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REPOA

THE ROLE OF INFORMAL AND SEMI-FORMAL FINANCE IN POVERTY ALLEVIATION IN TANZANIA: RESULTS OF A FIELD STUDY IN TWO REGIONS

A. K. Kashuliza, J. P. Hella, F. T. Magayane and
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DEDICATION

This work is dedicated to the memory of the late *Prof. Dr. Mboya S.D. Bagachwa* who was full of initiative and whose pioneering work on Tanzania's informal sector economy illuminated the path through which this study took cause.

ABSTRACT

Liberalization policies implemented in Tanzania after the mid 1980s have created some impetus to the growth of informal and semi-formal finance and credit operations in the country.

This study set out to investigate the modus operandi and performance of some selected informal and semi-formal credit arrangements in two regions of the country (Mbeya and Iringa). Data for the study were collected between January to March, 1996 from a total of two hundred farmers (the majority of whom used informal and semi-formal credit), ten informal lenders, ten input stockists and fourteen semi-formal lenders (including NGOs).

Survey information collected by the study indicates that the main sources of informal credit for smallholders are: relatives, neighbours and friends, shop owners and businessmen, and medium and large scale farmers. Such credit is used for both consumption and production activities. Overall, informal lending is still far from being a specialized activity, rather it is a side activity integrated into the enterprise undertakings of various farmers, businessmen and shop owners.

A variety of semi-formal lenders are operating in the rural areas mainly providing production credit (often accompanied with some training, supervision, and interest on loans which are generally lower than commercial rates). Some of the semi-lenders target specific groups such as women, youth, farmers of certain crops etc. Most of the semi-formal credit channels studied have poor records of loan collection partly because such programmes were being set up without elaborate procedures for education and collection of loans from farmers.

Both informal and semi-formal credit access are linked with the attempt to alleviate poverty in several ways including: ability to cultivate larger farms, getting higher crop yields, and better food security status than before (or in comparison to farmers without credit access). Thus more efforts should be made by Government and relevant institutions to promote the development and growth of informal as well as semi-formal credit channels for them to be more effective tools in the efforts to alleviate poverty.

1. INTRODUCTION

Background information

Countries in Sub-Saharan Africa (SSA) are at a disadvantage in comparison to other third World countries in terms of the state of the development of their financial institutions. Whereas developing economies in Latin America and Asia show bank density ratios of 8 to 30 thousand inhabitants per bank branch, typical ratios in SSA are in the order of 100 to 420 thousand inhabitants per bank branch (Cuevas, 1990). Hence, access to formal financial services by the general population is extremely limited in the continent and/or is obtained at very high transaction costs.

The foregoing limitation is accentuated in rural areas by the urban bias of existing bank networks, and the usually poor conditions of communication and rural infrastructure. In Tanzania, the contraction of financial services in rural areas in recent years by the major financial institutions and banks, under the aegis of financial liberalization and bank restructuring, means that more and more people can no longer get access to formal financial services and have instead to rely on informal and semi-formal financial arrangements to access production and consumption credit, to store savings etc. Because of strict regulations and conditionalities commonly associated with formal financial institutions (eg the high interest rates on bank loans and requirements for collateral), many of the urban populations in SSA also engage in a variety of informal or semi-formal financial transactions. This is in spite of the high concentration of financial institutions or banks in urban areas.

This study is an attempt to describe the types and operations of informal and semi-formal financial arrangements in Tanzania with emphasis on transactions related to agricultural production and marketing. A related emphasis of the study is to establish how the identified credit arrangements are linked to poverty alleviation and/or how they could be used or relied on in the alleviation of poverty[1] of the rural poor.

In the context of this study, the term *informal finance* is applied to all transactions, loans and deposits, occurring outside the regulation of the central monetary authority -the regulated activities being labelled as *formal finance.* The term *semi-formal* is used to refer to the middle part of the continuum (between formal and informal). Such activities may be partially regulated by government agencies through licensing or supervision, and they may have some linkages with the formal financial system. As pointed out by Adams and Fitchett (1992), in

'In the context of this study poverty is defined in absolute rather than relative terms. A commonly used definition of absolute poverty is the inability to attain a specified (minimum) standard of living, frequently referred to as the poverty line. The advantage of using the absolute poverty approach is that changes in the welfare position of the poor can be traced and the extent of poverty eradication can be measured (Semboja, 1994).

many countries the semi-formal niche does not lend itself to dichotomous categorization. During the past decade or so, this segment of financial systems has been increasing rapidly in many SSA countries, through both new entrants and the evolution of informal sector organizations into'semi-formal institutions. In this study, the terms *credit and finance* are interchangeably used. When strictly used, credit refers to a loan with an obligation to pay back with or without interest.

Research problem, questions and justification

While the formal financial sector operations in Tanzania are well known (Amani, 1987; BoT, 1979; Kashuliza, 1992) there is paucity of information relating to the types, operational mechanisms and value of both informal and semi-formal finance and credit arrangements in the countr[2] Also of particular significance is that the existing literature on informal and semi-formal credit arrangements in Tanzania lacks vital information on how such institutions and the use of credit are linked to poverty alleviation and ultimately poverty eradication. This study endeavours to fill part of informaation gap through appropriate descriptive and analytical studies and also shed some light on those linkages through socio-economic analysis and direct observation.

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The study of informal and semi-formal finance and credit arrangements in Tanzania is guided by the following key research questions;

- What are the local credit sources, their conditionalities and *modus operandil* This question aims at identifying the informal and semi-formal credit sources in the areas of study and their procedures of operation.

- What are the factors (attributes) which influence farmer accessibility to credit arrangements? This question searches into the disaggfegation methods used by lenders in selecting their clients.

- What are the explicit and implicit benefits and costs of using credit from these sources? This question aims at collecting information on the client assessment of the benefits and costs of the credit sources.

- How are these credit arrangements benefitting the poor and what needs to be done to enable these arrangements contribute more positively to the alleviation of poverty? This question assists in the design of lessons and policy implications of the study.

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2 The few known descriptive studies on the subject include Ndanshau (1990). Ndanshau and Hyuha (1991). Kashuliza (1993). and Bagachwa (1995).

Justification of this study lies in its potential to provide better understanding of how Tanzania's informal and semi-formal finance and credit sectors are operating. The study also has potential to uncover practices and techniques that can be promoted on their own accord or grafted on formal finance activities for the benefit of the rural (and urban) poor. One of the main objectives of the study is thus to make a contribution to the fine tuning of relevant public policies aimed at poverty alleviation in the country.

Objectives of the study

The general objective is to investigate the types and operational mechanisms of informal and semi-formal finance and credit arrangements in Tanzania, and establish their linkages to poverty alleviation.

The specific objectives are to;

(1) inquire into the types and role of local finance and credit arrangements in selected rural areas of the country,

(2) investigate the operational procedures and performance of the identified credit arrangements,

(3) identify linkages between the credit arrangements and alleviation of poverty,

(4) give suggestions useful in the formulation of public policy on credit markets and the alleviation of poverty in the country.

Data sources and collection

The main field information was collected from Iringa and Mbeya regions over the period of January to March 1996. Two districts in each region were selected for the study based on the existence of evidence of informal and semi-formal credit transactions in those areas. Within those districts a number of informal and semi-formal lenders, and farmer clients of those credit arrangements were interviewed using a variety of methods. Secondary information was collected from a variety of sources including regional agricultural offices, financial institutions/banks, NGO offices etc.

Format of the report

This report is divided into seven sections. The Introduction presents some background information on the study, the research problem, study objectives and an overview of the research methodology. Section two, Literature Review, traces the evolution of formal credit institutions and their performance. Using experiences from different developing countries, the role and importance of informal and semi-formal credit arrangements will be explored.

The section on Research Methodology describes the data sources, data collection methods, and methods of data analysis. Section four, Description of Study Area gives some background information on the districts selected for study and their constituent farming systems. Section five, Informal and Semi-Formal Finance presents a description and *modus operandi* of informal and semi-formal credit sources identified in the study areas. Section six, Credit Use and Poverty Alleviation presents the field survey results on credit accessibility by farmers and traces the impact of credit use in those farming systems.The section on Conclusion and Policy Implications presents the summary, conclusions and policy implications of the study and also points out the contribution and the limitations of the study.

2. LITERATURE REVIEW

The role of formal credit institutions

In a number of agricultural-based Low Income Countries (LICs) including Tanzania, institutional or formal financing of smallholder agriculture has been seen as one of the major means of effecting agricultural growth and development. Consequently over the recent decades several of these countries (with the support of the international community) established specialized credit institutions for the purpose of supplying production credit to smallholder farmers and also for provision of longer term credit for rural development projects that commercial banks were generally not prepared to finance.

The absence of what was perceived as affordable formal credit was also blamed for delaying if not preventing, a timely adoption of new production technologies and the dissemination of non-labour intensive inputs such as fertilizer, thereby slowing down the growth and development of the agricultural sector (Yaron, 1992). The "infant industry" argument was frequently raised to support intervention in financial markets in favour of the agricultural sector as a whole or in support of specific segments such as the small scale farmers. An additional argument was that formal money lenders exploit small farmer borrowers and the poor by charging them high interest rates through which they (lenders) extract monopoly profits. Establishment of informal credit institutions would therefore curb or eliminate such exploitative practices.

Von Pischke (1981) provides a detailed account of the assumptions (arguments) surrounding the establishment of formal credit institutions in agricultural based LICs. The validity of some of the assumptions have been challenged by a number of authors including Adams (1984), Adams and Douglas (1984) and Mauri (1985) and Yaron (1992).

The organisational form of the agricultural credit institutions has depended on the dominant economic philosophy of the country, the nature of the formal financial systems, and the interests of international donors at the time (Adams and Vogel, 1986). As a result, a large variety of rural financial intermediaries is found across Africa and other LICs and they have been known by various names including; agricultural and development banks, finance corporations, and other related titles. Examples are the Agricultural Finance Corporation (in Kenya, Zimbabwe and Zambia); Cooperative and Rural Development Bank, [CRDB, (in Tanzania)], Agricultural and Industrial Development Bank (in Ethiopia and Nigeria), Agricultural Development Bank (in Ghana) etc.

While some of these institutions or "banks" specialized exclusively in financing agriculture (eg the CRDB in Tanzania, and the Lesotho National Development Bank), others catered for a wide array of services including industry, real estate and rural development (eg the

Agricultural and Industrial Development Bank in Ethiopia). Some countries e.g. Uganda, Malawi used the existing facilities - the commercial banks, to extend institutional credit[3]. The major common characteristics which cut across most of the specialized credit institutions, were that they were established to service particular rural needs or target groups such as the small farmers and they have been guided by development rather than the profit objectives in their operations.

Because of being highly selective in the type of financial services they provided, most credit institutions in LICs have been, in effect, operating only on one side of the rural financial market. Credit access (usually at subsidized interest rates) was considered to be the primary problem, and deposit-taking and money transfer services were typically not developed (Von Pischke, 1981). Credit institutions in agricultural based LICs have therefore relied heavily on the treasury or central banks of their countries and foreign donors to sustain their lending activities and they have been financial intermediaries in the very restricted sense, in that they extended credit but rarely mobilized savings (Belshaw, 1988).

Although there are some areas where formal credit programmes have succeeded in promoting development of small holder farmers and poor communities, overall the desired results have not been achieved. Apparently, many credit institutions found it difficult to deal with small farmers because of the latter's lack of adequate collateral, high incidence of defaults and high administrative costs associated with small loans. The credit institutions thus turned and favoured large-scale borrowers in their loan portfolios and rationed out the smallholder borrowers (Hella, 1987). It is estimated that only about 5% of farmers in Africa and 15% in Asia and Latin America have had access to formal credit, with only 5% of the borrowers often receiving as much as 80% of the credit (Braverman and Huppi, 1991).

