Demand for financial services by households in Ghana

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Abstract

Purpose – The purpose of this paper is to investigate household financial choice and the determinants of financial services in rural and urban households in Ghana.

Design/methodology/approach – Data from the Ghana Living Standard Survey 5 (GLSS 5) are used to estimate the participation of a household in a particular financial sector and what determines this choice.

Findings – The results from Tobit and conditional logit models account for households’ demographic characteristics and their financial decisions. The Tobit estimates show that household size, age, sex, marital status, occupation, income, remittances and shocks determine households’ participation in the financial markets. Conditional logit model results suggest that locational characteristics are important in obtaining financial services from particular sectors of the financial market. The results also suggest that when the alternatives of financial services are available, rural households are more likely than urban households to obtain their financial services from the informal financial sector.

Originality/value – This current study contributes to the existing literature from the Ghanaian perspective.

Keywords Financial services, Ghana, Rural areas, Urban areas, Households

Paper type Research paper

1. Background

It has been established by several studies that financial sector development has a strong positive effect on economic growth (King and Levine, 1992, 1993; Rousseau and Wachtel, 1998; Khan et al., 2005; Pedro and Erwan, 2006). However, despite the empirical evidence supporting the importance of the development of the financial sector including the banking systems and capital markets in developing countries, the provision of financial services are often skewed towards those who are already better off, catering mainly to large enterprises and wealthier individuals (Claessens, 2006). Mpuga (2004) observes that in Sub-Saharan Africa, the financial markets are highly concentrated in the urban areas and are dominated by a few. This lopsided distribution of financial institutions and services is a feature that characterizes the financial sector in Ghana, resulting in large unbanked population especially those engaged in small scale businesses and based in rural areas (Hofmeister, 1999). It has been estimated that about 10 percent of Ghana’s population have access to the banking sector (Bawumia et al., 2008). Also, 35 percent of all bank branches in the country are
in Greater Accra region even though this region has less than 13 percent of the country’s population (ISSER, 2008).

Access to formal financial services, however, can increase households’ ability to accumulate assets and upgrade their income generating activities as well as promote their capability to adequately deal with risks (Dercon et al., 2006). The provision of financial services cannot be underestimated as a way to diversify households’ economic activities. According to Wangwe (2004), experience has shown that availability of financing, even in small amounts, has a very positive impact on the family’s economic conditions as it helps to unlock productive potentials. The provision of a range of financial services offers the potential for growth and helps safeguard poor households against extreme vulnerability. Credit facilities, savings products and insurance services helps to even out income fluctuations and maintain consumption levels during lean periods. These experiences suggest that providing financial services to households, whether urban or rural, deserves high priority in development. It is against this background that the financial sector reforms were undertaken in Ghana and other African countries.

The financial sector reforms implemented in Ghana were aimed at effective and efficient financial markets through increasing the participation of the private sector, enhancing supervision and regulation, reducing risks and administrative cost, improving access to financial services by the poor and private sector, and the removal of policy induced-distortions to enhance competitive banking thereby improving resource mobilisation (Mensah, 1997; Gockel and Akoena, 2002; Aryeetey, 2008). Thus, financial sector reforms were expected to increase access to financial services. While the performance of the financial sector has seen some improvement as a result of liberalization, access to financial services by some segments of households has on the contrary declined (Aryeetey, 2008). As the banks are being strengthened through better supervision by the central bank, they have so far tended to focus their attention towards the urban based relatively lower risk clients in order to improve their performance rather than reaching out to smaller clients located in rural areas (Karani, 2007; Bawumia et al., 2008). In some respect, there has been withdrawal of financial services to rural households as indicated by closures of several rural-based bank branches (Wangwe, 2004). It is quite unfortunate that while the state-owned banks were closed down primarily because of loss making, the privately owned ones like Barclays and Standard Chartered Bank closed some of their branches as a strategic cost minimization choice. Meanwhile, while these two banks closed down their branches in the rural areas and other areas seen as not profitable, they have opened new branches in plush areas of Accra and Kumasi (Gockel and Akoena, 2002). Microfinance Institutions (MFIs) have grown to fill this gap by targeting the smaller end of the market where banks and other financial institutions have fail to serve.

Thus, the banking sector in Ghana is fast becoming an urban phenomenon. The disheartening emerging pattern of urbanization of banking is that rural banks are also fast failing in their initial conceptual framework. Rural banks are providing financial services that satisfy urban residents in Accra, Kumasi and Takoradi, among other urban centres, thus neglecting the peculiar financial needs of the rural population for which they have been set up. Meanwhile, over 56 percent of Ghana’s population reside in rural areas where they also derive their livelihoods. Also, the economy largely depends on these rural dwellers for products from the agricultural sector which constitutes over
32 percent of GDP (ISSER, 2008). Thus, urbanisation of formal financial institutions[1] is retarding the growth of rural areas. This is because majority of rural households do not have access to financial services which can enable them to diversify their economic activities. The absence of formal finance has led many rural dwellers to resort to other forms of finance including the informal sector. Despite the importance of these sources, they are limited in scope and size and therefore do not lead to the most efficient use of the poor’s resources. Nevertheless, the poor continue to rely on these sources of finance. This study tries to unearth the reasons for the unsatisfied demand and why households obtain financial services from different sectors of the financial market in Ghana.

