# Constraints in Access to and Demand for Rural Credit: Evidence from Uganda

By

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## Abstract

Like is most developing countries, Uganda's financial sector is largely underdeveloped and concentrated in urban areas, leaving the majority of the agricultural producers in rural population with no access. However, agriculture forms a significant part of the lives of the rural households, who constitute about 85% of the population. At the macro level, agriculture accounts for about 30 of Gross Domestic Product. This study uses the Uganda household surveys conducted in 1992/93 and 1999/2000 to shed some light on access to, and the characteristics of demand for credit among the rural population. We employ the probit, tobit and multinomial logit model estimations on we analyse demand for credit. We find that Uganda's credit market is highly segmented. The rural peasant producers are largely served by relatives/friends and self-help credit associations and their loan applications are less likely to succeed, and of those that do, smaller loans are granted. The educated and the young are more likely to demand credit while women are less likely to, and to apply for smaller loans. Therefore, while government's agricultural modernisation policy considers credit as an important input to its success and as the Government plans to roll out its programme of Wealth-For-All, more needs to be done to get credit flowing to the sector and to ensure that it can be usefully utilised. Skills and vocational training to enhance production and training in appropriate use of credit are needed.

**Key Words:** Agriculture, credit, demand, rural areas. **JEL classification**: O16, 17, R22, 51

# 1. Background

## 1.1 Introduction

This papers concerns itself with the policy options for growth and development, seeking to tackle the constraints to peasant's access and demand for credit in rural Uganda. Financial markets in developing countries and particularly the sub-Saharan African (SSA) region are largely underdeveloped, lacking in depth, highly inefficient, concentrated in the urban areas and dominated by a few, often foreign-owned commercial banks. Credit, savings and insurance markets in the rural areas are generally non-existent, and of those that do, many work imperfectly (Morduch, 1995). Yet, given the agricultural dependence of the rural economies, the importance of financial markets that meet the peculiar requirements of the rural population cannot be over-emphasised. For example, agricultural production exhibits a great deal of correlation across farms such that bad weather may leave an entire village or group of villages clamouring for an insurance pay out (Ray, 1998).

The importance of rural credit services can be best understood by examining their potential contribution to the development of the agricultural sector. Agriculture forms a significant part of the lives of the rural households, who in the case of Uganda constitute about 85% of the population (Republic of Uganda, 2002). Many of the agricultural activities are spread over time (Ray, 1998), for example, adoption of a new technique or a new crop requires investment in the current period with payoffs in the future. In addition, productive activities require inputs in advance of harvest and sales.

Previous government policy and most of the existing literature on provision of rural credit has focused largely on the scarcity of providers of these services (or the supply side), with little attempt to explore the household demand for the services (the demand side). For example, the targeted and highly subsidised government credit schemes of the 1970s and 1980s, which were based on the supply-leading approach, are thought to be among the principal causes of the financial crisis in Africa (Adams, 1984). These government-provided credit schemes have been plagued with a culture of default and the presence of political interest, which limit their efficacy even if, as in the case of the *entandikwa*[1], they were well intended (Republic of Uganda, 2000b). One of the reasons for their failure or at least poor performance is their non adaptation to the demand for the service by the rural households. This paper tries to fill this gap in the literature and to provide empirical evidence on the determinants of demand for credit in the rural areas of Uganda and how this credit is important for agricultural development.

This study is key to Uganda, where the poor remain un-banked with their welfare worsened by the existing informal financial services in the rural areas. It is also an important study at this time when the private financial institutions attempt to venture in the rural areas.

## 2. Overview of demand for financial services in Uganda

The economy of Uganda is highly dominated by the agricultural sector, which accounts for about 41% of gross domestic product (GDP) and employs over 70% of the population (Republic of Uganda, 2000a). Such smallholder agriculture, on which the bulk of agricultural output is hinged, has not provided a base for improved livelihoods as its potential is not fully exploited.

A number of factors, including limited access to credit services, poor infrastructure, small land holdings, and the nature of land tenure systems, have been identified as limiting the full exploitation of the agricultural potential in Uganda. For example, despite its dominant contribution to Gross Domestic Product (GDP), the agricultural sector receives only about 9% of the total commercial bank credit annually, of which crop production takes only 3% and crop finance (or trade in agricultural output) takes the rest.[2] On the other hand, trade in general merchandise and manufacturing, contributing about 10% of GDP, each, receive more than 50% and about 25% of total commercial bank credit, respectively. This funding disequilibrium disadvantages the activity that forms the country's economic backbone and source of employment for the majority of the population.

The case for understanding the role of agriculture in poverty alleviation and rural development is stressed by Economics Nobel prize winner, Schultz thus,

> "Most people in the world are poor, so if we knew the economics of being poor we would know much of the economics that really matters. Most of the world's poor earn their living from agriculture, so if we knew the economics of agriculture we would know much of the economics of being poor." Schultz, (1980).

From the assertion, Schultz places poor people at the centre of world economics and therefore world development. This paper extends this poor people-centred approach from the global to the Uganda landscape. Understanding the nature of demand for credit in the rural areas is even more important because of the increasing role placed on micro-credit both in the Poverty Eradication Action Plan (PEAP) and the Plan for Modernisation of Agriculture (PMA). It is emphasised that access to micro-credit is important for investment to increase agricultural productivity and support off-farm enterprises. It is also recognised that the poor have diverse financial needs including credit for the purchase of small capital assets, working capital and consumption. However, current estimates show that about 43% of Uganda's households have difficulty accessing credit for their enterprises and that the services of the micro-finance institutions are received by less than 5% of all households in the country (Republic of Uganda, 2000b). Similarly, only 8% of the rural households have bank accounts. However, the problem of limited access to credit by the rural population is not unique to Uganda. It is estimated that on the average, no more than 5% of the farmers in Africa and only about 15% of the farmers in Asia and Latin America, have access to institutional credit and, usually fewer than 20% of the total borrowers of the formal financial sector have received 80% of the total amounts of agricultural credit disbursed (Gonzalez-Vega, 1984).

There is a notable absence of formal financial institutions (banks) in the rural areas as these consider smallholders high-risk and costly customers. In Uganda, the closure of the Co-operative Bank in 1998, which had 14 rural branches, and the privatisation of the state-owned Uganda Commercial Bank (UCB – later corporatised to UCBL), which operated 65 branches and 2 agencies countrywide (Akampumuza, 2007) worsened this rural credit situation. Out of a total of 118 commercial bank branches in Uganda in 2000, 38 (or 32%) were located in the Capital City, Kampala alone. In an attempt to find a solution to this problem, the government identified the increasing of availability of micro-finance services to the rural population as one of the five key areas of the PMA. Furthermore, the two policy documents; the Poverty Eradication Action Plan (PEAP) and the PMA, recommend that policy action on rural development and finance should focus on:

- Encouraging more institutions, especially the non-governmental organisations (NGOs), local self-help and the local government-based financial arrangements such as the sub-county integrated development associations (SIDAs), to increase outreach to smallholders.
- Provision of technical assistance to rural financial institutions, to improve administrative efficiency so as to enable these institutions achieve operational self-sufficiency.

However, there is no firm evidence on the extent to which these objectives have been achieved.

### 2.1 Uganda's financial sector

The main explanation given for the absence of the formal financial institutions in the rural areas has always been the high cost of operations. Yet, in Uganda, like all other sectors in the country, the financial sector is recovering from the problems of the 1970s and 1980s. Various reform measures were also implemented using the World Bank-funded Financial Sector Adjustment Credit (FSAC). Specifically, the Bank of Uganda (BOU) Statute 1993 and the Financial Institutions Statute (FIS) 1993 were enacted, giving the Central Bank greater autonomy over monetary policy. The two laws also provided a framework for the effective supervision and regulation of commercial banks. However, following the poor performance of a number of banks over the 1998-1999 period, the Statute was revised and amended in 2003. The amendment increased the capital requirements from Ushs 0.5 billion, for local banks and Ushs 1.0 billion for foreign banks, stipulated in the FIS 1993. It abolished the variance between local and foreign banks in the capital requirement regime, and uniformly put it at a new rate of Ushs 4.0 billion for all commercial banks operating in the country, irrespective of their origins or share ownership. One of the rationales here, basing on the

number of locally owned bank failures experienced in the late 1990's, was to reduce the risks of bank failures and provide for a higher depositor compensation basket. The major reason for increasing the minimum capital base was to assure depositor of compensation in case of bank failures. The other, perhaps, consistent with the new policy regimes of liberalisation and privatization, was to promote private investment without much distinction in the source and origins of the investment (Akampumuza, 2007). However, the new law's unintended consequence was the further roadblock and the deprivation of the rural peasants of financial institutions as those that could not afford the increased minimum capital requirement simply folded business or could not start new banking business, hence adversely affecting their access to credit.

Consequently, other forms of credit institutions that fell outside the ambit of the FIS emerged and have tried to fill the lacuna created by the departure/absence of formal commercial banks. Uganda's formal financial sector is still one of the smallest and least developed in sub-Saharan Africa (Ddumba-Ssentamu, 1999) , both in terms of value and volume of transactions. It is equally narrow in terms of type of transactions; only a few monetary instruments – largely cash, and to a limited extent cheques and bank drafts are used. As measured by the ratio of financial savings to broad money supply (M2), financial deepening in Uganda is still low, at an average of about 27.5% and the ratio of M2 to GDP is only 25.3% (Table 1), which compares very poorly with M2 to GDP ratios of close to 100% for the developed countries. Furthermore, the ratio of financial savings to GDP is very low at about 3% and growing at very low and even negative rates. This compares very poorly with the average for Kenya of about 13% and that for the low-income countries (excluding China and India) of about 20% (World Bank, 1999). As a consequence of the low domestic savings rate, the country relies heavily on foreign resources and investors for capital accumulation.

Besides the Uganda's low incomes, poor infrastructure, financial sector controls, macroeconomic, and political instability, this situation can be explained by the continued decline of the formal financial sector over the years. Whereas the number of commercial bank branches in Uganda was 270 in 1970, the total branch network as at end September 2000 was only 118 branches and 3 agencies (Supervision Department, Bank of Uganda (2000). Furthermore, there has been a rapid deterioration in the ratio of customers per bank branch from 34,000 in 1972 to 80,000 in the 1980s (Ddumba-Ssentamu, 1999). Following the closure of several commercial banks[3] and a number of UCBL branches, the ratio worsened to 100,000 people in 1996 (Obwona and Musinguzi, 1998) and to 164,000 people per bank in 1999 (Ddumba-Ssentamu, 1999). This compares very poorly with the average of 7,000 customers per bank branch for the Common Market for Eastern and Southern African countries (COMESA) region. Thus, despite the increase in the proportion of commercial banks in the country from 9 in 1986 to 17 in 2001, a large number of the population, particularly in the rural areas continue to have limited access to the formal financial institutions. Excluding the Kampala area, the average number of bank branches per district is 2, most of which are located at the district headquarters. In general, commercial banks in Uganda do not operate in the rural areas. All the development banks and credit institutions and insurance companies are also located in Kampala. The operation of UCBL branches in the rural towns significantly reduced following the bank's privatization through restructuring, with government selling off 80% of its shares to a private investor, Standard Bank of South Africa, in October 2002 (Akampumuza, 2007). This leaves most of the rural areas with limited access to formal banking services.

