Thesis

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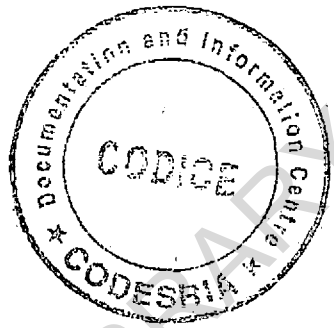
The Comparative Effects of Interest Rates and Non-Price Factors on Rural Savings Supply among Rural Women Farmers in Manyu, Province of Southwest Cameroon

FEBRUARY 2000

THE COMPARATIVE EFFECTS OF INTEREST RATES AND NON-PRICE FACTORS ON RURAL SAVINGS SUPPLY AMONG RURAL WOMEN FARMERS IN MANYU, PROVINCE OF SOUTHWEST CAMEROON.



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TITLE PAGE

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CERTIFICATION

Nganje, Evelyne, a postgraduate student in the department of Agricultural Economics and with the Registration Number PG/Ph.D/95/21647 has satisfactorily completed the requirements for the degree of Doctor of Philosophy (Ph.D) in Agricultural Economics. The work embodied in this thesis is original and has not been submitted in part or full for any other diploma or degree of this or any other University.

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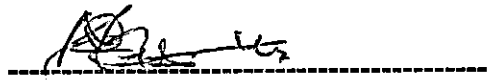

External Examiner

DEDICATION

Dedicated to Nganje, Felix, with all my love.

ACKNOWLEDGEMENT

I am sincerely grateful to all who have rendered help, encourage in the course of this study. First and foremost I thank God for making this day and event possible.

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ABSTRACT

This study was conducted to critically examine the effects of interest rates and non-price factors on rural savings supply among women farmers in Cameroon, with particular reference to Manyu Division. The study was carried out as a result of persistent shortage of credit to rural farmers in Cameroon, despite the introduction of various schemes and policies. It was suspected that this situation might depend to some extent on the poor planning and ineffective execution of the schemes and policies, but more importantly on shortage of savings in the rural areas where a reasonable percentage of food consumed in this country are produced. The orientation of this study was guided by nine hypotheses.

A random sample of 200 farmers was made comprising 100 female-headed and 100 male-headed households. Purposive sampling techniques were used to select 20 formal and 20 informal financial institutions. Primary and secondary data were analysed using multiple regression model, t-tests model, chow tests model and descriptive statistics.

The major findings were that the characteristics of savings institution varied across formal and informal financial institutions, informal institution received higher patronage than formal institution. The study noted that although financial savings consistently increasing over the years in nominal terms, the trend was decreasing in real terms. The study showed that although male-headed households recorded a higher percentage of financial savings than female-headed households, female-headed households' recorded a higher percentage of savings in informal financial institutions than male-headed households.

The study also noted that non-financial savings dominated savings in rural areas. However, the study noted that although rural savings were more

determined by non-price factors than interest rates, interest rates had less influence on total financial savings than those of savings in informal financial institutions.

The study also noted that the major non-price determinants of rural financial savings were level of education, farm income, average propensity to consume, dependency ratio and distance to informal financial institution; while non-financial savings was influenced by income, dependency ratio, family size, and average propensity to consume. There were differences in the non-price determinants of male-headed and female-headed households' financial savings, non-financial savings, and total savings.

The recommendations, among other things, were that formal financial institutions effort should be made by formal financial institutions to reduce bureaucratic processes involved in lodging, withdrawing and lending money to farmers. Encouraging closer contacts with other informal financial institutions would strengthen the institution's managerial ability, thus making it sustainable. The feeble response of rural deposit to interest rates calls for liberalization of interest rate especially in formal financial institutions. Workshops should be organized for both formal and informal financial institutions to strengthen their performance and correct their weaknesses.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The importance of agriculture in a developing economy cannot be overemphasized. Growth in agriculture is often the keystone to overall socio-economic growth and development. Rural farmers are the main actors in agricultural development as they account for about 90% of food production in Cameroon and other developing countries (Olayide, 1981; Adams and Vogel, 1990). For many years to come, contribution of rural farmers to agricultural production may not change, because of rural farmers' peculiar circumstances and government policies and programmes. In addition, it has been reported that women in sub-saharan Africa now dominate smallholder farming and account for more than three-quarters of the food produced in the region (Okorji, 1988; Saito, 1994; Quisumbing, *et al*, 1996). Therefore, it is safe to assume that the percentage of women participating in agricultural production is increasing. This increasing trend of participation of women in agricultural production in sub-saharan Africa is attributed to the recent social and economic circumstances, particularly growing population pressure and migration of men to urban cities in search of more remunerative jobs (Mayra and Rekha, 1990; Anne and Metz, 1997).

Generally, the goal of economic diversification, through food production, requires enhancing the productive capacity of rural farmers. Put differently, expanding rural farmers' economic opportunities and earning potentials through farming will raise rural farmers' own living standards and make them contribute more to economic development.

However, the contribution of rural farmers to agriculture is affected by access to information, access to credit, illiteracy, and cultural and numerous socio-economic factors (Adams and Vogel, 1990). According to Okorie (1991) and Okonjo (1991), in many African countries, including Cameroon, lack of access to credit or its inadequacies is most frequently mentioned as a leading constraint to increased agricultural production. The constraint is particularly more acute for women than men, most of who could improve on their agricultural production if they had the requisite financial resources (Coleman, 1997). Generally, lack of access to credit by rural farmers is attributed to the fact that not only that most of the rural farmers rarely attain formal education, but also lack collateral, which virtually locks them out of the conventional banking system. Worse still, credit obtained from informal financial institutions is not always enough for a meaningful increase in their agricultural production (Agu, 1985; Sarris, 1996).

In view of this particular circumstance of credit situation in rural sector, and peculiar constraint that surround credit availability to rural farmers, reports have shown that a sustainable way to reduce this problem is through enhanced savings mobilization from rural farmers themselves to increase the amount of loan able funds in rural banks as well as to increase the extent to which they accumulate capital for farming (Okorie, 1993; Rosenweig and Wolpin, 1993; Dwight, 1994; Saito, 1994). In addition, Adams and Vogel (1990) reported that policies that focus on improving services for savers are, therefore, a better way to help the rural poor farmers than is cheap credit.

Saving is a means of accumulating assets that perform specific functions for the saver (Vogel, 1981; Qian, 1983). Savings is categorized into financial and non-financial (physical) savings. Financial savings can be

mobilized in formal and informal credit institutions. The difference between formal and informal credit institutions is defined in their modes of operation and control. Household savings is viewed as a major form of domestic savings in most developing countries including Cameroon (Deaton, 1997). Therefore effective savings mobilization must focus on the household unit. In addition, since farmers constitute the major component of rural population, the extent of savings mobilization in the rural area is determined by savings mobilization strategies that focus on farmers. Desai and Mellor (1993) noted that rural households are mainly farmers who prefer to hold their savings in physical productive assets. These farmers also rely on external credit (which always comes from financial savings mobilized) to finance their farming activities.

In spite of efforts and strategies to mobilize saving in rural areas, through establishment of schemes and programmes in Cameroon, low savings is still prevalent in these areas. Evidence abounds that savings rate, even as percentage of gross domestic product, is deteriorating. Empirical evidence suggests that domestic savings formed about 15.5% of GDP from 1965 to 1973 and about 7.2% from 1982 to 1992 (Behr, 1993). Domestic savings is therefore central to understanding growth differentials among countries

Notwithstanding, financing the rural farmers by formal institutions is premised on the assumptions that farmers and rural households are net borrowers, poor and unable to save, with no source of credit except the usurious moneylenders (Seibel and Marx, 1985). The main consequences of these assumptions are the neglect of the savings potential of traditional areas or rural farmers including that of women.

Recently, many researchers have tried to analyse the determinants of savings mobilization and savings behaviour in rural areas (Zeller, *et al*, 1997; Desai and Mellor, 1993; Fry, 1988; Sarris, 1996; Deaton, 1997; Slovin and Sushka, 1977). They severally came to different conclusions. But often such differences centered on non-price factors and interest rate charged by financial institutions. Empirical evidence abounds to support the notion that interest rates charged by financial institutions are a major determinant of saving mobilization (Fry, 1988; Sarris, 1996; Edward, 1994). There is also strong evidence that household socio-economic and other non-price factors significantly affect the total saving mobilized (Deaton, 1997; Udry, 1990).

1.2 Statement of Problem

The main problem currently facing the Cameroonn economy (which is poor performance of her agricultural sector) is not only increasing but is worsening even with various programmes geared towards its growth and sustainability. This problem is as a result of numerous constraints facing agricultural production. Credit has been identified as the most important constraint to agricultural production especially among the smallholder farmers. This is because credit is needed by farmers to finance agricultural production. Also the realization of income and act of expenditure do not occur at the same time. However, far more important than this reason are the stochastic surges in credit and saving need that accompany technological innovation in agriculture (Desai and Mellor, 1993; Sarris, 1996; Aryeetey and Udry, 1997) The major problems associated with credit needs for rural farming could be addressed through effective savings mobilization in rural areas. Since the majority of rural dwellers are farmers, the importance of developing appropriate policy to enhance farmers' savings supply has

become a compelling necessity. Therefore, farmers need not just cheap loans, but also more and better opportunities for savings, partly to reduce their dependency on borrowing. In addition, reports have shown that 60 to 70% of rural farm investments are financed through farmers' savings (Saeed, *et al*, 1996). These are the reasons why savings mobilization is regarded as a means for solving credit problems in rural areas.

However, low savings (both in physical and financial terms) has been identified among rural farmers (Desai and Mellor, 1993). Low savings places a limit to farmers' scale of operation through low investment. In addition, almost all rural finance projects in Low Income Countries (LIC's) have stressed low-interest loan for agriculture and have neglected savings mobilization. This bias towards lending finance is also reflected in the literature of rural finance (Donald, 1976). In Cameroon, the situation is even worse. Evidence from rural areas in Cameroon showed that, in spite of several efforts made to enhance savings mobilization, the schemes and policies have been marginal and unsatisfactory (Okorie, 1991).

However, because a number of studies do not make a distinction between financial and non-financial savings, total savings was assumed to be only financial savings neglecting the fact that in developing countries physical savings dominated financial savings (Schmidt and Kropp, 1987). This meant that only a minute aspect of total savings was considered in such analysis. This is clearly inappropriate and often leads to misleading recommendations and conclusions. Therefore, this study will examine and differentiate physical savings from financial savings as well as the relative importance of the determinants of each type of savings.

Apart from criticism received by both formal and informal financial credit markets in financial savings mobilization, most studies have stressed the importance of interest rate alone as an effective policy instrument for increasing savings in rural areas (Fry, 1988; Okorie, 1991; Edwards, 1994). Others like Udry (1990) and Deaton (1997) have reported that total savings mobilized are determined, to a large extent, by non-price factors prevailing around the savers, such as, difference in socio-economic and cultural factors and access to financial institutions, among others. These varying views of determinants of savings show that there is still controversy about the determinants of savings. Specifically, Edward (1994) noted that little works done on the determinants of rural savings have been controversial and have offered limited help to policy-makers on how savings rates can be increased. More importantly, the issue about targeting rural farmers and rural financial institutions may give better policy issues about determinants of rural savings.

In view of this therefore, it becomes necessary to investigate the effects of interest rates and non-price factors on rural savings supply as they concern rural farmers in Cameroon. This will help in making appropriate policy for rural savings mobilization for agricultural growth and development in rural Cameroon.

1.3 Objectives of the Study

The broad objective of this study is to investigate the effects of interest rates and non-price determinants on rural savings supply among the rural farmers in Cameroon.

Specifically, this study seeks to:

i. identify and describe the characteristics, management and level of patronage of various financial institutions in the study area;

ii. identify and describe the various forms of rural savings, the motives for saving as well as compare the values of financial and non-financial savings;

iii. ascertain the effect of interest rates on rural financial savings;

iv. determine the effect of non-price factors on financial and non-financial savings as well as relative importance of independent variables to the dependent variable;

v. ascertain the effect of different household-head non-price factors on financial and non-financial savings;

vi. compare the determinants of non-price factors on different types of male and female headed household savings; and

vii. make recommendations based on the findings of the study with a view to improving the existing policy framework for rural savings mobilization vis-à-vis agricultural growth.

1.4 Hypotheses of the Study

Based on the specific objectives, this study was guided by the following null hypotheses:

a. there are no significant difference between the values of savings held in formal and informal institutions by farmers;

b. there are no significant difference between the values of financial and non-financial savings held by farmers;

c. there are no significant effect of interest rates on financial savings;

d. there are no significant effect of non-price factors on rural financial savings;

e. there are no significant effect of non-price factors on non-financial savings supply by rural farmers;

f. there are no significant effect of non-price factors on total savings supply by farmers;

g. there are no significant difference between the non-price determinants of financial savings mobilized by male and female headed households;

h. there are no significant difference between the non-price determinants of non financial savings mobilized by male-headed and female headed households; and

i. there are no significant difference between the non-price determinants of total savings mobilized by male and female headed households.

1.5 Justification of the Study

Cameroon's economic problems have been largely blamed on over dependence on oil and the neglect of agricultural production. However, for agricultural production to grow, effort must be made in ensuring that resources are available to rural farmers. However, this has not been achieved both quantitatively and qualitatively especially as it concerns rural credit or savings. This study therefore would throw more light on the constraints associated with mobilizing savings as well as on attitude of rural savers in mobilizing savings with a view to increasing farm investment in rural areas.

A significant number of studies do not make a distinction between the financial and non-financial forms in which rural farmers hold their savings. This is unfortunate, because many times savings are considered to be identical to deposits (financial savings). This is clearly inappropriate. This study has, therefore, distinguished between these forms of savings as well

as examined the gender differences in the determinants of savings behaviour in rural farming households.

The results of this study will assist agricultural policy makers, and other governmental and non-governmental agencies that are concerned with gender studies and women empowerment. Most importantly, this study will assist policy makers in formulating appropriate policy for rural finance especially as it concerns savings mobilization in rural areas. Also, this work will benefit the researchers and students as a reference point for further and related studies.

1.6 Scope and Limitations of the Study

This study is limited in scope to rural farmers in Cameroon. The study concentrated on female-headed and male-headed households. The study was also restricted to those financial institutions, which had been in operation for at least six years. The interest rate factors were used only in financial savings while non-price determinants were used in both financial and non-financial savings.

The research was carried out where illiteracy was widespread and where most farmers kept no formal records of their farming activities and other components of savings. In most cases, therefore, information given was based entirely on what the respondents were able to remember at the time of the interview.

In addition, many respondents were reluctant to give answers to some questions. Some of them doubted the motive behind the study. However, further explanation about the objectives of the study improved their confidence as the survey progressed.

In spite of these limitations, the results of the study were good approximation of the response of interest rates and non-price determinants on rural savings among rural farmers in Cameroon.

1.7 Plan of the Report

The work is arranged into five chapters. The first chapter consists of the background information, statement of problem, objectives of the study, research hypotheses and justification of the study, limitations and plan of the report.

The review of related literature follows in chapter two. It centres on access to credit by rural farmers and agricultural development, need for savings, savings institutions and their characteristics, forms and motives for saving, effects of interest rate on savings, effects of non-price determinants on savings, theoretical framework and analytical framework.

The third chapter focuses on methodology adopted for the research work. In chapter four, the major findings are reported and discussed.

Finally, chapter five comprises the summary, recommendations and conclusions based on the research findings.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Existing literature was reviewed under the following headings: access to credit by rural farmers and agricultural development, need for savings, savings institutions and their characteristics, forms of and motives for savings, effects of interest rates on savings, effects of non-price determinants on savings, theoretical framework and analytical framework.

2.2 Access to Credit by Rural Farmers and Agricultural Development

Eight hundred million people in the developing world currently face food insecurity and the challenges of meeting the food and nutritional needs is likely to become greater in the years ahead (Heyzer, 1995). It has been reported that increases in agricultural growth often result to increases in food production and semi-subsistence farmers (Lanjouw, 1996).

While it is important to acknowledge the role of agriculture in economic growth and the need for adequate investment in the agricultural sector, it is worthy of note that agriculture cannot develop without recognizing the contributions of rural farmers in agricultural production in particular and development in general. The important role rural farmers can and should play and have indeed been playing in promoting the well being of society has never been denied. In fact a large proportion of Nigerians are still dependent on agriculture for their livelihood and for many years to come the bulk of Nigeria's food will be produced in the rural areas by smallholder farmers (Teresa, 1985). Burfisher and Horenstein (1985) noted that in Nigeria the

contributions of rural farmers to agricultural development are central and pivotal. Quisumbing *et al* (1996) reported that rural farmers accounted for 70% to 80% of household food production in sub-saharan Africa.