Assessment of performance of credit institutions in most of the agricultural based LICs reveals a dismal performance in their lending operations. Most of them have lacked viability because of low (subsidized) lending rates and the decline in the real value of their loanable funds (as a consequence of inflation, operational losses, and poor loan recovery). For instance, by the late 1980s, between 30-95% of the institution's loan portfolios were

[3] In Africa, commercial banks have generally been loath to offer credit to agriculture to any appreciable degree. The notable exception being Malawi where the agricultural sector's share of credit in the total loan portfolio between 1973-1984 was 40.5%, and the credit extended to agriculture grew at a compound average annual rate of 33.9% between that period (Belshaw, 1988).

[4] Eg those of the Bank of Agriculture and Cooperative (BAAC) in Thailand (Yaron, 1992; 1994), of the Grameen Bank in Bangladesh, the Badan Kredit Kacamatun (BKK) and the Bank Rakyat Indonesia Unit Desa (BUP) in Indonesia (Yaron, 1994), and the IVIERNO Development Programme in Nicaragua (Braverman and Guasch, 1986). Indicative of the success of those programmes were the high number of target farmers reached, high rates of loan recovery, and their overall impacts in alleviating poverty and contributing to development.

estimated to be in arrears in Africa, the Middle East, and Latin America.

Because of the general failure of formal credit programmes and projects, and the move to liberalize economies of the LICs (beginning from the 1980s)[5], there is now some added attention and emphasis on the role of informal and semi-formal finance, and how such arrangements can promote development of agriculture and the rural poor and/or replace some or all the functional activities of formal credit institutions.

Informal credit arrangements

As already indicated above, the establishment of formal credit institutions was, among other reasons, linked to the belief that local or informal money lenders such as merchants, landlords, and shop owners, exploit small farmers by charging them exorbitant interest rates (Adams, 1984; Von Pischke, 1981). It has been widely held that, through such rates, informal lenders extract substantial monopoly profits, regularly take advantage of the economically weak, and that consequently they do not provide legitimate economic services (Adams, 1984).

By implication, the literature of some twenty five years ago tended to focus on the exploitative nature of money lenders, and attempts to explain and interpret the high interest rates they charge (Bottomley, 1983; Meyer,1991). The literature on interlinked markets, such as landlords-tenant relations, has also included reference to the possibility of exploitative relationships (Braverman and Guasch, 1986). In view of this scenario, Meyer (1991) concluded that it is not surprising therefore that policy makers have in general taken a dim view of the informal finance and credit sector, and have actively taken measures to suppress it in several countries.

The emerging view about informal lenders from studies conducted in the 1980s in a number of developing countries is that, in general, they perform legitimate economic functions in the rural financial markets and that their operations are frequently more cost effective and useful for the poor than those of formal credit institutions and commercial banks (Von Pichke *et al*, 1983). Adams and Graham (1984) point out that informal lenders are now thought to provide valuable services and that in general impose lower costs on most borrowers than had been generally thought. Results from the above studies suggest that, in general, the opportunity cost of money lent in the informal market by merchants, farmers etc. is usually ignored by those who criticise informal lender charges on loans. For instance, research in India by both Singh (1968) and Harris (1980) indicate that informal lenders could obtain higher returns from using their funds in other non-lending activities. Ghata *et al* (1990) in

[5] Liberalization poHcies in the LICs, and in particular financial reform measures adopted by those countries are described in detail in the World Bank Report of 1989.

India by both Singh (1968) and Harris (1980) indicate that informal lenders could obtain higher returns from using their funds in other non-lending activities. Ghata *et al* (1990) in their study for the Asian Development Bank, argue that although informal finance appears to have declined in some Asian countries, it has several comparative advantages, especially low transactions costs for small, short duration loans, so that policies should facilitate informal finance transactions in these areas.

Bouman (1990) suggests that besides risk and uncertainty there is another important characteristic of the environment of the poor that conditions financial intermediation, namely its small scale nature. That is, the poor participate in a 'penny' economy that can hardly generate sufficient business to sustain an expensive institutional network. The author therefore concludes that the culture of formal financial institutions, used to dealing with demands of a maxi- rather than a mini-economy, is such that intermediation between lender and borrower carries with it very high transaction costs for both parties. Consequently, while organizers of formal credit programmes for the poor have found it hard to adapt to the complex financial demands of the 'penny' economy, informal financial intermediaries, which are often more flexible, have continued to excel in the provision of such services.

In SSA the informal finance system is thought to mediate a significant amount of financial transactions (of both deposits and loans). It has been documented that in general, informal loan repayments remain high compared to formal ones mainly because of the personal nature of the finance and credit transactions which are largely conducted on the basis of the trust and intimate knowledge of customers (Von-Pischke, 1992; Kashuliza, 1993; Bagachwa, 1995).

There is a wide range of informal finance and credit arrangements is SSA countries, ranging from transactions which are largely social and personal to those which are partially commercial and impersonal: credits between friends and relatives, money lenders, shop owners and traders (that advance loans and sell goods on credit), and the now common group rotating savings and credit associations (ROSC As). In different parts of SSA, ROSCAs are known by different names, e.g. in Ghana *susus,* in Cameroon and Niger *tontines,* in Ethiopia *iqqubs,* in Nigeria *esusus,* in Uganda *bibiina,* in Somalia *hagbad,* in Egypt *gamaiyah,* in Mozambique *xitique,* and in Tanzania *upatu* (Ndashau, 1990; Von-Pischke, 1992; World Bank, 1992; Kashuliza, 1993; Morris, Lobao, and Wavamunno, 1995; Bagachwa, 1995).

ROSCAs take many forms and they may exist among rural farmers, traders, urban businesses, women associations etc. They intermediate in the most basic way. A small number of individuals, typically six to forty, form a group and select a leader who periodically collects a given amount (share) from each member. The money collected (the fund) is then given in rotation to each member of the group (World Bank, 1992). ROSCAs

borrowed -funds for ROSCA members and reduce risk through the use of appropriate incentives (Cuevas, 1990). Also collateral and information problems are minimal since the members enrolled are only people who have mutual confidence in each other. The existence of both economic and social sanctions for defaulters in the group makes loan default unlikely. It is interesting to note that in some countries such as India and Cameroon, ROSCAs have evolved into formal banks (World Bank, 1992).

Formal and informal credit linkages

In some developing countries, (especially during the era of structural adjustment and market liberalization) formal credit programmes have utilized non-financial entities or informal lenders as conduits of formal credits to the rural fanner borrowers [66]

. Such conduits include input suppliers, traders, millers and/or processors of agricultural commodities. Non-institutional lenders possess a comparative advantage over financial institutions in lending to farmers on account of the stronger information links they have with the activities of their rural clientele (Virmani, 1982). Esguerra (1987) points out that these links derive from dealing with borrowers in some other capacity involving a transaction in another market. This allows lenders to effectively enforce repayment and, as a result incur lower transactions cost and risk.

The World Bank (1992) concludes that improvements in provision of financial services might be gained by upgrading informal arrangement and linking them with formal institutions.

There are also critics of this approach who .argue that infusions of external funds into the informal system would undermine the basic elements that cause success in informal finance (Hospes, 1992). For instance, outside funds lessening the incentives for informal groups to save, to repay loans, increase transaction costs, and introduce political decisions into lending. Adams (1992) also observes that it is still unclear if formal loans targeted for the poor people through informal conduits would be any less problematic than earlier formal loan programmes that were targeted.

There are other forms of linkages between formal and informal finance. Adams (1992) observes that through research there is increasing awareness of the connections between the two forms, which include users of formal loans who spend their borrowed funds in informal

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[6] For instance, an interesting study of informal conduits of formal credit in the Philippines is described in Esguerra, 1987.

markets, group savings that are deposited in banks, formal borrowers who make informal loans and that many people use both formal and informal finance.

Semi-formal credit arrangements

As a result of the implementation of structural adjustment and financial sector liberalization policies in the majority of the SSA countries in the last ten years, institutions and organizations participating in the semi-formal credit system have increased substantially and expanded their operations in both rural and urban areas. They include cooperatives and unions, savings and credit societies, community-based projects, credit programmes of nongovernmental organizations (NGOs)
77

, venture capital firms, and many others.

Describing the situation of semi-formal finance in Uganda, Morris, Lobao, and Wavamunno (1995) point out that some non-bank financial institutions such as the Uganda Cooperative Savings and Credit Union (UCSCU) and the Uganda Women's Finance and Credit Trust (UWFCT) provide training and technical services to business, facilitate and encourage savings, and extend credit. They also act as financial intermediaries by mobilizing savings from low income households which are then periodically deposited in institutional accounts in banks.

Overall, there is still a dire scarcity of reappraisal studies on the performance and benefits 6f semi-formal credit arrangements in the LICs and SSA .Indeed the present study is partly motivated by the need to document and to assess the performance of semi-formal finance and credit arrangements currently operating in some rural areas of Tanzania.

The link between credit use and poverty alleviation

The assumption or belief that credit can contribute to farmer development and agricultural modernization carries some economic rationale. It can be shown, for example, that as long as the marginal return on the variable inputs employed in production are higher than the rate of interest paid (on the loan), the rate of growth of the producer's wealth will increase as access to credit increases. Proof of this proposition appears in Appendix 1 (i).

Using basic economic principles it can also be shown that access to credit is a crucial determinant of differences in the growth of resource endowments (wealth) through time, e.g. between credit borrowers and non borrowers assuming their initial endowments at the Perhaps the credit programmes supported through NGOs in SSA represent the segment of the financial system that is the changing most rapidly (e.g. in Tanzania).

[7] Generally funded by donations from external donors but also to some extent domestic sources.

beginning to be about the same (Appendix 1 (ii)). Thus, credit is potentially of value in augmenting the flow of return to the farm resources. The use of credit provides leverage and leverage acts as a multiplier for the marginal value product (MVP) of the productive resources (Pederson and Brake, 1980; Gonzalez- Vega, 1984; Kashuliza, 1995).

Through the above process, it is therefore believed that credit could enable the rural poor move out of the "poverty trap" through investments that improve productivity and tap into economic opportunities. The theoretic sections in Appendix 1 demonstrate how credit use can impact on farm growth, farmer's endowments, and ultimately contribute to poverty alleviation. What should not be overlooked, however, is that credit alone stands little chance of being used effectively to promote agricultural production and farmer incomes if a conducive financial and economic environment is lacking.

3. RESEARCH METHODOLOGY

Selection of study areas

Because of resource and time constraints it was necessary to restrict coverage of the study to only two regions of Mainland Tanzania. Regions selected for the study were Iringa and Mbeya. The main advantage of selecting the above regions was that some baseline information on informal credit sector dealings was already available (eg see Kashuliza, 1993; 1994). This advantage was likely to contribute to more focused descriptive, and where possible, detailed analytical studies of the research issues than in areas still lacking such information.

Sampling and data Collection

Two districts per region and at least two villages per district were selected for the study based on the existence of evidence of informal and semiformal credit transactions in those areas. An additional criterion in selecting the study villages was their contiguity and state of accessibility from the regional or district centres (on account of limited resources and time for the field survey). Table 1 shows the districts and sample villages selected for the study.

Each village interview was preceded by a reconnaissance visit by the research team (in January 1996) to explain the objectives of the survey to the village leaders, to introduce the study team, to explain the sampling or selection of farmers for the interviews, to set dates for the survey, and to establish rapport with the village community in general.

At the village level a simple random technique was employed in selecting a target sample of 15 farmers for the study from the available lists of credit borrowers and non-borrowers[8] Lists of credit borrowers and non-borrowers were compiled from information supplied by village leaders and primary cooperative society personnel. Such lists were easy to compile because this exercise was particularly done in areas where the research team had benefit of prior knowledge of operations of semi-formal, formal or informal credit channels (obtained from regional/district offices and previous studies). Table 1 indicates the total sample of farmers interviewed in the two regions (i.e. 200 farmers)[9]

[8] In some cases the target could not be attained because of the absentee respondents or non responsiveness (see Table 3.1).