The main objective of this study is to ascertain the determinants of rural and urban households’ financial choice. The specific objectives are:

(1) the degree of financial literacy among households; and
(2) identify the main factors that determine the choice and use of formal financial services by rural and urban households.

2. Overview of literature

Access to financial services plays an important role in transforming the abundant resources of poor households into more efficient use which then leads to poverty reduction. For instance, making credit available for households to undertake small scale economic ventures can help them sustain their livelihoods. In particular, access to credit can impact on the quality of life of low-income households (Nimal, 2007), and also enable the poor to increase and diversify their incomes, improve their social and economic conditions, and also improve their lives in ways that reflect the multi-dimensional aspects of poverty (Peachey and Roe, 2006). Access to a more efficient financial sector may improve the incentives for households to work, save and thereby improve their standards of living (Vermilyea, 2002). DFID (2004) concludes that by facilitating transactions and making credit and other financial products available, the financial sector is a crucial building block for private sector development.

However, Peachey and Roe (2006) noted that only a small number of people are able to access formal financial services in low income countries. For example, in Ghana, only 10 percent of the 22 million people have access to the banking system (Bawumia et al., 2008) and likewise, in Kenya, only 10 percent of the 30 million population have access to financial services (KIPPRA, 2001) compared to Germany and Denmark which have correspondingly 96.5 and 99.1 percent of their population having access to financial services (Pesaresi and Pilley, 2003).

Formal financial services comprise of credit, savings, insurance, etc. and all these have different channels through which they influence households’ wealth. Credit is seen as the main financial tool that enables households to have access to commodities or spend over the size of their monthly budget. Credit plays a significant role in smoothing consumption and protecting the household against income shocks (Anderloni et al., 2008). The lack of access to credit facilities may limit investment to the amount accruing from own-savings, thereby minimizing the ability of households to finance their wards’ education; making the scale of existing economic activity to remain micro. It also makes the household forego income because of its inability to take advantage of potentially high-return investment opportunities resulting in low-household income; malnutrition, increased socioeconomic inequalities and severity of poverty (Nimal, 2007).
Several studies have attempted to find the determinants of the demand for credit by households and whether households are credit constrained. For instance, Perraudin and Sorensen (1992) empirically analysed credit-constrained households in the USA using 1983 Survey of Consumer Finance data. Models of demand and supply of loans were simultaneously estimated using a discrete-choice logit model of the consumers’ decision on whether or not to apply for credit. This was combined with a reduced-form logistic model for banks’ credit granting decision and then estimated as a nonlinear, ordered, sequential logit. The study revealed that households face significant fixed costs in applying for loans and that banks highly depend on their demographic characteristics (i.e. sex, age, race, household size and marital status) as criteria in assessing credit applications.

Similarly, Chen and Chivaku (2008) used the Probit and Heckit models that take account of multi-stage decision process of households’ credit demand to analyse the determinants of household credit demand and credit constraint using a panel data for the period 2001-2004. Age, income, wealth and education were found to be the main factors driving credit market participation, while high income and wealth lower credit constraints. The study also finds that the probability of credit market participation peaks at 45 years old which is higher than in high-income countries. At the same time older individuals are significantly more constrained than their peers in high-income countries. In contrast, a recent study provides an alternative methodological framework for measuring households’ access to credit using data from Bangladesh and Malawi. Reduced-form regression equations were used to analyse the determinants of the likelihood of being credit constrained and the effects of this likelihood on various outcomes of households. It was found that every potential borrower faces a credit limit because of asymmetries of information between borrowers and lenders and the imperfect enforcement of loan contracts.

Further, Sults (2006) investigates different types of households and their behaviour towards credit in Estonia using a survey data of 1,706 households. Descriptive analyses show that in general 33 percent of the respondents admitted being credit constrained which was higher than in similar empirical studies. The analysis shows in average women, relatively young inhabitants of small towns and workers in industry or service sector with secondary education, earning average income and living with family that consists of two members are likely to be credit constrained.

Savings, an important component of financial services also determines households’ ability to create wealth and move out of poverty. The decision by rational households to save is usually regarded as the result inter-temporal utility maximization since savings is another name for consumption postponed according to the life-cycle hypothesis (Modigliani, 1986). In order to save, households need savings facilities. These facilities allow households to save their small amounts which can then accumulate into huge sums after some period in a secure place. These large amounts can then be used by households’ themselves in business ventures or lend to other individuals and firms to finance investment (Levine, 1997). Lack of access to these facilities according to Nimal (2007) reduces the incentive to save; lower the return on savings, decreases risk management capacity and increases vulnerability; causes partial or complete loss of savings due to theft; flood or quality of deterioration of assets; and also causes the value of savings to reduce because of inflation.
Recent studies have increasingly focused on determining the factors that influence household savings. For instance, Huang (2006) using a time series data covering the period 1978-2003 examined the determinants of household saving behaviour in the People’s Republic of China using the Modigliani-Brumberg life-cycle hypothesis. The study used cointegration technique to examine the impact of saving rates on economic growth, age, dependency, wealth, real interest rate, social security payments and unemployment. Autoregressive distributed lag models are constructed and tested. It was found that income, growth rate and household wealth have a positive influence on savings rate while social security contributions exerts negative impacts on savings rate. Savings rate was however, found to be insensitive to household demographic characteristics. Similarly, Kulikov et al. (2007) in examining the determinant of household saving in Estonia based on a microanalysis of household budget data survey from 2002 to 2005 found that higher income leads to more saving while possession of durable goods like cars is associated with lower saving. Household’s exposure to financial services was found to be important. However, deposit, assets and access to liquidity were found to reduce household saving. Surprisingly, debt, leasing liabilities, and debt servicing payment also lead to lower saving. Young and older households have higher saving propensities than the middle-aged while households with higher education save less. These results are robust to changes in the specification of the saving measure and to the choice of estimation.