With respect to gender differences in agricultural development, studies have shown that gender-specific nature of African farming is disappearing as women are now growing crops and taking on tasks which are traditionally the responsibilities of men, especially in farming operations (Anne and Metz, 1997; Okorji, 1988). The overall statistics show women's overwhelming importance in food crop production throughout Africa. Tanko (1995) described women as the invisible workforce and the unacknowledged backbone of the family. In another study, Saito (1994) noted that women farmers in sub-saharan Africa dominated the smallholder sector and accounted for more than three-quarters of the food produced in the region. Papohunda (1995) observed that women made tremendous contribution to the development of rural economies. It is because of women's ubiquity in rural economy that Carr (1981) concluded that most members of households in developing economies would have died of starvation, if not for women. Dey (1984), observed that demographic and socio-economic changes, particularly the development of mining industry and the consequences of male migration from rural areas have had a major impact on the traditional gender pattern of farming. Ahluwalia (1978) in his own opinion attributed the concentration of more women in rural areas to migration, social and economic circumstances of developing countries in the recent times.

In spite, of all these contributions by rural farmers to economic and agricultural development, rural farmers are faced with numerous constraints while performing farming activities. According to Gallin and Ferguson (1991),

the development of rural farmers capabilities and potentials, have been hindered by their lack of access to productive resources, that is, land, labour and credit facilities which are vital to agricultural production. In Nigeria, most of the recipients of agricultural loans and extension services are progressive farmers who can afford collateral, while rural farmers – incapacitated by lack of access to credit facilities – are not able to purchase implements and inputs to enhance their works in food production (Saito, 1994; World Bank, 1995). In addition, Okonjo (1991) remarked that the socio-economic positions of rural populace generally are poor. He attributed this to their unequal access to land, capital, agricultural technology, and credit facilities especially male and female farmers. Carter, *et al* (1997) explained that the growing use of purchased inputs, compared to farm produced inputs, has created an increased demand for cash operating inputs. For cash operating inputs to become available to the smallholder farmer, there is always need for provision of adequate credit. United Nations Development Programme (1997) observed that availability and access to credit by the mass of the people in the productive sector, particularly in the rural and agricultural sector are fundamental conditions of economic empowerment. Unfortunately, the Nigerian smallholder farmers suffer seriously from severe credit droughts, despite various programmes put in place to ensure credit availability. It was observed that the essential handicap of the rural borrower was lack of security: a crop "in the ground" was considered to be poor security for a loan because of the instability of agricultural prices, weather hazards and so on (UN, 1981). In view of the problems associated with lack of security for a loan among rural farmers, Masson *et al* (1998) noted that there was a general need to re-evaluate current practices concerning collateral

requirements in the rural sector; and note was taken of the trend towards the use of new techniques; for example, the conferring of collateral status on real assets, such as cattle. Based on this argument by Masson *et al* (1998), it was observed that in order to ensure repayment of loans to rural borrowers engaged in agricultural activities, some institutions in developed countries had requested in some cases that collateral be provided by people engaged in non-agricultural activities, for example, civil servants (UN, 1981). However, doubts were expressed as to the suitability of such arrangements in developing countries. In another development, Mwega (1995) suggested that in order to avoid difficulties associated with poor evaluation of guarantees and the constitution of expensive files for small loans, developing countries should consider the introduction of collective guarantee arrangements for rural loans example group lending.

However, in order to back up special loan guarantee programmes (with equally rural-biased and food production), supporting credit and finance institutions have been established to alleviate the constraints that are associated with access to credit for rural farmers. Credit generated through this programme is hoped to increase rural farmers' income-generating capacity through increased agricultural production.

With respect to gender bias in credit allocation, Ezumah (1992) pointed out that rural women are usually excluded from development planning. He attributed this to continued hindrance of women's access to credit. He therefore, concluded that rural women farmers lack access to resources to modernize agriculture when compared with men. Saito (1994) observed that among smallholders, women are particularly disadvantaged in access to formal financial services. She (Saito) reported that fewer women

than men obtain credit from formal financial institutions. The researcher gave empirical evidence of 14 percent of male and five percent of female farmers, who obtained credit from formal financial institutions. The researcher further reported that relatively fewer women obtained credit from formal financial institutions, and that loans granted to women were also much smaller than those of men. According to Ezumah (1992), this larger gender differences in obtaining formal credit was attributed to several factors namely, women are less mobile, less educated, lack collateral than men. Worse still, Ezumah (1992) also noted that female-headed household are even worse off than women with a husband in obtaining credit for production.

So far, the review has shown that adequate and timely credit is denied to rural farmers because of their poor collateral for obtaining loan. The review also shows that adequate and timely credit is leverage for agricultural development.

2.3 Need for Savings

The view was expressed that the insufficient interest many developing countries including Nigeria has taken to date in mobilizing rural savings could probably be explained by the predominance of a some-what simplistic concept of a typical developing economy, according to which, such an economy was characterized by a dualistic structure in which a traditional sector (with low productivity, constituted largely by the agricultural sector), was contrasted with a modern sector (that comprised industrial activities and other highly productive activities related to exports) (UN, 1981; Masson, *et al*, 1998). That concept has given rise to the assumption that people in rural areas of developing countries, who belonged mainly to low-income groups, were basically too poor to save or to be given credit. Such assumption has

led many developing countries to neglect the savings potentials and the need for providing credit facilities to such countries.

Savings is income not spent on goods and services. If capital goods are to be accumulated there must be savings and if savings are to be mobilized, current consumption must be held below current production and the difference channelled into added tools of production (Ifemedebe, 1995). Yaron *et al*, (1997) recognized the fact that efficient mobilization of savings is germane to any meaningful programme of rural development. They however expressed fear that adequate savings mobilization strategies may not be developed in developing countries. Deaton (1997) reported important role of household consumption and savings in economic development. He observed that household savings is a major component and determinant of savings in most developing countries. Many economists see saving as the wellspring of economic growth; so encouraging savings becomes a crucial component of a policy for growth. Others, Balassa (1990) and Browning and Annamaria (1996), viewed savings as a minor component of economic growth, the root of which must be sought elsewhere. Campbell (1987), reported that one method of increasing the flow of funds within the agricultural sector is to tap the surplus funds of those who have successfully adopted new technology. He concluded that for one to realize this potential, appropriate savings transfer mechanisms must be established. Desai (1976) reported that there are always stochastic surges in capital needs and savings that accompany technological innovation in agriculture. Therefore, in order to shift production function upward, farmers must be able to save in order to purchase modern inputs.

With respect to investment, Lewis (1954) observed that the level of investment determines whether people will save more or less. He noted that if people's desire to save is excessive there will be deflation, and if their desire to save is inadequate there will be either expansion of output or inflation of prices. Hence saving and investment were always equal that is, the level of investment being determined by the level of savings. Rural people that want to increase their investment could concentrate their minds on ways of stimulating savings (Deaton, 1997). The majority of the funds spent on investment come from money saved within the economy. According to UN (1984), savings mobilization efforts in rural areas assume significance when one considers the need to establish a sound agricultural credit and banking system in the developing countries. Further, the essence of banking, whether rural or urban, is the mobilization of deposits for lending purpose in order to enhance investment. In our days, however, we recognize that both saving is not necessarily always (some may be hoarded), and also that some investment may not be matched by current saving (it may be financed by dishoarding or by the creation of money). Deaton (1992) argued that it is particularly important to stimulate saving among the peasants, because of the role which agriculture has to play in economic development through investment in agricultural production. Hence, economic growth requires that the produce of farmers per head must increase, to provide a growing surplus per head from which to feed the non-farmers.

Hubbard, *et al* (1995) noted that savings involved a process. They reported a situation where the required growth in agricultural productivity usually means that more capital must be invested in agriculture. Sums of money can be set aside for this purpose by the government and lent to the

farmers through rural banks or credit societies. This involves, however, an absorption of capital into agriculture from other sectors of the economy and since all other sectors are simultaneously clamouring for capital, the more the farmers can finance themselves the better. This gives special point to savings campaigns and savings institutions in rural areas.

Agu (1985) observed that the mobilization of financial resources requires an institutional arrangement, which encourages and mobilizes savings on one hand and channels savings into productive investment on the other hand. Schmidt-Hebbel *et al* (1996) observed that if savings drive growth through an automatic translation of saving into growth-enhancing investment, the main goal of policy should be to encourage savings. He also commented on the simple keynesian model which portrays savings as adjusting (through income changes) to the level of investment, with some forced savings in the short term.

Chicks (1986) argue that the relationship between savings and investment depends on the stage of development of the banking system. She postulates five stages through which banking systems have generally passed. Among these stages, is a rudimentary banking system which can only act as intermediary between saver and investor. It should be noted that savings has to be made prior to investment. Greenaway *et al* (1991) maintained that investment expenditure is constrained by the available finance, which in turn is constrained by the availability pool of savings. They argued that investment decisions are strongly influenced by the savings currently available.

The World Bank (1995) considers the availability of financial services and access to them as important because savings provide a kind of self-

insurance. Aryeetey, *et al* (1994) noted that as many as 67% of their study sample, used their own savings as the primary source for start-up capital. They also emphasized that while owners' savings dominated the financing of all sizes of enterprises, its importance as the primary source varied with the size of the firm. In Kenya, small entrepreneurs are often perceived to be reluctant to deal with formal financial institutions. Nevertheless, Aryeetey, *et al* (1994) found that 74% of his sample used banks to accumulate savings while use of the "isusu" systems to accumulate savings was minimal.

Saeed *et al* (1996) agreed that farmers through savings finance 60% to 70% of farm investments. In consonance with Saeed, *et al* (1996), Schmidt-Hebbel (1996) reported that saving determines the financial rate of capital accumulation. Regardless of whether savings is the chief force during growth, ensuring adequate level of savings remains a central policy concern in order to provide sufficient financing for investment.

Classical economists believed that higher savings is the precursor of economic growth. Therefore, the key to raising growth rates is to design incentives to encourage saving. According to Balassa (1990), faster growth, whether of population or of per capita income, expands the total scale of savings among the young relative to the scale of dissavings among the old and so raises the average savings rate. Lewis (1954) was probably expressing no more than the then widely accepted view when he saw the problem of raising the savings rate as the central problem of economic development. The supposition that increases in savings rates could increase the steady-state rate of growth was temporarily discredited by the Salow (1956) model, which showed in a new classical framework that increase in the savings rate would increase the level of per capita income but would

raise the rate of growth only along the transition from one growth path to the other. A simple illustration will portray the needs for savings to increased production (investment) figure 2.1.

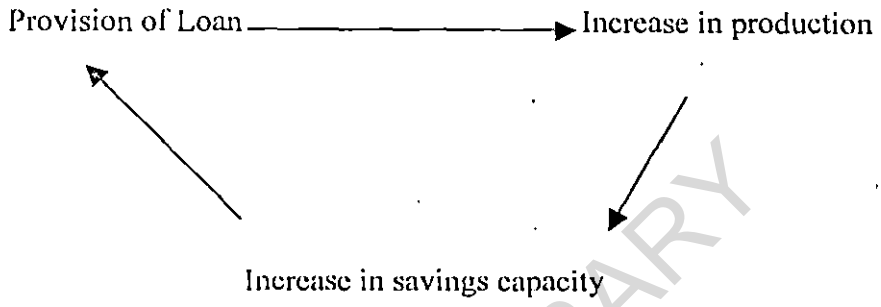


Fig. 2.1 Relationships among loan, production and savings

The figure explains the fact that as credit is very limited in terms of amount of loan, farmers cannot make the investment required to increase agricultural production. Credit can play an important role in economic growth, but only if savings exists somewhere in the society so they can be mobilized and loan to farmers who will use them to invest in order to increase the production of food. Chimedza (1985) reported that savings has not only increased farmers agricultural production and other income-generating activities, but also has improved farmers' socio-economic and financial empowerment.

Therefore, savings is an important factor in both agricultural and economic development. The existence of vicious circle of low savings and investment and deteriorating growth in rural areas is still valid. Savings is not only important for development, but also, maintaining adequate level of savings must be ensured in order to increase the productivity of the more vulnerable, especially female-headed households.

2.4 Savings Institutions and Their Characteristics

Rural farmers can save in formal and informal financial institutions. Formal financial institutions are subject to Central Bank control, while informal financial institutions are not and are prevalent in areas where individuals are quite familiar with and confident in one another. The activities of informal financial institutions are confined to well-known localities and do not extend to wide geographical areas (Ijere, 1986; Adekanye, 1983).

Saito (1994) reported that farmers are not well served by formal financial institutions. She reported that 12 percent of farmers surveyed in Nigeria had access to formal financial institutions, while the rest obtained their credit, especially women, from informal sources, such as moneylenders, relatives, credit and savings associations. The researcher then concluded that informal credit sources were by far the most important sources of credit or savings mobilization for rural farmers. Saito estimated that the main sources of savings were those from relative (56%) and credit/saving societies (34%). The financial system of any society is the framework within which capital formation takes place, as well as the savings of some members of society are made available to other members of society for productive investment. (Ijere, 1986). According to Ijere, this process is made possible by the intermediation of financial institutions. Famoriyo (1981) noted that in Nigeria, savings institutions could be categorized into two groups. The first group is those institutions that are financed primarily by deposits, such as commercial banks. The second group is those institutions that specialize in mobilizing longer-term savings either from specialized groups or from general public. They include mutual savings and loan groups, cooperative societies and credit organizations. Adekanye (1983) reported that in Nigeria,

individuals wanting to save, can make a choice between a commercial banks or unorganized savings institutions. The factors that influence the choice of institution are the degree of security, rate of return, accessibility and liquidity. Adekanye (1983) also noted that security is crucial in the decision-making process because the first consideration of a genuine saver is to ensure that the money he has put aside is safe. Udry (1990) reported that the rate of return is a motivating factor for savers to save in a particular financial institution. However, when security is guaranteed and there is increase in rate of return savers are strongly motivated in such institution (UN, 1984).

Stiglitz (1996) observed that credit and savings groups are often cited as an important source of credit for rural farmers. He remarked that by reducing the cost (of both lender and borrower), information related to screening, strengthening repayment incentives and contract enforcement, group lending can help to expand credit services to clients. It is a fact that Rotating savings and credit Association (ROSCAS) as well as geographical and kinship groups are widespread in sub-Saharan Africa (SSA) (Udry, 1990). UN (1984) noted that the role and capability of financial institutions in mobilizing savings are limited by their relatively shallow operations in the sense that they are able to relate only to a small fraction of economic activity and financial transactions.

Deaton and Paxson (1995) noted that effective mobilization of personal savings depends, to a large extent on sound monetary management and regular use of facilities provided by appropriate savings and credit institutions. Anusionwu (1986) contended that lack of banking facilities in the rural areas have accentuated a major obstacle in the way of rural banking in the country. He lamented that the rural population (which are

mostly women), were left to traditional way of savings, using scheme as Isusu and other non-institutional credit markets. He concluded that it is always difficult to develop an orthodox banking habit among the rural populace.

Sarris (1996) reported that the rural informal financial market blends perfectly into the political, cultural and socio-economic lives of the people. Therefore the habits, requirements and motivation of different types of savers are considered in these institutions. Sarris also noted that the informal credit market appears as only one of the possible assets of households in rural areas. He concluded that informal credit market operates in a competitive manner, with interest rates responsive to supply and demand of credit. Informal finance offers many advantages. According to Desai and Mellor (1993) the informal or indigenous agents know their clients better than formal banks, which usually reduce information costs for the institution. Their administrative and staff overload is lower; their interest rates are not regulated so they can adjust to market forces. However Balassa (1990) reported a contrary view to that of Desai and Mellor (1993), Balassa (1990) noted that despite informal financial institution's popularity and potential, most forms of informal finance have their limitations too, especially in terms of economies of scope and scale, maturity transformation, special transfer of savings, predominance of cash transaction, maturity spectrum of instruments and shallowness of intermediation. For these reasons, it has been suggested that so long as poor people rely mainly on informal markets, they will for that long also remain outside the economic mainstream. Iwuagwu (1957) reported that there is quite a crop of progressive unions and cooperatives of

Nigerian variants called "Isusu" which form a sort of medium for savings. According to him,

> *"If we want to understand saving and the availability of capital in Nigeria, we must look at the local money lenders, the Isusu and progressive and family unions...."*

He concluded that level of savings leaves much to be desired, even when these entire mediums are in place.

However, formal financial institutions have been criticized on the grounds that they have not been able to dominate a larger percentage of patronage among rural farmers because of many factors. These factors include low density of coverage, inaccessibility and interest rate (Sarris, 1996; Desai and Mellor, 1993). Desai and Mellor (1993) reported that informal savings institutions have been criticized because their savings are inadequate, unsafe and less remunerative. Sarris (1996) remarked that the fact that formal financial systems have not performed adequately does not mean that the bulk of agricultural producers or the multitude of informal sectors have not had any access to finance. However, most of this finance has come not from the formal banking system, but rather through several informal financial markets. However, informal financial institutions have also been accused of charging high interest rates on loans while formal lenders had not extended loans to small farmers because they regard them as overly risky (Edward, 1994).

Apart from informal credit markets, the following association have been noted as savings and credit associations; Rotating Savings and credit Association (ROSCAs), Rotating savings Association (RSA), Non-rotating

Savings Associations. In Rotating Savings and Credit Association, members pay fixed amounts at regular intervals, parts of the contribution is allocated to one member at a time in rotating order, another part is put into a general fund for loan. Members pay fixed or variable amount at regular interval in Non-rotating Savings and Credit Association. The contributions are deposited and paid back to individual members at the end of the stipulated period. (Ijere, 1983; Agu, 1985; Nweze, 1991). All other informal savings associations copy their mode of operation from any of the two associations explained above.