[9] This is a sampling fraction of about 1/15,000 and 1/12,000 for Mbeya and Iringa regions respectively. Since typical studies depend on a sampling fraction of up to 1/20,000, it is obvious that the sample size used for this study provides adequate representation of the issues being studied

A purposeful sampling approach was adopted in selecting informal and semi-formal lenders to be interviewed for this study. The sample size of informal and semi-formal lenders interviewed in an area was dependent on those who could be traced (as suggested from the farmer interviews and secondary information) and those who were willing to discuss the credit transactions with the research team. The target of the study was to interview 20 informal (and semi-formal) lenders per region. The sample size obtained in both regions fell short of this target (Table 2).

Table 1: Study districts, villages and farmers interviewed in Tanzania

District	**Village**	**Credit borrowers**	**Non-borrowers**	**Total**
Mbeya rural	Ilongo Izumbwe Nsonyanga Iwindi	6 9 5 9	9 6 10 6	15 15 15 15
Mbozi	Katete Ihanda	7 5	8 2	15 7 (15)
Njombe	Magoda Uwemba Yakobi Wanging'ombe	8 9 12 11	7 6 3 6	15 15 15 17 (15)
Iringa rural	Nzihi Kalenga Ifunda Kaning'ombe	6 7 10 11	3 10 5 4	9 (15)17 (15) 15 **10** 15
Total	**14**	**115**	**85**	**200 (210)**

Note: Numbers in brackets indicate the target sample

Table 2: Informal and Semi-formal lenders interviewed by district in Tanzania

District	Informal lenders	Semi-formal lenders		Total
		Input stockists	Others	
Mbeya rural	4	4	4	12
Mbozi	2	2	3	7
Sub-total	6	6	7	19 (20)
Iringa rural	4	3	5	12
Njombe	0	1	2	3
Subtotal	4	4	7	15 (20)
Grand total	10	10	14	34 (40)

Note: Numbers in brackets show the target sample

Primary data from farmers, informal and semi-formal lenders were collected using both structured and unstructured (informal) interviews. Relevant additional information was also sought from key informants in the study areas. Data for this study were collected between February and March 1996. Follow up visits were made by the research team to both regions in September 1996.

The structured farmer questionnaire was used in collecting the following information;

- basic information of the household: family size, age, education of farmer, years in farming etc.
- enterprises of the households: crops, livestock, yearly costs and returns.
- credit sources: conditions of accessibility, amounts obtained, usage, assessment of the different sources.
- credit use and benefits: impacts of the. credit used, borrowing costs, linkage with poverty alleviation etc.

The structured informal/semi-formal lender questionnaire was used in soliciting the following information;

- basic characteristics of the lenders: education, age, gender etc.
- operational procedures: criteria for selecting credit clients, forms of credit, amounts of credit issued, targeting and size, linkages with formal institutions etc.
- credit collection: interest charged, methods of loan collection and rates, collection enforcements etc.
- transaction costs: Lender sources of funds and their costs, assessment of borrower
  categories and overall business (of lending)

Secondary information for the study was collected from published and unpublished documents and reports, and from the relevant regional, district and village offices.

Methods of data analysis

Descriptive statistics have been estimated and used in the exploratory analysis of survey data. This includes the estimation of means, range, standard deviation and correlation coefficients of some critical variables.

Some quantitative analysis has been conducted in (a) identifying factors which account for credit accessibility among farmers (or credit borrowers of different sources) using *logistic regression analysis,* and (b) in assessing the impact of credit use on borrowers (versus non-borrowers), using *mean difference significance tests (T-test).* Qualitative assessments have also been relied on in reaching some of the conclusions of the study.

The logistic and T-test analyses are briefly described below;

(a) *The logistic model* The logistic (or logit) model was employed to answer the following research question;

- What are the selection criteria of credit clients by the different lenders? or alternatively, what are the distinguishing characteristics or attributes of credit clients of different sources?

Thus logistic regression can be used to determine attributes of who gets access to a given credit source. Indeed, results generated through logistic regression (and similar models such as probit and tobit) can also be used to predict the future behaviour of credit clients, ie, on who will borrow from which source.

The logistic model can be specified as follows;

$$1nY_i = In\ (P/(1 - P)) = b_0 + \sum_{J} b_i X_{ii}, + e_i, \qquad \begin{matrix} i = 1, 2, \ldots N \\ j = 1, 2, \ldots n \end{matrix}$$

where: $1nY_i$ (dependent variable) is the natural log of the probability to borrow (P) divided by the probability not to borrow (1 - P) of the i^{th} observation (individual farmer)

X are the independent variables,

$\mathbf{b_0}$ regression intercept coefficient,

b (beta) coefficient for the independent variables j

e random error term.

While the classical regression model is commonly estimated through the ordinary least squares (OLS) method, the logistic model is usually estimated through the maximum likelihood procedure. The goodness of fit of the logistic model can then be tested through the chi-square distribution while the significance of individual variables can be established through Wald coefficients and *T-test.* The strength of the logistic model lies in the fact that its dependent variable *Y* is assumed to be binary, taking on but two values, say *1* and *0.* The outcomes of *Y* are assumed to be mutually exclusive and exhaustive.

For details on the logistic (logit) models see Lewis - Beck (1993), Berry and Feldman (1985), Maddala (1983) and DeMaris (1992).

(b) *Mean difference T-test*

The null hypothesis investigated through the *T* significance test is that there is no difference between pooled means of credit users and non-users (eg in relation to crop yield, income from crop sales, status on food security etc.). The alternative hypothesis (which is the essence of this study) is that credit use, does impact on crop production, income and well being of borrowers (in comparison to non-borrowers). Thus the key research question investigated here is,

> Does the use of credit contribute to higher crop yields and family incomes, better food security etc. and hence alleviation of poverty?

The *T* statistic can be calculated (based on a separate variance estimate) as follows;

$$T = \frac{X_1 - X_2}{\sqrt{S_1^2/N_1 + S_2^2/N_2}}$$

Where: X, and X-, are the sample means of the alternative groups eg credit users and non-users,

S, and S_2 are variances for the two groups,

N, and N_2 are the sample sizes for the two groups.

On the basis of the T value calculated and its degrees of freedom, the observed level of significance (probability) is then evaluated for the purpose of rejecting/accepting the hypothesis that the means are equal/unequal (usually at the probability of 0.10 or less). For details on tests between means see Norusis (1988; 1991), and Henkel (1976).

Variables selected for logistic analysis and the mean difference significance test results are reported in section six. The overall selected variables of the study and measurement are listed in Appendix 2.

4. DESCRIPTION OF STUDY AREA

General introduction

Iringa and Mbeya regions form the major part of Tanzania's Southern Highlands which embrace many diverse agricultural systems representative of the area's diversity and its natural base and peoples. The two regions are part of the 'big four' regions in the country which have recorded some substantial growth in agricultural production beginning in the 1970s. The other regions in that group are Rukwa and Ruvuma. The following sections present a summary of the salient features of the selected study districts in those regions.

(a) Iringa rural district

The agro-ecological zone surrounding Iringa town, and stretching into north-west Mufmdi and to the north-west along Lukosi river, encompasses the main farming system of Iringa rural district. This area is characterised by low to moderate rainfall.

There are a number of commercial farming enterprises in this zone, in particular, much of the tobacco production in the region is concentrated in this area and extends further down into Mufmdi. Other important crops in this zone include maize, cassava, sunflower, sorghum, beans, potatoes and a variety of vegetable crops and fruits. The farming system is highly influenced by its proximity to Iringa town, and many household incomes are supplemented through work in the town and by the sale of vegetables, pulses, and *ulanzi* (a common local brew made from the bamboo plant). According to previous studies, up to 60% of household income is derived from non-agricultural activities in this zone (URT/EDF, 1987).

The agricultural land of this district is generally characterised as having poor to moderate fertility. Use of fertilizer inputs in crop production is fairy common across the district, especially in the production of tobacco and maize. In addition to the use of fertilizer, over 65% of the households also use insecticides.

The majority of households in this area keep cattle, albeit in small numbers. Oxen are used by a significant proportion of the population in farming . Oxen are owned by some 15% of the total population and are hired by the rest of the farmers. Hire charges are based on the area of plots cultivated. There are also a number of semi-sedentary major livestock owning households in the-district, mostly concentrated in the northern parts. Although such households form less than 5 per cent of the population, they own over 60% of the cattle in the district.

The Iringa plains which are also part of the above agro-ecological zone has marginally better rainfall and a very different farming background although crops grown are generally the same as described above. The land form is characterised by undulating plains interspersed

with rocky mountains and inselbergs. Extensive erosion has occurred in the footslope areas. The farming system is typified by land use problems relating to high gross population density. The problem of land availability has been compounded by changes in the settlement patterns through villagization and related policies[10]. In the Iringa plains about 10% of the households are cattle owners, with an average herd size of between 10 and 20. Of these livestock owning households, some 40% own oxen. The hire of oxen for land preparation is fairly common, as the hire of tractors in some areas is. In all, about 35% of households hire labour, oxen or tractors for farming.

The high altitude and high rainfall areas are located in the eastern part of the district. In this agro-ecological zone maize is the dominant crop and is cultivated by practically all households in the farming system either in sole form or mixed with other crops. Other crops in this system include cowpeas, millet, irish potatoes, beans, vegetables and other minor crops. Use of external farm inputs in farming including improved maize seed, fertilizers and insecticides is relatively more intensive in this zone, but highly dependent on availability and accessibility by individual farmers and/or their village governments. Cattle are also kept in this zone but the individual herds are small averaging eight head per livestock owning household (comprising about 7% of the population). Only a few of the cattle owning households also keep oxen. In general, cattle are not kept in the steeper areas of the zone, and the use of oxen or tractors is limited by the terrain.

Iringa rural district is a major supplier of maize, tomatoes, round potatoes, onions, cabbages and temperate fruits to Dar-es-Salaam and neighbouring regions.

Villages selected in this district for the study include; Nzihi, Kalenga, Ifunda and Kaningombe.

(b) Njombe district

Njombe district is a high altitude area with most of its land mass lying between 1300 and 3000 meters above sea level. The rain pattern in Njombe district, as indeed for the whole of Iringa region, is predominantly unimodal, with a single rainy period from November through May. The rest of the year is dry. Annual rainfall averages between 600mm and 1400mm with places on higher altitude receiving more rain. In some years the average has

[10] For example the villagization programme limited the area in which people could build their homes, and they had to stay in fixed boundaries of centralized villages. Also in most of such villages farmers had to cultivate specified crops in specified 'village block farms'. This had the obvious effect of limiting the farmers' self initiatives and enterprise productivity (as can be attested by the changes which are currently taking place in many parts of the country under a partially liberalized system where individual farmers are largely making their own production decisions).

exceeded 1600mm of rainfall, eg in 1983 and 1969 (Friis-Hansen, 1988). The western part of the district lies at a lower attitude, adjacent to the eastern arm of the rift valley. It is hotter with a longer dry season.

The main crops grown in the district are maize, beans, wheat, groundnuts, cassava, irish and sweet potatoes, as staple foods, and sunflower, tea, and tobacco as cash crops. Maize is the predominant crop in the Njombe farming systems. In particular, the use and adoption of hybrid maize and application of chemical inputs in farming in the district has lead to notable maize yields for smallholder farmers and has become a subject of a number of research studies and books[11]. Although the agricultural land of Njombe district, like in most parts of the Southern Highlands, is characterised by soils which have poor to moderate fertility, the introduction of chemical fertilizers, which are used by over 90% of the farming households, helped to increase the productivity of these poor soils. As observed by Rasmussen (1987), the combination of a stable rainfall and altitude above 1500 meters made the area suitable for hybrid maize. Rasmussen *(op. cit.)* concludes that maize has replaced a number of crops including pyrethrum as the source of cash income, covering almost 70% of the area planted with annual crops. Crop marketing arrangements in Njombe are similar to those in Iringa rural district.

