. of Agricultural Economics and Business, University of Guelph, Ontario, Canada.

Barau, A.D. 1991. "Resource-Poor Farmers in Nigerian Agriculture: How Not to Help Them", in Appropriate Technologies for Resource - Poor Farmers, J.O. Olukosi, A.O. Ogungbile and B.A. Kalu, eds., A publication of the Nigerian National Farming System Research Network, April 1991.

Barry, P.J., A.J. Hopkin and C.B. Baker, 1973. Financial Management in Agriculture. The Interstate Printers and Publishers Inc., Danville, Illinois.

Berger, M. 1989. "Giving Women Credit: The Strengths and Limitations of Credit as a Tool for Alleviating Poverty", World Development, 17(7):1017-1032.

Bhaduri, A. 1977. "On the Formation of Usurious Interest Rates in Backward Agriclture", Cambridge Journal of Economics, 1:341-352.

Bhatt, V.V. 1986. "Improving the Financial Structure in Developing Countries", Finance and Development, 23(2): 20-22.

ZARIA NIGERIA
Ahmadu Bello University

Braverman, A. and J. Luis Guasch. 1989. "Rural Credit in Developing Countries", Policy, Planning and Research Working Paper 219. The World Bank, Washington, D.C.

Braverman, A., J. Luis Guasch, M. Huppi and L. Pohlmeier. 1991. Promoting Rural Cooperatives in Developing Countries, Discussion Paper 121, The World Bank, Washington, D.C.

Brenner, Y.S. 1971. Agriculture and the Economic Development of Low-Income Countries, Netherlands Institute of Social Studies, The Hague.

Boehlje, M. 1990. "Some Observations on Future Challenges in Agricultural Lending", in Financing Agriculture in a Changing Environment: Macro, Market Policy and Management Issues, ONC-161, Committee Meeting, Kansas City, Misoure, Sept. 24-25, 1990.

Boomgard, J.S. and K.S. Angell. 1990. Developing Financial Services for Micro-enterprises: An Evaluation of USAID Assistance to the BRI Unit Desa System, Development Alternatives, Inc., Washington, D.C.

Boomgard, J.S. 1989. "A.I.D. Microenterprise Stock-Taking: Synthesis Report". AID Evaluation Occasional Paper, U.S. Agency for International Development, Washington, D.C., 1989.

Bottomley, A. 1963. "The Premium for Risk as a Determinant of Interest Rates in Underdeveloped Rural Areas", Quarterly Journal of Economics, 77: 637-647.

Byerlee, D., C.K. Eicher, C. Liedholm and D.S.K. Spencer, 1979. Employment - Output Conflicts, Factor-Price Distortions and Choice of Technique: Empirical Results from Sierra Leone, African Rural Economy Working Paper No.26, Michigan State University, East Lansing.

Cernea, M. and D.W. Bromley. 1991. The Management of Common Property Natural Resources: Some conceptual and Operational Fallacies, Discussion Paper 57, The World Bank, Washington, D.C.

Cheasty, A. and M.I. Blejer, 1986. "Using Fiscal Measures to Stimulate Savings in Developing Countries", Finance and Development, 23(26):16-19.

Christen, R.P. 1989. What Micro-enterprise Credit Programmes Can Learn from the Money Lenders, Discussion Document No.4, Cambridge, Mass.: Accion International.

Cleaver, K.M. 1993. A strategy to Develop Agriculture in Sub-saharan Africa and a Focus for the World Bank, Technical Paper 203, The World Bank, Washington, D.C.

Cleaver, K.M. and G. Schreiber. 1992. The Population, Agriculture and Environment Nexus in Sub-Saharan Africa, Agriculture and Rural Development Series No.1, The World Bank, Washington, DC.

Davidson, S. and M. James. 1982. "Financing Rural America: A Public Policy and Research Perspective", in Rural Financial Markets: Research Issues for the 1980s, Federal Reserve Bank of Chicago, Dec. 1982.