The review on savings institutions and their characteristics has shown that formal and informal financial institutions are the only available financial institutions where smallholder farmers can save their money. However, they have varied strength in mobilizing savings in rural areas. While the informal financial institutions were more widespread and greater coverage in rural areas thus was able to mobilize more savings from rural farmers, formal financial institutions had less coverage and mobilize little savings in the rural areas. Also it was noted that formal and informal financial institutions have received criticisms on the way they operate. In as much as informal financial institutions have been acknowledged for being able to mobilize a greater amount of savings among the rural population, they have been criticized on the high interest rate charged on loan to rural farmers. Formal financial institutions have been criticized because of their inability to mobilize enough savings in rural areas and their discriminating pattern in extending credit to rural farmers and "progressive" farmers as well as between male-headed and female-headed households.

The basic thing in this review remains that low financial savings still persists in rural areas and this has major implication on capital formation, the

amount of loanable funds, as well as agricultural growth. This leads to examining forms of and motives for savings.

2.5 Forms of and Motives for Savings

Apart from formal and informal credit institutions where rural farmers save their money, farmers may decide to hold their savings in non-financial forms. Iwuagwu (1957) identified the different forms of savings among rural farmers in Imo State to include storing of agricultural products in barns or leaving them standing in the field, giving out livestock such as fowl and goat (in such a way that the giver and the benefactor will share the livestock offspring in rotation), as well as deposits. Clark (1985) observed that women often take responsibility for particular crops where male household exists. He reported that such women crop as cassava, maize, vegetables and other grains (except rice) are not indigenous crops. Mark and Knadher (1996) observed that rural farmers tended to hold their savings in tangible assets for rapid technological development. Popkin (1997) is of the view that if the main purpose of traditional societies is to guarantee survival, as the moral economy approach claims, then capital accumulation is not a paramount objective of its members. This implies that policies aimed at enhancing village level capital accumulation such as introduction of new technologies will not be effective, if the problems of collective survival and security are not first dealt with. Sarris (1996) on the other hand, reported that where villages are composed of individualistic self-interested households, then capital accumulation is a strong motive for enrichment. Under those conditions, policies that motivate savings and investment are likely to be effective. Desai and Mellor (1993) observed that in early stages of development, physical productive saving dominates total saving, especially where agriculture is not

commercialized and technology has not been adopted. They also reported that even when these constraints are relaxed, farmer's preference for physical productive savings remains high. In addition, a number of surveys have shown that, perhaps more especially in times of inflation, at least some households tend to consider the purchase of durable goods a form of saving (Saeed *et al*, 1996). Desai and Mellor (1993) noted that when farmers hold their savings in physical form, they acquire new forms of real resources, associated with technological change, that act as different sources of capital formation and hence income.

Different motives of savings generate different patterns of savings among individuals or households. It also implies different responses of individuals' welfare and of aggregate savings to policies such as interest rates, and direct savings incentives. A survey conducted by National Council of Applied Economic Research in 1964 shows that household were asked to indicate the relative importance of the following nine categories of motives for savings: (1) for emergencies; (2) for old age; (3) for gifts, donation and pilgrimages; (4) for dowries, wedding and other ceremonies; (5) to buy large consumer goods; (6) to improve a business or farm; (7) for education of children; (8) to buy or build a house; (9) to help the country.

Analysis of the motives revealed that the strongest motive for saving was the desire to provide for emergencies. Savings for old age and savings for children's education followed this motive. All of these were major motives because more than 50 percent of the households mentioned them. In the next category were motives for marriage of children, investment in farm or business, which figured in 25 percent of the households. Patriotic

considerations, gifts and donations and purchase of consumer durables were less important motives and were mentioned by 15 percent of the households. A noteworthy differences between the attitudes of traditional societies and highly developed western societies may be seen from the fact that in the Indian survey, only about five percent of the households regarded purchase of consumer durables as an important motive for savings.

Okonjo (1991) noted that the form in which rural households hold their savings is important because during the agricultural transformation phase farmers prefer to hold savings in the form of modern, physical productive resources. He, however, felt that rural non-financial savings could only increase with an increase in agricultural production, since agriculture is the main source of income for the rural populace. Desai and Mellor (1993) noted that the amount of loanable funds in financial institutions depends, to a large extent, on the amount of savings mobilized, which is then channeled into capital goods such as physical productive resources. Dwight (1994) attributed the low rate of savings in rural areas to poor savings mobilizing strategies by financial institutions. He linked inadequate credit in financial institutions, especially in rural financial institutions to low rate of deposits in the institutions. Lopez (1997) advised that adequate savings mobilization is necessary, especially in the rural areas where most of the farmers live and earn their living. Browning and Annamaria (1996) also argued against the assumption of little savings capacity and high marginal propensity to consume in rural areas. According to them, what seems to be valid is the low interest rate on deposits, which discourages the people from saving even when they have saving facilities in their vicinity.

The review has informed us about different forms and motives for savings. This review on savings motives and forms of savings are important in that they show not only a very widespread desire to save but also awareness among all population groups of specific reasons why saving is advantageous. Needless to say low income at present often limits the households ability to realize their desire to save. Yet, the knowledge that many people would like to accumulate some fund specifically for their old age, for children's education or for emergencies among others may make it possible for the government to utilize these motives in order to stimulate interest

2.6 Effects of Interest Rate on Savings

The determinants of savings have been examined extensively in literature in developing countries. However, the available literatures on determinants of savings were mostly based on macro-economic data. Giovanni (1985) asserted that in theory, desired savings is positively related to real interest rate through both wealth and substitution effects. CBN/NISER (1992) stated that increase in rural household income since SAP should naturally have boosted rural savings and investment. The study further emphasized that the deregulation of interest rates under SAP and the resulting increase in interest rates are also expected to enhance, savings. However this did not happened. Okorie (1991) reported, that since the introduction of SAP, household savings had been decreasing. Interest rate, which is price of credit in the financial market, usually vary over time. Anderson (1996) reported that there are theories that seek to explain fluctuation of interest rates over time. According to him, the most often used by financial managers is based on fluctuations in the supply and demand for

loanable funds. He also reported that the supply of loanable funds consists of the savings of individual; and concluded that the general level of interest rates at any time is primarily determined by individuals desires for current expenditure, relative to their income (which determines savings) and the amount of investment opportunities available. Keynes argues that if there were no interest receivable, people would hold their assets in the form of cash. To get people to hold their wealth in any other form, the interested institution must be prepared to pay them interest because there is a cost associated with the conversion of securities into cash. Boskin (1978) noted that effect of the level and structure of interest rates on household savings behaviour is a controversial subject. He noted difficulty in estimating exactly how much of the increase in deposits with financial institution can be attributed to a real interest rates. In another study, UN (1996) noted that effect of the rate of interest on savings has always been controversial, and empirical evidence regarding the impact of interest rates on real savings in Africa is rather mixed. In some countries, financial liberalization resulted in high nominal interest rates, while attempts to ensure that these translate into positive real interest surging inflationary pressures often defeated rates. In other cases, it was found that interest rate has no effect on total saving other than changing the portfolio of savers between physical and financial saving. Likewise, interest rates seem to play a less important role in mobilizing and channeling savings in the large non-monetized sector of African countries, that is, rural sector.

While some studies have argued that there is little or no response of savings to interest rates, others, such as the influential works of Mckinnon (1973) and Shaw (1973) support the positive role of interest rates on savings;

that is, an increase in real rate of interest in developing countries should encourage savings and increase the supply of available credit to domestic investors, thereby contributing to economic growth. Resonzweig and Wolpin (1993) after reviewing the evidence of the rationale for financial liberalization process in many developing countries concluded that the interest elasticity of savings has been recognized as "one of the most important behavioural parameters affecting the economy", noting further that despite disagreements among researchers, the centre of the debate has moved towards higher estimates for this elasticity".

Baum (1988) did not support the interest rate sensitivity of savings arguing that there is little or no response of savings to interest rates. Giovanni (1983), focusing on Asian countries, also found insignificant and often negative effects of real interest rates on savings. Another study by the same author (1985) reports that in only 5 out of the 18 developing countries are consumption and savings sensitive to changes in the real interest rate. He thus, concludes that there are "negligible responses of aggregate saving to the rate of real interest in developing countries". Fry (1980) also argued that although his previous findings of positive correlation between savings and interest rates were statistically significant, their magnitudes were not large enough to warrant much policy significance Masson *et al* (1998) postulate that the interest elasticity of private saving is higher in middle and high income countries because subsistence consumption is less dominant than is the case with poorer countries. In contrast, Deaton (1990) sees the high real interest rates that accompany economic growth as promoting savings and providing the fuel for growth. Deaton (1990) observed that the accompanying physical controls on interest rates are seen as discouraging or

diverting what is saved. However, Balassa (1990) is of the view that the economic theory of intertemporal choice does not predict that higher interest rates raise savings, but is ambiguous about the direction of the effects. Both life-cycle hypothesis and the buffering model are consistent with modest positive effects of interest rates on savings. Desai and Mellor (1993) reported that real interest rates in developing countries are seen as typically low and leading to reduced savings and hence low investment rates. Adams (1986) admitted that interest rate policy is the most important factor in savings mobilization. However Sarris (1996) cautioned that judging the potential of interest rate policy to induce farm households to save in the form of financial deposits should be undertaken with great care. Therefore interest rate alone cannot determine the saving behaviour in rural areas.

2.7 Effects of Non-price Determinants on savings

Fernando (1991) noted that the determinants of rural savings are smallholder farm earnings, and the size and productivity of food gardens of rural households. He noted that although the real interest rate seems to have an influence, it appears that rural savings are more service elastic than interest elastic. Fernando, therefore, recommended that greater access to institutional facilities would have a considerable effect on the volume of rural savings. Desai and Mellor (1993) used single equation saving function and ordinary least squares (OLC) in studying rural savings supply, they enumerated the non-price factors that affect savings to include permanent and transitory income, family size, dependency ratio, farm size, source of income and liquid assets (those essentially represent the ability to save). Their study concluded that there is substantial savings even in developing countries and more importantly in their rural sectors. They therefore,

concluded that non-price factors are more important than interest rate in mobilizing rural savings.

In study conducted by Desai (1976) adapted from Desai and Mellor (1993) supply of rural deposits was analyzed using both descriptive and econometric models. The descriptive category was sub-divided into two types. The first argued (but did not necessarily provide empirical support to the intuitive conclusion) that the response of supply of financial savings to real interest rate was positive but inelastic. The second type of descriptive study, however, argued exactly the opposite. According to the study, response of supply of rural deposits to interest rate is both positive and elastic. He suggested that raising deposit rates rather than improving density, accessibility and other characteristics of Rural Finance Institutions (RFIs) should be accorded the highest priority in agricultural credit policy. In econometric studies all the studies except Penson (1972) used the single equation of Ordinary Least Squares (OLS) technique of estimation Penson used two-Stage Least Squares (2SLS) equation to take into account the simultaneity in the system of structural equations. This studies show that the factors related to the non-interest rate are more important than interest rate in savings mobilization.

Despite the dearth of empirical research on the relationship between the income and savings in African countries, the few studies in the developing countries found a very strong direct relationship between savings and income (Areetey and Udry, 1997). They also noted that individual at subsistence and low income levels could save little, if at all, while those at higher points on the income scale tend to save more. This is because the marginal propensity to save tends to rise with rising levels of income. Carroll

and Weil (1994) confirm that lagged values of increases in income growth seem to explain higher saving rates; they argue that the usual consumption models with either uncertainty or liquidity constraints are not sufficient to explain this result and advanced instead the hypothesis of habit persistence, according to which higher consumption associated with temporarily higher income takes some time to be reduced when income falls back. Masson, *et al* (1998) noted that differences in per capita income could be one of the factors that explain the wide range of savings rates in developing countries. At subsistence levels, the potential for significant saving is small. A rise in per capita income may therefore lead to higher saving rates.

Very few studies analyzed whether high fertility and closely spaced children have consequences for saving. This topic may have been neglected because, in the past, it was often believed that little savings occurs at the household level in sub-Saharan Africa (Acsadi, *et al*, 1990). Yet more recent studies of traditional savings and credit associations and unions (Mwega, 1995) have shown that people often save a considerable portion of their income. However, it is uncertain whether having many children encourages families to save more particularly for future education costs or whether the current cost of these children prevent families from savings (Deaton, 1995). The life-cycle hypothesis highlights the importance of the age structure of the population. If a high proportion of the population is of working age-especially if at peak earning years – then the economy should have a high rate of private savings, as workers provide for their retirement. An extensive literature attempts to link demographic variables to savings behaviour. Studies using cross-country data have been more successful than time-series studies in finding significant demographic effects, probably because

the variation over time of demographic variables is relatively small (Acsadi, *et al,* 1990). In particular Graham (1987), and Masson and Tryon (1990) found that high proportions of the young and elderly in relation to persons of working age-dependency ratios – are associated with low savings rates.

In his study of personal savings and family size and composition, Chernichovsky (1979) cited two examples from sub-Saharan Africa. Each of them used family size, as an explanatory variable but did not consider family composition and life cycle issues. Their results differed. Synder (1974) in Sierraleone, found that household size did not affect the probability that household would have positive savings, but Waldorf (1977) found a negative effect of family size on household savings in Uganda. Following this, Kolley and Swartz (1979) estimated two sets of savings models. The first, involved the net direct impact of household structure upon savings; the second is concerned with the various effects of extended family's demographic structure on savings. In neither set of equations did the number of children in the household influence the level of total financial savings when income and household structure where controlled. The study showed, in general, that nuclear families earned comparatively less but saved more whereas extended families earned more but saved less. It was hypothesized that extended families offered security to members, which decreased the importance of savings, whereas the nuclear family must accumulate savings for its own protection. Thus the number of children may be less critical than the structure of the family. In support, Lanjouw and Ravallion (1994) observed that there is considerable evidence of a strong negative correlation between household size and consumption per person in developing countries.

Adekanye (1983) noted that small farmers are simply too poor to save. He attributed this to high marginal propensity to consume in rural areas, which the researcher says has a negative relationship with savings rate. Masson, *et al* (1998) noted that average propensity to save would always be related positively to rate of savings because according to them, increase in income, reduced inflation rate and reduced spending might have contributed to increase in average propensity to save. This means that the individual can now have more money to save or buy more investment materials like farm input in case of the farmer.

Other potential determinants of savings include inflation, wealth, proximity to savings institution and level of education of the respondents (Desai and Mellor, 1993). They concluded that savings could vary greatly by location, depending upon the opportunities to earn cash income and the costs of important expenditure such as education and farming. It should be noted that inflation might affect savings negatively or positively. For instance, higher inflation tends to lead to higher nominal interest rates and hence higher measured household income and savings (Fry, 1988). However Giovannini (1985), noted that high inflation may also lower savings by increasing uncertainty. Financial wealth should negatively affect savings in a life-cycle model, because it increases the resources available for consumption (Schmidt-Hebbel *et al*, 1996).

This review has shown that rural savings is also determined by non-price factors. Researchers viewed non-price factors as an important determinant of savings while others opined that interest rate alone could not explain the determinants of savings. Empirical evidence is less clear on the economic factors that influence savings behaviour. The existing works have

been controversial or have offered limited help to policy makers on how savings rates can be increased. In addition, despite an extensive literature on savings behaviour, several empirical issues have not been resolved conclusively. These issues include the effects of real interest rates, demographic factors, and per capital income on private savings. It should be mentioned that much of these works were conducted with micro-data in developed countries. Therefore, their findings may differ significantly from that of developing countries where female and male-headed households (who are mostly farmers) formed the basic unit of the analysis.

2.8 Theoretical Framework

Economic theories suggest that household total savings depends on the interest rates, and non-price factors. These theories originated from studies of savings behaviour. The basic argument of theoretical literature centres on Keynesian absolute-income hypothesis, permanent income theory and liquidity preference theory.

The Keynesian Absolute-Income Hypothesis

The keynesian absolute-income hypothesis postulates a linear relationship between current savings and current income (Quian, 1983). The particular features of the hypothesis is that savings relates only to current income. Hence, the short-run and long run responses of savings to current income are identical.

The absolute income theory seems to be plausible for individual consumer behaviour. In plain language, what it says is that high income families save a larger fraction of their incomes than low-income families for the obvious reason that they have a relatively larger fraction of their incomes left after meeting consumption needs (Fry, 1988; Adams, 1986). In another

circumstance, the absolute income theory argues that the fraction of a family's income devoted to consumption depends on the level of its income relative to the income of neighbouring families or other families. The implication of this theory is that factors that affect consumption also affect savings. This is because savings is the residual of income minus consumption. Although non-income variables might influence the level of aggregate consumption, Keynes believed that consumption is principally a function of disposable income (Deaton, 1992), Keynes enumerated non-income variables as family size, dependency ratio, age and inflation rate. Kelly and Swartz (1979) estimated two sets of savings models. The first involved the net direct impact of household structure upon savings while the second is concerned with the various effects of the extended family's demographic structure upon savings. The end result shows that, generally, the nuclear families earned comparatively less but saved more, whereas, the extended families earned more but saved less.