Cattle and small livestock are also kept in Njombe district but at a much smaller scale in comparison with Iringa rural district. Overall, use of oxen in farming is rare while hire of tractors for land ploughing is extremely popular where the land terrain and incomes of the farmers permit. The period from November to March/April is the most demanding in terms of labour requirements. Cultivation, which is the toughest operation, and sowing, are usually done during mid-November to mid-January, before weeding is required from February to April. The slack period is normally from May to the end of October, with September and October requiring the least of farm labour (Lunogelo, 1989).

Villages selected for the study from Njombe district are Magoda, Uwemba, Yakobi, and Wanging'ombe.

(c) Mbozi district

Mbozi is in the southern plateau of Tanzania on the upland plains with rocky hills. The area is at an altitude of between 800 and 1500 metres. Rainfall is largely unimodal and is generally reliable with little inter-annual variation. It usuajly varies between 900 to 1300 mm per year most of which occurs in the period between November and May. Clay soils of moderate fertility are found in the south of the area. There are areas of infertile sands in the

[11] See for example Friis-Hansen (1988), Rasmussen (1987), Bo and Rasmussen (1982), Friis-Hansen (1990).

north. The fertility of the light sandy loams is thought to be declining due to over cultivation and reduction in fallow periods.

A variety of crops are grown in the Mbozi plateau including maize (the main staple crop), coffee (the main cash crop), beans, peas, groundnuts, finger-millet, sweet-potatoes, cassava and a variety of vegetables and fruits. The main marketing parastatal in the area has been the Mbeya Region Cooperative Union (MBECU), which used to purchase most of the maize and coffee from farmers through its village based primary cooperative societies. Purchases of maize by the union has declined substantially in recent years due to problems of getting crop purchase funds from banks, and increased participation of private traders in food crop marketing (some of the food crops, in particular maize and beans have been bought by private traders and informally shipped across the border to neighbouring countries). Agricultural activities in the district are fairly intensive with quite a high rate of use of both credit and purchased inputs in farming. Cattle manure is also used intensively in coffee farms and other crops by cattle owners. Hired labour is employed by the majority of farmers in cultivating, weeding and harvesting of crops.

Mbozi is an important livestock area and cattle form a key part of the production system. Cattle are owned by more than half of all the fanners, who use some of the animals for draught power in ploughing farm fields and less frequently in pulling sleighs and carts. Farmers without oxen borrow them at the time of farm ploughing. The mean herd size for holdings with cattle is about 2.5 animals. Small livestock which may be eaten or sold for incomes in times of shortages are also kept in small numbers by the majority of households. They include pigs, sheep, goats and some chicken.

Four villages were initially selected for the study in this district ie Katete, Ihanda, Magamba, and Mpemba. However, due to some social and technical reasons in those villages (at the time of survey) information was only collected from the first two villages.

(d) Mbeya rural district

Mbeya steppe or central plains forms the main agricultural area of Mbeya rural district. The area lies in the altitude range of 1500m and 1850m above seal level and receives an annual rainfall of between 900 and 1400mm (Mwaipyana, 1982). The period of rainfall is long, lasting from October/November to June/July. Soils are deep fertile and well drained.

Irish potatoes, maize and coffee are the most important cash earners for the majority of the smallholders. Wheat, beans, pyrethrum, cassava and a variety of vegetables and fruits are also grown. A few cattle are kept both for milk and meat production, and provision of draught power. There is a marked decline in tractors available for hire in the district over the last decade, mainly because of the break down of village government owned tractors and/or scarcity of spare parts to repair faulty tractors. This aspect and the fact that tractor

hire charges have considerably risen over the ERP period implies that farmers have to rely more and more on draught power or manual labour and the hand hoe *'jembe'* in ploughing their farms.

Purchased inputs include improved maize and wheat seeds as well as fertilizer which is applied on coffee and maize. Problems of high input costs and constrained access to credit are similar to those experienced in Mbozi district, and indeed the rest of the districts in the region (because they depend on the same input channels). Employment of casual labour is common to help in field preparation, planting, weeding, and harvesting of maize and other crops. Because of some relatively intensive farming, the farming system of the Central plains is highly remunerative to family labour, probably due to the closeness of the area of production to Mbeya town[12], and the main highway to Zambia (which provides an additional outlet for the farm products from the region, especially in respect of maize and beans).

Another important farming system of the district is the Usangu plains which are en the northern side of the Mbeya-Iringa road. This area receives marginal rainfall which averages about 600mm per year. Over many years, farmers have developed local techniques for small scale irrigation schemes using self-help diversion structures and hand dug unlined canals from the many rivers which are tributaries to the great Ruaha River (Mwaipyana, 1982). The system is dominated by production of annual crops of which rice is the most important. Other cultivated crops include maize, onions, tomatoes, cotton, beans, sorghum and sugar cane. The northepn part of Usangu plains which is relatively drier (annual rainfall of between 400mm and 600mm) has been extensively grazed by the big herds of the Maasai and Wasukuma who moved into these areas from the northern parts of the country in search of grazing pastures for their livestock in the past decade or so.

Villages selected for the study from Mbeya rural district are Ilongo, Izumbwe, Nsonyanga, and Iwindi.

[12] [12] The influence on farming from Mbeya town and from the industrial activities of the area is increasing rapidly. The likely effect is that land will be more intensively utilized overtime, as demand for high value products such as milk, poultry products, vegetables etc in the urban markets increases.

5. INFORMAL AND SEMI-FORMAL FINANCE

Informal credit sources, procedures and conditionalities

There are a number of diverse forms of both informal and semi-formal credit arrangements prevailing in the rural areas. Direct formal credit transactions, almost exclusively confined to relatively rich farmers, occupy a small proportion of the total credit transactions taking place in those areas. Cooperative unions which used to be the major channels of formal credit for farmers in the pre-ERP period have had that role scaled down as a result of the credit squeeze and strict conditionalities imposed by banks on credits and overdrafts. This means that informal and semi-formal credit sources are becoming increasingly important for a wide range of farmers - and especially the small holder farmers. The following sections provide some details of the credit transactions.

Informal credit arrangements of the type reported in Kashuliza(1993) and Bagachwa(1995) were revealed through farmer and lender interviews in the visited areas. Such credit sources include relatives, neighbours & friends; medium and large-scale farmers; and shop owners and traders/businessmen.

(a) Relatives, neighbours & friends

Results of the farmer interviews confirm that this is the leading source of informal credit among the smaller farmers. In both Mbeya and Iringa such loans are typically based on reciprocity rather than on conventional financial conditions such as interest or collateral. Moreover, regardless of repayment performance, these loans are considered an obligation in the extended-family structure.

Over 60% of interviewed farmers who borrowed from informal sources did so from relatives, neighbours and friends. This type of credit, which is mostly made in cash, appears not to be targeted at specific activities and is used by borrower households mainly in meeting consumption demands and social obligations, for example, in purchasing food items, payment of school fees, hospital bills, etc.. Since in this case the majority of both the lenders and borrowers are small farmers, the size of loans involved was generally small. In this study, the range of such credit was estimated at between Tshs 500 and 15,000. Overall, this type of credit seems to be untied to any major security items and depends largely on mutual trust and guarantee to pay back in time for example, after crop harvest or after obtaining income from various other sources. Because of the close association among participants in these credit dealings, coverage is limited to small geographical areas (usually within a village). Screening of clients is easy and application of social pressure to defaulters is simplified. In all cases no interest is charged.

(b) Medium and large scale farmers

These were observed to operate mainly in the maize and tobacco growing areas in Iringa

rural district. A few lenders falling into this category were also found to operate in the maize and coffee growing areas in Mbeya rural and Mbozi districts (Mbeya region).

Lending by medium- and large-scale farmers to small farmers is mainly made in commodities in terms of farm inputs (especially fertilizer). Large farmers may purchase fertilizers in bulk and transport these to villages where they lend to selected farmers at the beginning of the season. Credit from this source was therefore specifically geared towards crop production. The size of such loans is variable and dependent on the prevailing input prices eg for the 1994/95 season such loans were averaging about 18,000 Tshs in Iringa rural district. An implicit interest rate of between 50-100% is charged on such loans.

(c) Shop owners and businessmen

Lending from this source is both in cash and commodities depending on the prevailing borrower demands. This type of lending seems to be more prevalent in Iringa districts than in the other surveyed districts. Two interesting cases of Shop owners were found in Ifunda (Iringa rural district) and Nsonyanga (Mbeya rural district). Overall, this form of credit source appears to be common but difficult to trace i.e. not easily revealed by both the credit clients and lenders).

The category of businessmen who own sunflower oil processing machines in Iringa town and some small-cum-medium farmers who cultivate sunflower in the maize-growing villages in Iringa rural district initially reported in Kashuliza (1993) were also interviewed in this study. Lending by these businessmen or *tajiri* is a slight modification of money lenders portrayed in the general literature. This type of lending is tied to a guarantee of getting sunflower seed from the farmers at the time of harvest. Loans (of between shs 10,000 and 50,000) given to farmers through this arrangement far exceed in size loans available to small farmers from official sources. This credit is mainly provided in a package form of farm inputs, transportation and some cash for tractor or labour hire. These lenders also practise a minimum level of monitoring and supervision of farming activities of the borrower farmers, and they are usually present at the time of harvest to collect the crop. The sunflower produced is bought by the *tajiri* at the official price. Loan repayment (by farmers) is directly deducted from the crop sales at this stage.

Another interesting case of businessmen/trader arrangement was revealed to exist between tomato traders from Dar-es-Salaam and several farmers in Iringa rural villages, e.g. Nzihi and Kalenga, who are "contracted" to cultivate tomatoes which is collected and sold in Dares-Salaam by the trader. The fanner is normally paid after the tomatoes have been sold. For the traders to be guaranteed the supply of tomatoes at the end of the season by the 'contracted' farmer, they supply the selected farmers with the required credit (usually in both cash and input forms). The loan size ranges from about 50,000 to 300,000 Tshs. Although such loans are said to carry little or no interest, they seem to be characterized by

underpricing of the contracted crop (in comparison to the open market prices) hence they carry an implicit interest. This hitherto unreported credit arrangement is prevalent in Nzihi and surrounding villages (Appendix 3 presents more details on this type of credit arrangement).

Semi-formal credit arrangements and their operational performance

(a) Input stockists

A number of input stockists who are linked to formal institutions are currently operating in both Iringa and Mbeya regions. Ten of those input stockists were interviewed (Table 2). Some of "the input stockists operate through CRDB loans. CRDB was in turn financed by IF AD in operating this scheme. The input stockists are expected to pass over inputs to farmers in cash or credit terms and then pay back the loans. The majority of input stockists are individual entrepreneurs but some are (income generation) groups of individuals or other types of associations[13].

Sasakawa Global 2000,- in both Iringa and Mbeya is also supporting the input stockists scheme through guarantee of input loans from major suppliers of fertilizers and other inputs e.g. TFC and TFA. IF AD in Iringa is also in the process of starting a similar scheme in some villages of the region. This system permits input stockists to acquire from 5 to 15 tons of farm inputs (mainly fertilizer) on credit from TFC/TFA after having paid in cash for a similar amount of 5 to 15 tons. In general, input stockists have operated in specified geographical areas to encourage distribution of inputs to different villages and farmers.

Some input stockists have excellent records with their patrons (TFA, TFC,SG-2000) and generally managed to reach a good number of farmers. Overall some input stockists have faced problems of loan recovery from fanners while others have excellent records of loan recovery (Table 3). Table 3 also presents some operational data for the sample of input stockists interviewed. Admittedly the sample interviewed is skewed towards the 'good' borrower stockists and not the 'bad' borrower stockists who were difficult to trace.