Dessing, M. 1990. Support for Micro-enterprises: Lessons for Sub-saharan Africa. Technical Paper 122, The World Bank Washington, D.C.

Ebhodaghe, J. 1992. "Refinancing state Government Debt to Banks" Finance Quarterly, The Concord, Tuesday, June 30, 1992.

Eicher, C.K. and J.M. Staatz. 1984. Agricultural Development in the Third World. The Johns Hopkins University Press, Baltimore, Maryland.

Ezeugoh, S.C. 1991. "Financing the Rural Economy: The Role of Insurance", Paper Presented at the Nigerian Agricultural Insurance Company's Management Conference held at Owerri, Imo State, Nigeria.

Falusi, B. 1983. "Socio-economic Factors Hindering the Development of Effective Agricultural Credit Programmes in Nigeria", paper presented at a symposium on Rural Development, University of Ife, Nigeria. Nov. 22-23, 1973.

FAO. 1959. Agricultural Credit in Economically Underdeveloped Countries, Food and Agricultural Organisation of the United Nations, Rome, 1959.

Fabiyi, Y.H. and E.O. Idowu. 1991. "investment Behaviour of Farmers in South-Western Nigeria: Implications for Policy and Research", in Appropriate Agricultural Technologies for Resource - Poor Farmers, J.O. Olukosi, A.O. Ogungbile and B.A. Kalu, (Eds.), A publication of the Nigerian National Farming Systems Research Network.

Feder, G., R.E. Just and D. Zilberman 1985. "Adoption of Agricultural Innovations in Developing Countries: A Survey" Economic Development and Cultural Change, 23(2):255-298.

23(2):255-298.

Finness, E.L. 1975. Money and Savings in Developing Africa, Heinmann Educational Books Ltd.

Firth, R. 1964. "Capital, Saving and Credit in Peasant Societies: A View point from Economic Anthropology", in Capital, Saving and Credit in Peasant Societies, R. Firth and B.S. Yamey, (Eds.), George Allen and Unwin Ltd, London.

Freshwater, D. 1990. "The Federal Role in Financing Rural America", in Financial Market Intervention as a Rural Development Strategy, ERS Staff Report No. AGES 90-70, Econ. Res. Serv., U.S. Dept. Agric., 1990.

Gabianu, A.S. 1990. "The Susu Credit System: An Ingenious Way of Financing Business Outside the Formal Banking System", in The Long-Term Perspective Study of Sub-saharan Africa: Economic and Sectoral Issues, Background Paper 2, The World Bank, Washington, D.C.

Gonzalez-Vega, C. 1976. "On the Iron Law of Interest Rate Restrictions: Agricultural Credit Policies in Costa Rica and other less developed countries", Unpublished Ph.D. Dissertation, Stanford University, United States of America.

Gonzalez-Vega, C. 1984. "Interest Rate Restrictions and Income Distibution", in Agricultural Development in the Third World, C.K. Eicher and J.M. Staatz, (Eds.), The Johns Hopkins University Press Ltd, Baltimore, Maryland.

Gonzalez-Vega, C. 1986. "The Ohio State University's Approach to Rural Financial Markets: A Concept Paper", Unpublished Working Paper, Dept. of Agricultural Economics and Rural Sociology, Ohio State Univerisity, 1986.

Galbraith, J.K. 1952. "The Role of Agricultural Credit in Agricultural Development", in Proceedings of the International Conference on Agricultural and Cooperative Credit, University of California, Berkeley, United States of America.

Holt, S.L. and H. Ribe 1991. Developing Financial Institutions for the Poor and Reducing Barriers to Access for Women. Discussion Paper No.117, The World Bank, Washington, D.C.

Huppi, M. and G. Feder, 1989. "The Role of Groups and Credit Cooperatives in Rural Lending", Agricultural and Rural Development Dept. Paper, The World Bank, Washington, D.C.