Permanent Income Theory

In the Permanent Income Theory, Friedman noted that permanent income in any particular year might be large or small. Because of this, Fredman divided the family's measured income in the year into permanent and transitory components, so that measured income is larger or smaller than its permanent income depending on the sum of positive and negative transitory income component. This can be regarded as farm and non-farm income. Friedman's basic argument is that permanent consumption depends on permanent income. Specifically, the relationship he proposes is that permanent consumption is a constant proportion of income, which depends only on wealth, interest rate and taste (Donald, 1976). According to

Friedman, taste is affected by factors such as age and family composition. In addition, Mckinnon (1973) and Shaw (1973) made a major issue of the response of savings to real interest rates; there has been substantial literature on the interest elasticity of total private savings in developing countries. The reviews in Fry (1988) and Desai and Mellor (1993), however, reveal that the empirical evidence of the response of savings to real interest rate is weak and mixed. In fact, experts such as Deaton (1992) concluded that the current state of knowledge indicates that there is little sensitivity of developing countries total savings to real interest rates and that savings is more influenced by the ability to save as proxied by permanent income or wealth, family characteristics and other non-price factors.

Liquidity Preference theory

This theory seeks to explain the level of interest rate by reference to the interaction of two important factors; the supply of money, and the desire of savers to hold their savings in cash or near cash – their liquidity preference (Solvin and Sushka, 1977). The theory is based on the argument that if no interest was payable as an inducement, savers are likely to keep all their savings in cash. Thus, it would appear that the higher the rate of interest the more people would be prepared to forego liquidity and more loanable funds would become available.

This conclusion is quite reasonable, but the fact remains that people will always want to hold some cash irrespective of the level of interest rate (Donald, 1976). The motivation for holding of money by economic units is the need to support commercial transactions. Nevertheless, Donald (1976) recognized that there is opportunity costs associated with the holding of

money balances. The higher the market rate of interest, the greater the opportunity cost of holding money (Slovin and Sushka, 1977).

The work of Tobin (1965) viewed money as an imperfect substitute of productive capital in savers portfolios. The idea is given that the volume of savings is a constant fraction of income while the allocation of savings between money and investment in capital goods is a function of the relative real rate of returns. Farm households substitute liquid assets and physical productive resources for semi-liquid assets (such as small animals, product inventory and producer's material inventory). These substitutions may have been encouraged by higher returns on savings in the form of physical productive farm resources induced by technological change (Desai and Mellor, 1993). However, from the perspective of the rural sector, one of the issues that are of importance is the amount of wealth kept as unproductive capital.

In addition, the concept of vicious circle of poverty centred on the low income nature of rural populace which leads to low savings and low investment. As a result, low savings is inherent in rural areas. The vicious circle of poverty recommended that injection of capital from outside is necessary. However, it is possible to generate savings from within which is more sustainable (Lanjouw, 1996).

2.9 Analytical Framework

The models for capturing savings behaviour have been examined extensively in the literature for both the developed and developing countries. Most recent analysis recognizes the intertemporal nature of the savings decision and begin with life-cycle hypothesis. This model relates current savings to permanent income, which can be thought of as the steady rate of

consumption a person could maintain for the rest of his life, given the present level of wealth and income earned now and in the future. The linear version of the model that has been widely used in empirical studies is specified as:

$$S_t = C + aY_t^p + bY_t^t$$

Where S_t is savings at time t

"C" is the marginal propensity to save

Y_c^p and Y_t^t are permanent income and transitory income in year t, respectively, and

"a" and "b" are the partial regression coefficients (Qian, 1983).

Qian (1983) reported a situation where there is a wide range of income levels, demographic structure and customary living arrangements among developing countries and argued that these may not allow this model to be used.

In search of appropriate models of savings for poor households, Dixit (1976) suggested the use of the basic model of intertemporal choice. This particular model requires specification of preferences and a budget constraint. A standard intertemporal utility function is written in the form:

$$U = E_t \sum_{k=1}^{T} Vk(ck)$$

where *ck* is consumption in period *k*, T is the time-horizon, *Vk* is the instantaneous sub-utility function for period K, and E_t is the expectation conditional on information available at time "*t*". The budget constraint within which utility is to be maximized is partly characterized by the equation that governs the evolution of assets over time, written here as:

$$A_{t+1} = (1+r_{t+1})(A_t + Y_t - C_t)$$

where A_t is the real value at "t" of a simple real asset, r_{t+1} is the real interest rate from period "t" to "t+1", and Y_t is earnings in period "t". Earnings and real interest rates are typically treated as stochastic. For some simple cases, such as when farm income is largely determined by the weather and where capital accumulation is unimportant, is simple model can still be useful. It is true that this model provide a number of useful insights about saving behaviour, as well as serving as a basis for empirical analysis, however this research work considers both the financial and non-financial forms of savings which makes this model unfit for the analysis.

Measuring the Determinants of Savings

Regression models have been used in measuring the determinants of savings in India and Asian countries by a good number of researchers (Gupta, 1970; Desai, 1976). The multiple regression analysis methods used by Olagoke (1990) and Mbanasor (1997) in analysing the degree of relationships between farm output and selected socio-economic variables were relevant to this present study because cross-sectional data was common in both studies.

Regression analysis is perhaps the most commonly employed tool of statistical model building in the social sciences. Suppose that we want to explain the behaviour of some variable Y, which will be called a dependent variable. According to Jaccard *et al* (1985), subject matter theory might suggest that K independent variables, X_1, X_2,...., X_k, influence the behaviour of the dependent variable. Very often, in the social sciences, subject matter theory is imprecise as to the functional form of such relationship. Frequently in such circumstances a linear model can provide a useful approximation at least within the ranges of interest of the independent variables (Gujarati,

1995). The range of functional forms considered was limited by constraints imposed by the regression procedure. Three forms, which are usually used, are the linear, semi-log transforms and double log transforms (Lingard, 1974) adapted from Mbanasor (1997). Since theory gave no firm indication as to the form of the relation, the three forms were accordingly fitted in this study.

In order to model a relationship, data are required, and it will be assumed that "T" sets of observations (Y_T, X_{1T}, X_{2T}, ..., X_{k1}), (Y_2, X_{12} X_{22}, ... X_{kn}),... (Y_T, X_{1T}, X_{2T}, ..., X_{k1}) are available on the dependent and independent variables. Data may be available across spaces, through time or both. In much of our analysis, these "T" observations will be assumed to be taken at equally spaced points in time. In the multiple linear regression models, the data generation mechanism is taken to be of

$$Y_t = B_1 X_{1t} + B_2 X_{2t} + \ldots + B_k X_{kt} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

In equation (1) above, then B_1 (i = 1,2.....K) are fixed coefficients whose values can be estimated from the available data. The parameter B_1 is interpreted as the expected increase in the dependent variable, following from one unit increase in the independent variable, when the values of the other independent variables are held fixed. In equation "1", e_t is a stochastic error term, the presence of this random variable acknowledge the fact that, in practice, no relationship will hold precisely. Thus, e_t represents the difference between the observed value of the dependent variable and its expected value under the theoretical model (Gujarati, 1995).

There are various econometrics techniques that could be used to derive estimates of the parameters of economic relationships from statistical observation's (Mbanasor, 1997). The Ordinary Least Squares (OLS), was adopted in this study because according to Ayub (1975) the use of more

sophisticated techniques do little to improve the result. At least in order to apply Ordinary Least Square (OLS), the analysis must be under the following assumption, namely, the distribution of the random variable, the error term all have zero mean, the error term have a common, generally unknown variance σ^2, error term are not correlated with one another and there does not exist a set of fixed numbers C_1, C_2... C_k such that $C_1 X_{it} + C_2 X_{2t} + ...+C_k X_{kt} = 0$ for all t = 1, 2..., t (Newbold and Bas, 1985). In absence of this assumption it is not possible to estimate the separate influences of the independent variables on the dependent variable.

A given value of regression coefficient represents the number of units that dependent variable is predicted to change given a one-unit increase in independent variable in question. Also coefficient of multiple determinations "R^2" indicates the proportion of variance in the ratings of overall dependent variable that could be accounted for by the linear combination of the independent variable(s). (Jaccord, *et al*, 1985). The null hypothesis that the population multiple correlation equals zero is tested by means of an F-test. This is done by comparing F calculated with critical F – ratio with aim of rejecting or accepting the null hypothesis.

Comparing the Equality Between Coefficients Obtained from Different Samples (The Chow Test)

Chow test is a commonly used test to measure the differences between two regression coefficients. Although it is simply the F test discussed earlier. The assumptions underlying the chow test are twofold:

a. $U_{1t} \sim N (0,\sigma^2)$ and $U_{2t} \sim N (0, \sigma^2)$; that is, the two error terms are normally distributed with the same variance, and

b. U_{1t} and U_{2t} are independently distributed (Jayatissa, 1977; Gujarati, 1995). With these assumptions, the chow test proceeds as follows.

Step I: Combining all the n_1 and n_2 observations, we estimate its unexplained variation (residual sum of squares (RSS)) say S_1 with df = $(n_1 + n_2 - 2_k)$ where k is the number of parameters estimated.

Step II: Estimate the two regression model individually and obtain their RSS, say S_2 and S_3, with df = $(n_1 - k)$ and $(n_2 - k)$, respectively. Add these two RSS, say S_4 $(S_2 + S_3)$ with df = $(n_1 + n_2 - 2k)$

Step III: Obtain $S_5 = S_1 - S_4$

Step IV: Given the assumptions of the chow test, it can be shown that

$$F = \frac{S_5 / K}{S_4 / (n_1 + n_2 - 2k)} \quad \text{.....(1)}$$

Follows the "F" distribution with df = (k, $n_1 + n_2 - 2k$). If the "F" computed from equation "I" exceeds the critical "F" value at a chosen level of α, reject the hypothesis of no difference between the determinants in the two-regression model (Gujarati, 1995). Chow test was also used in comparing the differences in the determinants of savings in sub-Sahara Africa and other LDCs by Mwega (1995).

However there is alternative to chow test – dummy variable test. According to Gujarati (1995) although the overall conclusions derived from chow test and dummy variable test in any given application are the same, there are some advantages to the dummy variable method, these advantages he enumerated as

1. We need to run only a single regression;
2. The singe regression can be used to test a variety of hypothesis;
3. The chow test does not explicitly tell us which coefficient intercept, or slope is different, or whether both are different in the two data;
4. Finally, since pooling increases the degrees of freedom, it may improve the relative precision of the estimated parameters.

Therefore, in noting that there are no basic differences between the conclusion made using the chow test and dummy variable test, coupled with availability of such statistical package and a good operator of such package, the researcher decided to use chow test to test the equality between coefficients of different samples.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 The Study Area

Manyu Division, Southwest Provience of Cameroon is the study area. The dominant criterion for selecting Cameroon is the prevalence of formal and informal financial institutions in most of the rural areas. The division comprises four sub-division, namely; Manife, Akwaya, Upper Bang and Eyumojock. The division has a population of 153,000 people (Census, 1976), which makes it the third most populous division in Cameroon (Almy, *et al,* 1988).

Majority of population resided in rural areas and are mosltly in subsistence level. Food crops like yam, cassava, cocoyam, rice and others are mostly cultivated

Farmers, who also engage in a wide variety of off-farm and non-agricultural activities, especially during the off-farm season, dominate the state's population. Hence, economic activities in the area centre largely on food production, processing and marketing (Nganje, 1990).

3.2 Sampling Procedure

Multi-stage sampling technique was used to get the sample frame. At various stages, purposive and random sampling techniques were use in selecting research sites and exact respondents for the study.

A reconnaissance survey was made after which two divisions were chosen purposively. The selection was based on the prevalence of rural banks and informal financial institutions in the divisions. The lists of willing farmers were selected based on those farmers saving money with both

formal and informal financial institutions through the help of community leaders and extension agents. The list was stratified into male and female-headed households in each of the selected community. A random sample of 210 households was made. This comprises 110 male-headed and 110 female-headed households. However, 200 questionnaires comprising those from 100 female-headed and 100 male-headed households were completely filled and returned. All farmers selected had one form of physical savings or the other.

All the financial institutions in the selected communities formed the sample frame for selection of financial institutions. A purposive sample of 20 formal and 20 informal financial institutions were made based on those that had operated for at least six years. The bank manager, the accountant, secretary to the bank and two other workers in each of the selected formal banks were selected, while the president and secretary were selected for informal financial institutions for interviews. These precautions were necessary for this research work in order to facilitate the collection of required data as well as to authenticate the data already collected through the questionnaire.

3.3 Data Collection Procedure

Data for this study were generated from primary and secondary sources. Primary data were collected with two sets of pre-tested questionnaires. One set of the questionnaires was administered to the rural farmers while the other set was administered to financial institutions.

The questionnaire for farmers collected information on socio-economic and family characteristics. These included age of the respondent, level of education, dependency ratio, farm income, non-farm income, family size,

index of modern technology used and distance to formal and informal financial institutions. Information on types of formal and informal financial institutions patronized, motives for saving, types of non-financial savings as well as motives for choosing financial or non-financial forms of savings were collected. Also, information on value of agricultural assets, input reserved for next planting season and values of other forms of physical savings were collected.

The cost-route technique was used to generate data on consumer items and specific amounts spent on them over a period of two months as well as income (one month during peak farming period and one month during slack period). This was done to get fairly accurate data on farmer's expenditure and income. These data were collected on weekly basis and was used to authenticate the point data generated through questionnaires.

The questionnaire for financial institutions solicited information on quarterly volume of savings mobilized, nominal interest rates and inflation rates.

Secondary data were sourced from relevant publications including textbooks, journals, bulletins, monographs, periodicals and other bank documents.

3.4 Data Analysis Procedure

A two-staged procedure of analyses, involving a preliminary stage of data collection and editing and the main stage of parameter estimation and interpretation, was employed.

Specifically, objective (i), and part of objective (ii) were achieved using descriptive statistics, such as, means, percentages and graphs. The remaining part of objective (ii) was realized with test of differences between

means (t-test). Objectives (iii), (iv) and (v) were achieved with multiple regression analysis. In addition, absolute value of "t's" in individual regression coefficients determined the relative importance of explanatory variables to the dependent variable. Objective (vi) was realized with chow-test model. The relative importance of the explanatory variables to dependent variable is measured with beta coefficient test.

3.4.1 Specification of Models

The t-test that was used to compare the value of financial and non-financial savings, as well as to compare the savings in informal and formal financial institutions by respondents was specified as:

$$t = \frac{\overline{Y}_1 - \overline{Y}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

Where;

$\overline{Y}_1$ = mean values of financial savings or formal financial institutions savings,

$\overline{Y}_2$ = mean values of non-financial savings or informal financial institution savings by respondents,

σ_1^2 = variance for values of financial or formal financial institution savings;

σ_2^2 = variance for values of non-financial savings or informal financial institutions savings,

N_1 = sample size of total financial savers or savers in formal financial institutions, and

N_2 = sample size of non-financial savers or savers in informal financial institutions.

The "t" calculated from the raw data was compared with critical "t" with the aim of rejecting or accepting hypotheses "a" and "b".

The model used for objective (iii) was implicitly specified as:

$Y_I = f(X_1, X_2) + e$

Where i ranged from 1 to 3, and,

Y_1 = value of total financial savings,

Y_2 = value of savings in formal financial institutions,

Y_3 = value of savings in informal financial institutions,

X_1 = nominal interest rate (%)

X_2 = real interest rate

e = error term

The dependent variables, (Y_1, Y_2 and Y_3) were run independently with the explanatory variables (X_1 and X_2) to measure the effects of interest rates in different savings institutions. The F-ratio calculated from raw data using the dependent variable (Y_1) was compared with critical F-ratio in order to accept or reject the null hypothesis "c".

***A Prori* Sign for the Variables in the Model Used for Objective (iii)**

Value of Total Financial Savings (Y_1)

This was part of the total savings that was kept in cash. It was measured in Franc.

Value of Savings in Formal Financial Institution (Y_2)

This was part of the financial savings that was kept in formal financial institutions.

Value of Savings in Informal Financial Institution (Y_3)

This was part of the financial savings that was kept in informal financial institutions.

Nominal Interest Rate in Percent (X_1)

This is the prevailing interest rate in the financial institution charges on savings. The sign was expected to be positive.

Real Interest Rate in Percent (X_2)

This is the nominal interest rate minus the inflation rate divided by one plus inflation rate multiplied by 100. The sign of the coefficient was expected to be positive.