In addition, Harris et al. (1999) examined the determinant of Australian household saving using the ordered Probit estimation method and the results support the view that current income is perhaps the most important determinant of saving. The study also found that demographic characteristic of households and economic optimism play a very key role. Similarly, Nwachuku and Egwaikhide (2007) in examining the determinants of private saving in Nigeria, using time series data concluded that saving rate rises with the level of disposable income. The real interest rate on bank deposit and growth rate of income was found to have significantly negative impact. Furthermore, external terms of trade, inflation rate and external debt ratio were found to have positive impacts on private savings. Perhaps, the most striking finding is that, contrary to most previous empirical results, growth rate of income was found to have a negative impact on saving. This may mean that extra income is used in the purchase of mainly imported consumer goods.

Another household financial choice is the purchase insurance as explained by the utility theory. Households compare the benefits of purchasing insurance with not purchasing insurance given their risk preference. If the projected benefits of insurance are greater than the cost, the household will purchase insurance (Asgary et al., 2004). It is noted that households’ insurance has the potential to offer more complete protection against property, death and disability. The advantage of it is that it protects against a significant loss at an annual cost that is within the household’s budget (Brown and Churchill, 1999). Thus, Jutting (2001) noted that health insurance can have a positive effect on the economic and social situations of their members. Besides the spread of financial risk of illness and better access to health care, indirect effects of health insurance can result into better outcomes for households and increase their labour productivity because of being healthy all the time.

Some studies have tried to find out whether households insure and what informs their decision to do so. For instance, Showers and Shotick (1994) analyse the impact
of households’ characteristics on demand for total insurance using Tobit analysis and finds that demand effects are dominated by the marginal impacts from existing purchasers of insurance. Although income and number of earners are both positively related to the demand for insurance, the marginal change from an increase in income is greater for single-earner households than for multi-earner households. Also, as family size increases, the marginal increase in insurance expenditure diminishes. It was therefore concluded that as the composition of households evolve, changes in household characteristics will affect the demand for insurance. Thus, a larger household size will necessitate higher demand for insurance than do a smaller household size.

Additionally, there have been studies to ascertain whether a comprehensive social health insurance may reduce households’ motivation to engage in precautionary behaviour such as saving, procurement of private insurance and spousal labour force participation (Shin-Yin et al., 2002). Thus, Shin-Yin et al. (2002) used Taiwan’s National Health Insurance to examine these effects and found that comprehensive health insurance was statistical significant and has large effects on household savings and purchase of private accidental insurance, but had insignificant effect on spousal employment. However, Loewe et al. (2001) argue that micro-insurance is a new promising approach to reducing the vulnerability of urban population groups that are difficult for conventional social protection strategies to cover. The study found that household vulnerability to risks is a major factor contributing to widespread poverty in Jordan. Almost half of the population lacks access to social protection instruments and hence the occurrence of risks leads to serious declines in wealth often below the poverty line. The study also shows that high number of urban households would be willing to provide for the future and are able to pay small insurance premiums but lack adequate provisioning offers.

Cohen et al. (2005) further show in their study of three countries in East Africa, i.e. Uganda, Tanzania and Kenya that there is a clear demand for micro-insurance due to risks faced by households especially in rural areas. The most frequent and stressful risks were found to be sickness, death of an income earner or other family member and property loss as a result of theft or fire. There are differences in the impacts of these shocks according to gender. Women were found to be affected by these shocks more than the men. The findings also show that the most dominant mode of responding to risk remains self-insurance. This is frequently complemented by a wide array of informal group insurance mechanisms such as burial societies and friends in need groups. Formal insurance is viewed as the preserve of the rich who make up the top economic levels of the population. Nevertheless, respondents expressed a desire for more ways to cope with risk and in particular formal insurance.

This study adds to the existing knowledge by undertaking a comparative analysis of the determinants of financial services by rural and urban households. In addition, it involves a conjoint analysis of the basic financial services and a comparative analysis between rural and urban households using a countrywide household survey data. Additionally, previous studies on similar issues have been very qualitative in nature and the few that are quantitative have concentrated on the use of limited dependent variable models. Also, only few studies such as Mpuga (2004) and Bendig et al. (2008) have combined more than one type of econometrics technique in their empirical works. This study employs more acceptable econometrics techniques missing in these
previous studies. Specifically, it combines discrete choice and limited dependent variable models to exploit all their computational merits in order to unearth more information missing in the previous studies.