[13] Eg the Caritas religious group of Njombe is also involved in this scheme. This group's coverage, number loans given and repayment record to Sasakawa/TFA were said to be the envy of other stockists. Unfortunately Caritas operational data could not be obtained at the time of the field survey.

Table 3: Input stockists' operational data in selected districts in Tanzania (1994/95)

Stockist	District	Location	No. of villages served	No. of clients served	Loan size in Tshs	Interest charge (%)	Recovery rate (%)	Source of funds
1	Mbeya rural	Uyole	4	42	50,000-300,000	NA	100	CRDB/Sasakawa
2	Mbozi	Vwawa	3	30	10,000-300,000	NA	80	TFC/Sasakawa
3	Mbeya rural	Mbalizi	4	150	10,000-50,000	NA	100	TFC/Sasakawa
4	Mbeya rural	Mbalizi	4	90	10,000-50,000	NA	100	TFC/Sasakawa
5	Mbeya rural	Uyole	3	50	10,000-100.000	25	90	MEDA
6	Mbozi	Vwawa	7	100	10.000-30,000	NA	NA	TFC/Sasakawa
7	Iringa rural	Iringa town	2	4	700,000-2,500,000	NA	90	CRBD
8	Iringa rural	Iringa town	4	6	100,000-700,000	20	100	CRDB
9	Iringa	Kalenga, Nzihi	5	10	800,000-3,600,000	NA	50	CARGIL, PANNAR, TANSEED

Source: Field Survey. Notes: NA = Not Available.

(b) Case studies of semi-formal credit lenders

Other forms of Semi-formal credit arrangements have been put into effect in these areas through government and non-governmental sponsored organisations. The number of organizations engaged in formal credit programmes seems to have increased several folds in both Mbeya and Iringa regions since the advent of ERP and financial liberalization. In some areas e.g in certain villages in Iringa rural district there seems to be an apparent overlap of activities of the different organizations and lack of coordination of such activities by the district administration or other institutions. This scenario is not conducive for proper repayment of some loans which have been issued to clients on commercial rates, while in the same circumstances clients have access to subsidized loans or grants. Some village leaders interviewed appear to be confused by different conditionalities of the credit schemes operating in their areas. Such leaders can not be expected to follow up repayment of the different loans effectively.

The number of semi-formal organizations visited for interviews by the research team in each district appears in Table 2. The following is the summary of activities and operations of some of those organizations;

(i) IFCD (Iringa)

The Irish Foundation for Cooperative Development (IFCD) has been working in Iringa region for the past 15 years. It is currently working in partnership with the Iringa Regional Cooperative Office (RCO) and the Iringa wing of the Moshi Cooperative College. IFCD assists farmer groups by providing loans that carry an interest rate of 5%. The interest primarily covers processing of the loan. A society/group has to pay at least 10% of the total cost of the project before the loans are approved. The foundation also provides training that is related to cooperative activities. It operates through UVIWAI *(Umoja wa Vikundi vya Wakulima Iringa)*, a relatively new conglomerate of farmer groups/associations in Iringa region. As of December 1995, farmer groups which received IFCD loans were in Kihanga, Mhagama, Pomeline, Nzihi, and Magulilwa villages (Table 4).

Table 4: Iringa rural district, Tanzania: IFCD loans by village, 1995

VILLAGE	LOAN AMOUNT (TSHS)
Kihanga	1,443,000
Mgahama	368,500
Magulilwa	1,276,500
Pomeline	900,000
Nzihi (Malimbichi)	2,796,000
TOTAL	6,784,000

Source: IFCD, Iringa

The IFCD criteria for loans to rural credit societies and groups include:

- Society/group must pay up front at least 10% of the total cost of the project before transactions are approved.
- The project should benefit as large a target group as possible and should be based on needs of women as well as men.
- Project must be proved to be viable, so that loan repayment can be made from profits made.

- Society/group must have or establish a secure building or site for the intended projects.

- Payment of loans must be made on a monthly basis to IFCD.

- Should regular payments not be made, then IFCD will remove resources purchased with the loan and return the initial deposit.

To date, IFCD has extended credit to 26 villages in all 4 districts of Iringa Region. Despite the wide coverage, IFCD has encountered several operational problems. The problems include; first, the fact that some beneficiaries still feel that assets advanced by IFCD on credit are not theirs hence they do not show total responsibility towards those assets. Secondly, it was pointed out that there are operational difficulties in reaching villages which are widely sparsed within the region.

Nzihi Malimbichi (Table 4) is a farmer group based in Nzihi village and mainly involved in tomato production. In 1995, Nzihi Malimbichi borrowed Tshs 2,796,000 for its members from IFCD. The loan was short of the financial requirement of tomato farmers in Nzihi. In their effort to satisfy their financial needs, tomato farmers in Nzihi village have evolved a system of borrowing from tomato traders from Dar es Salaam (as discussed earlier) and also Appendix 3).

(ii) UNICEF (Iringa)

Under its Women Economic Activities (WEA) loan scheme, the United Nations Children's Fund (UNICEF) extends credit to Women groups engaged in income generating activities. The project's name was previously "Child Survival and Development (CSD)" but this has now changed to "Child Survival, Protection and Development (CSPD)". Group lending is emphasized for loan security purposes.

The main objective of the credit arrangement is to reduce mothers' and children mortality by increasing women's income. Women's income is increased by raising the level of women's agricultural production and the processing of agricultural products. Reduced mother and child mortality would mean improved well being of women, children, and the whole family.

WEA credit arrangement, which is in cash form, is administered through the government department of Community Development. The National Bank of Commerce manages the loan which carries a below commercial annual interest rate of 10%. By the end of 1995, fifty six women groups in Iringa Region had received WEA credit totalling Tshs 34,000,000 of which 8,443,450 went to Iringa rural district.

Analysis of the UNICEF credit disbursed in Iringa Region between 1990 and 1994 indicated that the major area financed was rural industries - in particular - milling machines that accounted for 57% of the total loan portfolio. Other enterprises include agricultural production (35%) and cooking oil extraction (9%). Analysis of loan recovery of UNICEF loans (Table 6) indicates that on average only about 57% of loan amounts were already recovered by June 1996. Variations on the rate of loan repayment by type of project were I also evident. For example, high rate of loan repayment, about 100% was recorded in oil extraction project followed by agriculture project (83%), while, milling machines had the least (20%). Poor leadership at village level, poor working tools, bad weather and lack of knowledge on project management have been cited as major factors influencing loan repayment particularly in relation to agro-based creditors.

Information collected by the study further indicates that diversion of funds generated by enterprises to other activities, lack of strong commitment by group members in generating and managing the project, frequent breakdown and lack of spare parts are the other main factors which account for poor loan repayment (particularly for milling machine projects).

Table 5: Iringa region, Tanzania: UNICEF loans, 1990-1994 in Tshs

Year	Purpose of Credit	Duration	Principle Loan	Interest Rare	Amount Paid by June '96	Percent Repay-ment
1990	Milling Machine	3 years	1,780,000	10%	130,953	6%
1992	Milling Machine	3 years	3,490,000	10%	1,141,079	33%
1993	Agriculture	1 year	3,312,950	10%	1,076,703	88%
	Agriculture	1 year	950,000	10%	626,000	66%
1994	Agriculture	1 year	1,081,000	10%	• 1,037,000	96%
	Cooking Oil extraction	1 year	800,000	10%	800,000	100%
Total/ average	-	-	11,413,950	10%	9,412,950	57%

Source: UNICEF, Iringa

(iii) WIA (Mbeya)

Women in Irrigated Agriculture and Related Activities (WIA) was established in 1988/89 cropping season with the principal objective of increasing household food production mainly. by involving women. The project (WIA) is financed by the Netherlands Government through the Food and Agriculture Organisation of the United Nations (FAO) and is managed by Mbeya Regional Development Director's office.

WIA project locations are in the Usangu plains. To date, the project covers 10 villages namely: Azimio, Chamoto, Igurusi, Kongolo-Msansuri, Mahango, Mahongole, Manjenje, Mhwela, Nsonyanga and Uhambule. Women within the project area are the main beneficiaries of the project. WIA project disburses credit mostly in input form to groups of up to 5 members. The maximum amount of loan per group is 500,000/= (per season).

The general performance of WIA credit repayment is relatively poor (ie by June 1996 it stood at about 20%). Some baseline data collected from the borrowers at Nsonyanga and Ilongo villages revealed that the main reasons for poor repayment of these loans were small harvests and poor follow up by the lender.

(iv) **ADP (Mbozi)**
The Agricultural Development Programme (ADP) of Mbozi is a non-governmental Organization (NGO) formed by Community Development Trust Fund (CDTF), COOPIBO-Belgium and Mbozi district Council. The organisation has been operating in the district since 1985 with the general objective of contributing to the improvement of the standard of living of small scale farmers in the district. By 1996, ADP-Mbozi was operating in 5 divisions -Vwawa, lyula, Ndalambo, Msangano, and Igamba. Only one division in the district (Msangano) was not yet covered by the project.

ADP-Mbozi lends to individual farmers, groups and Cooperative societies (mainly for agricultural production). Their loan size ranges from 500,000 to 1,000,000 and are charged an interest of 40% [which is said to account for inflation (26%), default risk (5%) and administrative costs (9%)]. ADP's loan recovery rate is estimated at over 85%. The good recovery rate is associated with good relationships between lenders and their clients.

(v) IF AD (Mbeya and Iringa)
From the early 1990s The International Fund for Agricultural Development (IFAD) has been implementing a rural financial services project in the Southern Highland regions. Among the activities supported by IFAD is the Stockists Input Scheme mentioned earlier.

In Iringa rural district IFAD provides loans to groups of between 5-10 people. The group acts as a trustee because normally such loans are used by the group members individually. The loans have been provided for one year and carry an interest rate of 26.5%. By 1996 fifteen villages had benefitted from such loans in Iringa rural district. Major crops which benefitted from input finance from this programme in Iringa rural district are beans, sunflower, round potatoes, and tomatoes.

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IFAD has also been supporting Credit and Savings Societies of some farmer groups in all the districts of Mbeya region. The Community Development Department of Mbeya region participates in the scheme by mainly mobilizing the farmers into groups and helping them to open up savings accounts with NBC. Total credit received by villages by the end of February 1996 was Tshs 18,990,9747= disbursed to 58 groups.

(vi) **Sasakawa Global-2000** (SG-2000)
Sasakawa Global (SG) - 2000 started its operations in Iringa Region (Iringa Rural and Njombe Districts) in 1989. Initially, SG 2000 was providing educational support through

contact farmers. The contact farmers were then given essential input for maize production on credit and repayments made in cash soon after harvesting. The value of credit given to each farmer between 1989/90 and 1993/94 averaged Tshs 8,543 per year. The number of contact farmers (by 1994) in the region was 954 out of which 34% were female. To encourage access to the loans for relatively poor farmers, only minimal conditionalities were imposed, ie that the borrower was known by village government and he/she was hard working and liable to accept new ideas. No interest was charged on the loans. However, SG I 2000 contact farmers approach was abandoned in 1994 due to poor loan repayment. Table (6 indicates that between 1990/91 and 1993/94 only 50% repayment was recovered.

Table 6: Amount of SG 2000 loan disbursed and recovered 1990/91 to 1993/94 (Tshs'OOO) in Iringa Region, Tanzania.

Year	Amount Disbursed	Amount Recovered	Amount not Recovered	Percentage Recovery
1990/91	4,784	4,188	596	88%
1991/92	12,907	5,461	7,445	42%
1992/93	1,183	566	617	48%
1993/94	3,910	1,154	2,756	29%
TOTAL	**22,784**	**11,570**	**11,214**	**50.0%**
Percentage	**100.0%**	**49.9%**	**50.1%**	

Source: SG-2000, Iringa office

Among several reasons advanced for low repayment of SG 2000 loans by the lender were; poor weather (drought), and farmers regarding the loans as 'government grants' and therefore not being keen to pay them back. This problem arises because these are the same areas where government grants have been used by farmers before, and input loans (through government institutions) having been written-off for some farmers.