Huppi, M. and A. Braverman. 1991. "Improving Rural Finance in Developing Countries", Finance and Development, 28(1): 42-44.

Hettige, H. 1992. "Financial Deepening in sub-saharan Africa: An Analytical Framework", pp.1-23, in Financial Deepening in Sub-saharan Africa: Theory and Innovations, W.F. Steel, ed., Industry Series Paper No.162, The World Bank, Washington, D.C.

Harrison, P. 1990. "Sustainable Growth in African Agriculture", pp.48-73, in The Long-Term Perspective Study of Sub-saharan Africa: Economic and Sectoral Policy Issues, The World Bank, Washington, D.C.

Howse, C.J. 1983. "Agricultural Development without Credit", in Rural Financial Markets in Developing Countries, J.D. Von Pischke, D. Adams and G. Donald, eds., Baltimore: Johns Hopkins University Press.

Ibezim, N.U. 1985. "Production and Marketing of Rice and Maize by Small-Holder Farmers in Uzo-Uwani and Nsukka Local Government Areas of Anambra state", Unpublished M.Sc. Thesis, Dept. of Agric. Econs., University of Nigeria, Nsukka.

Iheanacho, A.C. 1989. "An Analysis of Agricultural Credit Recovery Strategies of Major Lending Agencies in Imo State, Nigeria", M.Sc. Thesis, Department of Agricultural Economics, University of Nigeria, Nsukka, Nigeria.

Ijere, M.O. 1986. New Perspectives in Financing Nigerian Agriculture, Fourth Dimension Publishers, Enugu, Nigeria.

Ijere, M.O. 1987. "Role of Government in Credit Administration", Paper delivered at the 3rd Workshop on Agricultural Finance and Credit Administration, July 27-August 8, 1987, Centre for Rural Development and Cooperatives, University of Nigeria, Nsukka.

Ijere, M.O. 1988a. "Government Policies and Agricultural Credit Administration", Paper delivered at the 4th National Agricultural Finance and Credit Administration (NAFCAT) Workshop, 1988.

Ijere, M.O. 1988b. Management Potential of Self-Help Organisations, Centre for Rural Development and Cooperatives, University of Nigeria, Nsukka, Nigeria.

Jayne, T.S., J.C. Day and H.E. Dregne. 1989. Technology and Agricultural Productivity in the Sahel, Agricultural Economic Report No.612, Econ. Res. Serv., U.S. Dept. Agri, Oct. 1989.

Johnson, O. 1988. "Agriculture and Fund-Supported Adjustment Programmes", Finance and Development, vol.25, No.2, pp.38-40.

Johnston, J. 1984. Econometric Methods. New York: McGraw-Hill.

Karkal, G. 1967. Unorganised Money Markets in India, Bombay.

Khatkhate, D.R. 1986. "Estimating Real Interest Rates in LDCs", Finance and Development, 23(2):45-48.

Khatkhate, D.R. and D.P. Villanueva. 1978. "Operation of Setective Credit Policies in Less Developed Countries: Certain Critical Issues", World Development, 6(7 & 8):979-990.

Kohli, H.S. and A. Sood. 1987. "Fostering Enterprise Development", Finance and Development, 24(1):34-36.

Koutsoyiannis, A. 1981. Theory of Econometrics, The Macmillan Press Limited, London.

Kula, O. and D. Rogers. 1991. Farmland Ownership and Renting in the United States, Staff Report No. AGES 9130, Econ. Res. Serv., U.S. Dept. Agri., 1991.

Leite, S.P. 1982. "Interest Rate Policies in West Africa", IMF Staff Papers 29(1):48-76.

Leite, S.P. and V. Sandararajan. 1990. "Issues in Interest Rate Mnagement and Liberalisation", IMF Staff Papers, 37(4): 735-52.