3. The model
As discussed in the previous section, household demographic characteristics, education, income, remittances, risks and financial literacy score are the most influential factors that influence financial services by households (Perraudin and Sorensen, 1992; Showers and Shotick, 1994; Sults, 2006; Chen and Chivaku, 2008). Thus, this informs the study to specify the general form of the model for households demand for financial services as:

$$DD_j = f(HDV_j, EDU_j, INC_j, OCU_j, REM_j, RISK_j, FLS_j)$$  \(1\)

The specific form of equation (1) that is estimated for empirical investigation of households demand for financial services is therefore written as:

$$DD_j = \alpha_0 + \sum_{j=1}^{J=4} \alpha_1 HDV_j + \alpha_2 EDU_j + \alpha_3 INC_j + \alpha_4 OCU_j + \alpha_5 REM_j$$

$$+ \sum_{j=1}^{J=3} \alpha_6 RISK_j + \alpha_7 FLS_j + e_j,$$  \(2\)


Equation (2) assumes that the demand for financial services is influenced by household demographic characteristics, education, income, occupation, remittances, risk exposure and financial literacy.

Description of variables in the demand for financial services model

- **Demand for financial services ($DD_j$).** This is a censored variable which is used as the dependent variable in the demand for financial services model. It reflects the demand for formal financial services which include the use of non-formal financial services, the use of savings products, credit facilities, insurance schemes, a combination of any two of the services and all the three financial services. Savings products, credit facilities and insurance schemes comprise all relevant categories provided by financial institutions.

- **Households demographic factors ($HDV_j$).** This is a set of household characteristics consisting of age of household head, household size, marital status of household head and sex of household head. The sex of household head is a dummy defined as 0 if household head is a female and 1 if household head is a male. Marital status is also defined as a dummy, whereby it is equal to 1 if household head is single, 2 if household head is married or co-habitating, and 3 if household head is separated.
• Education characteristics (EDU). The education level of a household head is measured by a dummy variable to reflect the education level of households. It takes the value of 6 if the head has completed a tertiary institution, 5 if completed training college, 4 if completed vocational, technical or koranic institution, 3 if completed senior secondary school, ordinary level or advanced level, 2 if completed primary school, junior secondary school or middle school and 1 for no formal education.

• Income (INC). According to the Ghana Living Standard Survey 5 (GLSS 5), this variable has been calculated by adding transfer income, wages or salaries received in return either in cash or in kind for selling labour services to other production units and income received from production assets owned by households.

• Occupation (OCU). This variable takes a value of 1 if the primary occupation of the household head falls under agricultural activities and 2 if the primary occupation of the household head falls under non-agricultural activities.

• Remittances (REM). This is a variable representing regular or irregular contributions in terms of money made by person(s) living abroad or elsewhere to households. It is a dummy which takes on the value of 1 if a household receives money from any household member, relative or friend staying abroad or elsewhere and 0 otherwise.

• Risk exposure (RISK). This variable represents shocks experienced by households. It consists of three dummies. The first takes the value of 1 if a household experienced death of a household member during the last five years and 0 otherwise. The second takes on the value of 1 if a household experienced severe illness during the last one year, and 0 otherwise. The third one takes the value of 1, if a household experienced any other severe shock during the last five years, and 0 otherwise.

• Financial literacy score (FLS). The questionnaire contains six questions related to financial literacy of households. Two of these questions are more concerned with households’ general economic and financial information on inflation rate and the interest rate bank deposit. The other four questions are aimed at more product-related financial knowledge, covering households’ opinion on how safe their money is in a savings account, their understanding of the concept behind insurance, the reasons for buying insurance and which risks were possible to insure under an insurance scheme. An overall financial literacy score is calculated with the responses to these six questions using a simple scoring method. Replies were used to construct index for each household which is referred to as financial literacy score.

Specification of the Tobit model. The Tobit model is used to estimate equation (2) to identify the determinants for the demand for formal financial services by individual households given their attributes and those of the financial service providers. This approach has been used because our interest is to find out the factors determining the demand for financial services by households. If a household does not demand financial services, obviously there is no data on such a household but would have data for households who actually demanded financial services. The households are thus
divided into two groups: one consisting of \( n_1 \) households about whom we have information on the regressors as well as the regressand and another consisting of say \( n_2 \) households about whom we have information only on the regressors but not the regressand. A sample in which information on the regressors is available only for some observations is known as a censored sample. If we apply OLS, households with zero demand for financial services (i.e. those who do not demand for financial services) will be truncated away in estimation and this can result in bias estimates. Thus, a censored regression model is appropriate. The Tobit model (which is an extension of the Probit) is a technique used in the presence of censored data because of its quality of efficient estimation of parameters and a more accurate estimation of expected value of the regressors. It is a well-known econometrics techniques used in the presence of censored data (Austin et al., 2000) because of its quality of efficient estimation of parameters and a more accurate estimation of expected value of the dependent variable than can be obtained from OLS regression (Kinsey, 1981).