In 1994, SG 2000 started to assist farmers through facilitating availability of essential inputs. This approach involved working with a number of private input stockists who were guaranteed to take input from suppliers e.g. TFA/TFC on credit. The latter then transport the farm inputs to villages and provide them to farmers on cash or credit.(see also the section on input stockists on this point).

(vii) Smallscale Dairy Development Project (SSDDP)

This is the newest source of credit to smallholder farmers in the survey villages in both Iringa and Mbeya districts. The project is financed jointly by the Tanzania government and Swiss Development Cooperation. In addition to offering loan, SSDDP has field workers who are responsible for training and advising borrowers on how to manage dairy animals.

Before a borrower is given an in-calf heifer valued at Tsh 200,000, s/he has to fulfil the following conditions.

- Resides in a village where SSDDP is operating
- Has established one acre pasture plot
- Has constructed cow shed
- Pays 25,0007= as risk and administration costs
- Must be a productive farmer and diary production is his/her secondary enterprise.

Loan repayment was usually done after 24-36 months whereby the borrower passes the 1st female calf to another farmer. No interest rate is charged.

According to information obtained from SSDDP Head Office, 239 and 162 farmers in Iringa and Mbeya regions respectively had benefited from the programme at the beginning of 1996. About 10% of the SSDDP borrowers are female. Survey results have indicated that SSDDP programme is quite appropriate in contributing to the alleviation of poverty by improving household income through selling milk. The milk produced also contributes to the nutrition of the household and food security. Several of the borrowers use the cow dung for manure in their farms.

The main problem pointed out by SSDDP in operating this very popular and successful programme was the problem of transport, especially in areas which are suitable for dairy farming but are difficult to access by road. On the other hand, problems faced by borrowers include; low level of initial income (capital) to be able to meet the down payment of T.Shs. 25,000 required, and purchase of feed and construction of cow shed before gelt ng the loan. Other problems are lack of technology and experience on dairy management, and poor veterinary services in their rural areas.

(viii) Mennonite Economic Development Association (MEDA)

Mennonite Economic Development Association (MEDA) is an NGO owned by Canadian Mennonite church. In Mbeya region, MEDA started lending activities in 1994. The lending

policy followed by MEDA is to help individuals or groups to improve already existing rather than to finance the starting of new enterprises.

MEDA offers credit with duration ranging from one month to two years. Interest rate also varies from 20 to 40% depending on the nature of enterprise. Throughout the credit period, borrowers are subjected to basic training on the basics of cash-flow analysis, project management, and record keeping. During the loan repayment period, borrowers are required , to submit weekly reports on the progress of their projects. Likewise borrowers are to effect loan repayment as per agreement.

Although at the time of this study it was reported that the MEDA microenterprise credit was performing well -with repayment rates averaging over 90%, it has been recently revealed (MEDA, 1997) that the Mbeya programme suffered major losses through falsified records by staff. Since then efforts have been made to change management and to recover part of the lost portfolio. By April 1997 the Mbeya operations had an active portfolio of close to Tshs 91.0bn serving 600 clients (MEDA, 1997).

6. FIELD RESULTS ON CREDIT USE AND POVERTY ALLEVIATION

General farmer characteristics

The general farmer characteristics of the interviewed sample are summarized in Table 7. They include the mean, range etc. of a number of characteristics (variables) including age, years of farming, crop yield per acre, farm size and number of farm plots cultivated.

Table 7: General Characteristics of farmers sampled in Iringa and Mbeya Regions in Tanzania, 1995/6

Variable	Mean	Standard Deviation	Range	
			Minimum	Maximum
AGE (Years)	41.14	11.24	19.0	74.0
HHSIZE (Number)	6.87	3.59	1.0	20.0
HHLABOUR (Number)	3.44	2.08	1.0	13.0
YRSFARMG (Years)	18.37	11.48 .	1.0	52.0
NBRPLOTS (Number)	3.33	2.09	1.0	13.0
FARMSIZE (Acres)	6.67	5.43	1.0	36.0
ACRECULT (Acres)	4.86	2.89	0.5	15.0
TMAIZEYD (Bags)	16.97	15.45	1.0	80.0
TCROPYD (Bags)	35.25	46.59	0.25	302.0
CROPINC (Tshs)	210,176	371,366	0.00	3,800,000
OTHERINC (Tshs)	112,835	271,856	0.00	2,460,000
TOTINC (Tshs)	314,795	483,120	0.00	3,800,000

Source: Field Survey

Impact of credit use

As discussed earlier in 'Methods of data analysis', impact of credit use is investigated through the **mean significance tests** of common key variables between credit borrowers and non-borrowers.

A number of variables were hypothesized to be relevant for this analysis including cultivated farm size, yield of some food and cash crops, incomes obtained from crop sales, farm labour used etc. Some of the variables preselected for this analysis were later dropped from the analysis because of high correlation with one or more variables. Table 7 presents the list of variables finally included in the analysis together with their descriptive statistics. The variables are fully defined in Appendix 2.

Results of the mean significance *T-tests* indicate that significant differences exist between credit users and non-users in relation to the farm size cultivated (of both food and cash crops in a season), the maize acres cultivated, and the number of bags of maize and other crops harvested. Credit users had consistently higher values for the above, hence the significant differences. Although income from crop sales of credit users came out higher than that of non-users, it was nevertheless not significantly different from the latter's. The *T-test* results are summarized in Table 8 [14].

The fact that credit users show significantly higher crop yields and farm incomes than non-credit users, implies that the use of credit is playing a positive role in alleviating poverty. Credit enables the users to cultivate large farm areas and to use farm inputs which would otherwise be difficult or impossible to access. Furthermore, improved crop harvests (yield) implies some improvement in the food security of borrower households in comparison to non-borrowers. The empirical results of this study tentatively confirm that credit augments available farm resources, improves farm productivity and incomes and thereby contributes to poverty alleviation. Therefore farmers who are already in the group of the poor can improve their well-being through use of credit.

In this study farmers were also asked directly to state benefits (if any) which they obtain from credit use. Over 95% of the farmers who use credit indicated that the benefits of credit include;

[14] Note that the strong assumption which justifies the causative effect and results of analysis reported above is that the two categories of farmers operate in relatively similar productive environment and that it is only credit borrowing which introduces differential growth and return to the relatively similar farm resource base. This assumption enables assessment of credit impact by comparing changes obtained by farmers with and those without credit borrowing.

- cultivation of larger farms which would otherwise be impossible to achieve,
- access to farm inputs for intensive agriculture,
- higher incomes from farming,
- improved household food security and higher standard of living.

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Credit accessibility by farmers

The analysis to determine factors influencing credit accessibility was conducted through the **logistic regression procedure** (as explained in the section on 'Methods of data analysis').

A number of variables (factors) were hypothesized to account for credit access for some farmers and not others. The variables include personal characteristics such as age, education and gender of the recipient; resource endowments such as the family farm size, available labour, value of assets, value of crops (of previous season); credit use characteristics such as credit form required and preference, history of credit use and repayment, and levels of interest rates Charged.

Some of the factors were later dropped from the analysis because of high correlation with one or more variables, or after they depicted a weak relationship with the dependent categorical variable.

Results of the analysis which are summarized in Table 9 indicate that the level of education of borrowers, and the gender of the clients are important characteristics in accessing credit (both informal and semi-formal). The farmers preference on the form of credit given (input, cash, mixed) has influence on the ultimate source from which the farmer obtains credit. In a related study Kashuliza and Kydd (1996) also pointed out the gender of a client to be an important influence in respect of credit accessibility. Other important determinants of credit access in that study were awareness of farmers on the available credit facilities in their areas, history of having used credit before, and degree of contact with extension agents.

Table 8: Results: T-test of credit borrowers versus non-borrowers (aggregated sample) in Iringa and Mbeya Regions, Tanzania 1996.

Variable	Mean for borrowers	Mean for non-borrowers	T-values	p-value
AGE (Years)	40.54	42.11	-0.92	0.359
HHSIZE (No)	6.96	6.71	0.48	0.630
HHLABOUR (No)	3.41	3.46	-0.15	0.881
YRSFARMG (Years)	18.13	18.52	0.22	0.822
NBRPLOTS (No)	3.52	3.02	1.65	0.101*
FARMSIZE (Acres)	6.96	6.21	0.91	0.366
ACRECULT (Acres)	5.18	4.33	2.05	0.042**
MAIZEACRE (Acres)	2.90	2.26	2.39	0.018**
TMAIZEYD (Bags)	20.82	11.08	4.57	0.000***
TCROPYLD (Bags)	41.39	25.62	2.41	0.017**
CROPINC (Tshs)	236,116	168,072	1.20	0.232
OTHERINC (Tshs)	122,116	97,985	0.58	0.562

Source: Field Survey

Note: * significant at 5%, ** significant at 1%, *** significant at 0.1%

Table 9: Results: Logit analysis on credit accessibility (aggregated analysis) in Iringa and Mbeya Regions in Tanzania, 1996

Variable	B Statistic	Standard Error	Significance
ACRECULT (Acres)	-0.0886	0.1237	0.4737
EDUC (Years)	1.0963**	0.4707	0.0198
BELABOUR (Number)	0.1469	0.1175	0.2111
SEX (Male, Female)	-0.9827**	0.4044	0.0151
TCROPYLD (Bags)	-0.0052	0.0065	0.4216
YRSFARMING (Years)	-0.0108	0.0217	0.6187
CRDTPREF (Credit form)	0.5860*	0.3979	0.1407
CRDTPURP (Credit purpose)	4.8469	18.1799	0.7898
FARMSIZE (Acres)	-0.0119	0.0553	0.8302
Constant	-9.6899	18.2170	0.5948
Log-likelihood ratio 109.96 Chi-square 29.97 (df=10)			
Correct prediction 79.84%			
Number of cases 1 29			

Source: Field Survey
Note: * Significance at 10%, ** Significance at 5%

Credit accessibility and gender
Further analysis of gender and lending arrangements in the study area indicates that both informal and semi-formal credit arrangements show varying gender relationships. Survey data revealed that, only 28% of the borrowers were female indicating that relatively females are less involved in informal finance than men. Also there was a significant variation between sex of borrowers across villages surveyed. Highest percentage of female to male borrowers were recorded at Yakobi (67%), Ifunda (67%) and Kaning'ombe (54%) where lowest proportion was recorded at Iwindi (0%), Izumbwe (1%), Kalenga (10%) and Magoda

(12%). This variation is assumed to be attributed to type of economic activities and the existence of informal or semi-formal lending institution which target women borrowers. Otherwise males are the recipients of the credit for most male headed households.

The survey results have further revealed that there are several Non-Governmental Organizations (NGOs) with credit schemes which are gender specific. For instance; Women Development Fund (WDF), Women in Irrigated Area (WIA), Child Survival and Development Programme (CSDP), Community Development Trust Fund (CDTF), UNICEF and to some extent Mennonite Economic Development Association (MEDA), target their loans to women borrowers.

The prevalent belief that the default rate of female borrowers is generally lower than that of male borrowers was not confirmed by this study. There was no significant variation in repayment between the targeted male and female borrowers. For example WIA, UNICEF and WDF credit schemes which are targeted to female borrowers recorded lowest loan recovery ranging between 20 and 35% compared to ADP -Mbozi with 85% loan recovery or informal lending arrangements with recovery rates close to 100%. It is noteworthy, however, to mention that female groups interviewed appear to have more cohesion than men groups. This could imply relatively more sustainable projects for female than male borrower groups.

This study has further revealed that proportionately there are more males than females who are money lenders. Of 14 semi-formal lenders interviewed in this study, only 1 (7%) was female compared to 13 (93%) who are male. Like wise, except for WIA, other semi-formal lending institutions like CDTF, WDF, HIP, SSDDP, ADP are managed by men. This situation therefore entails possibility of gender bias in loan disbursement and possibility of getting managerial problems in loan supervision and follow up which could lead to low rates of recovery.