### 2.2 The informal financial sector in Uganda

As a consequence of the above problems, a number of interventions to provide smallholder agricultural producers with affordable credit have been tried by government, non-governmental organisations, the private sector and the local self-help organisations. These institutions which can be broadly categorised as micro-finance institutions are defined as all those institutions that provide suitable financial services to meet the needs of low-income sections of the population (Staschen, 1999). These can include NGOs – local and foreign, - self-help member organisations, savings cooperatives, rotating savings and credit associations (ROSCAs) The traditional sources of finance for micro-enterprises and small businesses (MSBs) in the rural areas are relatives and friends, ROSCAs, various 'club' systems which pool members' savings for loans, village banks, buyers' advances (in cash or in kind), and money lenders (Chitiga, 2007). There is also some access to semiformal micro-finance institutions (the legally organised financial intermediaries but which are not regulated by the monetary authorities) such as the not-for-profit non-governmental organisations.

On the part of the government, a number of credit programmes targeting the poor have been implemented. Examples of such programmes include the Rural Farmers' Scheme, which was launched in 1987 through the UCB. However, its coverage, in terms of amounts of loans disbursed, and number of beneficiaries was limited. It was also constrained by abuse and several loans remained uncollected because of corruption and the borrowers perception that the funds received were grants. Recovering these loans became a big political challenge. A recovery trustee, the Non-Performing Assets Recovery Trust (NPART), was set up by Act of Parliament, whose main objective was to collect and recover these bad political loans.[4] Other government interventions since then include the Poverty Alleviation Project (PAP), Programme for the Alleviation of Poverty and Social Costs of Adjustment (PAPSCA) and *Entandikwa* credit scheme. A key characteristic of all these government programmes is their focus on provision of credit to the poor at subsidised interest rates without engaging in any form of savings mobilisation.

A wide range of microfinance institutions (MFIs), self-help savings and credit associations popularly known as "village banks" have also emerged either as NGOs or private sector companies to respond to this huge gap in the market. These institutions provide individuals with direct financial assistance, particularly credit and savings avenues on a regular basis (Ddumba-Ssentamu, 1999). Further examples of such institutions include farmers' groups, workers' savings and credit arrangements, commercial MFIs and commercial banks operating special microfinance projects such as the Centenary Rural Development Bank Ltd.

For a number of reasons, these MFIs present an opportunity to extend savings, credit and insurance services to the majority of the economically active and yet deprived population (Chitiga, 2007; The Micro-finance Network, 1997; Christen, et. al, 1994). First, these institutions are less rigid in their operations. They may not demand for physical collateral against loans but rather rely on group trust or previous savings to extend credit. This makes it economically possible for the disadvantaged rural population without collateral to obtain loans and make investments. However, the rigidity of these institutions lies in the requirement for regular repayments of loans, usually at short intervals. We examine ways of overcoming these challenges in a bid to provide a model on how credit can be availed to Uganda's rural poor.

### 2.3 Constraints to Peasant demand and access to Credit in Rural Uganda

There are several constraints to peasant demand and access to credit in rural Uganda. Below we highlight some of the economic and legal impediments that are pertinent to this research and which are important for policy making in Uganda:

1. Informal/formal economy and legal dichotomy. Subsistence and non legal relations at the level of production and distribution.
2. Economic and legal status of peasants – the peasants have a low status in society, and they generally fall outside formal legal frameworks. The legal system (formal law courts, Police, Prisons) is largely a preserve of the urban areas because it operates far away from the rural peasants, effectively excluding over 80% of the population. The latter's only resort is the local system which falls outside the formal state law. The National Resistance Movement Government (NRM), appreciated this constraint and tried to remedy it through the introduction of the Resistance Council Courts (later re-enacted and renamed the Local Council Courts).[5] These courts tried to address this anomaly by incorporating the rural peasants' traditional practices as part of the judicial system to address civil/non-capital cases (the type of cases handled at that level include land disputes, informal contractual breaches, boundary disputes). However, the policy met serious challenges in its functioning because of capacity constraints, lack of funding, systematic resistance from the established formal system.
3. Peasants lack an empowering formal legal status, which ultimately denies them the necessary capacity, tools and prerequisites for them to access and have effective demand for credit. They lack the prerequisites for credit access and demand such as collateral to acquire mortgages, pledges etc. These also require formal instruments to place them within the formal law where they operate.
4. Peasants dwell on land survive subsistence level. They are associated with lack of education and high illiteracy levels, high incidences of poverty, disease, and easy susceptibility to the vagaries of weather and other natural disasters (Akampumuza, 2007). The high illiteracy levels mean that the

peasants cannot write, sign or even appreciate the whole concept of commercial credit, let alone the legal consequences associated with issuing and recovering credit.

5. Limited land ownership (at least within the recognised and acceptable formal context) and other factors of production constitute another serious constraint. Much of the land they cultivate is under customary holding, which means that they cannot use it as collateral for to secure credit since they have no evidence of title. It is only recently that the Government has started debate to place such land under formal ownership, a process that is still marred in controversy.
6. Most of the activities of the peasant are not monetised. In the absence of viable cash crops or other income-generating activities, the rural peasants get dislocated outside the economic system and formal legal processes, which constrains their access and demand for credit.

## 3. Analytical Framework

### 3.1 Introduction

Startlingly diverse views about the relationship between finance and economic growth have persisted for a long time. This divergence has obscured the role of the financial sector in economic growth. Celebrated economists such as Bagehot, Hicks, Fry, Hamilton, Kuznets, and Schumpeter lead a school of thought which strongly contends that the financial sector leads and promotes growth in the economy. Bagehot (1873) and Hicks (1969) have argued that the financial sector played a critical role in igniting industrialisation in England by facilitating the mobilisation of capital for 'immense works'. In his seminal work on finance and growth, Schumpeter (1912) argues that financial intermediation helps to encourage savings and to variously enhance efficient allocation of resources. According to Schumpeter, well functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chances of successfully implementing innovative products and production processes. Gurley and Shaw, (1967) have stressed the role of credit market imperfections as an obstacle to rapid economic growth. The message from this entire strand of literature is that financial deepening in the form of smoothly functioning insurance and credit markets is a prerequisite for economic development (Azariadis, 2001).

In the middle ground, economists such as Goldsmith (1969) contend that growth and financial development are simultaneously determined. At the other extreme end, economists such as Adams contend that the financial sector hurts growth. "Banks have done more harm to the morality, tranquillity, and wealth of the US economy than they have done or ever will do good," (Adams, 1984). Relatedly, other scholars have argued that the financial sector follows growth, "Wherever enterprise leads, finance follows," (Robinson, 1952, p.86). Furthermore, the new thinking in the finance-growth relationship postulates that financial intermediation influences not only the capital accumulation of monetary assets (or savings) but also enhances the productivity of factor inputs (King and Levine, 1993a and b). This factor augmentation according to some of the new growth-finance theorists arises endogenously, in a process by which potential investment projects requiring financing are screened and later monitored (Bisignano, 2001). The recent financial crises in East Asia suggests that an efficient financial sector is important for growth. But while financial sector reforms are important to achieve this efficiency and growth linkage, the reforms need to be correctly regulated (Brownbridge and Kirkpatrick, 1999; Stigliz, 1999). And, "When financial intermediaries perform efficiently, domestic resource mobilisation through the financial sector is enhanced," (Fry, 1988, p.266).

Following the structural reforms, liberalisation and privatisation drives undertaken since the 1980s, a number of developing countries, including Uganda, are assigning an increasingly larger role to the private sector in the development process of their economies (Akampumuza, 2007). The private sector is increasingly seen as the panacea for economic development because of its claimed relative efficiency and better performance as opposed to the public sector. However, in order for the private sector to function efficiently and for it to enhance economic growth and development, it must be facilitated with a stable macroeconomic environment, well developed infrastructure, legal framework, and a well functioning financial sector (Ajayi, 2001; Akampumuza, 2007).

While some prominent economists still hold the view that finance is not important for economic development, most now agree that financial markets play a central role in fostering growth, and that the financial system affects the behaviour of firms and individuals (Holden and Prokopenko, 2001). The theoretical underpinnings of the relationship between financial depth and economic growth can be traced

back to the works of Schumpeter (1912), McKinnon (1973), Shaw (1973) and more recently King and Levine (1993a, 1993b) and Levine (1997).

If all households and firms had similar financial requirements, then there would be little need for financial intermediation. However, because of the heterogeneity of households and firms, there is a fertile environment for financial intermediation in the rural and urban areas alike. Various types of heterogeneity in the rural areas can influence and stimulate the establishment of financial markets. A wide range of households co-exists in the rural areas; i.e. the poor, the not-so-poor and the non-poor. The rural sector also includes small towns or trading centres with farm and non-farm households, small-scale processing factories, input and output dealers, repairers etc. The non-farm households and firms have important backward and forward linkages with farm households that are often overlooked in statistics and policy analysis (Chuta and Leidholm, 1979). Their financing is also usually overlooked and they are often excluded from credit programmes targeting agriculture. In this study, demand for credit covers all the productive enterprises in the rural areas. One aspect of this study is to try to understand whether the type of economic activities engaged in by a household influences its decision to demand credit, and if so, to what extent.

Individuals and firms may decide to use the services of financial intermediaries for a number of reasons. One is that financial instruments allow the users to reduce the costs of exchange. In other words, financial intermediation helps solve the cumbersome problems of a barter exchange. For example, parents of a child at school may have bricks or food, which they wish to exchange for school tuition fee. In the absence of financial intermediation, the parents would have to carry the bricks or food to the school and the school headteacher must be willing to accept them as payment for the tuition. But with the possibility of financial intermediation, the parents can sell the bricks or food and pay the fees using cash or better still, purchase a bank draft, which can be used to pay the tuition. This is extremely convenient and far cheaper to both parties. Generating and transferring these claims on resources is an important service provided by financial intermediation.

The second benefit of financial intermediation is efficiency in resource allocation. Rural households and firms have a lot of heterogeneity, with different saving, investment needs and opportunities at any one particular time. Therefore, whereas some households/firms may experience excess liquidity, others may experience liquidity shortages. Because of poor information flow, the savers are not aware of the borrowers and vice versa. The existence of financial intermediation helps bridge the gap between savers and investors with immense gains in efficiency in resource allocation.

The third benefit comes through risk management. Rural households and firms, dependent on agriculture, are usually subject to large variations in income because of weather vagaries (Dercon, 1996; Adams, 1984). Secondly, price fluctuations can also impact negatively on the incomes of rural households and firms. The rhythm of agricultural production, with heavy expenses, but low income during the ploughing, planting and weeding periods and high incomes during harvest can further exacerbate the problem. According to Paxson (1992), these fluctuations if not mitigated through savings or credit can result into significant fluctuations in consumption with the resultant fluctuation in welfare. These variations and instability in sources and uses of finances force rural households and firms to be very concerned with risk management.

The fourth benefit of financial intermediation is that it facilitates the acquisition of large investments or large consumer durables. For example, a loan may allow a farmer to purchase land, agricultural inputs and implements such as a tractor, years before being able to save enough money to buy one with cash or pay for labour in advance. Financial intermediaries can benefit a large number of households and firms by accepting their deposits, and extending loans and advances to those with liquidity constraints.

### 3.2 Factors affecting demand for credit

The factors affecting the demand for credit can be categorised into two: the individual/household characteristics and the attributes of the financial institutions. Among the individual/household characteristics, we have the level of income, sex, age, education and marital status. Among the attributes of the financial institutions that may affect an individual's/household's decision to demand credit from that source are the interest rate, other terms of the credit, and distance from the provider.

### *A. Individual/household characteristics*

Both individual and household characteristics are expected to have important implications for demand for credit. Individual characteristics important in the demand for credit include age, gender, education and marital status. Following the life-cycle hypothesis, the young and energetic individuals, with an ambition to earn higher incomes, are expected to be more active in terms of saving/dis-saving in order to accumulate wealth. Therefore, the young may tend to save and/or borrow more for investment while the old may be less inclined to save/borrow. The life-cycle hypothesis predicts that the old are likely to rely more on their past savings and accumulated wealth, i.e. to be dis-saving in order to smooth their consumption. In addition, the young may tend to invest in off-farm activities, which require large capital outlays, while the old and retired will tend to invest in farm activities. Therefore, demand for credit is expected to vary positively with age. Zeller (1994) has found age to positively affect the decision to demand for credit.