Following Kinsey (1981), we assume that the true model is given by the following equation:

\[ DD_i^* = \alpha + \beta x_i^* + e_i, \quad i = 1, 2, \ldots, N, \tag{3} \]

where \( DD_i^* \) denotes the individual’s true demand for financial services. However, an individual with an observed demand for financial services has a true \( DD_i^* > 0 \). As a result, the observed dependent variable is given by \( DD_i = DD_i^* \) for \( DD_i^* > 0 \) and \( DD_i = 0 \) for \( DD_i^* \leq 0 \). The actual equation that will be estimated is written as:

\[ DD_i = \alpha + \beta x_i + e_i, \tag{4} \]

where \( x_i \) is the vector of explanatory variables and \( e_i \) the error term which is assumed to be distributed normally with uniform variance. The expected value of \( DD_i \) will be computed directly as.

The marginal effect of a change in any of the independent variable is measured by the normalised coefficient (Cameron and Trivedi, 2006) which is given by:

\[ \frac{\partial E(DD_i)}{\partial x_i} = F(\beta' x_i) \beta. \tag{5} \]

**Specification of the conditional logit model.** In order to provide evidence on the characteristic of demand for financial services from different sources[2], equation (4) is estimated using the conditional logit model. In the conditional logit model, an individual \( i \), attaches a utility to a choice alternative \( j \), that is the sum of two components, one deterministic and one random. This is written as:

\[ u_{ij} = \beta' x_{ij} + e_{ij}, \quad j = 1, 2, 3 \quad \text{and} \quad i = 1, 2, \ldots, N \tag{6} \]

where \( u_{ij} \) is the utility, \( x_{ij} \) is the deterministic component, and \( e_{ij} \) is the random component. \( x_{ij} \) is a function of the attributes of the choice alternatives. The random component is assumed to follow a Type I extreme-value distribution, with probability distribution function:

\[ f(e_{ij}) = \exp[-e_{ij} - \exp(-e_{ij})]. \tag{7} \]
From our demand equations above, the demand for financial services is an unordered categorical variable. It reflects the demand for formal financial services which include the use of non-formal financial services, the use of savings products, credit facilities, insurance schemes, a combination of any two of the services and all the three financial services.

The vector of household demographic characteristics consists of household size, age, gender and marital status. This variable represents shocks experienced by households. It consists of three dummies. The vector of risk exposure consists of household experiencing death member during the last five years, household experiencing severe illness of a member and any other severe shock during the last five years.

The vector of other determinants include a measure of education characteristics, income of a household, occupation, remittances receive by a household and financial literacy score which is an index measuring the financial literacy of a household.

The financial literacy score is based on six questions. Two of these questions are concerned with households’ general economic and financial information on inflation rate and the interest rate of bank deposit. The other four questions are aimed at more product-related financial knowledge, covering households’ opinion on how safe their money is in a savings account, their understanding of the concept behind insurance, the reasons for buying insurance and which risks were possible to insure under an insurance scheme. An overall score is calculated with the responses to these six questions using a simple scoring method (Table I).

The GLSS 5 data compiled by the Ghana Statistical Service is used in the estimation. GLSS 5 sample included 8,687 households, interviewed between September 2005 and September 2006.

4. Analysis and discussion of findings
The demand for financial services is diverse and varied among households, ranging from the demand for safe and convenient savings facilities, reliable credit facilities, insurance schemes and a combination of any of these financial services (Coleman and Wyne-Williams, 2006). The use of these services support assets building processes among households and their enterprises by increasing production and creating employment that contribute to economic growth. The Tobit regression (equation (4)) result for urban households is presented in Appendix 1 while that of rural households is presented in Appendix 2. These results suggest the demand for formal financial services by urban households is strongly influenced by household size, age of household heads, sex of household heads, marital status, occupation, income, remittances and in situations where there is a severe illness of a household member. On the other hand, rural households demand for financial services is influenced by sex of household heads, marital status, education, occupation, remittances, death of household members and shocks (such as rainfall and other exogenous factors). According to Harris et al. (1999), demographic characteristics of households play a very key role in their demand for financial services. Thus, in estimating the demand for financial services model, household demographic characteristics are considered.

Regression results suggest that household size has a statistically significant and direct relationship with the demand for formal financial services by urban households. A unit increase in an urban household size beyond the baseline of four will increase the household’s probability to demand formal financial services by 2 percent.
However, rural household size does not significantly impact on the demand for formal financial services. This observed relationship can be explained as follows: as the size of a household increases, the financial responsibilities of the household head also increases. These responsibilities may be in the form of consumption smoothing, precautionary needs, investment requirements and other reasons. Thus, the increase in financial responsibilities leads to more use of financial services. In the specific case of Insurance services, Showers and Shotick (1994) find that as the composition of households evolves, changes in household characteristics will affect the demand

