



DETERMINANTS OF SAVINGS HABIT AMONG CLIENTS OF BONZALI RURAL BANK IN THE TOLON-KUMBUNGU DISTRICT OF GHANA

* Anang, B. T., ** Dawuda, I., Imoro, L.

*Department of Agricultural and Resource Economics, University for Development Studies, Nyankpala Campus, Tamale, Ghana

**Kumbungu Senior High School, P. O. Box 1106, Kumbungu, Northern Region, Ghana

**Salaga Senior High School, P. O. Box 8, Salaga, Northern Region, Ghana

* Corresponding Author's email: abtben@yahoo.com

Abstract

The savings rate in a country is an important indicator of growth in the economy. However, savings remain very low in most developing countries where poverty, high unemployment rates and other factors seem to suppress the propensity to save. Policy-makers and researchers have therefore recognised the need to spur savings mobilisation in developing countries with very low savings rate. This study was therefore carried out to investigate the factors influencing savings habit of clients of the Bonzali Rural Bank in the Tolon-Kumbungu District of the Northern Ghana using cross-sectional data from 97 randomly selected respondents. Savings habit was analysed using probit regression. The study revealed that 32% of the respondents had got savings while 61% saved an amount not exceeding GH¢500.00 per annum indicating that majority of the respondents were micro-savers. The following were identified as the factors influencing the decision to save: age, gender and marital status of the respondent. Income level and educational status were however not significant in determining savings habit. The authors recommend that to stimulate rural savings mobilisation, there is the need to target women who according to this study tend to save more.

Keywords: Binary probit model, Northern Ghana, Savings habit

Introduction

Savings play an important role in the economies of many countries. As noted by Kodom (2013), available research points to a positive relationship between savings and economic growth. Higher income has been shown to precede economic growth (Alguacil et al., 2004). Hence savings

mobilisation or the savings rate in a country is an important indicator of growth in the economy.

The determinants of savings are well-documented in the economic literature. However, the empirical evidence seems to suggest that the impact of these factors on savings is not uniform across countries.

For example, as noted by Muradoglu and Taskin (1996), there are differences in the economic environment between developed and developing countries which is expected to lead to differences in household savings behaviour. Kodom (2013) noted that savings behaviour varies widely across countries depending on the level of development and socio-economic structure. Agrawal (2009) therefore noted that country and regional studies have their own importance.

Household saving refers to the saving done by families and individuals (Mumin et al., 2013). The benefits of savings to households include hedging against unexpected emergencies, asset acquisition, investment, provision for retirement, settlement of debts, acquisition or improvement of homes, and acquisition of social services including health and education (Mark et al., 1999; Issahaku, 2011). Despite the importance of savings to the household, the level of savings in Africa and Latin America has seen a downward trend over the past 30 years (Nwachukwu and Odigie, 2009). Clearly, this is a cause for worry because of the impact of savings on economic development and the realisation that countries experiencing economic growth have higher savings of their incomes (Tuohami et al., 2009).

According to Attanasio and Banks (2001), understanding the nature of household savings behaviour is very important in designing policies to promote savings and investment. As a result of this, researchers continue to conduct empirical studies on the determinants of individual and household savings habits to guide policy decisions on savings and investment in their respective countries.

Several authors have empirically investigated the factors that influence savings habit or behaviour of individuals and households in different parts of the world (Chakrabarty et al., 2008; Attanasio, 1998; Denizer et al., 2000; Annamaria, 2000; Mark et al., 1999). From economic theory and findings from research, the determinants of household savings have been shown to include income level, age distribution, sex, household size, marital status,

occupation, educational level, dependency ratio, among a few others. Most of these variables are commonly used by many researchers in modelling savings habit.