It is important to note that in most African societies, men and women engage in different economic activities, with different implications on the demand for credit. Social roles and norms dictate the segregation of activities by gender, where women mostly concentrate on farm activities and household chores, while men undertake income-earning activities (Ilahi, 2001a; 2001b). This is exacerbated by the differential power relations between men and women where the latter have virtually no control of assets such as land and buildings that could be used as collateral. Therefore, demand for credit is expected to differ by gender. Because the educated are likely to have higher incomes and savings and more likely to have assets that can act as collateral and are more likely to be engaged in business and other economic activities, we would expect that the demand for credit increases with the level of education. Individuals who are married are more likely to be stable, making financial institutions to view them as more reliable. This makes them more likely to demand for credit compared to the unmarried.

At the household level, the level of income is an important factor that would determine the demand for credit. At low levels of income, the household has limited resources to save and less demand for credit than at higher levels of income. This is a plausible assumption because economic activities and needs, and therefore expenditure increase with the individual's/household's income. It may also be true that with higher income, the household is able to save more and to acquire more assets, which can be used as collateral to acquire more loans. This implies that at higher levels of income, a household is likely to demand for loans more frequently and in larger amounts. Given that in many surveys, individuals/households tend to under-report their income, we use the value of assets owned by the household as proxy for income/wealth of the individual.

Smallholders try to diversify their activities and sources of income without specialising in a single economic activity. Some activities require large amounts of capital while others require less. Therefore, the demand for credit will be affected by the sector/activity of primary engagement of the recipient.[6] To capture this, we include dummies for the activity (agriculture, industry, commerce/business, and administration) in which the individual is primarily engaged.

### *B. Attributes of financial institutions*

Like any other service/product, the demand for credit is likely to be affected by their own price, which in the case of credit is the interest rate charged. Holding other factors constant, the higher the interest rate charged, the lower the demand for credit. In addition to the interest, there are other charges such as commitment fee that may be imposed on the loan recipient. However, we are unable to capture the impact of interest rates on the demand for credit as this variable is not consistently captured in the surveys. Availability of the financial institution can be an important determinant of the demand for credit. Following the supply-leading hypothesis of financial services and the popular Say's law; 'Supply creates its own demand,' availability of given financial institutions may stir up demand for their services e.g. credit and savings. Distance to the financial institution would be another credible candidate for the supply-side factors in the estimate of demand for credit. To summarise, in the analysis of the determinants of an individual's demand for credit, the starting point is the theory of consumer behaviour. In the study, demand for credit is defined as the probability that an individual answered yes to the question "did you apply for credit in the last 12 months

(before the survey)?". The level of credit demanded is then defined as the amount, in shillings, of credit demanded by the individual. Total utility function can be expressed as:

$$U = U(X_1, X_2, \ldots, X_n) \ldots\ldots (1)$$

Where; U represents the total individual/household utility, which is assumed to be a function of goods and services consumed. $X_i$ represents individual/household demand for consumer and durable goods, i = 1, 2, …, n. If we let $p_1$, $p_2$, … $p_n$ represent the prices of goods and assuming household income is equal to its expenditures, then we can write its total income as:

$$Y = p_1X_1 + p_2X_2 + \ldots + p_nX_n \ldots\ldots (2)$$

To the extent that access to credit results in increased access to goods and services, it is thought to ease the budget constraint. By using credit, an individual/household is able to purchase more consumption goods because of the additional resources that are made available either for immediate consumption, or for investment and therefore increased consumption at a future date. If we let $F_i$ represent credit demand by an individual, such that $F_1 = F_1(C)$, and let r represent the price of credit (e.g. interest and other charges), then $FD_i = rF_i$ represents demand for credit, subject to individual/household characteristics. The demand for credit can be stated thus:

$$FD_i = f(Y, H, V, Q, R\ldots) \ldots\ldots (3)$$

Where $FD_i$ is the demand function for credit. Y is household income (we use household wealth as proxy), H is a vector representing individual and household characteristics including sex, age, level of education, marital status and the number of household members. V represents the availability of the financial institutions in the locality and Q is a set of dummies representing the main economic sector in which the individual is engaged and R is a set of regional dummies. Other factors such as experience with previous credit, and availability of the financial service provider may be important factors determining an individual/household's decision to make use of the service.

### 3.3 Econometric and data issues

#### *a. The model of demand for credit*

To estimate the demand for credit, we employ the probit, multinomial logit and tobit models. As has already been noted, the presence of a rural financial institution (providing credit) alone is not enough for everyone to demand for credit. Some clients drop out after one or a few cycles of credit and yet others do not ask for credit altogether. Using these models, we are able to make the prediction that given the attributes of an individual, he/she will demand credit (and how much).

To examine the impact of individual/household characteristics on the demand for credit, we estimate probit models for the decision to apply for credit and success of the loan application, and tobit models for the amount of credit applied for and received by individuals given their attributes. In order to provide evidence on the characteristics of demand for credit from different types of financial institutions, we estimate multinomial logit models for the demand for credit from the different sources.

For the probit models, we assume an individual is faced with two alternatives, to take credit from the available provider or not. The general model is presented thus:

$$K_{it} = f(AG_{it}, ED_{it}, SX_{it}, MT_{it}, HS_{it}, DS_{it}, AC_{it}, AS_{it}, DW_{it}, RR_{it}, RG_{it}) \ldots\ldots (4)$$

Where $K_{it}$ is a dummy variable taking a value 1 if the individual took credit and 0 otherwise. $AG_{it}$, $ED_{it}$, $SX_{it}$ and $MT_{it}$ are the age, education, gender, and marital status of the individual i at time t, and $HS_{it}$, $DS_{it}$, $AC_{it}$ are the household size, distance to district centre, and main activity of the individual, respectively. $AS_{it}$ is the value of household assets and $DW_{it}$ is a set of dummies for dwelling characteristics while $RR_{it}$ is a dummy for location in the rural area and $RG_{it}$ is a set of dummies representing the different regions (Central, East, North, West). We assume that for an individual $K_{it}^*$ represents the critical decision point of taking credit or not, and thus summarise this information, as:

Individual i takes credit if $K_{it} > K_{it}^*$ and $K_{it}^* = 1$

Individual i does not take credit if $K_{it} \leq K_{it}^*$ and therefore $K_{it}^* = 0$

The probit model assumes that the error term is a normally distributed random variable so that the probability that $K_{it}$ is less than (or equal to) $K_{it}$* can be computed from the cumulative normal probability function. The estimated model is then stated thus:

$$K_{it}^* = \alpha_0 + \alpha_1 AG_{it} + \alpha_2 ED_{it}, + \alpha_3 SX_{it} + \alpha_4 MT_{it} + \alpha_5 HS_{it} + \alpha_6 DS_{it} + \alpha_7 AC_{it} + \alpha_8 AS_{it} + \alpha_9 DW_{it} + \alpha_{10} RR_{it} + \alpha_{11} RG_{it} + \varepsilon_{it} \quad \ldots\ldots(5)$$

$K_{it}$* is the individual's revealed demand for credit. The rest of the explanatory variables are as defined before. $\varepsilon_{it}$ is the error term assumed to be normally distributed with constant variance. The model is estimated using the maximum likelihood estimation procedure.

In order to establish the demand for credit from, and the relative importance of the different sources available to the rural households, we formulate and estimate a multinomial logit model. We suppose that the dependent variable $D_{it}$ can take on one of j categories 1, 2,…, k (the different alternative choices/sources of credit).[7] Let $Pr(D_{it} = M/X)$ be the probability of observing outcome M given X, the probability model for $D_{it}$ can be constructed thus:

$$\Pr(D_{it} = M / X) = \frac{\exp(\beta_0 + \beta_1 X_{2i} + ... + \beta_k X_{ni})}{\sum_{j=1}^{k} \exp(\beta_{0\lambda} + \beta_{1j} X_{2i} + ... + \beta_{kj} X_{ni})} \quad \ldots\ldots(6)$$

for j = 1, 2, …, k. The parameters are not all identified since more than one set of parameters generates the same probabilities of the observed outcomes unless we impose constraints on the model (e.g. see Greene, 1997; Long, 1997; McFadden, 1973), which is achieved by setting parameters, for example, those of the first choice category j = 1 to be all zero: $\beta_{01} = \beta_{11} = \beta_{k1} = 0$. In other words, parameters of the first choice category are used as the base against which the other choices are compared. The choice can be arbitrary and this opportunity can be used to make comparison between any groups of the alternatives categories. The log likelihood function for the multinomial logit can be written thus;

$$\ell = \sum_{i=1}^{n} \sum_{j=1}^{k} d_{ij} \log(P_{ij}) \ldots\ldots (7)$$

Where $d_{ij}$ is a dummy variable that takes the value 1 if observation i has chosen alternative j; 0 otherwise.
The first-order conditions are;

$$\frac{\partial \ell}{\partial \beta_{kj}} = \sum_{i=1}^{n} (d_{ij} - P_{ij}) X_{kj} \ldots\ldots (8)$$

The multinomial logit model can also be expressed and interpreted in terms of the odds, i.e. the odds of outcome m versus outcome n given x, indicated by $\omega_{m/n}(x)$, equal to

$$\omega_{m/n}(x_i) = \frac{\Pr(y_i = m / x_i)}{\Pr(y_i = n / x_i)} = \frac{\exp(x_i \beta_m) / \sum_{j=1}^{j} \exp(x_i \beta_j)}{\exp(x_i \beta_n) / \sum_{j=1}^{j} \exp(x_i \beta_j)} = \frac{\exp(x_i \beta_m)}{\exp(x_i \beta_n)} \ldots\ldots (9)$$

Combining the exponents leads to the odds equation:

$$\omega_{m/n}(x_i) = \exp[x_i(\beta_m - \beta_n)] \ldots\ldots (10)$$

Taking logs shows that the multinomial logit model is linear in the logit:

$$\ln \omega_{m/n}(x_i) = x_i(\beta_m - \beta_n) \ldots\ldots (11)$$

The difference $\beta_m - \beta_n$, called the *contrast*, is the effect of x on the logit of outcome m versus outcome n. Since the model is linear in the logit, it is fairly simple to compute the partial derivative:

$$\frac{\partial \ln \omega_{m/n}(x)}{\partial x_k} = \frac{\partial x(\beta_m - \beta_n)}{\partial x_k} = \frac{\partial x \beta_m}{\partial x_k} - \frac{\partial x \beta_n}{\partial x_k} = \beta_{km} - \beta_{kn} \ldots\ldots (12)$$

Which allows us to interpret $\beta_{km} - \beta_{kn}$ thus: for a unit change in $x_k$, the logit of outcome m versus outcome n is expected to change by $\beta_{km} - \beta_{kn}$ units, holding all other variables constant.

In our case, the choice of financial institution is then modelled as a function of both personal and household/dwelling characteristics as already defined. This can be presented as a general form equation:

$$D_{it} = f(AG_{it}, ED_{it}, SX_{it}, MT_{it}, HS_{it}, DS_{it}, AC_{it}, AS_{it}, DW_{it}, RR_{it}, RG_{it}) \ldots\ldots (13)$$

Where $D_{it}$ takes on values 1, 2,…,k if individual i chooses alternative j (including no credit and the particular source of credit for those who applied) at time t, i.e. either 1999 or 2002. The rest of the explanatory variables are as defined before.