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Variable descriptions</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>dffs</td>
<td>= 5 if all three combination formal financial services = 4 if any two combination formal financial services = 3 if insurance schemes = 2 if credit facilities = 1 if savings products = 0 if non-use of formal financial services</td>
<td>Ghana Living Standard Survey (GLSS)</td>
<td></td>
</tr>
<tr>
<td>hhsize</td>
<td>Number of persons in a household</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>age</td>
<td>Age of a household head</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>gender</td>
<td>= 1 if male = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>marstat</td>
<td>= 3 if separated = 2 if married or co-habiting = 1 if single = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>educ</td>
<td>= 6 if completed a tertiary institution = 5 if completed training college = 4 if completed vocational or technical institution = 3 if completed senior secondary school = 2 if junior secondary school or middle school = 1 if no formal education = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>occu</td>
<td>= 2 if occupation is non-agricultural = 1 if occupation is agricultural = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>lnincome</td>
<td>Natural logarithm of income</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>remit</td>
<td>= 1 if household receives money any person abroad = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>fls</td>
<td>Index of financial literacy from 1 to 6 with 6 being highly ranked</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>death</td>
<td>= 1 if death of household member = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>illness</td>
<td>= 1 if household member experienced severe illness last year = 0 if otherwise</td>
<td>GLSS</td>
<td></td>
</tr>
<tr>
<td>oshock</td>
<td>= 1 if household experienced other severe shock = 0 if otherwise</td>
<td>GLSS</td>
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Table I. Definition of variables and source of data
for insurance. Hence, the study concluded that a larger household size will necessitate higher demand for financial services than do a smaller household size.

The age of household heads is found to have significantly negative relationship with the demand for formal financial services by urban households. Results show that a unit increase in the age of an urban household head from the baseline of 44 years reduces the household head’s probability to demand formal financial services by 0.03 percent. This result confirms the findings of Chen and Chivaku (2008) and Karani (2007) that the demand for financial services tends to increase with age, but reaches a turning point at which it declines. This decline, however, may be attributed to life-cycle effects.

Another interesting finding is that there is a significantly positive relationship between sex of a household head and the demand for formal financial services by rural and urban households. For rural household heads, being a male increase the probability of demand for formal financial services by 15 percent compared to where the household head is a female. Likewise, for urban household heads, being male increases the likelihood of the household head to demand formal financial services by 61 percent greater, than if the head is a female. This means that male household heads tend to demand formal financial services more than female household heads. However, the marginal impact of sex on the demand for financial services is greater for urban households.

The marital status of household heads (categorized into single[3], married[4] and separated[5]) shows a significant and positive relationship with the demand for formal financial services. Thus, changing one’s marital status from single to married in a rural area increases the probability to demand for formal financial services by 10 percent. However, for urban households, the increase in the probability is 20 percent. The positive relationship can be explained as follows: after marriage, the responsibilities of household head increases and this increases their demand for more financial services. However, the lower response in the marginal impact of changing marital status by rural household heads can be attributed to the low cost of living in the rural areas.

Income of households is also found to have a statistically significant positive relationship with the demand for formal financial services by urban households. Among urban households, a unit increase in households income from a baseline of Gh < 1,440 increases the probability of demanding formal financial services by 6.0 percent. Nwachuku and Egwaikhide (2007), and Kulikov et al. (2007) also find that saving rate rises with the level of disposable income. This means that high income households will tend to demand more formal financial services than low income households. Even though, the income for rural households is positively related to their demand for formal financial services, no evidence of exists that income impacts on it. This may be due to the fact that in the rural areas, any increase in their income is likely to be used in expanding their farms. It may also stem from the generally low income households found in the rural areas.

Interestingly, the results indicate a positive and significant relationship between education and the demand for formal financial services by rural households. A change in education status from illiteracy to having basic education increases the probability of rural households’ demand for formal financial services by 7.0 percent. Sults (2006) finds that the possibility of participation in a credit program was found to increase with education. Thus, low demand for formal financial services is expected among rural households because of the generally low level of education among household
heads in these areas. Nevertheless, no evidence was found that educational status of urban household heads explains their demand for formal financial services.

The results on occupation seem to be mixed. Occupation was found to have a statistically significant and positive relationship with the demand for formal financial services by rural households. Results show that a change in the primary occupation of rural households from agricultural activities to non-agricultural activities increases their probability to demand for formal financial services by 6.0 percent. On the contrary, results indicate an inverse and statistically significant relationship with the demand for financial services by urban households. Thus, a change from agricultural to non-agricultural activities[6] will reduce their probability to demand for formal financial services by 5.0 percent.

Money from relatives or friends living abroad or elsewhere is likely to reduce the probability of the demand for formal financial services by households. Among rural households, this reduction in the probability is 30 percent and for urban households, it is 6.0 percent. According to Steiner (2008), the negative relationship may be due to the fact that remittances may well be considered as substitutes for formal financial services, as they provide households with cash and often represent a steady additional source of income on which households can rely on instead of using formal financial services. However, the reduction is more pronounced in the rural areas as they tend to depend on remittances more than the urban households.

To properly access how unforeseen contingencies affect the demand for formal financial services by households, their risks exposure have been captured using death of a household member within the last five years before the survey; severe illness of a household member within the last one year before the survey; and any other shock that they may have experienced in the previous year before the survey. This follows Cohen et al. (2005) findings that the most frequent and stressful risks among households are sickness, death of an income earner or other family member and property loss as a result of theft or fire. Bendig et al. (2008) also noted that past exposure to shocks appear to be significant determinants of the demand for financial services.

Regression results suggest that death of a household member is statistically significant and inversely related to the demand for financial services by rural households. Thus, an increase in the death of household members will tend to reduce their demand for formal financial services by 0.31 percent. However, there is no evidence suggesting that death explains urban households decision to demand for formal financial services.