Lele, U. 1972. "Role of Credit and Marketing Functions in Agricultural Development", Paper presented at the International Economists Association Conference on: Agriculture in the Development of Low-Income countries, Godesberg, Germany, Aug.26-Sept.4, 1972.

Lele, U. 1981. "Cooperatives and the Poor: A Comparative perspective", World Development, 9:55-72.

Lele, U. and K. Adu-Nyako. 1991. "An Intergrated Approach of Strategies for Poverty Alleviation: A Paramount Priority for Africa", International Working Paper Series IW91-6, Food and Resource Economics Department, University of Florida, United State of America.

Long, M.F. 1968. "Why Peasant Farmers Borrow", American Journal of Agricultural Economics, 50(4):991-1008.

Lycette, M. and K. White, 1989. "Improving Women's Access to Credit in Latin America and the Caribbean: Policy and Project Recommendations", in Women's Ventures: Assistance to the Informal Sector in Latin America, M. Berger and M.

Buvinic, (Eds.), West Hartford, Conn: Kumarian Press, 1989.

McKinnon, R.I. 1973. Money and Capital in Economic Development, The Brookings Institution, Washington D.C.

Matlon, P.J. 1978. "Income Distribution and Patterns of Expenditures, Saving and credit Among Farmers in the North of Nigeria", Occasional paper No.96, Dept. of Agricultural Economics, Cornell University, Ithaca, New York.

Melichar, E. 1965. "Factors Related to Farmers Use of Credit: Least Squares Analysis of Sample Survey Data", Journal of Farm Economics, 47:1468-1473.

Mellor, J. 1985. "The Role of Government and New Agricultural Technologies". Food Policy Statement No.4, International Food Policy Research Institute (IFPRI), Washington, D.C.

Migot-Adholla, S., P. Hazell, B. Blarel and F. Place 1991. "Indigenous Land Rights Systems in Sub-saharan Africa: A Constraint on Productivity?" The World Bank Economic Review, 5(1):155-175.

Miller, L.F. 1977. Agricultural Credit and Finance in Africa, Rockefeller Foundation, 1977.

Mohammed, M.M. 1984. "An Analysis of the Factors Affecting the Use of Credit at the Farm Level", M.Sc. Thesis, Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria.

Mohammed, M.M. and E.C. Nwagbo. 1986. "Factors Affecting the Need for Credit at the Farm Level: The Case of Farmers in Gusau Local Government Area of Sokoto State, Nigeria", The Nigerian Journal of Agricultural Extension 4(1):22-29.

Nielsen, E.G., J.A. Miranowski, and M.J. Morehart, 1989. Investments in Soil Conservation and Land Improvements: Factors Explaining Farmers' Decisions, Agricultural Economic Report No.601, Econ. Res. Serv., U.S. Dept. Agr., January 1989.

Nisbet, C. 1967. "Interest Rates and Imperfect Competition in the Informal Credit Market of Rural Chile", Economic Development and cultural change, 16(1):73-90.

Njoku, C.E, 1991. "Factors Influencing the Adoption of Improved Oil Palm Production Technologies by small-holder farmers in Imo state of Nigeria", pp.207-248, in Appropriate Agricultural Technologies for Resource-Poor Farmers, J.O. Olukosi, A.O. Ogungbile and B.A. Kalu, eds., A publication of the Nigerian Farming Systems Research Network, 1991.

Nmadu, J.N. 1998. "Impact of Bejin-Doko Community Bank on the Income of Small-Scale Farmers in Doko and Jima Districts of Niger State, unpublished M.Sc. Thesis, Dept. of agric. Econs., Ahmadu Bello University, Zaria, Nigeria.

Nweze, N.J. 1991. "The Role of Women's Traditional Savings and Credit Cooperatives in Small-Farm Development", In: Issues in African Rural Development, C.R. Doss and C. Olson (Eds.), Winrock International Institute for Agricultural Development, Arlington, Virginia, United States of America.