However, while both the probit and multinomial logit models give us potentially large amounts of information on the demand for credit and the relative importance of the different sources, they do not tell us anything about the extent of demand for credit in terms of the actual amount of credit demanded by individuals, given their characteristics. To estimate the determinants of the amount of credit demanded, we make use of the tobit model.

$$\begin{aligned} Y^*_{it} &= \alpha_0 + \alpha_1 AG_{it} + \alpha_2 ED_{it} + \alpha_3 SX_{it} + \alpha_4 MT_{it} + \alpha_5 HS_{it} \\ &+ \alpha_6 DS_{it} + \alpha_7 AC_{it} + \alpha_8 AS_{it} + \alpha_9 DW_{it} + \alpha_{10} RR_{it} + \alpha_{11} RG_{it} + \mu_{it} \end{aligned} \ldots\ldots (14)$$

Where $Y^*_{it}$ represents the amount of credit demanded and the rest of the variables are as defined before and $\mu_{it}$ is the error term, following the normal assumptions. For those who do not demand for credit, Y* cannot be measured and is set equal to 0. The observed dependent variable is then given by,

$$Y_{it} = Y^*_{it} \text{ for } Y^*_{it} > 0$$

$$Y_{it} = 0 \text{ for } Y^*_{it} \leq 0$$

The coefficients $\alpha_1 \ldots \alpha_{11}$ provide an appropriate adjustment to obtain consistent estimates of the effects of changes in the explanatory variables on $Y_{it}$ for those who demand credit and also indicate the proportion of the total effect due to induced changes in behaviour of those who demand for credit (Berndt, 1991).

***b. The data***

Data used in this study was obtained from the Uganda household surveys in 1992/93, and 1999/2000 conducted by the Uganda Bureau of Statistics (UBOS). They provide a comprehensive and nationally representative source of data on household characteristics, including number of household members, who are then described by gender, age, educational level and marital status. They also provide information on employment, income, expenditure, demand for credit, assets, and other general welfare indicators.

## 4. Discussion of Results

### 4.1 Descriptive evidence

*a. Supply of credit services*

Available evidence indicates that the majority of the population in rural Uganda receive credit from friends and relatives as opposed to the financial institutions (Table 2). About 48% of the communities reported having friends and relatives as the most available source of financial service, followed by the *Entandikwa* government programme (26%) and then banks, reported by 23% of the communities. Self-help savings and credit groups are reported by about 15% of the communities while registered/official cooperatives are important in about 10% of the communities. Private money lenders in Uganda are an unimportant source of credit and are reported in only less than 4% of the communities. At the regional level, it is noted that banks are quite important in the Central region (reported by about 40% of the communities), followed by the West (23%) and the East (18%) but hardly available to the communities in the North where they are reported in only 1.6% of the communities. Relatives and friends are a very important source of credit in the West - reported by about 65% of the communities compared to 46%, 42% and 36% in the Central, North and East, respectively. In those communities where they are available, banks are reported to have been in existence for much longer periods, 16.6 years on the average, compared to all the other institutions, for example, registered cooperatives are reported to have been in existence for 13 years, self-help groups 9 years, relatives and friends 8 years, government credit programme 4.6 years and money lenders 2 years. One out of every five communities reported banks, the government programme and relatives/friends to charge interest on loans while only 11%, 8% and 3.6% of the communities reported charging of interest by self-help programmes, registered cooperatives and money lenders, respectively. For commercial banks, collateral in the form of land and other assets is a major consideration before credit is advanced. For government programmes, self-help groups and relatives/friends, this was indicated to be a requirement in about one fifth of the communities.

Table 3: reports the availability of the different financial institutions to women in Ugandan communities. It is noted that 'relatives/friends' is the most widely available financial institution to women, reported by 70% of the communities, which is followed by the government *Entandikwa* programme (36%) and commercial banks (29%). Self-help groups, formal cooperatives and money lenders are reported by 12%, 8% and 2%, respectively. This suggests that for the poor women in the rural areas, relatives/friends and government programmes are the major source of financing for their activities.

*b. Demand for credit services*

From the two surveys, we are able to derive evidence on households that applied for credit, those that received credit, amount received, source, purpose and collateral requirements. We note in Table 4 that about one in five households apply for credit - the ratio is 17.6% in 1999 and 23.5% in 1992. Of those who applied in 1999, 82.4% were able to get credit, i.e. about 18% are rationed. In addition to rationing in terms of no credit received when demanded, there exists rationing in terms of the amount of credit applied for and the amount received. Based on the 1999 survey, the average amount of credit applied for was about US$78.4 but only about US$40 was, on the average, received by those who applied. There are great regional disparities in application for credit with the West having the highest proportion of the applicants (23%), followed by the East (21%), Central (14%) and the North (8%). The most important reason for demanding credit is to expand business enterprises (29%), followed by credit to meet health expenditures (20%), purchase of agricultural inputs (15%) and consumer goods (13%). Because most of the rural households obtain their credit needs from friends/relatives, collateral requirement is minimal. On average, 62% of the households obtained credit without mortgaging anything while only about 20% were required to mortgage their land, 5% future harvests, 2% livestock and buildings (in each case), and 6.7% other form of collateral.

Distinguishing credit applicants by location - rural/urban, we find that fewer individuals in the rural areas apply for credit – only 9% applied in 1999 – and of those who applied, only about 4 in 5 were successful compared to the urban areas where about 11% applied,- 86% of whom were successful (Table 5). The differences are significant at the 1% level. Most important, the loan amount applied for (US$73.7) and amount received (US$36.5) by individuals in the rural areas are substantially lower compared to those in the

urban areas who on the average applied for loans amounting to US$134.7 and received US$80.6. Analysis by source of credit shows that informal financial institutions are relatively more important to the rural individuals than those in the urban areas. For example, only 2.3% and 21.4% of the rural individuals had in 1999 obtained credit from commercial banks and NGOs/cooperatives compared to 12.3% and 31.2% for the urban dwellers, respectively.

### 4.2 Quantitative evidence on the demand for credit

In Table 6, we report the regression results on individual demand for credit, amount demanded and amount received based on the estimation of equations 5 and 14. Columns 1 and 2 report results of probit estimations for the individual application for credit and success of the application, respectively. Columns 3 and 4 report the results of the tobit estimations for amount applied for and amount received for the 1999 cross-section. Column 5 reports results for the probability of applying for credit for the pooled 1999 and 1992 cross sections. Columns 6 and 7 report results for the probability of applying for credit for the fixed effects and random effects models estimated for the 1999 and 1992 panel households, respectively.[8] The results are largely robust to sample size and estimation technique.

The results clearly show that rural households are at a disadvantage in terms of demand for credit. Holding other factors constant, loan applications for individuals from the rural areas are about 44% smaller in magnitude than those in the urban areas.

Individual characteristics have important implications for the demand for credit. As predicted, we find that the age of the individual is positively related to the decision to apply for credit and the amount of credit applied for. With respect to application for credit, the results are consistent and robust in the case of the pooled and panel 1992/93 and 1999/2000 cross-sections. On the other hand, age squared has a negative sign suggesting a quadratic relationship between age and demand for credit.[9]

As hypothesised and as highlighted in the descriptive evidence, education of the individual positively affects the decision to apply for credit and the amount applied for. In the 1999/00 cross-section data (also consistent with the 1999 and 1992 pooled and panel data), an additional year of education increases demand for credit by about 0.3% and increases the chances that the application will be successful by about 17%. This finding is consistent with the results of Gropp *et al.*, (1997). Women are not only less likely to apply for credit, but they apply for and receive smaller amounts of credit compared to men: females are about 5% less likely to apply for credit, *ceteris paribus*. Married individuals, those who are separated and the widowed are more likely to apply for credit and their applications are more likely to be successful compared to the unmarried, which is the omitted category. The finding that widows are not crowded out of the credit market is important for the welfare of this category because they can be vulnerable to poverty and lack other means of support. Larger households face a risk of not benefiting from credit: they are both less likely to apply for credit and their applications to succeed.

With respect to sector of primary occupation/employment, we find that individuals engaged in administration, industry and commercial activities (including wholesale and retail trade) are more likely to apply for credit compared to those engaged in the agricultural sector (the excluded category). More interestingly, loan applications by individuals engaged in the trade sector are more likely to succeed, with larger loans applied for and granted by the financial institutions compared to individuals in agriculture. This has important implications for the promotion of agricultural development in the country as we noted at the outset that there is limited supply of credit to the agricultural sector. Therefore, increased flow of credit to this sector requires specific policies to promote farmer's access to credit.

As expected, the value of assets owned by the household has a positive impact on the demand for credit, amount applied for, and the amount of credit received. This suggests that wealthier individuals are more likely to demand for credit and their applications are more likely to be looked at more favourably. This inference is also supported by the significant coefficients for dwelling characteristics - type of roofing and floor materials.[10] We note that loan applications of individuals living in houses with an iron sheet roof or a cement floor are more likely to succeed in their credit applications and also get granted larger loans. This is not surprising as most financial institutions consider ability to repay prior to advancing credit. Household assets and dwelling characteristics provide a good indicator of this. Our results are generally consistent with

those of Crook, (2001), Duca and Rosenthal, (1997), Gropp *et al.*, (1997) and Cox and Jappelli, (1993) who find household wealth to be an important determinant of demand for credit.

The year dummy shows that overall, there was decreased demand for credit in 1999 compared to 1992 (however, results of the multinomial analysis presented in the next section show increased demand for credit from NGOs and formal cooperative societies). For the 1999 cross-section data, individuals located in the East and West were more likely to apply for credit while those in the North were less likely compared to those in the Central (the omitted category). In addition to their loan applications being more likely to succeed, individuals in the East and the West were more likely to apply for larger loans compared to those in the Central region. From the estimations for the panel households, we are unable to reject the hypothesis that the differences in the coefficients of the fixed effects and the random effects models are systematic, suggesting that village-level fixed effects play no significant role in the decision to apply for credit.

In Table 7, we report results of the multinomial logit estimations of demand for credit from different sources compared to those who did not demand credit. The dependent variable takes the value of 1 if an individual did not obtain credit and values 2 to 7 if the individual received credit from a bank, NGO/cooperative society, government agency, individual money lender, relatives/friends, and local community/group, in that order (results in columns 1-6). The excluded/base category is comprised of the individuals with zero demand for credit. The multinomial logit model permits us to have different base categories, e.g., we may want to compare demand for credit from commercial banks versus NGOs *(Clarke et al, 2007)* or government programmes. The results (odds ratios) with the different alternatives as the base categories are not reported here but available on request. In the discussion, we focus on the odds ratios, which represent the impact of each explanatory variable, holding all other variables constant, on the dependent variable, i.e., for a change of $\delta$ in the explanatory variable, the odds of outcome m versus n are expected to change by a factor equal to $\exp(\beta_{k,\ m/n}\ x\delta)$, holding all other variables constant.[11] We discuss the results by organising them into locational, individual, household/dwelling, employment characteristics and source of credit factors.

*a. Locational variables*

From the results, we find that locational characteristics are important in the demand for credit. When the available alternatives are the formal commercial banks, money lenders and relatives and friends, the odds ratios are 0.52, 0.65 and 0.87 respectively, that rural residents will demand for credit, i.e. rural individuals are less likely to demand for credit from these sources (the comparison group is zero demand). On the other hand, the odds ratios are 1.04 and 1.46 that rural individuals, will demand for credit from the NGOs/formal cooperatives and the local community/group savings and credit associations, implying that NGOs, and more so, the community/group credit sources are very important for the rural residents.