Multiple regression analysis model that was used to capture objective (iv) was implicitly specified as:

$Yi = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}) + U$

Where i ranged from 1 to 3,

Y_1 = total savings by the respondents (francs),

Y_2 = value of financial savings (francs),

Y_3 = value of non-financial savings (francs),

X_1 = age of the respondent (years),

X_2 = level of education (years),

X_3 = farm income (francs),

X_4 = non-farm income (francs),

X_5 = dependency ratio

X_6 = Family size,

X_7 = distance to informal financial institution (km),

X_8 = distance to formal financial institution (km),

X_9 = index of modern technology adoption,

X_{10} = average propensity to consume (APC),

X_{11} = farming experience (years), and

U = error term

Where

$$APC = \frac{\text{Total value of expenditure on consumption goods and services}}{\text{Total income}}$$

(Bannock, *et al*, 1978).

$$\text{Dependency Ratio} = \frac{\text{Total number of people in the household who are not earning income}}{\text{Household Size}}$$

The F-ratio from the data was compared with the critical F-ratio with the aim of rejecting or accepting the null hypotheses "d", "e" and "f". In addition, t-values of regression coefficients were used to measure the relative importance of each explanatory variable to the dependent variable in each case.

The model that was used to measure the gender differences in the effects of non-price factors on financial and non-financial savings was explicitly specified as:

$$Ys = B_0 + BiXj + et \text{ for } i, j = 1, 2, ----, k.$$

Where "s" ranged from 1 to 3,

Y_1 = total financial savings (francs)

Y_2 = total value of non-financial savings (francs)

Y_3 = total savings (francs)

B_0 = Intercept term,

Bi's = partial regression coefficient,

Xs = same explanatory variables as in model for achieving Objective (iv), and

e_t = error term

Two separate regression analyses were performed for each of the dependent variables (Y_1, Y_2, Y_3) one for male-headed households and the other for female-headed households.

A priori Signs for the Variables in the Model Used for Objective IV

Total Savings by the Respondents (Y_1)

This was the total money saved by the respondents as well as the savings kept in physical forms by the respondents. The physical forms of savings were monetized using current market price.

Financial Savings by the Respondents (Y_2)

This was part of the total savings made by respondents in monetary form.

Non-Financial Savings by the Respondents (Y_3)

This was part of the total savings made by respondents in physical form. The value of physical savings in francs was used.

Age of the Respondents (X_1)

The age of the farmer is expected to influence their savings. Younger farmers would tend to use more modern input, which could increase his or her farm output than old conservative farmers. Therefore, the coefficient was expected to be negative.

Level of Education (X_2)

It was believed that a farmer's educational attainment determines the needs for savings and choice of savings institutions. This was given as the total number of years the farmer spent in formal education. The coefficient of the variable was expected to be positive.

Farm Income (X_3)

The farmers' income determined from all the farming sources available to the farmers. It was measured in francs. The coefficient of the variable was expected to be positive.

Non-Farm Income (X_4)

The non-farm income was determined from all the non-farming sources available to the farmers. It was measured in francs. The coefficient of the variable was expected to be positive.

Dependency Ratio (X_5)

The dependency ratio was total number of people in the household who are not earning income divided by total number of people in the household. The coefficient of the variable was expected to be negative.

Family Size (X_6)

This was the total number of persons including the extended family members that lived and fed by the respondent. The correlation coefficient was expected to be negative.

Distance to Informal Financial Institutions (X_7)

This was the distance between the house of the respondent and the average distance of all informal financial institutions where the respondent saved his or her money. The distance was measured in kilometres. The sign of the coefficient was expected to be negative or positive depending on the level of patronage.

Distance to Formal Financial Institutions (X_8)

This was the distance between the house of the respondent and the nearest formal financial institution where the respondent saved his or her money. The distance was measured in kilometres. The sign of the coefficient was expected to be negative or positive depending on the level of patronage.

Index of Modern Technology Adoption (X_9)

This was calculated by first assigning figures to all the modern technology available to farmers and secondly, calculating the modern technology used by the farmer. The sign of the coefficient was expected to be positive because of the importance of the adoption of modern technology in boosting farmer's income.

Average Propensity to Consume (X_{10})

The propensity to consume was expected to influence the savings of a farmer. The sign of the coefficient was expected to be negative.

Farming Experience (X_{11})

This variable was included because it was believed that the number of years a farmer had put into farming would influence his or her performance in farming, thus increasing his or her income as well. The sign of coefficient of this variable was expected to be positive.

Chow-test model that was used to achieve objective (vi) was specified as:

$$F^* = \frac{[\, e^2p - (e^2_1 + e^2_2)\,] / K}{(e^2_1 + e^2_2)/(n_1 + n_2 - 2k)}$$

Where;

F^* = F-ratio calculated from sample data,

e^2p = sum of residual of pooled sample of all observations,

e^2_1 = sum of residual deviations of male-headed households' values Of total savings, financial savings, and non-financial savings,

e^2_2 = sum of residual deviations of female-headed households' values of total savings, financial savings and non-financial savings,

n_1 = sample size of male-headed households

n_2 = sample size of female-headed households

k = number of variables

The result obtained was used to reject or accept the null hypotheses (g), (h) and (i), by comparing F* with critical F-ratio.

All the regression analyses performed were tried under the three basic functional forms, namely, linear, semi-log and double-log. The functional forms that gave the best fit in terms of value of coefficient of multiple determination (R^2), number of significant variables, lowest standard errors and consistency of signs of coefficients with *a priori* expectation were selected for the analysis.

Table 4.3 showed that the largest segment of the respondents was married (40%), followed by those that were widowed (33.5%). However, those respondents that were separated from their spouses recorded the least number of the respondents (3%). This result may likely affect the savings mobilized in male and female-headed households. This is because marital status in part determines the differences in household financial burden (Synder, 1974).

4.1.4 Farming Experience of the Respondents

Farming experience could enhance the efficiency in farm resource management, which has direct positive effects on food produced. The distribution of respondents according to the number of years spent in farming is presented in Table 4.4.

Table 4.4: Frequency Distribution of Respondents According to Years of Farming Experience

Years of Farming Experience	Frequency	Percent
10 years or less	78	39.0
11 – 20	99	49.5
21 – 30	16	8.0
31 – 40	5	2.5
Above 40	2	1.0
Total	200	100.0

Source: Field Survey, 1999.

Table 4.4 showed that the largest cohort was 11 to 20 years (49.5%), followed by those that spent 10 years or less in farming (39%). This indicated that 88.5% of the respondents spent 20 years or less in farming. The mean years spent by respondents in farming was approximately 13 years.

4.1.5 Secondary Occupation of the Respondents

All the respondents had farming as their primary occupation. However, these farmers engaged in part-time, income-earning activities especially during the slack farming periods. Part-time (secondary) activities are those activities that a farmer devoted about 1/3rd of working time other than the primary occupation (Deepa and Pritchett, 1997). The frequency distribution of respondents according to secondary occupation is presented in Table 4.5.

Table 4.5: Frequency Distribution of Respondents According to Secondary Occupation

Occupation	Frequency	Percent
Teaching	13	6.5
Tailoring	20	10.0
Trading	98	49.0
Hunting	9	4.5
Craftsmanship	34	17.0
Artisanship	26	13.0
Total	200	100.0

Source: Field Survey, 1999.

Table 4.5 showed that trading was the most popular secondary occupation (49%), followed by craftsmanship (17%). Hunting was the least popular secondary occupation engaged by the respondents (4.5%). The secondary occupations determine to a large extent the amount of money contributed from non-farm sources in rural households.

4.1.6 Household Size

A household unit comprises the household head, the wife or wives, child(ren) and other dependents. The household size could determine the amount of savings in a particular household. This is because, according to Synder (1974), household size has a negative effect on household savings

because of expenditure that is involved in large households, which deplete the accumulated savings. The frequency distribution of respondents according to household size is presented in Table 4.6.

Table 4.6: Frequency Distribution of Respondents According to Household Size

Household Size	Frequency	Percent
Less than 4	16	8.0
4 – 6	78	39.0
7 – 9	54	27.0
10 – 12	32	16.0
Above 12	20	10.0
Total	200	100.0

Source: Field Survey, 1999.

The result in table 4.6 showed that most of the respondents (66%) had between 4 and 9 persons. The average household size was seven persons per household. This average household size of seven persons per household would influence the amount of savings in either negative or positive terms depending on dependency ratio within the household.

4.1.7 Farm Size

Each farmer usually had both compound and distant fields. The size of the farm is an important factor influencing the production and income of the farmers. Likewise, income is one of the variables that determine the magnitude of savings by farmers (Adams, 1992). The frequency distribution of respondents according to size of farm cultivated is presented in Table 4.7. The table showed that most of the respondents (56%) operated farms of more than 0.5 ha, with 9.5% operating farms above 1.4ha.

Table 4.7: Frequency Distribution of Respondents According to Size of Farm Cultivated

Farm Size (ha)	Frequency	Percent
Less than 0.5	88	44.0
0.5 – 0.9	54	27.0
1.0 – 1.4	39	19.5
Above 1.4	19	9.5
Total	200	100.0

Source: Field Survey, 1999.

4.1.8 Income Level of the Respondents

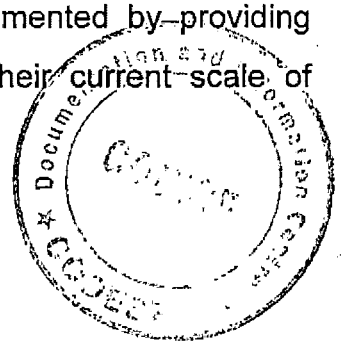
Income is a major determinant of savings in developing countries (Zeller, *et al*, 1997). This is because financial savings depends on the amount of disposable income. In addition, the level of income determines the level of capital accumulation (physical savings) among the farmers (Zeller, 1994, 1998). Frequency distribution of respondents according to level of income is presented in Table 4.8. The table showed that 67% of the respondents were low-income farmers.

Table 4.8: Frequency Distribution of Respondents According to Level of Income

Income Group	Frequency	Percent
Low income*	134	67.0
Medium income**	50	25.0
High income***	16	8.0
Total	200	100.0

Source: Field Survey, 1999.

This result, therefore, showed that most respondents were poor and as such might not possess enough capital to engage in large-scale farming. Respondents' individual efforts needed to be supplemented by providing them with savings incentives in order to increase their current scale of operation in farming.



4.2 Characteristics, Management and Level of Patronage in Rural Financial Institutions

Different types of savings institutions exist in the study area. These institutions were grouped into formal and informal institutions. The informal institutions included, age grade, and churches, while formal institutions included banks, registered and cooperatives, among others.

Characteristics, management and level of patronage of savings institutions varied significantly from one institution to the other. These differences are centred on the organizational framework and activities of different savings institutions.

4.2.1 Characteristics of Savings Institutions in Rural Area

The characteristics of rural savings institutions varied significantly from one institution to another depending on the socio-economic objectives behind the formation, mode of operation, ownership and membership criteria of such institution.

4.2.1.1 Objectives of Savings Institutions in Rural Area

Savings institutions are established with certain objectives. The objectives of establishing an institution varied across and within a particular type of savings institution. For instance, the characteristics of formal savings institutions differ from those of informal savings institutions. Also differences occurred within the same type of savings institution. The objectives of the savings institutions in the study area are presented in Table 4.9.

Table 4.9: Frequency Distribution of the Savings Institutions According to the Objectives for which they are established

Objectives	Formal Institutions		Informal Institutions	
	Frequency	Percent	Frequency	Percent
Mobilizing Savings	20	100.0	20	100.0
Loan to members	20	100.0	20	100.0
Loan to other people other than members	20	100.0	7	35.0
Social Welfare Schemes	6	30.0	20	100.0
Community Development	1	5.0	12	60.0

Note: Multiple responses were recorded.

Source: Field Survey, 1999.

Table 4.9 showed that the objectives of establishing most rural savings institutions were to mobilize savings and to provide loans to members. In addition, all the sampled formal institutions participated in granting loans to non-members of the institution, compared with 35% of sampled informal savings institutions. Also, all the sampled informal institutions carried out collective investment/social welfare schemes compared with 30% in formal institutions. However only a small group of formal institutions were involved in community development (5%) compared with 60% in informal institutions.

4.2.1.2 Ownership and Membership Criteria of Savings Institutions

Observations showed that the ownership and membership criteria vary between the rural formal and rural informal savings institutions in the study area. The basic difference is that shareholders - who have no definite criteria for belonging to any formal institution except their ability to buy shares – were the owners of the formal financial institutions. Although shareholders

had no restricted membership criteria in formal institutions, person who wanted to become a shareholder must buy a minimum number of shares usually set by different banks. Depositors in a bank required an average of ₦100 to open an account. Therefore, membership criteria in formal institutions cut across all occupations, sex, ages, levels of education, and religious affiliation.

In informal institutions, the contributors were the shareholders as well as members. Contributors participated actively and saved money in these institutions. Membership criteria in informal institutions were, in principle, divided into restricted and unrestricted membership. The restricted membership criteria of an informal institutions was based on one of the following criteria, namely, sex, occupations, age, level of education, and religious affiliation. Most of the rural informal institutions used occupation, sex, and marital status as membership requirements. In some few instances, membership of a particular informal institution was open to any person who wanted to belong to the institution provided the person was able to obey the rules governing the institution.

4.2.2 Management Strategies of Savings Institutions

Management strategies adopted by rural financial institutions differed between formal and informal institutions. The management of formal financial institutions rested on Board of Directors, Manager, Accountant, Secretary and Cashier. The Board of Directors (elected by shareholders) was responsible for major decisions in formal institutions. These decisions were implemented by the Bank Manager (appointed by Board of Directors). The decision-making and implementation processes of a typical rural formal financial institution are presented in Figure 4.1.

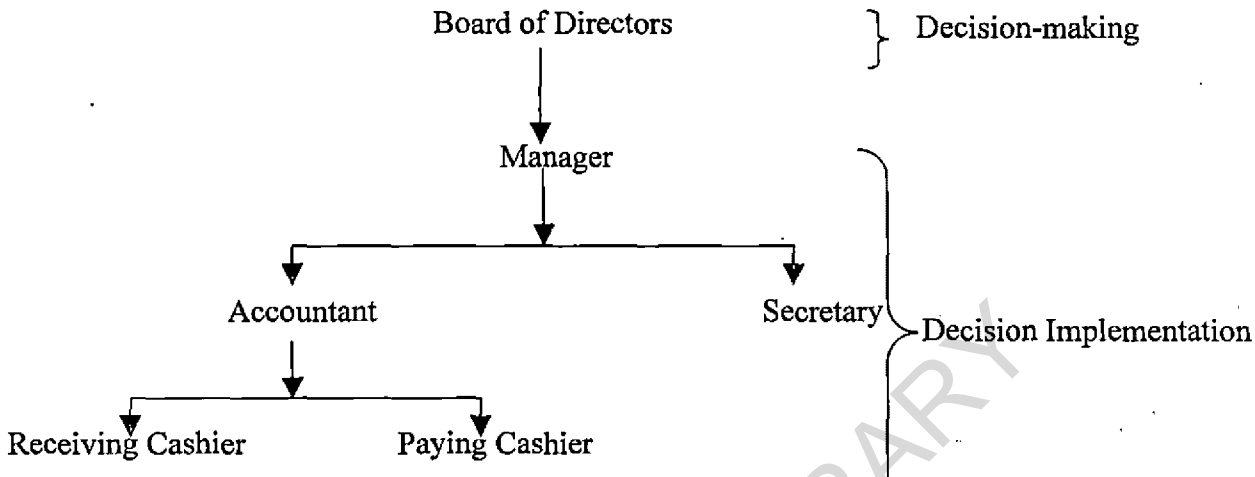


Fig. 4.1 Decision-making and Implementation Processes of a Typical Rural Formal Financial Institution.

In the informal institutions, the Chairman or the President, General Secretary, Financial Secretary, Treasurer and other members were responsible for all decision making. These decisions were made during meetings. Such decisions as mobilizing savings, amount to be contributed per cycle, the meeting days, membership criteria, and interest on loans were made during meetings or before the formation of such institutions.

In general, major management strategies adopted by any institution are discussed under contribution or deposit methods, disbursement or sharing criteria, and withdrawal methods in savings institutions.

4.2.2.1 Contribution or Deposit Methods in Savings Institutions

Formal financial institutions had no definite period for mobilizing savings. The members of such institutions pay in at will mainly during

harvest or festive periods. Unlike formal financial institutions, savings contribution in the study area was done in cycle usually at every meeting in informal institutions. The average amount mobilized per institution depended on the frequency of meeting and amount contributed per person in such meetings. This confirmed Nweze (1990) findings. The frequency of contributions in informal savings institutions is presented in Table 4.10.

Table 4.10: Frequency of Contributions Among Respondents in Informal Financial Institutions

Frequency of Contribution	Number of Respondents	Percent
Daily	23	11.5
Once every four days	40	20.0
Once a week	78	39.0
Once a month	46	23.0
Once every two months	10	5.0
More than once every two months	3	1.5
Total	200	100.0

Source: Field Survey, 1999

Table 4.10 showed that respondents used multiple methods. The more popular ones were weekly (39%), monthly (23%) and fortnightly (20%).

The amount contributed per period also determined the amount of savings mobilized in informal savings institutions. The frequency distribution of respondents according to amount contributed per period in informal financial institutions is presented in Table 4.11. Most respondents (82%) contributed 75 francs or less. Sixty-five percent of the respondents contributed between 25 francs and 75 francs.