Credit and savings mobilization initiatives

Self initiatives among the poor has been demonstrated in several lending and borrowing arrangements in the study area for the purpose of contributing to poverty alleviation.

In Mbeya Region, for instance, Credit and Saving societies at village level were initiated b\ Regional Community Development Officer (RCDO) in June 1993. Initially people in the registered villages were urged to form groups comprising five or so members. Group members were supposed to, first come from the same area in the village; secondly, a group was to be formed by members from different families; and thirdly, a group so formed hail to have high trust among the members. The groups were then given some informal educatior on group dynamics, credit, saving and later encouraged to contribute to their society so triad they can open a joint^bank account. At the same time, each member was then allowed to borrow from their savings and invest in any profitable project. Parallel to credit and saving

operation, the group's joint account acts as a security for getting loan from other sources e.g. MEDA, CDTF, ADP, WIA, IF AD, etc. By June 1996 the above credit and saving scheme operated" in 84 villages in Mbeya Region with average annual saving of close to TSh 4.5
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In Iringa Region, both UNICEF and IFCD provide credit to groups which are registered and maintain bank accounts. Table 10 shows self initiatives at village level in *Umoja wa Vikundi vya Wakulima Iringa* (UVIWAI). UVIWAI was formed in 1993 with the objective of promoting and raising standard of living of its members through making available (to its members) the required farm input, assist in marketing farm produce, provide extension education to members and facilitate availability and repayment of credit. Through UVIWAI members were able to obtain loans totalling Tshs 6,784,000 at the end of 1994. Repayment of these loans is estimated at 81% and is done at the end of the following year.

Other evidence of self initiative to stimulate savings among the poor is presented in Table 10 as reported by IF AD - SHERF (Southern Highlands Extension and Rural Finance) services project. Table 11 indicates that the contact villages in Iringa rural district had accumulated savings of up to Tshs 563,000 under this programme. The average per village was about Tshs 37,586.

A number of other local initiatives in lending/borrowing and savings behaviour were reported in the study areas. They range from cash lending for paddy production (in Wanging'ombe) paid back in bags of paddy after harvest, to provision of labour service on rotating basis (Ilongo), and provision of cash loans for both farm and non-farm needs (Nsonyanga) which are paid back in kind at interest rates of up to 100%. A short description of these and related initiatives is presented in Appendix 4 of the report. The appendix also indicates the procedure of loan repayment as well as the implied interest charges on the credit (largely implicit).

Table: 10: Self Initiative by Contribution and Share purchases: UVTWAI - Iringa. Tanzania

Name of Cooperative	Entrance Fee	1st Share	2nd Share	3rd Share	Total
1 . Nzihi M/mbichi	10,000	100,000	100,000	70,000	280,000
2. Ukumbi	10,000	100,000	100,000	21,000	231,000
3. Kihanga	10,000	100,000	100,000	5,000	215,000
4. Kilowo	10,000	100,000	100,000	-	210,000
5. Nzinyaki	10,000	100,000	100,000	-	210,000
6. Pomelin	10,000	100,000	100,000	-	210,000
7. Mgama	10,000	100,000	77,000	-	187,000
8. Ukumbi	10,000	100,000	-	-	110,000
9. Magulilwa	10,000	100,000	-	-	110,000
10. Ikaii	10,000	100,000	-	-	110,000
11. Mwaka	10,000	100,000	-	-	67,650
12. Ikimo	10,000	57,000	-	-	60,000
13. Kidugalo	10,000	50,000	-	-	60,000
14. Lutemi	10,000	50,000	-	-	60,000
15. Lulanzi	10,000	50,000		-	60,000
16. Ibumu	10,000	50,000	-	-	60,000
17. Magubike	10,000	50,000	-	-	60,000
18. Luhota	10,000	16,000	-	-	26,000
TOTAL	**188,000**	**1,474,150**	**677,000**	**96,000**	**2,427,000**

Source: UVTWAI, Iringa

Table 11: Iringa rural district, Tanzania: Village savings initiated by IFAD-SHERF project, 1996

Division	Ward	Village	Groups	Amount in Bank (Tsh.)
Mlolo	Mseke	Ugwachanya	6	87,000
		Tanangozi	13	
		Kaning'ombe	5	
	Mgama	Ibumila	9	52,000
		Ihemi	11	84,100
		Mgama	1	10,000
Kiponzelo	Ifuma	Ifunda	39	198,700
		Munimbi	4	21,000
		Udumka	2	7,000
		M/Mitali	4	31,000
		Isupilo	4	31,000
	Maboga	Kiponzelo	18	43,000
		Makongati	5	35,000
		Kihanga	6	15,000
		Igangindung'u	1	
TOTAL			**132**	**563,800**

Source: IF AD Office, Iringa.

7. CONCLUSION AND POLICY IMPLICATIONS

Study purpose and methodology

The purpose of this study was to investigate the types and operational mechanisms of informal and semi-formal finance and credit arrangements in Tanzania, and establish their linkages to poverty alleviation. Primary data for the study were collected from Iringa and Mbeya regions over the period of January to March 1996.

Two districts were purposively selected for the study in each of the above regions based on the existence of evidence of informal and semi-formal credit transactions in those areas. Within those districts a number of informal and semi-formal lenders, and farmer clients of those credit arrangements were interviewed for the study using a variety of methods including structured questionnaires and informal interviews. A variety of secondary information were also used in the study.

Summary and conclusion

The ERP policies implemented in Tanzania after the mid-1980s have created some impetus to the growth of informal and semi-formal credit operations. However in some cases there is overlap of the programmes and they are not well coordinated. Such a situation may not be conducive for the efficient use of credit resources.

Mean age of the respondents for this study was 41 years with average of 18 years in farming occupation. The average farm size was 6.67 acres of which about 60% is cultivated. Major crops grown were maize, beans, rice, Irish potatoes, and vegetables as food and/or cash crops whereas coffee and tobacco are cash crops for respondents in Mbeya and Iringa regions respectively. Income from crop sales accounts for more than 60% of the total household income.

Survey information collected by this study shows that, in practice, informal lending does make a positive contribution to both consumption and production activities of rural people. The main sources of informal credit for smallholders include: relatives, neighbours and friends; shop owners and businessmen; and medium- and large-scale farmers.

Overall, the field study results suggest that informal lending is still far from being a specialized activity, but is rather a side activity integrated into other enterprise undertakings of various farmers, businessmen and shop owners. Linkages between formal institutions and informal lenders are beginning to take root in the country eg through input stockists. general loans from informal sources are not tied to any particular enterprise.

A variety of semi-formal lenders are now operating in the country's rural areas providing! mainly production credit (often accompanied with training, supervision, and such credit is

issued at affordable rates). Some of the semi-formal lenders target specific groups such as women, youth, farmers of certain crops etc.

Due to small size of the informal loans and being limited to small geographical area (e.g. at village level) informal credit arrangements have no collateral, and have higher loan repayment rate (close to 100%) compared to formal or semi-formal credit arrangements. Most of these loans bear no interest rate but a few do have interest rates which may be as high as 100%.

Semi-formal credit arrangements practised by formal Government or Non-Governmental Organizations (NGOs) have a significant impact in the study area. However, there are significant differences in lending policy, procedures and geographical coverage among different credit organizations. For example; MEDA, WIA, WDF and UNICEF target their credit to women, ILO gives credit to disabled, while IF AD and IFCD give credit to groups. About 60% of the semi-formal credit is aimed at financing agriculture, and 40% to small industries and businesses.

Semi-formal loans are mostly disbursed in commodities with interest rate varying from 5% to 40%. Loan repayment was generally poor (about 20-50%) although in some cases e.g. ADP-Mbozi recorded repayment rate of over 80%. High loan repayment was recorded for agriculture and related enterprises. It was

lowest for milling machine enterprises.
Both informal and semi-formal credit arrangements are linked with the attempt to alleviate poverty in several ways. Semi-formal credit institutions e.g. MEDA, CDTF, ILO, WIA, CARITAS, and UNICEF have a policy of giving credit to; resource poor borrowers e.g. women, disabled and disadvantaged groups. Also most informal/semi-formal credit charges are lower than prevailing market interest rates ie about 5 to 26% of the jtotal loan -to encourage borrowing by relatively poor clients.

Results of mean difference tests indicate that credit has impact on the borrowers in comparison to non-borrowers as reflected by results on the total crop yield, area cultivated, the ensuing incomes, and the state of food security. Logistic analysis has revealed some of the factors (constraints) which are linked to credit accessibility of the smallholders. They include the education of the borrowers, gender and other factors. In comparison to formal credit which is generally thought to have been targeted to male farmers (ie due to their participation in cash crop production), informal and semi-formal sources also target women borrowers and other groups. The following remarks can be made to put the foregoing conclusions in perspective;

(a) Informal lending and borrowing in rural areas takes place mainly among relatives, neighbours and friends who know each other well and are usually located in the same geographical area.

(b) Financing from informal sources is directed to both household consumption (including social obligations) and production activities. Among the production activities, access to farm inputs, hiring of labour and tractor services are given the highest priority.

(c) The value of credit transacted through relatives, neighbours and friends is usually small and consistent with their 'peny' economies. However, other informal credit sources such as the Iringa town lenders provide credit which is several times greater than the credit available to smallholders through formal sources.

(d) While collaterals (durable assets) are not critically important in the case of small loans between smallholders themselves, it becomes an important condition for credit from the other informal sources such as shop owners and businessmen.

Policy implications and suggestions

This study has used both theoretical and empirical evidence to demonstrate that credit use by smallholders and relatively poor farmers plays an important role in alleviating poverty. The following policy implications are relevant in the promotion of credit access and use by farmer;

a) The semi-formal arrangement of using input stockists to supply farm inputs to farmers should be promoted and encouraged. Input stockists are presently performing legitimate economic and developmental functions for farmers. Their added importance is derived from the poor or non-functioning of the traditional farm input channels such as the cooperative societies.

b) There is a need to monitor and co-ordinate the activities of credit schemes in the country. In Iringa for example there is overlap of such schemes (ranging from grants to loans issued on commercial rates in the same areas). The different conditionalities are a source of confusion to the borrowers and their leaders in the payment of loans and related activities.

c) Further promotion of informal and semi-formal means should be made by the Government and in the relevant institutions because credit (in conjunction with other factors) does play an important role in the alleviation of poverty for the rural poor.

Contributions of the study

This study has presented a wide range of information on the *modus operandi* of semi-formal **aid** informal credit transactions in the country. It is hoped that this information will assist in filling up part of the gap in information on these activities in the country. It is not expected that this study will lead to the alleviation of poverty but that it will contribute to a better understanding of the credit transactions to enable policy makers, NGOs etc make informed decisions towards the use of credit in alleviating poverty.

Study limitations and areas for further research

The scope of this study was limited by the available financial and time resources which determined the sample size of credit market participants interviewed. Further, exploration of the same issues in these and a few other regions of the country would generate more conclusive results and recommendations. Follow up studies on the tomato interlocking transactions in Iringa for a few more seasons will be more revealing of these developments. This could enable lessons to be drawn for the benefit of market options and provision of feedback for policy making purposes.

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APPENDICES

Appendix 1: Credit use and poverty alleviation: A Theoretic exposition

Using basic economic principles it can be shown that credit contributes positively to farm income growth and development overtime through its augmentation of other farm resources. This is the basic premise which could be used to justify the set up of so many credit programmes in this and other developing countries for the purpose of improving the standard of living of the rural poor.

(i) *Impact of credit on farm growth*

Suppose a producer's net income (Y) function in a given period is as follows;

$$Y=a(W+L)-Il \qquad (2)$$

where a = average rate of return of the variable inputs employed,
W = producer's initial endowments (wealth),
L = size of the loan (credit) received,
i = interest rate paid on the loan (including all charges on loan).