With commercial banks as the base category, the results show that the odds ratios are higher that rural individuals will demand for credit from NGOs/cooperatives (odds ratio is 1.99), government programmes (2.9), relatives/friends (1.67), though significant only at 10%, and community/group associations (2.8). This seems to lend credence to the assertions that the formal financial institutions consider individuals in the rural areas to be risky to lend to and that they demand for small loans, making it expensive for commercial banks to lend to this group. In addition, as a result of high poverty rates and limited asset ownership, individuals in the rural areas may lack the collateral to secure loans from the formal financial institutions. When compared with the NGOs/cooperatives, government programmes are more important in meeting the credit needs of the rural individuals while NGOs/cooperatives are superior to money lenders. This suggests that the government targeted credit programmes play a crucial role in helping individuals in the rural areas to access credit, a suggestion that more needs to be done by the government to extend credit to the rural dwellers. The local community/group savings and credit associations seem to be the response by rural dwellers to the absence of other financial institutions. Compared to the money lenders and relatives/friends, the odds ratios are higher that rural dwellers will demand for credit from the community savings and credit associations (with odds ratio of 2.25 and 1.68, respectively).

The extent of remoteness of the individual's household, captured using the distance to the district headquarters, is only significant, albeit with a very small coefficient and weak significance, in the case of demand for credit from the community/group savings and credit associations – with an odds ratio of 0.996

(significant at the 10% level). This somewhat suggests that the further away from the district centre, the lower the likelihood of demand for credit, even from the community/group.

In comparison to the Centre, which is the excluded category, the odds ratio is lower that individuals in the East will demand for credit from relatives and friends (0.86) while the variable is not significant in the case of the other sources of credit. For the North, the odds ratios are higher that individuals will demand for credit from NGOs/formal cooperatives (1.9), government programmes (1.46), money lenders (1.65) and community/group savings and credit associations (2.2) but lower with respect to credit from relatives and friends (0.5). For the West, the odds ratios are higher that individuals will demand for credit from commercial banks (2.1), government programmes (1.9), money lenders (3.07) and the community/group savings and credit associations (7.5). Furthermore, the odds ratios are lower that individuals in the West (0.72) will demand for credit from relatives and friends compared to individuals in the Central region. While commercial banks play a rather limited role in access to credit, NGOs and the formal cooperatives play an important role for individuals in the East and to some extent those in the North, but not so in the West. The effect of the long period of insurgency in the North could be a contributory factor.

*b. Individual characteristics*

With respect to individual characteristics, we find that age has a quadratic relationship with respect to demand for credit (from all the available sources). When those who did not demand for credit are used as the comparison group, we find that the odds ratios are positive for age but negative for age squared with respect to demand for credit from each of the sources. This implies that at intermediate ages, demand for credit increases with age but as predicted, it declines as the age of the individual advances. When commercial bank is the base category, we find that coefficient for age is negative and age squared is positive with respect to demand for credit from government programmes and relatives/friends, suggesting that demand for credit from these sources declines with age but is high for the old ones. Similarly, compared to NGOs/cooperatives, demand for credit from relatives/friends declines with age but is higher for the very old. In contrast, with relatives/friends as the base category, demand for credit from community/group associations increases with age, up to a certain point and then starts to decline.

Education positively impacts credit demand from commercial banks, NGOs/formal cooperatives, government programmes and money lenders. An additional year of education increases the odds ratio that one will demand for credit from commercial banks, NGOs/formal cooperatives, and government programmes by 1.1 in each case and by about 1.04 in the case of money lenders. However, education is not significant in the demand for credit from relatives/friends and the local community/group savings and credit associations, suggesting that education may not be that important for one to obtain credit from these latter sources. With either commercial banks or NGOs/cooperatives or government programme as the base category, the odds ratios are lower that more educated individuals will demand for credit from money lenders, relatives/friends and community/group arrangements. This is to be expected since money lenders and relatives/friends will usually advance credit to individuals in whom they have personal trust irrespective of education. Community/groups will advance credit to members of the group, irrespective of educational level.

Except for NGOs/cooperatives where the coefficient is not significant, women are less likely to demand credit from the formal commercial banks, government programmes, money lenders, relatives/friends and community/group savings and credit associations. Compared to men, the odds ratios are 0.42, 0.44, 0.47, 0.34 and 0.54 lower that women demand credit from commercial banks, government programmes, money lenders, relatives/friends and community/group savings and credit associations, respectively. When commercial bank is the base category, we find that the odds ratio is much higher (2.1) that women demand credit from NGOs/cooperatives. This strong importance of NGOs/cooperatives as the major source of credit for women may be attributed to the fact that most of these institutions have targeted credit arrangements where a given proportion of total loans are reserved for women or where for every man who receives credit, a certain number of women must be served. This suggests the need for increased targeting of women in credit programmes so as to enhance the chances that they access credit if investment in agriculture and the poverty eradication targets are to be achieved.

*c. Household size and marital status*

While household size is not significant in the case of loans from commercial banks and government programmes, the odds ratios are lower that larger households demand for credit from NGOs/cooperatives, money lenders, relatives/friends and the community cooperatives. With commercial banks as the control group, the odds ratios are lower that individuals from larger households demand credit from NGOs/cooperatives, money lenders, relatives/friends and community/group savings and credit associations. Overall, this finding seems to suggest that individuals from larger households are not likely to demand credit from any of the available sources.

While in the probit estimations it was found that married individuals are more likely to demand credit, in the multinomial logit estimations it is revealed that they are more likely to obtain credit from NGOs/cooperatives, government programmes, relatives/friends and community/group savings and credit associations, with odds ratios equal to 2.1, 1.6, 2.0 and 1.9, respectively. However, the variable is not significant in the case of commercial banks and money lenders, suggesting that marital status is not important for one to qualify for credit from these sources. For those who are separated and the widows, the odds ratios are high that they secure credit from NGOs/cooperatives (1.7 and 1.8) and relatives/friends (2.5 and 2.0, respectively). In addition, the odds ratio is 2.2 that widows are more likely to secure credit from local community/group or self-help savings and credit associations. Rural peasants resort relatives and friends for credit because this source does not require collateral as is the case with other lending institutions.

*d. Household wealth*

With the comparison group being those with zero demand for credit, the results indicate that individuals from wealthier households are more likely to demand for credit compared to those with zero demand. A 100% change in the value of assets owned by a household increases the odds ratio of demanding for credit from a commercial bank and NGOs/cooperatives by 1.4, government agencies by 1.2, money lenders by 1.3 and community cooperatives by 1.1, although significant only at 10%. Other dwelling characteristics – type of floor and roofing material - again seem to confirm this. This implies that wealthier individuals are more likely to succeed in securing credit from the formal and the semi-formal financial institutions while the less wealthy individuals obtain credit from the informal sources. In fact, with commercial banks or NGOs/cooperatives as the control group, we find that the odds ratios are lower that individuals from households with a larger value of assets and those with a cement-screed floor demand for credit from relatives/friends and community/group arrangements.

*e. Primary occupation and year impact*

The sector of primary economic activity has important implications with respect to demand for credit from the different sources available. In comparison to individuals engaged primarily in agriculture (the excluded category), those in administration and trade are more likely to demand for credit from commercial banks, government programmes, money lenders. Likewise, for those engaged in the industrial sector, the odds ratios are higher that they demand for credit from the money lenders relatives/friends and community associations. The year dummy shows a very strong increase in the importance of NGOs/cooperatives as a source of credit in 1999/2000 compared to 1992/93. This could be related to the increasing number and branch net-work of micro-finance institutions in the country. Furthermore, there was reduced importance of money lenders and relatives/friends in the demand for credit over the period.

For individuals engaged in business activities, the odds ratios are lower that they demanded for credit from all the other sources. The year effect again shows the strong importance of NGOs/cooperatives in 1999/2000 compared to 1992/93 but declining importance of money lenders and relatives and friends over commercial banks. With NGOs/cooperatives as the base category, we find that the odds ratios are 1.8 and 2.6 that individuals engaged in administration and industry will demand for credit from money lenders compared to those in the agricultural sector. With year effect, the odds ratios are lower that in 1999/2000, individuals demanded for credit from government programmes, money lenders, relatives/friends and community/group savings and credit associations. However, the results show increased relative importance of community/group associations as a source of credit in 1999/2000 compared to 1992/93. This implies that overtime, relatives and friends community savings and credit arrangements have become important sources of credit. That calls for increased policy intervention in the financial sector in order to encourage the formal and NGO-sponsored financial institutions to reach the population.

*f. Source of credit*

Apart from the commercial banks whose availability is found to increase the odds ratio of securing a loan from this source by about 1.6, we find that availability of other financial institutions has no impact on the demand for credit. Holding other things constant, we would have expected availability of a specific institution to have a strong positive impact on the demand for credit from that source, in which case, we would expect positive coefficients along the diagonal of the comparison group and the financial institution. This seems to suggest that mere supply of the financial institutions is not enough to generate demand for credit in the rural areas, something that calls for further investigation.

**5. Conclusions and Recommendations**

This paper dealt with the policy options for growth and development. It tackled constraints to peasant's access and demand for credit in rural Uganda. Using the probit, tobit and multinomial logit models, the paper estimated the determinants of demand for credit in Uganda. It showed that demand for credit is strongly influenced by location, age, the level of education, occupation, the value of household assets owned and other dwelling characteristics. That women shy away from applying for credit or apply for less amounts of credit compared to men. Furthermore, the availability of different sources of credit has limited impact on demand for credit. The results show that for individuals in the rural areas, NGOs/cooperatives, government programmes, relatives/friends, and the local community/group, savings and credit associations are the major sources of credit. This suggests that the formal commercial banks are out of reach of the rural individuals. Individual's age displays a quadratic relationship with the demand for credit; those at intermediate ages have positive demand while the old are less inclined to demand credit, particularly from the formal and semi-formal sources. The regional variances identified in the analysis also show the urgent need for policy intervention measures to emancipate the rural dwellers in regions where demand for and access to credit is lowest. The year effect shows a strongly increased importance of NGOs/cooperatives as a source of credit in 1999/2000 compared to 1992/93, suggesting the need for improvement in the operating environment for these institutions to play an even greater role in providing credit to individuals in the rural areas. Another remarkable aspect of this increase is the bank failures, that characterised the former period, thereby creating a vacuum which these informal and semi-formal financial institutions emerged to serve the rural dwellers. The performance, efficiency and effectiveness of these latter-day surrogate institutions have to be closely monitored and studied to establish whether they are perfect substitutes for the banks in the rural areas. If not, urgent policies, such as targeted support for establishment of rural banks/branch networks has to be instituted to attain serve the demand for and access to credit as a vital policy option for Uganda's rural development.

Education is a very important element in the demand for credit in the rural areas, suggesting that this is the place to look in an effort to promote demand for credit. In addition, the demand for credit is higher for wealthier households, indicating that these households have the collateral to secure loans. It is therefore important to devise policies that aim at increasing household incomes so as to promote demand for credit. This also implies the need for enabling and or establishing financial institutions, both formal and informal to cater for the resultant increased incomes and therefore the excess savings while serving the rural dwellers' demand for and access to credit. The enactment of more elaborate laws to protect the rural individuals savings, eliminate rogue elements from the industry, boost credit confidence and regulate the credit operations generally to protect savings and the other players will be required. Clearly, there is need for mobilising and sensitising the people about the need for and importance of credit. The achievement of this goal rests on the corresponding institution of a strong policy on rural credit to financially empower the rural peasants in Uganda. There has also been a myriad of reports about some rogue rural credit institutions defrauding people under the guise of offering them credit. This explains the findings of the increased importance and role of informal financial institutions in access and demand for credit in rural Uganda. In the absence of a strong and effective regulatory framework, this creates a lax environment that is exploited by the 'wrong' individuals to cheat the credit hungry rural peasants.