Ogunbiyi, A.A. 1991. "Managing a Nigerian Agricultural Insurance Scheme", CARDOSO, 8(1):13-17.

Ogunfowora, O., S.M. Essang and S.O. Olayide. 1972. "Capital and Credit in Nigerian Agricultural Development", Rural Development Paper, No.6, Dept, of Agric. Econs. and Extension, University of Ibadan, Nigeria.

Olayide, S.O. and S. Famoriyo. 1980. "Land Tenure Systems and Small Farmers in Nigeria", in Nigerian Small Farmers: Problems and Prospects in Integrated Rural Development, S.O. Olayide, J.A. Eweka and V.E. Bello, eds., The Lexiton Press, Ibadan, Nigeria.

Okigbo, P. 1984. "Reforming the Banking System for the 1990s". First Bank Quarterly Bulletin, 6(4):24-56.

Okigbo, B.N. 1991. "The Challenges of Farming Systems Research in Tropical Africa", Journal of the West African Farming Systems Research Network, 1(1):7-15.

Okorie, A, 1988. "Role of Commercial Banks in Funding Agriculture in Nigeria, 1960-1986", The Nigerian Agricultural Journal, 23(2):1-10.

Okorie, A. and A.C. Iheanacho. 1992. "Agricultural Loan Recovery Strategies in a Developing Economy: A case study of Imo State, Nigeria", African Review of Money, Finance and Banking, 2:195-202.

Olieh, C.N.E. 1980. "Financing Agricultural Development: Issues and Problems", Central Bank of Nigeria Bulletin (July-Sept., 1980), pp.16-20.

Olukosi, J.O. 1988. "Financing Agriculture in Nigeria: Performances and Challenges of the Nigerian Financial System", Paper presented at the In-Plant Training Course in Agricultural Credit Management, Kongo Conference Hotel, Zaria, Nigeria, September 5-30, 1988.

Olukosi, J.O. and A.O. Ogungbile. 1991. "An Overview of the Problems of Resource-Poor Farmers in Nigerian Agriculture" in Appropriate Agricultural Technologies for Resource-Poor Farmers, J.O. Olukosi, A.O. Ogungbile and B.A. Kalu, (Eds.), A Publication of the Nigerian National Farming Systems Research Network, 1991.

Olukosi, J.O., P.O. Erhabor and I.U. Odoemenem. 1991. "The Role of Credit Institutions and the Private Sector to Appropriate Agricultural Technologies for Resource-Poor Farmers", In Appropriate Agricultural Technologies for Resource-Poor Farmers, J.O. Olukosi, A.O. Ogungbile and B.A. Kalu, (Eds.), A Publication of the Nigerian National Farming Systems Research Network, 1991.

Oyatoye, E.T.O. 1983. "The Nigerian Banking System and Credit Needs for Rural Development", pp.40-53, in Rural Banking in Nigeria, A. Osuntogun and W. Adewumi, (Eds.), The Nigerian Institute of Bankers, Lagos, Nigeria.

Phillip, D.O.A., B. Phillip, J.E. Agada and M.G. Maiangwa. 1996. "Agricultural Risk Evaluation and Insurance in Nigeria: A Review", Nigerian Journal of Rural Economy and Society 1(2):14-28.

Saito, K.A. 1994. Raising the Productivity of Women Farmers in Sub-Saharan Africa, Discussion Paper No.230, The World Bank, Washington, D.C.

Saito, K.A. and C.J. Weidemann. 1990. Agricultural Extension for Women Farmers, Discussion Paper No.103, The World Bank, Washington, D.C.

Schuh, E.G. 1993. "Some Thoughts on Agricultural Development in Mozambique", Paper prepared at the Invitation of the World Bank, March 1993.

Shetty, S.L. 1978. "Performance of Commercial Banks since Nationalization of Major Banks: Promise and Reality", Economic and Political Weekly, vol.13, pp.1407-1451.