Table 4.11: Frequency Distribution of Respondents According to Amount Contributed Per Period in Informal Financial Institutions

Range (francs)	Number of Respondents	Percent
Less than 250	34	17.0
250– 500	68	34.0
510 – 750	62	31.0
760 – 1000	21	10.5
1010 – 1250	11	5.5
Above 1250	4	2.0
Total	200	100.0

Source: Field Survey, 1999.

The high cluster among those saving between 250 francs and 750 francs is not surprising because most respondents were low income, which is a major characteristic of rural farmers (Olayide, 1981). The average amount saved by respondents per period in informal financial institutions was 520.88 francs.

4.2.2.2 Disbursement or Sharing Criteria of Savings in Rural Savings Institutions

Disbursement or sharing criteria were somewhat similar in both formal and informal financial institutions. "Dividend-pay-out" technique in formal financial institution, where shareholders receive dividends in proportion to the number of shares they had in the institution, was also applied in informal financial institutions. This means that in times of distribution and use of the saved money, attention was paid to the amount of money contributed by each member. However, in some informal financial institutions, where the contributions of the members were the same, contributions and interests were shared on equal basis. This sharing was done at the end of the year before Christmas or commencements of new farming season to enable them

make purchases for the celebration and farm activities, respectively. In some institutions, usually in informal financial institutions, funds were set aside for contingency expenditure, such as, risk against project failures and death of members.

4.2.2.3 Withdrawal Method in Savings Institutions

Depositors of formal financial institutions can withdraw money without notice. Depositors are expected to leave minimum amount of money (averaged 1000 Franc) in their accounts. One can also close the account completely. In the case of closing of account, certain amount of money is left to cover the cost of passbook and other services rendered by the institution. However, in informal financial institutions, membership could be terminated voluntarily or by expulsion. In the former case, all entitlements due to the individual, who wishes to withdraw, were paid so long as the person did not owe. Voluntary withdrawal could be due to migration, inability to meet regular contributions, lack of interest and/or death. Similar result has been found elsewhere (Nweze, 1996).

4.2.3 Level of Patronage in Formal and Informal Savings Institutions

The importance of high level of patronage in formal and informal savings institutions cannot be questioned. Agricultural credit policy aims at larger coverage of rural households not only to meet their credit needs, but also to provide a place to deposit excess liquidity whenever it arises during production and consumption cycles (Desai and Mellor, 1993). The level of patronage in financial institutions in the rural areas determined to a large extent the amount of savings mobilized. The level of patronage in formal and

informal savings institutions in the study area is discussed under two sub-headings below.

4.2.3.1 Patronage in Formal Savings Institutions

There was in most cases access problem especially among formal financial institutions. This problem (which affected the level of patronage in formal institutions) was created mostly through lending policies, complicated procedures and low density of coverage. The level of patronage covered both existing and distressed banks, provided the respondent has not completely closed his or her account with the bank. An average of 1,292 customers per formal financial institution was recorded during the survey period.

The level of patronage by respondents in informal savings institutions varied. These differences have been noted in Graham (1992) research work. The frequency distribution of respondents according to level of patronage in informal financial institutions is presented in Table 4.13. However, the primary objective of age grades, women organization, and churches were not financial intermediation.

Table 4.13: Frequency Distribution of Respondents According to Level of Patronage in Informal Savings Institutions

Savings Institutions	Frequency*	Percent*
Thrift club	156	78.0
Age grade	50	25.0
Women Organization	73	36.5
Churches	58	29.0
Friends/relatives	31	15.5
Other informal savings institutions**	43	21.5

* Multiple responses were recorded

Source: Field Survey, 1999.

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Source: Field Survey, 1999.

Table 4.13 showed that Thrift club received the highest number of patronage in the study area (78%), followed by women organization (36.5%), while level of patronage was least among those saving with friends/relatives (15.5%). An average of 59 member persons per informal financial institution was recorded. The average size in informal financial institution is not surprising because of management problems that may result when the size of the institution is large. This confirms Desai and Mellor's (1993) report that successful management of informal financial organization was as a result of smallness of the size and the careful selection of the members.

The result showed that level of patronage was more in informal financial institutions than in formal financial institutions. While informal financial institutions recorded an average of 62.2% of respondents, formal financial institutions recorded an average of 37.82% of respondents that patronized the institutions. This finding is supported by several studies that reported that informal financial institutions receive more patronage in rural areas than formal financial institutions (UN, 1984; Sarris, 1996 and Okorie, 1991).

4.2.4 Choice of Financial Institution

The choice of a particular savings institution depends on many factors. For instance, Sarris (1996) noted that people in developing countries chose a particular savings institution based mostly on nearness, interest rate on financial savings, the stability of such institutions and membership criteria. The reason(s) for choice of financial institution among respondents in the study area is presented in Table 4.14.

Table 4.14: Frequency Distribution of Respondents According to Reason(s) for Choice of an Institution

Reasons	Formal		Informal	
	Frequency*	Percent	Frequency*	Percent
Proximity to the institution	8	4.0	18	9.0
No formalities	12	6.0	54	27.0
Attractive interest rate	23	11.5	33	16.5
Level of trust in the members	26	13.0	45	22.5
Membership criteria	5	2.5	40	20.0
Services rendered	44	22.0	39	19.5
Means of getting loan	35	17.5	71	35.5
Money more secured	62	31.0	20	10.0

* Multiple responses were recorded

Source: Field Survey, 1999.

Table 4.14 showed that the major reasons for saving with formal financial institutions were security of the institution (31%), followed by services rendered, while membership criteria (2.5%) was not an important reason for choosing such an institution. A means of getting loan (35.5%), absence of long protocol (27%), level of trust in the members (22.5%) and membership criteria (20%) were major reasons for saving with informal savings institutions. Proximity to the institution was not a major factor they considered while making a choice.

4.3 Forms, Motives and Values (Volume) of Rural Savings

4.3.1 Forms of Rural Savings

Rural farmers hold their savings in different forms. Apart from formal and informal financial institutions, where rural farmers save their money, farmers may also decide to hold all or part of their savings in non-financial forms. Forms of rural savings are briefly discussed in sub-sections below.

4.3.1.1 Financial Savings in Formal and Informal Institutions

The volume of savings mobilized in formal and informal financial institutions differ in the study area. The empirical results of volume of savings mobilized in different financial institutions in different years are presented in Table 4.15.

Table 4.15: Distribution of Volume of Financial Savings in Formal and Informal Financial Institutions, 1992 – 1997

Years	Savings in Formal Financial Institutions (francs)		Savings in Informal Financial Institutions (francs)	
	Nominal	Real	Nominal	Real
1992	14116460.1	29940.9 (40)*	20704990.1	43920.7 (60)*
1993	21217730.0	28800.3 (41)*	30462680.7	41350.3 (59)*
1994	26947100.7	23340.7 (37)*	45805580.1	39680.6 (63)*
1995	37179430.3	18380.7 (34)*	69698040.1	34460.9 (66)*
1996	44983760.8	18120.4 (36)*	79267630.4	31930.7 (64)*
1997	48468340.3	17080.0 (37)*	83978890.4	29590.4 (63)*

* Percent of total savings each year

Source: Primary and Secondary data, 1999.

Table 4.15 showed that for the period 1992 to 1997, volume of money saved in formal and informal financial institutions was consistently increasing over the years in nominal terms, but decreasing over the years in real terms.

The table also showed that for the period 1992 to 1997, volume of financial savings in informal institutions was consistently higher than that in formal institutions. The greatest variation occurred in 1995, where 66% of total financial savings was in informal institutions. This result is not surprising because many researchers have reported that rural financial savings was higher in informal institutions than formal institutions (Ijere, 1986; Okorie, 1991).

4.3.1.2 Non-Financial Forms of Savings

Farmers may decide to save all or part of their savings in non-financial forms. Desai and Mellor (1993) noted that in the early stage of agricultural development, physical productive savings dominate financial savings, especially where agriculture is not commercialised and technology has not been adopted. The most common forms of physical savings in the rural areas include livestock, palm oil, tubers, farm equipment and inventory of goods. The frequency distributions of respondents according to non-financial forms of savings adopted are presented in Table 4.16.

The result showed that the more common non-financial forms of savings included, tubers (68.5%), inventories of goods (49.0%) and cereals/grains (42%).

Table 4.16: Frequency Distribution of Respondents According to Non-Financial Forms of Savings Adopted

Forms of physical savings	Frequency *	Percent
Livestock	39	19.5
Tubers	137	68.5
Cereals/grains	84	42.0
Palm oil	28	14.0
Inventories of goods	98	49.0

* Multiple responses were recorded

Source: Field Survey, 1999

Greater number of the respondents kept tubers and inventories of goods as form of non-cash savings. However, observations show that most of the respondents sold part of the inventories of goods and stored farm produce during lean agricultural periods at higher prices as part of household survival strategies. In addition, because most of the respondents engaged in

trading as part of secondary occupation, they converted their cash to stock of their trade for later sale.

4.3.2 Motives For Rural Savings

Motives for savings are important study because it helped to create awareness on specific reason why savings are advantageous (Okorie, 1991; Besley, 1994). In addition, knowledge of motives for saving would assist policy makers in planning appropriate strategies for savings mobilization. Different motives may have guided rural farmers in the choice of a particular form of savings.

4.3.2.1 Motives of Financial Savings

The frequency distributions of respondents according to motives for savings are presented in Table 4.17. The table showed that the major motives for saving in financial forms include financing of farm activities/purchase of farm equipment (45%) and payment of children's school fee (21.5%).

Table 4.17: Frequency Distribution of Respondents According to Motives For Savings in Financial Form

Motives	Frequency	Percent
Finance farming activities	54	27.0
Purchase farm equipment	36	18.0
Pay children's school fees	43	21.5
Loan/debt repayment	28	14.0
Finance social event	25	12.5
Purchase consumer durable	6	3.0
Unexpected expenses	8	4.0
Total	200	100.0

Source: Field Survey, 1999

In general, the result showed that a greater part of the savings was for agricultural purposes. This result is not surprising because since the respondents consisted of farmers, it is expected that a greater part of savings should be channelled into their primary occupation, which is their major source of income. Surprisingly, informal insurance (unexpected expenses) was not given high priority by the respondents. This contrary to report by many authors in my literature review (see Ifemedebe 1995; Iwuagwu, 1957 and Okorie, 1991)

4.3.2.2 Motives for Saving in Non-Financial Forms

There are many motives for non-financial savings in the rural areas (see Table 4.18). The table showed that respondents opted for non-financial savings mainly as a buffer against inflation (72.5%) and robbers (33.5%).

Table 4.18: Frequency Distribution of Respondents According to Motives for Saving in Non-Financial Forms

Motives	Frequency	Percent
High inflation rate	145	72.5
Easy availability of family needs	33	16.5
Safety of cash from robbers	67	33.5
Low interest rate charges in financial institutions	21	10.5

Multiple response were recorded

Source: Field Survey, 1999

The result in Table 4.18 is consistent with *a priori* expectation because, according to Sarris (1996), when inflation is high, savers tend to convert their financial savings into tangible assets (physical savings) that could be re-converted to cash when the need arise. However, interest paid by financial institutions was not a major consideration.

4.3.3 Amount Saved by Household Heads in Formal and Informal Financial Institutions

The result on money saved in formal financial and informal financial institutions by household heads is presented in Table 4.19. The table showed that the mean value of money saved varied between formal and informal financial institutions. Also the table showed that rural farmers saved more in informal financial institutions than formal financial institutions.

Specifically, mean value of money saved in financial institutions was 150, 707.27 francs distributed as 60, 353.12 francs (40%) in formal institutions and 90, 354.15 francs (60%) in informal institutions. This result supported the findings by Aryeetey (1996), who noted that informal financial savings dominated formal financial savings in rural areas. This may be connected with wide area of coverage by informal financial institutions.

The table also showed the distribution of financial savings by male and female household heads in different financial institutions. The result noted that most of the female heads in rural areas had fewer saving in formal financial institutions (28%) than in informal financial institution (57%). This may be connected with the low educational level of the female respondents and perception of female as people with low socio-economic status in the study area (Schrieder, 1989).

Table 4.19: Distribution of Mean Values (francs) and Percentages of Financial Savings by Household Head and by Institutions

Household Head	Institutions		Total
	Formal	Informal	
Female	10,754.39(28)* (25)**	50, 322.44 (57)* (75)**	70076.83 (45)*
Male	40,598.73(72)* (53)**	40, 031.71 (43)* (47)**	80630.44 (55)*
Total	60353.12 (40)**	90, 354.15 (60)**	150707.27

** Percentage by Financial Institutions
* Percentage by Household Head
Source: Field Survey, 1999

Further, the result showed that although male-headed households' savings was higher than female-headed households' savings in formal financial institutions, generally the male-headed households' financial savings (55%) was slightly higher than those of female-headed households' financial savings (45%).

4.3.4 Value of Savings by Household Heads in Financial and Non-Financial Institutions

The result of the value of financial and non-financial savings is presented in Table 4.20. The study showed that financial savings constituted 33% of total savings in the study area while the remaining 67% of savings was in non-financial form (see Table 4.20).

Table 4.20: Distribution of Mean Values (francs) and Percentages of Savings by Household Head and by Types of Savings

Household Head	Institutions		Total
	Financial	Non-Financial	
Female	70,076.83(29)** (45)*	170,337.20 (71)** (54)*	240,414.03(51)*
Male	80,630.44(37)** (55)*	140,665.34 (63)** (46)*	230,295.78(49)*
Total	150, 707.27 (33)**	320, 002.54 (67)**	470, 709.81

** Percentage by Types of Savings
* Percentage by Household Head
Source: Field Survey, 1999.

The table also showed that although female-headed households' non-financial savings was slightly higher (54%) than those of male-headed households (46%), generally total savings by female-headed households was higher (51%) than those of male-headed households (49%) in rural area. This contradicted Zeller *et al* (1997) research findings that savings of male household were smaller than those of female.

4.3.5 Comparative Test Between Mean Values of Financial and Non-Financial Institutions as well as Between the Mean Values of Savings in Formal and Informal Financial Institutions

The tests of differences between means conducted in order to realize hypothesis "a" and "b" are presented in Table 4.21.

Table 4.21: Comparative Tests (T-test) Results

	Items tested	Value(fras)	t-statistic	Critical t-value
1.	Savings in formal institutions	60,353.12		
	versus savings in informal institutions	90,354.15	-10.56	1.96
2.	Value of financial savings	150,707.27		
	versus non-financial savings	320,002.54	-23.90	1.96

Source: Calculated from Survey Data, 1999

The table showed that there was a significant difference between financial savings in formal and informal institutions at the 5% probability level. This is because the absolute t-statistic (-10.56) was greater than the critical t-value (1.96). Therefore, the hypothesis "a" that there are no significant differences between the value of savings held in formal and informal institutions by farmers was rejected. The alternative hypothesis that there are significant differences between the value of savings held in formal and informal institutions by farmers was thus accepted.

The table also showed that there was a significant difference between the mean values of financial and non-financial savings at the 5% probability level. This was based on the fact that absolute value of t-statistic (-23.90) was greater than the critical t-value (1.96). Therefore the hypothesis "b" was rejected. The alternative hypothesis that there are significant differences between the value of savings held in formal and informal institutions by farmers was thus accepted.

4.4 Interest Rates, Inflation Rates, and Rural Financial Savings

Although a lot of work has been done on savings, UN (1996) reported that the effect of interest rates on savings has always been controversial and empirical evidence regarding the impact of interest rates on real savings in Africa is rather mixed. Also the impact of inflation rates on rural savings was not certain (Fry, 1978; Giovannini, 1985). The result of relationship among interest rate, inflation rate and rural financial savings is presented in Figure

4.2. The result in Figure 4.2 showed that although nominal interest rates had positive effects on real financial savings, the response of nominal interest to rural financial savings was sharper than real interest rate. A striking finding was that real interest rate had feeble response to rural financial savings. This may be connected with the poor response of real interest rate to rural savings, as reported by Desai and Mellor (1993). This because farmers save less in financial form than they do in non-financial form (see Table 4.17)

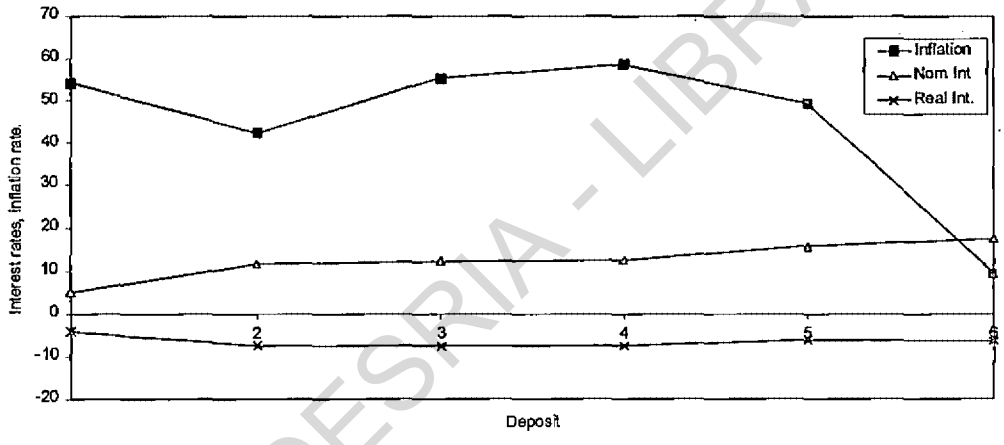

Fig 4.2: Relationship among Inflation, Nominal Interest rate, Real interest rate & Depoits in financial Institutions in tha Study Area from 1992 to 1997. Source: Field Data 1999.