As an enabling policy strategy and confidence boosting measure, government needs to enact strong laws to protect the rural credit applicants/recipients and streamline credit demand and credit taking relationships. Furthermore, any legal reform to be undertaken, needs to encompass strong rural poor emancipative laws to cover informal lending sectors, institutions and individuals since these dominate the rural credit market. Existing laws such as the Financial Institutions Act, the Companies Act, the Micro-Deposit Taking

Institutions Act, the Money Lenders Act, The Bank of Uganda Act, among others, were not meant to regulate or enforce access and demand for credit in rural Uganda. These need to be amended or harmonised to include provisions to ease the legal constraints to access and demand for credit in rural Uganda which we identified in this paper. However, there should be greater regulation to protect rural households from unwittingly trapping themselves in high-cost loans that lead to foreclosure, bankruptcy, or other financial problems. Legislative measures should not hope to impact these tendencies. However, legislation and regulation can affect the way that lenders select their customers and the methods they use to lend money. This is responsibility for governmental regulators. Some lenders could prey on borrowers with unreasonably high-cost loans meant to induce repeated refinancing and the collection of high fees and interest repayment (Zywicki & Adamson, 2007).

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**Table 1: Ratios of financial savings to M2, and to GDP and M2 to GDP for Uganda**

| Period | Financial savings/M2 | | Financial savings/GDP | | M2/GDP[1] | |
|---|---|---|---|---|---|---|
| | Ratio | Change in ratio | Ratio | Change in ratio | Ratio | Change in ratio |
| 1995/96 | 29.2 | 3.7 | 3.1 | 0.5 | 21.0 | - |
| 1996/97 | 21.1 | -8.1 | 3.7 | 0.6 | 23.1 | 10.0 |
| 1997/98 | 32.7 | 11.6 | 3.2 | 0.5 | 26.5 | 15.1 |
| 1998/99 | 34.3 | 1.6 | 4.1 | 0.9 | 27.3 | 3.0 |
| 1999/2000 | 29.2 | -5.1 | 3.9 | 0.5 | 28.5 | 4.0 |
| Average[2] | 29.3 | | 3.6 | | 25.3 | |

Source: Republic of Uganda, (various issues). *Background to the Budget*.
[1]Computed over calendar years, from 1996; [2]Average over the period under review.

**Table 2: Availability of financial institutions at community level**

| Type of institution | All Uganda | Central | East | North | West | All Uganda | Central | East | North | West |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | | | | | 1992 | | | | |
| Distance to nearest bank (km) | 25.51 | 20.23 | 22.27 | 38.55 | 26.06 | **n.a.** | **n.a.** | **n.a.** | **n.a.** | **n.a.** |
| **Availability to community (%)** | | | | | | | | | | |
| Bank | 22.74 | 39.24 | 18.21 | 1.63 | 22.71 | 45.97 | 54.21 | 38.02 | 31.97 | 53.13 |
| Registered cooperatives | 10.22 | 10.44 | 8.93 | 3.26 | 15.59 | 15.43 | 12.08 | 25.56 | 4.92 | 16.83 |
| Government programme[1] | 26.43 | 26.27 | 24.40 | 9.78 | 38.98 | 34.09 | 29.78 | 38.98 | 24.59 | 39.66 |
| Self-help cooperatives | 15.19 | 12.97 | 10.31 | 3.80 | 29.49 | 12.49 | 5.62 | 7.99 | 4.51 | 26.44 |
| Relatives/friends | 47.88 | 46.20 | 35.74 | 41.85 | 65.42 | 61.93 | 61.24 | 62.62 | 52.87 | 67.31 |
| Money lender | 3.87 | 2.22 | 2.75 | - | 9.15 | 3.84 | 1.69 | 3.83 | 5.74 | 4.57 |
| **Charging of interest (%)** | | | | | | | | | | |
| Bank | 41.87 | 68.75 | 36.30 | 6.67 | 27.50 | 81.91 | 89.63 | 72.09 | 72.97 | 84.78 |
| Registered cooperatives | 15.72 | 17.05 | 8.15 | 6.67 | 19.58 | 13.74 | 1.83 | 35.66 | 6.76 | 12.17 |
| Government programme | 41.17 | 30.11 | 37.78 | 60.00 | 50.00 | 36.68 | 42.07 | 64.34 | 32.43 | 18.70 |
| Self-help cooperatives | 20.85 | 15.34 | 6.67 | 13.33 | 33.33 | 6.03 | 1.83 | 7.75 | 10.81 | 6.52 |
| Relatives/friends | 36.75 | 27.27 | 22.96 | - | 53.75 | 6.37 | 4.27 | 7.75 | 2.70 | 8.26 |
| Money lender | 6.89 | 4.55 | 4.44 | - | 10.42 | 1.34 | 1.22 | - | 2.70 | 1.74 |
| **Collateral requirements: None (%)** | | | | | | | | | | |
| Bank | 0.71 | 1.89 | - | 1.33 | - | 2.88 | 1.28 | 1.39 | 5.47 | 2.90 |
| Registered cooperatives | 4.51 | 3.77 | 9.09 | 1.33 | 3.95 | 3.21 | - | 1.39 | 0.78 | 6.64 |
| Government programme | 32.54 | 23.58 | 25.00 | 12.00 | 53.29 | 16.58 | 5.13 | 7.64 | 14.84 | 26.56 |
| Self-help cooperatives | 8.08 | 11.32 | 19.32 | 5.33 | 0.66 | 13.54 | 6.41 | 1.39 | 0.78 | 29.88 |
| Relatives/friends | 86.22 | 84.91 | 72.73 | 89.33 | 93.42 | 90.86 | 92.31 | 95.14 | 92.97 | 86.72 |
| Money lender | 0.48 | 0.94 | 1.14 | - | - | 4.40 | 1.28 | 2.08 | 7.81 | 4.98 |
| **Group/personal guarantor (%)** | | | | | | | | | | |
| Bank | 3.55 | 8.51 | 4.17 | - | - | 5.43 | 1.61 | 8.33 | 13.95 | 5.10 |
| Registered cooperatives | 25.53 | 12.77 | 16.67 | 75.00 | 34.85 | 17.25 | 20.97 | 12.50 | 16.28 | 15.31 |
| Government programme | 34.04 | 36.17 | 45.83 | - | 30.30 | 31.95 | 9.68 | 45.83 | 41.86 | 48.98 |
| Self-help cooperatives | 32.62 | 14.89 | 25.00 | 25.00 | 48.48 | 13.42 | 4.84 | 10.42 | 18.60 | 23.47 |
| Relatives/friends | 20.57 | 25.53 | 8.33 | - | 22.73 | 58.79 | 91.13 | 37.50 | 18.60 | 45.92 |
| Money lender | 2.84 | 2.13 | 4.17 | - | 3.03 | 3.83 | 2.42 | 12.50 | 2.33 | 2.04 |
| **Land/other assets (%)** | | | | | | | | | | |
| Bank | 58.44 | 75.32 | 42.11 | 8.33 | 57.26 | 85.58 | 88.66 | 71.43 | 92.19 | 90.27 |
| Registered cooperatives | 12.85 | 14.29 | 10.53 | - | 14.53 | 15.85 | 3.61 | 41.50 | 6.25 | 12.39 |
| Government programme | 22.42 | 22.73 | 31.58 | 58.33 | 9.40 | 35.02 | 40.72 | 52.38 | 34.38 | 19.03 |
| Self-help cooperatives | 18.39 | 12.34 | 3.51 | 8.33 | 41.88 | 3.33 | 2.06 | 4.76 | 3.13 | 3.54 |
| Relatives/friends | 21.41 | 20.78 | 25.44 | 16.67 | 18.80 | 13.15 | 14.43 | 25.17 | 3.13 | 7.08 |
| Money lender | 7.81 | 3.25 | 3.51 | - | 18.80 | 0.95 | 0.52 | 0.68 | 4.69 | 0.44 |
| Observations | 1,086 | 316 | 291 | 184 | 295 | 1,329 | 356 | 313 | 244 | 416 |

Source: Own data analysis based on 1992/93 and 1999/2000 surveys.

n.a. Not available. [1]This refers to government targeted credit schemes for example, *entandikwa*, a government credit programme aimed at providing seed capital to poor but progressive individuals and associations.

## Table 3: Availability of financial institutions to women

| | All Uganda | Central | East | North | West | All Uganda | Central | East | North | West |
|---|---|---|---|---|---|---|---|---|---|---|
| **Available to all women (%)** | | | **1999** | | | | | **1992** | | |
| Bank | 28.71 | 41.26 | 30.97 | - | 26.32 | 1.10 | - | 2.03 | 0.70 | 1.71 |
| Registered cooperative | 13.40 | 14.08 | 10.62 | 2.50 | 17.98 | 0.14 | - | - | - | 0.43 |
| Government programme | 35.89 | 30.58 | 33.63 | 16.25 | 48.68 | 1.79 | - | 4.05 | 2.10 | 1.71 |
| Self-help cooperative | 19.94 | 16.50 | 15.93 | 3.75 | 30.70 | - | - | - | - | - |
| Relatives/friends | 69.86 | 62.62 | 55.75 | 87.50 | 77.19 | 0.69 | - | 3.38 | - | - |
| Money lender | 3.83 | 2.43 | 0.88 | - | 7.89 | - | - | - | - | - |
| **Available to women with assets (%)** | | | | | | | | | | |
| Bank | 38.57 | 76.09 | 20.69 | 20.00 | 19.35 | 2.64 | 5.26 | 2.33 | - | 2.02 |
| Registered cooperative | 12.86 | 8.70 | 12.07 | - | 22.58 | 9.84 | 19.55 | 3.88 | 5.08 | 8.87 |
| Government programme | 34.29 | 28.26 | 36.21 | 40.00 | 38.71 | 11.95 | 5.26 | 5.43 | 13.56 | 18.55 |
| Self-help cooperative | 10.00 | 8.70 | 5.17 | 20.00 | 19.35 | 7.21 | 3.76 | 1.55 | - | 13.71 |
| Relatives/friends | 29.29 | 13.04 | 48.28 | 20.00 | 19.35 | 41.48 | 46.62 | 31.78 | 57.63 | 39.92 |
| Money lender | 11.43 | 6.52 | 10.34 | - | 22.58 | 3.51 | - | 4.65 | 10.17 | 3.23 |
| **Not available (%)** | | | | | | | | | | |
| Bank | 7.02 | 28.57 | 3.13 | - | 6.11 | 31.08 | 14.29 | 33.33 | 37.50 | 28.57 |
| Registered cooperative | 14.04 | 14.29 | 12.50 | 25.13 | 12.45 | 14.86 | - | 20.00 | - | 14.29 |
| Government programme | 24.56 | 14.29 | 31.25 | 33.22 | 30.21 | 20.27 | - | 26.67 | - | 21.43 |
| Self-help cooperative | 24.56 | - | 15.63 | 15.34 | 27.78 | 4.05 | - | - | - | 21.43 |
| Relatives/friends | 10.53 | 28.57 | 9.38 | - | 11.17 | 6.76 | - | 6.67 | - | 14.29 |
| Money lender | 3.51 | 14.29 | - | - | 8.24 | 1.35 | - | - | - | 7.14 |
| Observations | 1,086 | 316 | 291 | 184 | 295 | 1,329 | 356 | 313 | 244 | 416 |

Source: Own data analysis based on 1992/93 and 1999/2000 surveys.