Illness of urban household members has statistical significant and positive effect on their demand for formal financial services. Thus, a serious illness of an urban household member is likely to increase their probability to demand for formal financial services by 10.0 percent. According to Steiner (2008), this may mean an ex-post strategy to deal with the consequences of shocks. Illness, however, is not significant in explaining rural households demand for formal financial services. Because of the widespread low level of education in the rural areas, the procedures in obtaining formal financial services in the case of emergency may discourage them to look elsewhere for financial services leading to illness insignificantly explaining the demand for formal financial services.

Shocks experienced by households which have not been captured by death and illness have been classified as other shocks. Regression results show that other shocks experienced by households are statistically significant and negatively related to rural
households’ demand for formal financial services. Thus, other shocks are likely to reduce their probability of demand for formal financial services by 59 percent. On the other hand, other shocks experienced by households are insignificant in explaining urban households’ demand for formal financial services. This means there is no evidence that other shocks tend to influence their demand for formal financial services.

Finally, financial literacy of households is shown to have statistically significant and positive impacts on their demand for formal financial services. Among rural households, a unit increase in the financial literacy score from the baseline of 3 will increase the probability to demand for formal financial services by 9.0 percent. For urban households, this increase in probability is 5.0 percent. The positive relationship implied that as the financial literacy of households increase, they will tend to demand for more formal financial services. Nevertheless, urban households’ marginal response is lesser as their financial literacy improves. Thus, policies to increase the demand for formal financial services should target increasing the financial literacy of rural households.

Estimation results of the conditional logit model
Different sources of financial services for households are also investigated. These are classified broadly into formal, semi-formal and informal sector sources. Conditional logit model results in Appendix 3 suggest that locational characteristics are important in obtaining financial services from particular sectors of the financial market. When the alternatives of financial services are available, the odds ratios are 1.05 and 2.21 that households will obtain these financial services from the formal and informal sectors, respectively. Thus, the odd ratio of 2.21 indicates that rural households are more likely to obtain their financial services from the informal financial sector than urban households.

According to Mpuga (2004), this seems to lend credence to the assertions that the formal financial institutions consider individuals in the rural areas to be risky as their clientele and most often are reluctant to deal with them. However, all the other explanatory variables are not statistically significant even though they have the expected signs and magnitudes.

5. Conclusion
The study investigates the determinants of rural and urban households’ financial choice. It specifically ascertains the degree of financial literacy among households and the main factors that determine the choice and use of formal financial services by rural and urban households. A multinomial logit model was estimated and found that income significantly affects rural and urban households’ demand for savings products. Also, among urban households, income impacts significantly on the demand for credit facilities and insurance schemes. Shocks experienced by rural households have been found to significantly and negatively affect their demand for savings but on the other hand, it induces urban households to demand more credit facilities and insurance services. Moreover, no evidence exists that remittances significantly influence the demand for financial services by urban households but this rather influence rural households’ demand for financial services. Education was found to be an important factor for both rural and urban households.
In conclusion, the study made a very key finding, that is, rural households face significant shocks and this affects their demand for savings but on the other hand it induces urban households to demand more credit facilities and insurance services. Thus, policies such as tax incentives should be put in place to encourage financial institutions to reach out to most rural households with formal and semiformal financial services. In absolute terms, low income households of which majority are rural, account for the largest number of households which do not use formal financial services. Providing better access to a wider range of financial services for this segment of the population will have a far-reaching impact by raising their standard of living. government need to explicitly recognize extending formal financial services to all these un-served and underserved households as an important goal to pursue.

The insurance companies in collaboration with the government agencies on agriculture should provide incentives for financial institutions to make available insurance facilities for farmers in the event of a shock to their income sources. Also, the government should provide the space and incentives for the private sector to play an increasing role in providing formal financial services to rural households. Essentially, the government needs to create an enabling environment for the private sector formal financial service providers and allow them operational autonomy to make sound business decisions. The government also has to develop financial infrastructure to reduce risks and transaction costs of providing such formal financial services to rural households.

Finally, rural farmers or households should form cooperatives to ensure that their perceived risk is reduced through peer monitoring and pressure to prevent possible default.

Notes
1. Formal financial institutions consist of banks and insurance institutions according to this study.
2. For detail derivation of the conditional logit model (Cameron and Trivedi, 2006).
3. This means living alone without any partner.
4. This means living with a partner.
5. This includes divorcees, widows and widowers.
6. These are usually street vending and other artisanal activities.

References


Bendig, M., Giesbert, L. and Steiner, S. (2008), More than Just Credit: Households Demand for (Micro) Financial Services in Rural Ghana, German Institute of Global and Area, Hamburg.