The figure also showed that inflation rate had a negative relationship with rural financial savings. This may be connected with the high inflation rate in Nigeria, which made farmers to convert their financial savings into tangible asset with the hope of reconverting them to cash when the need arose (see Schmidt-Hebbel *et al*, 1996).

4.4.1 Effects of Interest Rates on Rural Financial Savings

Different authors have reported many views on response of rural financial savings to interest rates (Giovannini, 1985; Zeller, *et al*, 1997). This study investigated this relationship with an econometric model, which is presented below.

$Yi = f(X_1, X_2) + e$

Where i ranged from 1 to 3

Y_1 = total financial savings in both formal and informal institutions (fran)

Y_2 = total financial savings in formal institutions (francs)

Y_3 = total financial savings in informal institutions (francs)

X_1 = real interest rate (%)

X_2 = nominal interest rate (%)

e = error term

For analytical purposes, the double log function provided the lead equation. The choice was based on the value of coefficient of multiple determination (R^2), the appropriateness of signs, econometric problem and significance of the coefficients.

The regression model that measured the effects of interest rates on rural savings in formal and informal financial institutions is presented in Table 4.22.

Table 4.22: Coefficients of Estimated Regression Function Model with Different Types of Savings as Dependent Variable and Interest Rates as Independent Variables

Variables	Y_1 (Total)	Y_2 (Formal)	Y_3 (Informal)
Constant	5.532	3.981	4.365
X_1	0.219	0.104	0.234
	(1.462)	(0.961)	(2.931)*
X_2	0.148	0.117	0.521
	(1.153)	(0.735)	(1.031)
R^2	0.143	0.118	0.213
F-ratio	1.230	0.730	6.81*
DW	1.950	2.010	2.54

Note: Figures in brackets are t-statistics

* *Significant at 5% probability level.*

Source: Computed from Field Survey, 1999.

Table 4.22 showed that although both nominal and real interest rates were not statistically significant to rural financial savings (Y_1), and savings in formal institutions (Y_2), real interest rate was statistically significant to savings in informal financial institutions at 5% probability level. Interest rates had positive relationship with financial savings in the rural areas.

Further analysis showed that the coefficients of multiple determination (R^2) were generally low in rural financial savings. While the interest rate factors explained 21% of total variation in informal financial savings, interest rate factors explained 11% and 14% of total variation of savings in formal institutions (Y_2) and total financial savings (Y_1) respectively. This showed that more important variables were omitted in the model. The Durbin-Watson statistics in all the financial institutions (Y_1, Y_2, and Y_3) also showed no autocorrelation problem.

The result also showed that there are no significant effects of interest rates on rural financial savings. This is because the F-statistic (1.40) was less than critical F-value (3.04). Therefore the null hypothesis "c" was accepted. This result supported Deaton (1997), who reported that rural savings had no significant relationship with real interest rate.

4.5 Non-Price Determinants of Rural Financial and Non-Financial Savings

Apart from interest rate, rural savings are affected by non-price factors. According to Desai and Mellor (1993), non-price factors that affect rural savings include income, family size, farm size, dependency ratio and average propensity to consume. Many researchers have expressed different views about the most important determinants of rural savings (Deaton, 1997; Schrieder and Cuevas, 1992; Fry 1988 and Sarris, 1996).

4.5.1 Effects of Non-Price Factors on Rural Financial Savings

The econometric model employed in measuring the effects of non-price factors on rural financial savings, used total money saved in both formal and informal financial institutions as a dependent variable Y, while the explanatory variables were age of the respondent (X_1), educational level (X_2), farm income (X_3), non-farm income (X_4), dependency ratio (X_5), family size (X_6), distance to informal financial institution (X_7), distance to formal financial institution (X_8), index of technology used (X_9), average propensity to consume (X_{10}), and farming experience (X_{11}). The double-log model was chosen as the lead equation. The regression result is presented as,

$$\begin{aligned}\text{Ln Y} = \quad & 4.1781^{*} + 0.3628\ \text{Ln}X_1 + 0.04053\ \text{Ln}X_2^{*} \\ & (3.060) \qquad (0.779) \qquad (2.290) \\ & + 0.1427\ \text{Ln}X_3^{*} + 0.0779\ \text{Ln}X_4 - 0.0687\ \text{Ln}X_5^{*} \\ & (2.593) \qquad (0.894) \qquad (-2.348) \\ & - 0.55027\ \text{Ln}X_6 - 0.1889\ \text{Ln}X_7^{*} - 0.16022\ \text{Ln}X_8 \\ & (-1.638) \qquad (-2.265) \qquad (-0.903) \\ & + 0.544\ \text{Ln}X_9 - 0.1712\ \text{Ln}X_{10} + 0.07317\ \text{Ln}X_{11} \\ & (0.411) \qquad (-1.974) \qquad (0.597)\end{aligned}$$

R^2 = 0.59996; F-ratio = 35.61; DW = 2.89

Note: Figures in brackets are t-statistics

* *Significant at 5% probability level.*

Source: Computed from Field Data, 1999

The regression result showed that the major non-price determinants of rural financial savings were level of education (X_2), farm income (X_3), dependency ratio (X_5) and distance to informal financial institution (X_7). These were significant at the 5% probability level. The result also showed that level of education and farm income were positively related to rural financial savings. This means that improving the level of education and farm income would increase rural savings. However, increase in dependency ratio (X_5), distance to informal financial institution (X_7) and increase in consumption (X_{10}), would discourage financial savings in rural areas. Therefore, one could infer policy measures that enhance the educational level of the farmers, increase their scale of farm operation, decrease dependency ratio within the household, make informal financial institutions closer to the rural farm families and reduction in consumption would enhance rural financial savings.

However, the average propensity to consume did not make much impact to the dependent variable. This may be attributed to two factors. First, was that money left after consumption was too small to create much impact on the rural financial savings. Secondly, though significant savings were made, greater parts of these savings were not saved in financial form.

The result also indicated that the model was able to explain 60% of the variation in rural financial savings. The overall regression equation was statistically significant at the 5% probability level since the F-statistic (35.61) was greater than the critical F-ratio (1.84). In addition, Durbin-Watson (DW) statistic showed no autocorrelation problem. Therefore, based on the fact that the F-statistic was significant at the 5% level of significance, it was accepted that non-price factors had significant effects on financial savings. Thus hypothesis "d" was rejected. Table 4.23 shows the distribution of beta coefficients of the explanatory variables in the non-price factors affecting the rural financial savings.

Table 4.23: Beta Coefficient and the Ranking of Explanatory Variables in Non-Price Factors of Financial Savings

Variables	Beta Coefficients	Rank
Age (X1)	0.531	9
Education (X2)	0.989	3
Farm Income (X3)	1.014	1
Non-Farm Income (X4)	0.548	8
Dependency Ratio (X5)	-1.008	2
Family Size (X6)	-0.957	5
Dist to Inf Inst. (X7)	-0.960	4
Dist to For Inst. (X8)	-0.874	7
Inx of Moder Tec Ad (X9)	0.384	11
Aver.Pro.To cons. (X10)	-0.898	6
Farming Exp. (X11)	0.379	10

Source: Field Data, 1999

Further, the result showed that farm income was the most important variable affecting the rural financial savings, followed by dependency ratio. While level of education ranked third in the order of importance, distance to informal institutions ranked fourth (see the beta coefficients in Table 4.23).

4.5.2 Effects of Non-Price Factors on Rural Non-Financial Savings

The determinants of non-financial savings are still a recent research agenda in developing countries including Nigeria (Schrieder and Cuevas, 1992). The econometric models that measured the effects of non-price factors on rural non-financial is presented below. Double-log was chosen as the lead equation. The regression result is presented as:

$$\begin{aligned}\text{Ln Y} = {} & 4.5051^{*} + 0.02248\ \text{Ln}X_1 + 0.02338\ \text{Ln}X_2^{*} \\ & (7.1780) \quad (0.725) \quad (0.827) \\ & + 0.2267\ \text{Ln}X_3^{*} + 0.09128\ \text{Ln}X_4^{*} - 0.4408\ \text{Ln}X_5^{*} \\ & (3.390) \quad (2.403) \quad (-2.2995) \\ & - 0.18655\ \text{Ln}X_6^{*} - 0.0123\ \text{Ln}X_7^{*} - 0.17525\ \text{Ln}X_8 \\ & (-2.653) \quad (-0.110) \quad (-1.324) \\ & + 0.4087\ \text{Ln}X_9 - 0.8872\ \text{Ln}X_{10}^{*} + 0.08303\ \text{Ln}X_{11} \\ & (0.432) \quad (-5.601) \quad (0.908)\end{aligned}$$

R^2 = 0.6559; F-Statistics = 19.85; DW = 2.04

Note: Figures in brackets are t-statistics

* *Significant at the 5% probability level.*

Source: Computed from Field Data, 1999

The regression result showed that the major determinants of rural non-financial savings were farm income (X_3), non-farm income (X_4), dependency ratio (X_5), family size (X_6), and average propensity to consume (X_{10}). These were statistically significant at the 5% probability level. The result showed that while farm income, and non-farm income and average propensity to save were positively related to non-financial savings, dependency ratio, family size and average propensity to save had negative relationships with non-financial savings. The implication of this result is that increasing income, and minimizing the dependency ratio and consumption within households and family size will likely enhance non-financial savings in the rural area. Surprisingly, level of formal education of the respondents was not statistically significant in the model. This infers that physical savings in rural area required little or no formal education.

The result also indicated that about 66% of total variation in rural non-financial savings was explained by non-price factors. The regression

equation was significant at 5% probability level because the F-statistic (19.85) was greater than critical F-ratio (1.84).. Durbin-Watson statistic showed no autocorrelation problem. Based on the F-values it was indicated that non-price factors had significant effects on rural non-financial savings. Therefore, the null hypothesis "e" was rejected at the 5% probability level. Table 4.24 showed the beta coefficients of explanatory variables in the non-price determinants of non-financial savings

Table 4.24: Beta Coefficient and the Ranking of Explanatory Variables In Non-Price Factors of Non-Financial Savings

Variables	Beta Coefficients	Rank
Age (X1)	0.634	9
Education (X2)	-0.679	8
Farm Income (X3)	1.634	2
Non-Farm Income (X4)	1.039	4
Dependency Ratio (X5)	-0.995	5
Family Size (X6)	-1.241	3
Dist to Inf Inst. (X7)	-0.311	11
Dist to For Inst. (X8)	-0.896	6
Inx of Moder Tec Ad (X9)	0.509	10
Aver. Pro. To cons. (X10)	-2.051	1
Farming Exp. (X11)	0.773	7

Source: Field Data, 1999

The analysis also showed that average propensity to consume was the most important factor affecting rural non-financial savings, followed by

farm income. Family size ranked third in order of importance. While non-farm income ranked fourth. See the beta coefficients in Table 4.24

4.5.3 Effects of Non-Price Factors on Rural Savings

Although non-price determinants of rural financial and rural non-financial savings have been discussed, there is need to ascertain the non-price factors affecting rural savings (when non-financial and financial savings are combined) in general. The econometric model used is presented as:

$$\begin{aligned} \text{Ln } Y = \quad & 4.6786^{*} - 0.0620\ \text{Ln}X_1 + 0.0129\ \text{Ln}X_2 \\ & (4.635) \qquad (-0.263) \qquad (0.598) \\ & + 0.1277\ \text{Ln}X_3^{*} + 0.49712\ \text{Ln}X_4^{*} - 0.4523\ \text{Ln}X_5^{*} \\ & (2.509) \qquad (10.037) \qquad (-4.039) \\ & -0.0600\text{Ln}X_6^{*} - 0.0776\text{Ln}X_7 - 0.15198\text{Ln}X_8 \\ & (-3.369) \qquad (-1.617) \qquad (-1.508) \\ & + 0.0841\ \text{Ln}X_9 - 0.35178\ \text{Ln}X_{10}^{*} + 0.07317\ \text{Ln}X_{11} \\ & (0.928) \qquad (-2.044) \qquad (1.398) \end{aligned}$$

R^2 = 0.890; F-statistic = 39.48; DW = 2.99

Note: Figures in brackets are t-statistics

* *Significant at the 5% probability level.*

Source: Computed from Field Data, 1999

The econometric result showed that the major determinants of rural savings were farm income, non-farm income, dependency ratio, family size and average propensity to consume. These variables were significant at the 5% probability level. Farm income, non-farm income and average propensity to save were positively related to rural savings, while dependency ratio and family size had negative relationship with rural savings. This means that adequate savings mobilization in rural areas requires an increase in income

as well as reduction in the dependency ratio, average propensity to consume within households and family size. These results are consistent with *a priori* expectation. For instance, increase in income means more money available for saving while high dependency ratio and family size mean more money for consumption and less for savings (Sarris, 1996; Aryeetey and Udry, 1997).

The result also indicated that about 89% of total variations in rural savings was explained by non-price determinants. The high coefficient of multiple determination (R^2) showed that most important variables were included in the econometric model. The regression equation was significant at the 5% probability level because F-statistic (39.48) was greater than critical F-ratio (1.84). Therefore, hypothesis "f", that non-price determinants had no significant effects on rural savings was rejected. The alternative hypothesis, that non-price determinants had significant effects on rural savings was thus accepted. Table 4.25 showed the beta coefficients of explanatory variables in the non-price determinants of rural savings.

Table 4.25: Beta Coefficients and the Ranking of Explanatory Variables in Non-Price Factors of Rural Savings

Variables	Beta Coefficients	Rank
Age (X1)	-0.198	11
Education (X2)	0.322	10
Farm Income (X3)	0.988	4
Non-Farm Income (X4)	4.443	1
Dependency Ratio (X5)	-2.311	2
Family Size (X6)	-1.947	3
Dist to Inf Inst. (X7)	-0.817	6
Dist to For Inst. (X8)	-0.779	7
Inx of Moder Tec Ad (X9)	0.549	9
Aver. Pro. To cons. (X10)	-0.957	5
Farming Exp. (X11)	0.605	8

Source: Field Data, 1999

The Table indicated that non-farm income was the most important variable affecting rural savings, followed by dependency ratio. Family size and farm income ranked third and fourth respectively.

4.6 Non-Price Determinants of Savings in Male and Female-Headed Households

It is necessary to ascertain the characteristics of male-headed and female-headed households, which affect savings behaviour. This is because female-headed and male-headed households may respond differently to savings incentives or to different socio-economic characteristics. Therefore, appropriate policy on savings can be formulated if a different factor that

affects their savings behaviour is considered when formulating rural credit policy.

4.6.1 Effects of Non-Price Factors on Financial Savings of Male-Headed and Female-Headed Households

The econometric estimates of the effects of non-price factors on financial savings of male-headed and female-headed households are presented in Table 4.26

Table 4.26: Regression Estimates of Non-Price Factors on Financial Savings of Male-Headed and Female-Headed Households

Household Head	Constant	X_1 (age)	X_2 (education)	X_3 (farm income)	X_4 (non-farm income)	X_5 (dependency ratio)	X_6 (family size)	X_7 (dist. To informal inst.)	X_8 (dist. To formal inst.)	X_9 (Ind. of tech ad.)	X_{10} (Av. Prop. to cons.)	X_{11} (farming experience)	R^2	F-ratio
Male coefficients	3.9360*	-0.26883	0.0240*	0.1690*	0.2044*	-0.3875	-0.1088	0.21067	0.15297	0.01410	-0.2968*	0.14850	0.6136	10.793*
Male t-values	(3.786)	(-0.385)	(2.558)	(3.073)	(2.076)	(-0.373)	(-0.437)	(0.165)	(0.434)	(0.074)	(-1.930)	(0.710)		
Female coefficients	-3.8498*	-0.3628	0.0163	0.1045*	0.1149	-0.11691*	-1.235	-0.28836*	0.02109	0.04561	-0.1975*	0.32006	0.5517	8.971*
Female t-values	(3.113)	(-0.564)	(1.455)	(2.097)	(0.897)	(-3.335)	(-0.933)	(-2.994)	(0.103)	(0.284)	(-2.066)	(0.253)		

(*) Indicates statistical significant at the 5% probability level
Critical F-ratio is 1.84.

Source: Field Data, 1999

The econometric model had amount saved in financial form as dependent variable, while non-price factors were used as explanatory variables.