## Table 4: Credit demand, purpose and source

| | 1999 | | | | | 1992 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All Uganda | Central | East | North | West | All Uganda | Central | East | North | West |
| **Individual** | | | | | | | | | | |
| Applied for credit[1] (%) | 8.90 | 7.33 | 10.17 | 4.59 | 11.29 | 11.39 | 17.83 | 4.59 | 11.67 | 12.54 |
| Received credit (%) | 81.63 | 77.03 | 84.30 | 52.94 | 88.03 | 11.39 | 17.83 | 4.59 | 11.67 | 12.54 |
| Amount applied for (US$)[1] | 72.59 | 107.30 | 58.08 | 87.01 | 64.45 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Amount received (US$) | 36.21 | 50.99 | 31.87 | 19.53 | 35.84 | 16.93 | 16.82 | 10.08 | 13.15 | 22.89 |
| Had received credit before (%) | 71.99 | 64.24 | 71.84 | 45.75 | 81.62 | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Household** | | | | | | | | | | |
| Applied for credit (%) | 17.61 | 14.10 | 21.04 | 8.24 | 23.21 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Received credit (%) | 82.40 | 80.53 | 85.20 | 49.58 | 88.09 | 21.50 | 30.48 | 6.67 | 23.07 | 25.95 |
| Amount applied for (US$)[2] | 78.39 | 110.95 | 61.88 | 97.44 | 71.19 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Amount received (US$) | 39.09 | 54.00 | 34.36 | 21.47 | 38.50 | 17.49 | 17.43 | 16.32 | 11.34 | 22.69 |
| Value of assets (US$) | 812.70 | 904.49 | 628.88 | 424.80 | 1,002.76 | 106.85 | 126.07 | 61.86 | 52.71 | 137.10 |
| Had received credit before (%) | 72.05 | 67.66 | 72.30 | 41.18 | 80.87 | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Purpose of loan** | | | | | | | | | | |
| Agricultural inputs (%) | 24.36 | 26.07 | 17.33 | 54.62 | 22.92 | 7.13 | 3.96 | 10.91 | 9.29 | 8.23 |
| Expansion of enterprise (%) | 28.71 | 35.31 | 30.02 | 31.09 | 23.47 | 12.80 | 16.01 | 20.00 | 9.88 | 9.41 |
| Housing (%) | 3.17 | 2.97 | 4.23 | 0.84 | 2.89 | 4.07 | 6.52 | 3.64 | 0.60 | 4.00 |
| Education and health (%) | 27.20 | 22.44 | 27.91 | 9.72 | 33.57 | 27.20 | 26.09 | 42.72 | 30.53 | 21.88 |
| Consumption (%) | 16.56 | 13.21 | 20.51 | 3.73 | 17.15 | 48.80 | 47.42 | 22.73 | 49.70 | 56.48 |
| **Source of credit** | | | | | | | | | | |
| Bank (%) | 2.35 | 4.29 | 1.48 | 3.36 | 1.81 | 0.72 | 0.33 | 1.08 | 0.52 | 1.28 |
| NGO/Cooperative society (%) | 20.98 | 28.05 | 16.70 | 37.81 | 17.15 | 0.06 | - | - | 0.26 | - |
| Government agency (%) | 11.66 | 8.91 | 9.30 | 28.57 | 11.55 | 4.95 | 2.12 | 0.54 | 6.19 | 9.36 |
| Firm/employer/lender (%) | 6.00 | 2.64 | 1.90 | 4.20 | 11.73 | 3.98 | 2.28 | 3.24 | 4.64 | 5.96 |
| Relatives/friends (%) | 45.82 | 48.84 | 67.44 | 15.13 | 32.31 | 85.76 | 93.65 | 93.51 | 83.51 | 74.26 |
| Community/group (%) | 13.19 | 7.27 | 3.18 | 10.93 | 25.45 | 4.53 | 1.63 | 1.62 | 4.90 | 9.15 |
| **Collateral required** | | | | | | | | | | |
| None (%) | 61.77 | 58.42 | 73.15 | 55.46 | 55.23 | 92.87 | 96.64 | 97.27 | 92.51 | 87.53 |
| Land (%) | 20.98 | 16.17 | 12.90 | 14.29 | 31.95 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Livestock (%) | 2.48 | 2.97 | 2.33 | 5.04 | 1.81 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Building (%) | 8.35 | 11.55 | 7.61 | 9.24 | 7.04 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Future harvest (%) | 6.42 | 10.89 | 4.01 | 15.97 | 3.97 | n.a. | n.a. | n.a. | n.a. | n.a. |
| No. of households | 10,696 | 3,110 | 2,864 | 1,801 | 2,918 | 9,924 | 2,820 | 2,512 | 2,107 | 2,485 |
| No. of adult individuals | 19,695 | 4,694 | 5,447 | 3,334 | 6,220 | 14,547 | 3,443 | 4,031 | 3,325 | 3,748 |

Source: Authors own calculations based on 1992/93 and 1999/00 surveys.
[1]The 1992/93 survey does not include the question on whether individuals applied for credit. We take all those who received credit to have applied and therefore the percentages for those who applied and those who applied for credit are equal.
[2]2002 market exchange of Ushs1,832:US$1 is used for conversion from the local currency.
n.a. Not available – question not included in survey.

## Table 5: Credit by source and rural/urban location

| | | 1999 | | | | | 1992 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **All Uganda** | **Central** | **East** | **North** | **West** | **All Uganda** | **Central** | **East** | **North** | **West** |
| Applied for credit | A | 8.83*** | 7.49** | 10.11** | 4.59** | 11.01*** | 11.36*** | 17.81 | 4.47*** | 11.70*** | 12.54 |
| | B | 11.04*** | 9.31** | 12.24** | 6.68** | 16.11*** | 16.17*** | 18.76 | 14.43*** | 17.02*** | 13.73 |
| Application | A | 81.13*** | 77.27*** | 84.27 | 52.94 | 86.88*** | 11.36*** | 17.81 | 4.47*** | 11.70*** | 12.54 |
| successful | B | 85.88*** | 86.73*** | 86.71 | 62.07 | 91.76*** | 16.17*** | 18.76 | 14.43*** | 17.02*** | 13.73 |
| Amount applied for | A | 73.70*** | 51.08*** | 31.91*** | 19.53*** | 36.40*** | n.a. | n.a. | n.a. | n.a. | n.a. |
| | B | 134.77*** | 82.93*** | 92.94*** | 66.74*** | 70.12*** | n.a. | n.a. | n.a. | n.a. | n.a. |
| Amount received | A | 36.54*** | 108.00** | 58.17*** | 87.01** | 66.17*** | 17.10*** | 16.79*** | 11.02*** | 13.41*** | 22.89*** |
| | B | 80.60*** | 1423.00* | 126.37*** | 135.35** | 133.59*** | 39.54*** | 45.67*** | 32.58*** | 30.14*** | 46.62*** |
| **Source of credit** | | | | | | | | | | | |
| Bank | A | 2.29*** | 4.54** | 1.26** | 3.26** | 1.74*** | 0.72*** | 0.32 | 1.11 | 0.51** | 1.27*** |
| | B | 12.29*** | 10.71** | 03.46** | 10.34** | 20.32*** | 2.79*** | 1.08 | 2.43 | 2.25** | 7.17*** |
| NGO/cooperative | A | 21.44*** | 27.27** | 15.91*** | 43.60 | 16.47** | 0.07*** | 0.00 | 0.00** | 0025 | 0.00 |
| | B | 31.17*** | 36.22** | 36.99*** | 50.00 | 11.53** | 0.59*** | 0.00 | 2.08** | 0.00 | 0.42 |
| Government | A | 12.17** | 10.22 | 8.86 | 24.83*** | 11.22** | 5.03 | 2.12** | 00.55** | 06.42 | 09.36*** |
| | B | 8.51** | 7.14 | 10.98 | 8.62*** | 4.94** | 4.39 | 4.77** | 02.77** | 06.01 | 03.79*** |
| Lender | A | 6.55* | 2.27** | 1.80* | 3.92 | 11.37 | 4.00*** | 2.28*** | 03.33*** | 04.62*** | 05.95*** |
| | B | 8.68* | 5.10** | 3.46* | 8.62 | 14.83 | 13.01*** | 10.84*** | 13.88*** | 13.90*** | 15.18*** |
| Relatives/friends | A | 44.06*** | 47.15** | 66.90*** | 12.41 | 29.30** | 85.65*** | 93.63*** | 93.33*** | 83.29** | 74.25** |
| | B | 34.65*** | 36.73 | 37.57** | 12.06 | 36.26** | 76.67*** | 81.34*** | 76.73*** | 75.93** | 68.35** |
| Community/group | A | 13.49*** | 3.97** | 3.07 | 9.80** | 25.80*** | 4.53** | 1.63 | 01.66 | 04.88** | 09.14** |
| | B | 4.70*** | 0.51** | 3.46 | 1.72** | 9.34*** | 2.55** | 1.95 | 02.08 | 01.87** | 05.06** |
| Observations | | 2,904 | 548 | 726 | 211 | 868 | 2,353 | 1,074 | 468 | 655 | 707 |

Source: Author's own data analysis based on the 1992/93 and 1999/00 surveys

A = Mean for individual living in the rural areas; B = mean for individuals living in urban areas

* Difference in means significant at 10%; ** Difference in means significant at 5%; *** difference in mean significant at 1%