**Further reading**


### Appendix 1

<table>
<thead>
<tr>
<th>ddfs</th>
<th>Coef. (dy/dx)</th>
<th>SE</th>
<th>X</th>
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</thead>
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<tr>
<td>hhsize</td>
<td>0.0147*** (1.890)</td>
<td>0.0078</td>
<td>3.3391</td>
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<td>age</td>
<td>-0.0031** (-2.51)</td>
<td>0.0012</td>
<td>43.2979</td>
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<tr>
<td>sexhead</td>
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<td>0.0378</td>
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<tr>
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<td>0.0269</td>
<td>1.9061</td>
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<td>0.0165</td>
<td>1.9063</td>
</tr>
<tr>
<td>occu</td>
<td>-0.0451* (-4.22)</td>
<td>0.0107</td>
<td>1.9063</td>
</tr>
<tr>
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<td>1.5414</td>
</tr>
<tr>
<td>fls</td>
<td>0.0525* (8.70)</td>
<td>0.0060</td>
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<td>death</td>
<td>-0.0893 (-1.40)</td>
<td>0.0639</td>
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<tr>
<td>illness</td>
<td>0.0971** (2.07)</td>
<td>0.0469</td>
<td>1.1845</td>
</tr>
<tr>
<td>oshock</td>
<td>0.0575 (0.41)</td>
<td>0.1398</td>
<td>1.0170</td>
</tr>
<tr>
<td><em>cons.</em></td>
<td>1.3835*** (4.43)</td>
<td>0.3125</td>
<td>1.0170</td>
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</table>

\[ n = 1046 \]

\[ LR \chi^2(4) = 118.23 \]

\[ \text{Prob} > \chi^2 = 0.0000 \]

\[ \text{Pseudo } R^2 = 0.0033 \]

**Notes:** Significant at: *1, **5 and ***10 percent; absolute values of Z-statistics are in parentheses; dy/dx represents the marginal effects; for a dummy variable, dy/dx is a discrete change from one to two; the \( X \) represents the mean value of each dependent variable

**Table AI.**

Tobit regression output for the demand for financial services by urban households
Appendix 2

<table>
<thead>
<tr>
<th>dffs</th>
<th>Coef. (dy/dx)</th>
<th>SE</th>
<th>X</th>
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<tbody>
<tr>
<td>hhsize</td>
<td>0.0111 (1.22)</td>
<td>0.0091</td>
<td>3.8847</td>
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<td>age</td>
<td>0.0003 (0.21)</td>
<td>0.0015</td>
<td>46.0031</td>
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<td>sexhead</td>
<td>0.1508 ** (2.70)</td>
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<td>marstat</td>
<td>0.0988 ** (2.49)</td>
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<td>educ</td>
<td>0.0745 ** (2.40)</td>
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<td>occu</td>
<td>0.0579 ** (3.15)</td>
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<td>5.6774</td>
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<td>lnincome</td>
<td>0.0142 (0.70)</td>
<td>0.0204</td>
<td>15.6848</td>
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<td>remit</td>
<td>-0.2998 * (−6.33)</td>
<td>0.0474</td>
<td>1.5481</td>
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<td>ffs</td>
<td>0.0878 * (10.48)</td>
<td>0.0084</td>
<td>2.9840</td>
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<tr>
<td>death</td>
<td>-0.3147 ** (−3.12)</td>
<td>0.1009</td>
<td>1.0588</td>
</tr>
<tr>
<td>illness</td>
<td>0.0704 (1.21)</td>
<td>0.0581</td>
<td>1.1998</td>
</tr>
<tr>
<td>oshock</td>
<td>-0.5920 ** (−2.97)</td>
<td>0.1993</td>
<td>1.0150</td>
</tr>
<tr>
<td>_cons</td>
<td>2.0519 (4.44)</td>
<td>0.4618</td>
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</table>

n = 966
LR $\chi^2$ = 82.64
Prob $\chi^2$ = 0.0000
Pseudo = 0.0027

**Notes:** Significant at: *1, **5, ***10 percent; absolute values of $Z$-statistics are in parentheses; dy/dx represents the marginal effects; for a dummy variable, dy/dx is a discrete change from one to two; the $\bar{X}$ represents the mean value of each dependent variable.

Table AII.
Tobit regression output for demand for financial services by rural households

Appendix 3

<table>
<thead>
<tr>
<th>Choice</th>
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<th>SE</th>
<th>Odd ratio</th>
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<tbody>
<tr>
<td>locinformal</td>
<td>0.7916* (3.57)</td>
<td>0.2218</td>
<td>2.2068</td>
</tr>
<tr>
<td>locformal</td>
<td>0.0529 (0.17)</td>
<td>0.3076</td>
<td>1.0543</td>
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<tr>
<td>incomeinformal</td>
<td>-0.3284 (−2.19)</td>
<td>0.2755</td>
<td>0.7201</td>
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<tr>
<td>incomeformal</td>
<td>-0.3164 (−2.04)</td>
<td>0.3372</td>
<td>0.7288</td>
</tr>
<tr>
<td>spec</td>
<td>0.0339 (1.43)</td>
<td>0.0237</td>
<td>1.0345</td>
</tr>
</tbody>
</table>

n = 885
LR $\chi^2$ = 146.93
Prob $\chi^2$ = 0.0000
Pseudo $R^2$ = 0.2267
McFadden $R^2$ = 0.227

**Notes:** Significant at: *1, **5 and ***10 percent; absolute values of $Z$-statistics are in parentheses dy/dx represents the marginal effects.

Table AIII.
Conditional logit output for household choice of sources of financial services

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