Siebel, H.D. 1989. "Linking Informal and Formal Financial Institutions in Africa and Asia", in J. Levitsky, ed., Microenterprises in Developing Countries, Intermediate Technology Publications, London.

Siebel, H.D. and U.G. Damachi. 1982. Self-Help Organisations:Guidelines and Case Studies for Development Planners and Field Workers - A Participatory Approach, Friedrich-Ebert-Stiffung, Bonn, West Germany

Shaffer, J., M. Weber, H. Riley and J. Staatz. 1983. "Influencing the Design of Marketing Systems to Promote Development in Third World Countries", Paper presented at the International Workshop on Agricultural Markets in the Semi-Arid Tropics, Hyderabad, India, 1983.

Shaffer, R. and G.C. Pulver, 1990. "Rural Non-Farm Businesses' Access to Debt and Equity Capital" in Financial Market Intervention as a Rural Development Strategy, Staff Report No. AGES 90-70, Econ. Res. Serv., U.S. Dept., Agri., 1990.

Shaw, E. 1973. Financial Deepening in Economic Development. Oxford University Press.

Stickley, T. 1976. "The Agricultural Credit System in Tunisia: Some Observations and Recommendatons", Mimeograph, Dept. of Agricultural and Applied Economics, University of Minnesota, USA.

Stiglitz, J.E. 1993. "The Role of the state in Financial Markets", pp.19-52, in Proceedings of the World Bank Annual Conference on Development Economics, M. Bruno and B. Pleskovic, (Eds.), The World Bank, Washington, D.C. 1982.

Takagi, Y. and W.F. Steel. 1983. "Small Enterprise Development and the Employment-Output Trade-off", Oxford Economic Papers, 35:423-446.

Teixeira, R.A. and P.L. Swaim. 1991. Skill Demand and supply in the Economy: Issues for Rural Areas", in Education and Rural Economic Development: Strategies for the 1990s, Staff Report No. AGES 9153, Econ. Res. Serv., U.S. Dept. Agri., Washington, D.C.

Tinnermeier, R.C. 1976. "Rural Financial Markets: A Critical Problem Area", Paper prepared for Rural Development Office, U.S. Agency for International Development (USAID), Washington, D.C.

United States Department of Agriculture (USDA). 1987. Positioning Farmer Cooperatives for the future: A Report to Congress, Agricultural Cooperatives Service (ACS), U.S. Dept. Agri., Washington, D.C., Oct. 1987.

Vittas, Z. and Y.J. Cho. 1994. "The Role of Credit Policy in Japan and Korea", Finance and Development, 30(1):10-12.

Vocke, G. 1987. Economic Growth, Agricultural Trade, and Development Assistance, Agricultural Information Bulletin No.509, Econ Res. Serv., U.S. Dept. Agr., Washington, D.C., March 1987.

Von Pischke, J.D. 1979. "The Political Economy of Specialised Farm Credit Institutions in Low-Income Countries" Paper presented at the Workshop on Rural Financial Markets and Institutions, June 12-14, Wye College, Wales, United Kingdom.

Von Pischke, J.D. 1991. Finance at the Frontier. A publication of the Economic Development Institute. The World Bank, Washington, D.C.

Von Pischke, J.D. and W. Schaefer-Kehnert. 1982. Agricultural Credit Policy in Developing Countries. A World Bank publication Series 280, Washington, D.C.

Walton, M. 1990. "Combating Poverty: Experience and Prospects", Finance and Development, 27(3):1-5.

Wai, U.T. 1956. "Interest Rates Outside the Organised Money Markets of Undeveloped countries", IMF Staff Papers, 6: 80-125.

World Bank. 1989. World Development Report 1989: Financial Systems and Development. Oxford University Press.

World Bank. 1991. Trends in Developing Economies, The World Bank, Washington, D.C. 1991