The result showed that although both econometric models for female-headed and male-headed households were statistically significant at the 5% level of significance, the influence of explanatory variable were not the same for both equations. While level of education and non-farm income significantly affected male-headed households' financial savings, dependency ratio and distance to informal financial institutions significantly affected the female-headed households financial savings. It is not surprising

that level of education had significant influence on male-headed household savings. This may be connected with higher attendance of formal education by males than females especially in rural Igbo land (Azikiwe, 1989). It is not also surprising that dependency ratio significantly affected the female-headed households financial savings. This is an indication that female-headed households faced more dependency burden probably; because of peculiar constraints they faced in obtaining credit and other resources in the society (Saito, 1994). Furthermore, distance to informal institution had significant effect on financial savings by female-headed households. This may be attributed to larger amount of money saved by female-headed households in informal than formal financial institutions.

While about 51% of variations in financial savings by male-headed households were explained by non-price factors that for female-headed households were 54%. This indicated that non-price factors explained more about the financial behaviour of female-headed than male-headed households in the study area.

4.6.2 Effects of Non-Price Factors on Non-Financial Savings of Male and Female-Headed Households

The econometric model used to measure the effects of non-price factors on non-financial savings of male and female-headed households is presented in Table 4.27.

Table 4.27: Regression Estimates of Non-Price Factors on Non-Financial Savings of Male-Headed and Female-Headed Households

Household Head	Constant	X_1 (age)	X_2 (education)	X_3 (farm income)	X_4 (non-farm income)	X_5 (dependency ratio)	X_6 (family size)	X_7 (d/st. To informal inst.)	X_8 (dist. to formal inst.)	X_9 (ind. of tech ad.)	X_{10} (Av. Prop. to cons.)	X_{11} (farming experience)	R^2	F-ratio
Male coefficients	4.1663*	-0.38854	0.02701	0.38395*	0.03451*	-0.4692	-0.09084	-0.14453	0.04221	0.11320	-1.441*	0.13027	0.5803	14.06*
Male t-values	(3.838)	(-0.928)	(1.045)	(3.933)	(2.298)	(-0.757)	(-0.582)	(-1.292)	(0.193)	(0.961)	(-2.362)	(1.009)		
Female coefficients	4.2390*	-0.29425	0.03990	0.14303	0.08583*	-1.6280*	0.07226*	-0.0136	-0.0359	0.04797	-0.4949*	0.01842	0.6300	14.12*
Female t-values	(4.755)	(-0.778)	(1.896)	(2.552)	(1.139)	(-7.746)	(3.393)	(-0.160)	(-0.298)	(0.506)	(-2.553)	(0.109)		

(*) Indicates statistical significant at the 5% probability level

Critical F-ratio is 1.84.

Source: Field Data, 1999

The result indicated that while non-farm income significantly affected male-headed household physical savings, dependency ratio and family size significantly affected female-headed households non-financial savings. The study also noted that both dependency ratio and family size had no significant relationship with the physical savings of male-headed households.

About 58% of total variation in non-financial savings in male-headed households was explained by non-price factors, while 62% of total variation in non-financial savings in female-headed households was explained by non-price factors. This indicated that non-price factors explained more about physical savings of female-headed households than that of male-headed households in the study area.

4.6.3 Effects of Non-Price Factors on Total Savings of Male and Female-Headed Households

The econometric model that was used to measure the effects of non-price factors on total savings of male-headed and female-headed households is presented in Table 4.28.

Table 4.28: Regression Estimates of Non-Price Factors on Rural Savings of Male-Headed and Female-Headed Households

Household Head	Constant	X_1 (age)	X_2 (education)	X_3 (farm income)	X_4 (non-farm income)	X_5 (dependency ratio)	X_6 (family size)	X_7 (dist. To informal inst.)	X_8 (dist. to formal inst.)	X_9 (ind. of tech ad.)	X_{10} (Av. Prop. to cons)	X_{11} (farming experience)	R^2	F-ratio
Male coefficients	3.2672*	-0.2128	0.06839	0.20589*	0.04307*	-0.4062*	-0.19500*	-0.04619	0.02488	0.04190	-1.916*	0.06804	0.81366	18.46*
Male t-values	(8.931)	(-1.074)	(0.053)	(4.477)	(2.789)	(-2.336)	(-2.687)	(-0.874)	(0.242)	(0.754)	(-4.978)	(1.066)		
Female coefficients	4.6376*	0.05822	0.25062	0.14359*	0.09451	-1.2043*	-0.12196	-0.10108*	-0.00276	0.05347	-0.4270*	0.07601	0.83499	24.99*
Female t-values	(6.552)	(-0.213)	(0.980)	(3.027)	(1.479)	(-6.914)	(-0.782)	(-2.401)	(-0.027)	(0.668)	(-2.984)	(0.820)		

(*) Indicates statistical significant at the 5% probability level

Critical F-ratio is 1.84.

Source: Field Data, 1999

The table showed that the major difference between the major determinants of rural saving in male and female-headed households occurred in non-farm income, family size and distance to informal financial institutions. While non-farm income and family size were significant factors in savings by male-headed households, distance to informal financial institutions was a very important factor in female-headed households.

Further, the result showed that about 81% of total variation in savings by male-headed households was explained by non-price factors, while about 83% of total variation in savings by female-headed households was explained by non-price factors.

4.6.4 Chow Test Results

To identify whether the non-price determinants of male-headed households' savings (financial, non-financial and total savings) differ significantly from those of female-headed households' savings (financial,

non-financial and total savings), Chow (1960) test of equality was performed. The result is presented in Table 4.29 (See Appendix 3 for computation).

Table 4.29: Chow Test of Differences Between the Determinants of Female and Male-Headed Households' Savings

Variables Tested	F-Statistics	Critical F-value	Decision
Female-headed versus male-headed households' financial savings	5.87*	1.84	Significant
Female-headed versus male-headed households' non-financial savings	16.43*	1.84	Significant
Female-headed versus male-headed households' total savings	27.43*	1.84	Significant

Note: asterisks (*) indicate statistically significant at the 5% probability level.

Source: Computed from field data, 1999.

Table 4.29 showed that the Chow test results were consistently significant in financial savings, non-financial savings and total savings. This showed that the non-price determinants of financial savings, non-financial savings and total savings of female-headed households were significantly different from those of male-headed households.

Furthermore, when the determinants of female-headed households financial savings was compared with the determinants of male-headed households financial savings with Chow test model, F-statistic of 5.87 was obtained. The calculated F-statistic (5.87) is greater than critical F-ratio (1.84) based on the F-values, it was accepted that there is significant difference between the non-price determinants of male-headed and female-headed households' financial savings. Similarly, there is significant difference between the non-price determinants of male-headed and female-

headed households' non-financial savings. This is because the F-statistic (16.43), as was calculated by the Chow test model is greater than critical F-ratio (1.84). The null hypothesis "g" was also rejected based on the F-values. Thus the study accepted that there is a significant difference between the non-price determinants of male-headed and female-headed households' total savings. This is because the F-statistic (27.43) as was calculated by Chow model is greater than the critical F-ratio (1.84).

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 Summary

This study was conducted to critically examine the effects of interest rates and non-price factors on rural savings supply in Nigeria, with particular reference to Manyu Division. This study was carried out as a result of persistent shortage of credit to rural farmers in Cameroon, despite the introduction of various schemes and policies. It was suspected that this situation might depend to some extent on the poor planning and ineffective execution of the schemes and policies, but more importantly on shortage of savings in the rural areas where a reasonable percentage of food consumed in this country are produced.

The orientation of the study was guided by the following null hypotheses:

(a) there are no significant difference between the values of savings held in formal and informal institutions by farmers in the study area;

(b) there are no significant difference between the values of financial and non-financial savings held by farmers in the study area;

(c) there are no significant effect of interest rates on financial savings;

(d) there are no significant effect of non-price factors on financial savings supply by rural farmers;

(e) there are no significant effect of non-price factors on non-financial savings supply by rural farmers;

(f) there are no significant effect of non-price factors on total savings supply by farmers;

(g) there are no significant difference between the non-price determinants of financial savings by male-headed and female-headed households;

(h) there are no significant difference between the non-price determinants of non-financial savings by male-headed and female-headed households; and

(i) there are no significant difference between the non-price determinants of total savings by male-headed and female-headed households.

Random samples of 200 farmers were made comprising 100 female-headed and 100 male-headed households. In addition, a purposive sampling technique was used to select 20 formal and 20 informal financial institutions. Primary and secondary data were used to generate data for the study. Primary data (that is, those from female-headed and male-headed households) were generated by pre-tested questionnaire, while part of data from financial institutions formed part of secondary data.

Data generated were analysed using multiple regression, t-tests, chow tests and descriptive statistics.

The study noted that the characteristics of savings institution varied across formal and informal financial institutions in the study area. The major difference was that the decision making and implementation of decision made were the responsibility of all the members of a particular informal institution (which took place during meetings), while implementation of decision made by Board of Directors was the responsibility of the Bank Manager in formal financial institutions. Apart from differences, which occurred across the institutions, the study also noted differences in various informal institutions, which were based on the objectives of establishing the institution and membership criteria.

With regard to the level of patronage, although informal institutions received higher patronage (62%) than formal financial institutions (38%), most of the respondents saved with thrift club in informal institution. The study also showed that security of the depositors (31%) was the major reason for saving with formal institutions, while means of getting loan (35.5%) was the major reason for saving with informal institutions.

The study also noted that although money saved in formal and informal financial institution was consistently increasing over the years in nominal terms, the trend was decreasing in real terms. The result also showed that although money saved in informal institutions was consistently higher than money saved in formal institutions in both nominal and real terms, respondents saved in financial form to make cash available in order to finance their farming activities when the need arose. Also, the t-test analysis showed that there was a significant difference between the savings in formal and informal institutions. Therefore, null hypothesis "a" was rejected. The result also showed that although male-headed households recorded a higher percentage (55%) of financial savings than female-headed households (45%), female-headed households' recorded a higher percentage (57%) of savings in informal financial institutions than male-headed households (43%).

Although all respondents kept one form of physical savings or the other, their motive for saving in non-financial form was to act as a buffer against high inflation. Part or all of these non-financial savings could be reconverted to cash when the need arose. In addition, although non-financial savings dominated savings in rural areas (67%), non-financial savings by female-headed households (54%) slightly dominated those of male-headed households (49%). The result of t-statistics showed that there was a

significant difference between the value of non-financial savings and financial savings in rural area. Therefore, null hypothesis "b" was rejected.

Econometric estimation of financial savings showed that although interest rates had no significant effects on financial savings, savings in informal financial institutions was significantly affected by interest rates. The model also showed that only 14% of total variability in total financial savings was explained by interest rates.

The study also showed that the major non-price determinants of rural financial savings were level of education, farm income, dependency ratio, propensity to consume and distance to informal financial institutions. However, level of education and farm income were positively related to rural financial savings, while dependency ratio, average propensity to consume and distance to informal financial institutions exerted negative impact on rural financial savings. Thus, an increase in level of education, farm income, as well as reduction in dependency ratio and reduction in consumption within the household and establishing informal financial institution nearer to the rural populace would probably increase the level of financial savings in the rural areas.

However, the differences between the male-headed households and female-headed households' financial savings occurred in the areas of level of education, non-farm income, dependency ratio and distance to informal financial institutions. Level of education and non-farm income significantly influenced the financial savings by male-headed households, while dependency ratio and distance to informal financial institutions significantly affected the female-headed households' financial savings. The result showed that there was a significant effect of non-price factors on rural

financial savings. Similarly, the study also showed that there was significant difference between the non-price determinants of financial savings by male-headed and female-headed households. The econometric model also noted that although non-price factors explained about 59% of total variability in rural financial savings, 51% and 54% of total variability in financial savings were explained by non-price factors for male-headed and female-headed households, respectively.

The major factors that affected non-financial savings were income, dependency ratio, family size and average propensity to consume. In addition, 65% of the variability in non-financial savings was explained by non-price factors. Similarly, 62% and 64% of total variability in non-financial savings were explained by non-price factors for male-headed and female-headed households, respectively. The study noted that there was a significant effect of non-price factors on rural non-financial savings. In addition, the study showed that there was a significant difference between the non-price determinants of male-headed and female-headed households' non-financial savings.

With respect to total savings, the result showed that farm income, non-farm income, dependency ratio, family size and average propensity to consume significantly affected rural savings. Non-price factors explained 89% of total variability of rural savings. The study showed that non-price factors had a significant effect on rural savings. However, about 81% and 83% of total variability in rural savings were explained by non-price factors for male-headed and female-headed households, respectively. The study, in addition, noted that there was a significant difference between the non-price determinants of male-headed and female-headed households' total savings.

5.2 Recommendations

The results that emerged from this study have vital policy implications for enhancing and revitalizing the savings mobilization strategy of the rural farmers. These policy recommendations are given below.

(i) A group approach is useful in promoting savings in rural areas because this approach mobilized the spirit of savings through the periodic meetings of the group. In some cases, members of a farmers group should work together by contracting their labour for a development project; the wage from such work can be saved for the use of the group.

(ii) The result noted that formal institutions received low patronage from farmers because of their lending policies, and complicated banking procedure. Therefore effort should be made on the part of formal financial institutions to reduce the bureaucratic processes involved in lodging and withdrawing money from their banks by the farmers. It is also necessary to reduce the strings attached to the loans in formal institutions especially in the area of collaterals.

(iii) Government should not only encourage the establishment of more formal financial institutions in the rural areas, but should advise other formal institutions to emulate strategies used by informal financial institutions.

(iv) Since the level of education affected the rural financial savings especially the female-headed households, government and other non-governmental agencies should establish adult education programme and training programmes in the rural areas where these rural farmers will receive minimal formal education. This will likely increase their

level of awareness about the different income generating opportunities open to them, as well as the need to save part of their earned income with the financial institutions available in their areas. This will also help them to learn the procedures of banking and collecting loan from formal financial institutions.

(v) The study noted that income and consumption affected rural savings. Therefore, greater exposure to viable/profit yielding channels should be encouraged, where they can earn incremental income and probably save more. To this end, appropriate investment climate should be created in rural areas through provision of good transportation network, market and modern agricultural inputs. In addition, traditional savings institutions should be used as agent to disseminate new farm innovation. This is because informal institutions were more accessible to rural farmers. These informal institutions can incorporate this programme as part of their activities to enhance higher and more stable incomes among their members (which are rural households). In addition, inflation rate should be controlled through macroeconomic policies in order to achieve higher real income.

(vi) A greater integration of the formal and informal institutions could be useful in strengthening the structure and performance of the informal institutions and developing linkages between the informal and formal institutions. Organizing joint workshops for formal and informal institutions workers could stimulate this. The aim of the workshops should centre on the banking and customer management.

(vii) Though the study noted a feeble response of rural deposit to real interest rates, interest rate was determinants of deposits in informal financial institutions. Therefore, interest rate should be liberalized in the formal financial institutions in order to attract more savings from farmers.

(viii) There is a natural reluctance on the part of the rural population, especially females to go to distant bank branches to deposit their financial savings. This aspect has to be borne in mind in devising mobilization schemes of small savings of rural communities. Therefore establishing financial institutions nearer most of the targeted members of the community is necessary. This is because It is assumed that the presence of these banks nearer to the farmers, (who ordinarily would not have patronized any savings institution), to save part of their income. In addition, door-to-door collection of small savings, through recognized agents who have the authority to fill the deposit passbook, would have clear advantage.

(ix) The study noted that family size and dependency ratio affected rural savings especially among the female-headed households. Government and non-governmental organizations should encourage family planning practices among farmers in order to reduce the dependency burden. Poverty alleviation programme should be instituted and pushed vigorously by government. Priority should be given to poor families with not only large household size but also high dependency burden.

(x) For the fact that informal financial institutions received more patronage than formal financial institutions, greater attention should be paid in

making them more sustainable. This can be done by organizing formal meetings among informal institutions in other to exchange ideas on both financial, personnel management. Through this process weaker financial institutions will be able to learn how to manage their weak area(s).

5.3 Conclusion

In conclusion, it is evident that although the rural farmers saved more in informal financial institutions than those of formal financial institutions, male-headed households saved more in both financial and non-financial forms than those of female-headed households in the study area.

It is evident from the study that non-financial savings formed the major part of total savings; female-headed households' total savings dominated those of male-headed households'.

The study has also shown that rural savings had a feeble response to interest rate. Rural savings are more influenced by non-price factors. The study noted specifically that the determinants of rural savings included income, education, family size, dependency ratio and average propensity to consume. These factors determine to large extent the value of savings by household heads in the study area.

Therefore, promotion of an integrated rural financial and savings market with sustained government and non-governmental support is essential for agricultural development by rural farmers as well as improvement of density of coverage by rural financial institutions is central to clients well being.

5.4 Suggestion for Further Study

There is need for an in-depth study of how farm investment responds to rural farmers' savings. This is necessary to ascertain part of the total household savings that are channelled into farming as well as how savings could be used to encouraging modern technology adoption. In addition, a study of differential contributions of financial and non-financial savings to agricultural production is necessary.

Study on the extent to which rural extension programme address the issue of educating rural farmers on the need for savings is also necessary because of inadequate knowledge of savings in the rural areas.

In addition, there is also need for a study on seasonal variation of household savings among the rural farming household. This is necessary in order to make appropriate policies on savings mobilization strategies for different seasons of the year.

Finally a study of the effect of non-price factors (risk, cost of transaction among others) on rural savings from the saving medium point of view is necessary

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