Assuming that all the producer's net income is added to wealth each period, the. rate of growth (g) through time in each period of the producer's initial endowments is given by:

$$g=Y/W=[a(W+L)- iL]/W=a+R(a-1) \qquad (3)$$

where; $R = L/W$ is the leverage ratio [15].

That is the rate of growth of the producer's wealth is directly associated with the average and marginal rate of return on the variable inputs, as well as the leverage ratio, whereas it is inversely related to the interest paid on the loan. It is important to note that the variables in equation (2) are not independent. For instance, even if the rate of interest paid is given, the average rate of return will be inversely related to the leverage ratio, if decreasing marginal returns are present. Thus as long as the marginal rate of return on the variable inputs employed are higher than the rate of interest paid, the rate of growth of the producer's wealth will increase as access to credit increases, i.e. as the loan size (L) increases. From

[15] The leverage ratio measures the relationship between debt (credit) and equity (wealth) of the farm business. The higher the value of this ratio, the larger the claims on the farm business relative to its equity. For details on the leverage ratio and other financial ratios See Penson and Lins (1980).

equation (2) it can be shown that;

$$dg/dL=8a/8L+8R/8L(a-i)+R(8a/8L-8i/8L)$$

Assuming $di/dL=Q$, i.e. interest rate does not vary with the size of the loans, then

$$dg/dL=8a/8L+(a-iyW+R(8a/8L) \quad (4)$$

Where; $R=L/W$.
Rearranging the parameters leads to;

$$dg/dL=(l+R)Sa/SL+(a-i)/W \quad (5)$$

which is the same as;

$$dg/dL*[(W+L)/W\backslash 8a/8L+(a-i)/W \quad (6)$$

from (1), the marginal rate of return (MRR) equation[16] can be written as;

$$r=(W+L)8a/8L+a \quad (7)$$

substituting the MRR in (6) gives;

$$dg/dL=(r-a)/W+(a-i)/W \quad (8)$$

which is the same as;

$$dgldL=(r-i)/W \quad (9)$$

The above derivation (9) shows that as long as the marginal rate of return on the variable inputs employed (r) are higher than the interest paid (i), the rate of growth of wealth (g) increases as access to credit (L) increases.

[16] Since total income Y=a(W-)*L), where L and W are variable resources (say money in Tanzanian Shillings), the marginal return of a Shilling used of L will be dY/dL= r = (W+L)5a/5L+a. Since net income Y= a(W+L)-iL, r will be equal to i when profits *(IT)* are zero.

(ii) *Impact of credit access through time*

The impact of different access to credit on the rate of growth of wealth can lead to dramatic differences in future endowments and, therefore, in the level of incomes through time of different producers.

To demonstrate this process we start with two producers (X and Z) who posses equal initial endowments. Hence, a, = a_z =0,, and W_x = W_z =W_0 in the initial period 0. Assuming they add all their income to their, initial wealth in each period, and Z has access to credit, while X does not, then the rates of growth of their initial wealth will be

$$gx=a_x, \quad gz=a_z+R(a_z-i) \tag{10}$$

After n periods of time, their wealth will be

$$_0=(l+a_xyW_0 \tag{11}$$

$$W_z=(l_+gz)^nW_0=[l_+a_{z+}R(a_z-i)]^nW_0 \tag{12}$$

Therefore, the relative size of their endowments (K) in period n will now be

$$K=W_z/W_x=[1a_z+R(a_z-i)]^n/(1+a_x)^n \tag{13}$$

K indicates how many times the wealth of the producer with access to credit has increased relative to the other producer with no credit access. The difference in their wealth (incomes) will be directly related to number of periods (n) which has passed, the difference between their average return rates (a^ aj after the initial period, the leverage ratio (R) and the interest rate (i) paid ie results are sensitive to interest rate paid on the loan.

The analysis above shows that access to credit is a crucial determinant of differences in the growth of resource endowments (wealth) through time, e.g. between credit borrowers and non borrowers assuming their initial endowments at the beginning to be about the same [17]. Thus, credit is potentially of value in augmenting the flow of return to the farm enterprise.

[17] For further details on the analysis presented above see Gonzalez-Vega (1984) and Kashuliza (1995).

The use of credit provides leverage and leverage acts as a multiplier for the marginal value product (MVP) of the productive resources [18].

Through the above process, it is therefore believed that credit could enable the rural poor move out of the "poverty trap" through investments that improve productivity and tap into economic opportunities.

[18] See Pederson and Brake (1980) for further details on this point.

Appendix 2: Description of study variables

Variable name	Variable description
AGE	Years of age
SEX	Sex (1 Female; 2 Male)
EDUC	Level of education (0 No education; 1 Adult education; 2 Primary education; 3 Post Primary)
HHSIZE	Household size: Number of persons in household
HHLABOUR	Household labour force: Number of adults working
BORROW	Borrowing status (1 borrowed; 2 did not borrow)
ACRECULT	Acres cultivated in 1994/95
CROPINC	Income from sale of crops (Tshs)
OTHERINC	Off farm income (Tshs)
TOTINC	Income from off farm and sale of crops
TMAIZEYD	Total maize produced (bags of 90 Kg)
TCROPYLD	Total crops produced (bags of 90 Kg)
MAIZACRE	Acreage under maize (Acres)
FARMSIZE	Total land holding (acres)
NBRPLOTS	Number of plots cultivated 94/95
CRDTPURP	Purpose of credit borrowed (production, consumption, both)
ARREARS	Loan/credit arrears (Tshs)
CRDTFORM	Credit form preferred (cash, input, mixed)
CRDTSRCE	Credit source (informal, semi-formal, formal)
INTEREST	Interest paid on credit (Tshs, percentage)
CRDTAMNT	Credit amount taken (Tshs)
YRSFARMG	Years in farming (Years)

Appendix 3

Producers and Buyers Partnership in Business: Nzihi tomato farmers and DSM tomato traders

In their effort to satisfy their financial needs, tomato farmers in Nzihi village have evolved a system of borrowing from tomato buyers from Dar es Salaam, the biggest tomato market. Under the system, large tomato buyers extend credit to tomato farmers on contract agreement that the creditors will" have monopoly of buying the tomato crop from the contracted farmer. The traders extend credit to farmers in both inputs (including fertilizer and pesticides) and cash forms.

The process started in 1990/91 and the first loans were issued out in 1993/94. It takes about 2 years to build confidence and trust between tomato producers and buyers. During the 2 years, the tomato buyer visits the homestead and fields of the farmer to appraise the business and to be sure of the residential address and permanency of the tomato farmer. It is only after the buyer is convinced that the farmer is not likely to emigrate to other villages or locations that the buyer can extend the required credit. In this way buyers have more advantage in safeguarding their business interest than the farmers. However, during this period contracted farmers also take the risk of allowing the buyers to collect the produce for sale in DSM before they can be paid for their produce. After the tomato farmer begins to obtain sufficient credit he can enlist other farmers to sell their produce to the buyer from whom the farmer received credit. This is in cases where the farmer who received credit could not meet the buyer's demand for the produce.

Buyers' credit to farmers was a result of a coincidence of needs: the farmers needed credit for tomato production inputs while buyers wanted a guarantee of tomato crop from the villages (after travelling several kilometres from DSM to Iringa region to buy the produce). Furthermore, the tomato buyers wanted to reduce the marketing cost by reducing the cost of their upkeep in the villages in guest houses and meals while on tomato buying trips.

It is estimated that some 30% of tomato producers in Nzihi village receive credit from tomato buyers. Loans extended to each producer are variable but range from Tshs. 50,000/= to Tshs. 300,000/=. Generally, one buyer extends credit to one farmer although cases of one buyer extending loans to 4 farmers have been reported. At the time of this study (in the first quarter of 1996) a few farmers from Kalenga village indicated they had also joined the tomato input credit and marketing system.

Although contracts suggested that farmers did not pay any interest charges on the loans given, our own estimates suggest that at least interest rates of between 20% to 50% were

implicitly paid by the farmers. For instance it is estimated that farmers in Nzihi/Kalenga were losing up to 50% of income by selling to DSM traders instead of other buyers. However, it should also be emphasized that this arrangement minimized losses at the farm for the contracted farmers and guaranteed sales.

In general the buyers have an upper hand in fixing the farmgate tomato prices as they are well knowledgeable with regard to marketing mechanism: for example, buyers are aware of countrywide tomato production calendar which they use in gauging the tomato supply to the Dar es Salaam market. Furthermore, tomato selling in Dar es Salaam is controlled by wholesalers who unlike the producers, have a direct connection with the buyers.

Defaults by farmers (eg contract farmer selling tomato crop to other traders) were not reported during the interviews. All loans were completely recovered during the 5-7 weeks of tomato harvesting and selling. Loans were recovered after tomato sale in DSM with the balance (minus operational costs) given to the farmer.

It would seem that farmers are at more risk in the transaction: buyers might not return to the farmers after selling the produce which they took from them. Buyers also face a different type of risk in connection with the marketing machinery. Buyers have to meet packaging and transportation costs. They also have to shoulder any price fluctuations and produce damage on transit and at the market place. Once the farmgate price is established by the farmer and the buyer in the village, any fall in price would be absorbed by the buyer. On the other hand, any rise in price is an advantage to the buyer.

The farmers and buyers interviewed are enthusiastic about the credit arrangement. A number of other farmers in Nzihi, Kalenga and some surrounding villages were eagerly waiting to join the tomato input credit and output marketing system.

The research team is convinced that these transactions were resulting in reasonable incomes for the participating farmers in spite of their constrained bargaining power. Incomes obtained were likely to be channelled towards efforts to alleviate poverty. Follow up studies on these interesting interlocking transactions (for a few more seasons) could be more revealing after which lessons could be drawn for the benefit of market participants and feed back for policy making.

Appendix 4:SELECTED INFORMAL CREDIT TRANSACTIONS IN STUDY VILLAGES

Village	Form	Description	Methods of Payments	Interest Rate
Ilongo	Cash for land preparation	Usually 10,000/= in cash or in commodities (to prepare 1 ha. land for paddy production). Given in Nov/Dec.	Payment in commodities though 2 paddy bags immediately after harvesting (June)	More than 60% (ie market value of 2 paddy bags about Tshs 16,000)
	Labour service	Client requests assistance from friends, relatives, neighbours to perform a particular farm operation eg. weeding, planting etc.	Client prepares meal and/or local brew at the end of the day's work. In addition client has also to offer similar service to members when requested.	Can be calculated given cost of food/local brew vs cost of labour supplied.
Nsonyanga	Cash for both farm and non-farm needs	Amount borrowed (lent) in units of Tshs 4,000. This amount is equivalent to 50% value of Ibg of paddy at the time of harvest.	Payment is done soon after harvesting by paying 1 bag of paddy for each of the money units (The market price of a paddy bag is about Tshs 8,000).	Interest rate about 1 00%
Uwemba	Hiring service of boar (for mating purpose)	Owners of the boar (lender) send a boar to sow pen (borrower) for mating purpose	In case of successful mating the lender is paid a weaned piglet. (Market value of a piglet is 10,0007=)	Difficulties to estimate interest rate

Wanging'ombe	Cash	6,000 was provided for the purpose of paddy cultivation in Nov.	-Payment in cash of Tshs 70,000 effected soon after harvest (7 months later)	iterest rate about 17% at the time of harvest
Kalenga/NzihiCash	Cash	iterest rate about 17% at the time of harvest	-Payment of the principle loan by giving tomatoes to lender at market price. -According to prevailing market price in Kalenga/Nzihi at the time of survey contract farmers were losing up to 50% of income by selling to the DSM traders. But the arrangement minimized risk of losses at the farm (eg over supply, lack of market). See also Appendix 3.	Interest rate about 50%

Source: Authors' field survey, 1996.

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