## Table 6: Analysis of demand for credit – individual/household characteristics

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| | 1999 cross-section | | | | Pooled 1999/92 | Panel 1999/92 | |
| **Explanatory variable** | **Applied for credit** | **Application successful** | **Amount applied for (log)** | **Amount received (log)** | **Applied for credit** | **Applied for credit (FE)** | **Applied for credit (RE)** |
| Age | 0.007*** | -0.001 | 0.328*** | 0.006 | 0.009*** | 0.009*** | 0.009*** |
| | (11.08) | (0.17) | (11.16) | (0.39) | (15.59) | (6.90) | (7.16) |
| Age squared | -0.008*** | -0.001 | -0.376*** | -0.010 | -0.010*** | -0.010*** | -0.010*** |
| | (11.49) | (0.39) | (11.47) | (0.59) | (16.00) | (6.95) | (7.20) |
| Education | 0.003*** | -0.002 | 0.166*** | 0.034*** | 0.003*** | 0.005*** | 0.005*** |
| | (7.79) | (1.21) | (8.89) | (3.25) | (8.88) | (4.50) | (4.66) |
| Female | -0.045*** | -0.023 | -1.979*** | -0.241*** | -0.070*** | -0.089*** | -0.088*** |
| | (11.97) | (1.31) | (12.10) | (2.71) | (21.61) | (10.17) | (10.20) |
| Married | 0.055*** | 0.059** | 2.648*** | 0.248* | 0.048*** | 0.069*** | 0.065*** |
| | (11.02) | (2.10) | (10.97) | (1.80) | (11.60) | (5.46) | (5.40) |
| Separated | 0.052*** | 0.063 | 1.892*** | 0.206 | 0.057*** | 0.061*** | 0.062*** |
| | (4.75) | (1.62) | (4.70) | (0.91) | (6.33) | (2.90) | (3.02) |
| Widow | 0.068*** | 0.088** | 2.365*** | 0.387* | 0.059*** | 0.059*** | 0.058*** |
| | (5.82) | (2.37) | (5.75) | (1.69) | (6.40) | (2.92) | (3.02) |
| Household size | -0.003*** | -0.004* | -0.131*** | -0.002 | -0.003*** | -0.006*** | -0.004*** |
| | (6.20) | (1.66) | (5.77) | (0.16) | (7.74) | (4.25) | (3.73) |
| Administration | 0.016** | -0.054* | 0.640** | -0.128 | 0.022*** | 0.044** | 0.052** |
| | (2.19) | (1.76) | (2.12) | (0.83) | (3.48) | (2.12) | (2.57) |
| Industry | 0.058*** | 0.016 | 2.020*** | 0.333** | 0.044*** | -0.006 | 0.005 |
| | (6.52) | (0.52) | (6.46) | (2.12) | (6.17) | (0.27) | (0.20) |
| Business | 0.047*** | 0.056** | 1.919*** | 0.495*** | 0.033*** | 0.053*** | 0.049*** |
| | (7.18) | (2.26) | (7.89) | (3.89) | (5.73) | (2.79) | (2.63) |
| Distance to district hqs | -0.000 | 0.000 | -0.003 | 0.001 | -0.000 | -0.000 | -0.000 |
| | (1.38) | (0.07) | (1.03) | (0.84) | (1.39) | (0.79) | (1.01) |
| Value of assets (log) | 0.009*** | 0.012 | 0.497*** | 0.183*** | 0.004*** | 0.008* | 0.010** |
| | (5.54) | (1.53) | (6.74) | (4.55) | (3.24) | (1.75) | (2.31) |
| Iron sheet roof | -0.005 | 0.062*** | -0.164 | 0.359*** | -0.007* | 0.003 | 0.002 |
| | (1.18) | (2.93) | (0.85) | (3.44) | (1.87) | (0.22) | (0.15) |
| Cement floor | 0.010** | 0.019 | 0.585*** | 0.347*** | 0.004 | -0.015 | -0.011 |
| | (2.07) | (0.86) | (2.83) | (3.08) | (0.85) | (1.05) | (0.81) |
| Rural household | 0.003 | -0.032 | 0.098 | -0.439*** | -0.004 | -0.036 | -0.011 |
| | (0.61) | (1.32) | (0.44) | (3.55) | (0.94) | (1.18) | (0.61) |
| East | 0.028*** | 0.070*** | 1.114*** | 0.136 | -0.009** | -0.013 | -0.028* |
| | (5.57) | (3.34) | (5.34) | (1.20) | (2.08) | (0.60) | (1.89) |
| North | -0.022*** | -0.150*** | -0.960*** | -1.005*** | -0.026*** | 0.053* | 0.019 |
| | (3.60) | (4.37) | (3.35) | (5.97) | (5.77) | (1.81) | (1.17) |
| West | 0.039*** | 0.089*** | 1.452*** | 0.134 | 0.008** | 0.035* | 0.018 |
| | (8.03) | (4.41) | (7.32) | (1.25) | (2.11) | (1.80) | (1.36) |
| Year, 1999 = 1 | | | | | -0.051*** | -0.061*** | -0.055*** |
| | | | | | (13.04) | (4.53) | (4.76) |
| Constant | | | -19.998*** | 0.827** | | -0.058 | -0.082** |
| | | | (25.43) | (2.09) | | (1.32) | (2.30) |
| Observations | 24,657 | 2,307 | 24,657 | 2,307 | 40,534 | 5,896 | 5,896 |
| Pseudo R-squared | 0.08 | 0.08 | 0.05 | 0.04 | 0.07 | | |
| Number of villages | | | | | | 483 | 483 |
| R-squared | | | | | | 0.07 | 0.07 |
| Hausman test for difference in coefficients ($H_0$: difference in coefficients not systematic) | | | | | | | |
| $X^2$ value | | | | | | 20.85 | 20.85 |
| Prob > $X^2$ | | | | | | 0.406 | 0.406 |

Absolute value of z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
FE: Fixed effects model; RE: Random effects model
Estimations are the marginal effects of the independent variable on the dependent variable. dF/dx is for discrete change of dummy variable from 0 to 1, the z value is the test of the underlying coefficient being 0.

## Table 7: Demand for credit – multinomial logit estimation

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Explanatory variable** | **Bank** | **NGO/Coop** | **Government** | **Lender** | **Relatives/friends** | **Community** |
| Age | 0.199*** | 0.142*** | 0.110*** | 0.127*** | 0.084*** | 0.156*** |
| | (4.68) | (6.66) | (4.87) | (4.60) | (9.59) | (5.92) |
| Age squared | -0.195*** | -0.163*** | -0.104*** | -0.145*** | -0.109*** | -0.174*** |
| | (4.05) | (6.54) | (4.23) | (4.50) | (10.76) | (5.81) |
| Education | 0.094*** | 0.080*** | 0.100*** | 0.038*** | 0.009 | 0.025 |
| | (4.52) | (7.42) | (7.42) | (2.60) | (1.57) | (1.59) |
| Female | -0.875*** | -0.121 | -0.811*** | -0.762*** | -1.071*** | -0.608*** |
| | (4.28) | (1.25) | (6.18) | (5.44) | (21.91) | (4.66) |
| Married | 0.249 | 0.744*** | 0.469** | 0.136 | 0.691*** | 0.621*** |
| | (0.92) | (4.75) | (2.53) | (0.79) | (10.33) | (2.90) |
| Separated | -0.086 | 0.532** | 0.066 | -0.183 | 0.931*** | -0.184 |
| | (0.16) | (2.09) | (0.19) | (0.49) | (8.37) | (0.44) |
| Widow | 0.082 | 0.603** | -0.054 | -0.001 | 0.689*** | 0.796** |
| | (0.16) | (2.35) | (0.15) | (0.00) | (5.88) | (2.49) |
| Household size | 0.009 | -0.032** | -0.001 | -0.079*** | -0.043*** | -0.056*** |
| | (0.44) | (2.48) | (0.07) | (3.97) | (6.31) | (2.65) |
| Administration | 0.461* | 0.104 | 0.354** | 0.688*** | 0.145* | -0.113 |
| | (1.72) | (0.64) | (1.97) | (3.62) | (1.70) | (0.43) |
| Industry | -0.097 | 0.123 | 0.094 | 1.105*** | 0.432*** | 0.474* |
| | (0.25) | (0.61) | (0.37) | (5.78) | (5.16) | (1.92) |
| Business | 0.950*** | 0.439*** | 0.221 | 0.157 | 0.294*** | 0.021 |
| | (4.08) | (3.23) | (1.15) | (0.75) | (3.89) | (0.09) |
| Value of assets (log) | 0.324*** | 0.345*** | 0.168*** | 0.243*** | -0.029 | 0.112* |
| | (3.86) | (7.00) | (3.07) | (4.36) | (1.59) | (1.88) |
| Iron sheet roof | -0.204 | 0.065 | -0.377** | -0.156 | -0.001 | 0.162 |
| | (0.71) | (0.49) | (2.52) | (0.96) | (0.02) | (1.08) |
| Cement floor | 0.886*** | 0.413*** | 0.466*** | 0.293* | -0.235*** | -0.169 |
| | (3.57) | (3.43) | (2.97) | (1.77) | (3.46) | (0.87) |
| Bank | 0.468** | 0.213* | 0.307** | -0.388** | -0.105* | -0.301* |
| | (2.03) | (1.82) | (2.17) | (2.25) | (1.90) | (1.79) |
| NGO/cooperative | 0.470** | -0.014 | -0.413** | -0.273 | -0.188*** | -0.639*** |
| | (1.97) | (0.09) | (2.27) | (1.44) | (3.10) | (3.11) |
| Government programme | -0.180 | 0.039 | -0.232* | 0.553*** | -0.003 | 0.032 |
| | (0.95) | (0.38) | (1.68) | (4.00) | (0.05) | (0.22) |
| Firm/employer/lender | -0.152 | -0.056 | -0.095 | 0.154 | 0.060 | 0.497*** |
| | (0.62) | (0.40) | (0.56) | (0.92) | (0.89) | (3.40) |
| Relatives/friends | 0.113 | -0.048 | 0.099 | -0.249* | -0.139*** | -0.417*** |
| | (0.55) | (0.50) | (0.83) | (1.85) | (3.07) | (3.33) |
| Community/group | 0.509** | 0.448*** | 0.002 | 0.546*** | -0.011 | -0.032 |
| | (2.26) | (3.56) | (0.01) | (3.19) | (0.14) | (0.14) |
| Year, 1999 = 1 | 0.195 | 3.830*** | -0.044 | -0.969*** | -1.203*** | -0.209 |
| | (0.78) | (7.48) | (0.27) | (5.65) | (20.49) | (1.13) |
| Rural household | -0.649*** | 0.036 | 0.414** | -0.435** | -0.139** | 0.377* |
| | (2.59) | (0.28) | (2.41) | (2.52) | (2.15) | (1.73) |
| Distance to district hqs | -0.000 | -0.000 | 0.002 | -0.002 | -0.001 | -0.004* |
| | (0.14) | (0.06) | (1.06) | (0.94) | (1.28) | (1.84) |
| East | -0.254 | 0.196 | 0.049 | -0.315 | -0.149** | 0.156 |
| | (0.92) | (1.59) | (0.28) | (1.38) | (2.52) | (0.56) |
| North | 0.407 | 0.642*** | 0.377** | 0.499** | -0.702*** | 0.784*** |
| | (1.30) | (4.02) | (1.98) | (2.28) | (10.23) | (2.84) |
| West | 0.744*** | -0.096 | 0.624*** | 1.121*** | -0.324*** | 2.019*** |
| | (3.33) | (0.73) | (4.01) | (6.72) | (5.60) | (9.19) |
| Constant | -13.172*** | -13.711*** | -9.199*** | -7.658*** | -2.638*** | -9.342*** |
| | (13.64) | (19.98) | (17.30) | (12.83) | (13.78) | (15.09) |
| Observations | 39,547 | 39,547 | 39,547 | 39,547 | 39,547 | 39,547 |
| Pseudo R-squared | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Absolute value of z statistics in parentheses,
* significant at 10%; ** significant at 5%; *** significant at 1%
Omitted (comparison) category in the dependent variable are the individuals who did not apply for credit.

**End Notes:**

[1] This is a government-operated credit scheme aimed at providing seed capital at subsidized rates to needy but progressive individuals and associations in the country. The Programme's main targets is supposed to be the vulnerable and disadvantaged groups in society such as women, the youth and persons with disabilities.

[2] Agricultural sector credit as a proportion of total credit is not only low but declining. For example, between 1999 and 2002, the proportion of credit going to the sector declined from about 14% reported for June 1999 to 10% recorded in March 2002.

[3] Between 1998 and 1999, 4 commercial banks – International Credit Bank Limited, Co-operative Bank Limited, Greenland Bank Limited and Trust Bank Limited were closed by the Central Bank citing insolvency and poor management.

[4]. The Non Performing Assets Recovery Trust (NPART) was a body corporate established by Statute No. 11 in October 1994 to recover expeditiously certain loans and investments made by the Uganda Commercial Bank and Uganda Development Bank whose recovery was overdue in a bid to strengthen the financial sector of Uganda's economy.

[5] The NRM government came to power in 1986 after fighting a protracted peasant-led guerrilla war. Through its many years of engagement with the rural population, the NRM came to appreciate the several constraints of these people and established mechanisms to address them, in part, as a way to endear themselves to the masses.

[6] This is assumed to be the sector in which the recipient intends to invest.

[7] The categories are numbered 1 through j, but are not necessarily ordered.

[8] The questionnaires for the 1999 and 1992 surveys are not exactly the same. The 1992 survey does not include questions on whether the individual had applied for credit in that year or had received credit before, and the amount applied for.

[9] Regressions with age dummies (not reported) showed that in comparison to base category of age 18-30 years, demand for credit is positive and significant for age group 31-40 years but, although positive, the coefficients are not significant for the 41-50 and 51-60 age groups while for the retired, (age 61 years and above) the coefficient is negative and significant. These results are consistent with the findings by Crook, (2001) that credit demand is positive for ages 24-54 but negative for those above 55 years.

[10] We construct the dwelling characteristics to reflect wealth of the household. A dummy (1,0) is constructed for a household with a given characteristic, for example, the variable Iron Sheet roof has a value of 1 if the house is roofed with Iron Sheets or better material such as Tiles Asbestos or Concrete and 0 otherwise.

[11] An odds ratio equal to 1 suggests that the explanatory variable leaves the dependent variable unchanged. If the odds ratio is greater (less) than 1, it implies that the effect of explanatory variable is to increase (reduce) the dependent variable (Long, 1997).