In Ghana, different authors have investigated the determinants of savings at the household and national level using different approaches which provide interesting results. According to Quartey and Blankson (2008), savings is a necessary engine of economic growth for the Ghanaian economy but the level of savings in the country remains very low. Issahaku (2011) used a multiple regression analysis to explain the factors influencing saving and investment in the Nadowli District in the Upper West Region. The author saw a close relationship between savings and investment and identified income level, educational status, assets of the household head, age and occupation as the significant factors influencing household savings. Mumin et al. (2013) analysed the decision of household heads to save with financial institutions in Ghana and found the factors influencing the decision to save to include: educational status, value of assets, shock to the household head, commitment to the financial institution, gender, net dependents, and religious background. Amu and Amu (2012) examined savings behaviour in the Ho Municipality of Ghana and observed that informal ways of saving was more predominant while the pattern of saving was irregular. Dziwornu and Anagba (2014) used a probit model to study the factors influencing the saving decisions of small business owners in the Greater Accra Region of Ghana. They found that interest rate on savings, knowledge about savings, availability of saving schemes and the motive of future purchase were the factors more likely to positively and significantly influence saving decision of small business owners.

The present study uses a probit model to investigate the determinants of savings among rural people in Ghana. Specifically, the study seeks to find out the determinants of the propensity to save using cross-sectional data from respondents in the Tolon-Kumbungu District of Northern Ghana.

The choice of the study area was motivated by several factors. Available statistics indicate that most of the poor in Ghana can be found in the north of Ghana. Also poverty in Ghana is highest among those engaged in crop farming, which incidentally is the predominant economic activity in Northern Ghana. The Tolon-Kumbungu district is also reported to be one of the highest in terms of migration of young women to the south of Ghana in search of employment and better living conditions, due to the increasing levels of poverty in the area (Awumbila and Ardayfio-Schandorf, 2008). As noted by Adam and Boateng (2012), the migration of young women could be partially attributed to the collapse of farming which is the main source of livelihood of the people in the district. A clear understanding of the factors influencing the decision to save will be useful to policy-makers and development agencies in formulating policies and programmes that will stimulate economic activity in the study area. This will go a long way to curb the migration of young people to the major cities in search of jobs.

Methodology

The analytical framework and empirical models for the study, the study area and sampling procedure, and a description of the variables used in the study are presented in this section.

Study area and data

The study was carried out in the Tolon-Kumbungu district, one of the twenty (20) districts in the Northern Region of Ghana. The district covers an area of 2,741 km² according to MoFA (2007) and has a Guinea Savannah vegetation type characterised by short trees and grassland. The District lies between latitude 10°N and 20°N and longitude 10°W and 50°W. The Population and Housing Census (PHC) in 2000 gave the population for the district as 132,338 (GLSS, 2000). The 2006 census estimated the population at 145,876 (GLSS, 2006), representing a growth rate of about 3%. The population density is approximately 50 inhabitants per km². The District experiences a unimodal

annual rainfall of about 1043 mm with the wet or rainy season spanning from May – October and the dry season from November – April. The mean ambient temperature fluctuates between a minimum of 15°C and a maximum of 40°C with the annual mean temperature reported at 28 degrees Celsius (Dei et al., 2007). The mean monthly relative humidity during the rainy season is 80% but this drops sharply to 53% during the dry season (SARI, 2004). The inhabitants of the district are mainly farmers producing crops such as maize, rice, yam, groundnut, soybean, sorghum and millet. Vegetable crops like tomatoes, pepper, okra, onion and garden eggs are also grown alongside cash crops such as cotton, tobacco and cashew. Other agricultural activities in the district include livestock and poultry production. Petty trading, shea butter processing and dressmaking are among the income-generating activities carried out mostly by women.

The data used in the study was collected through the administration of a questionnaire to 100 respondents in the Tolon-Kumbungu District. The respondents were selected from four (4) operational areas of the Bonzali Rural Bank which operates in the District. The operational areas were Kumbungu Mobile Banking 1 (KMB1), Kumbungu Mobile Banking 2 (KMB2), Kumbungu Mobile Banking 3 (KMB3) and Dalun Mobile Banking (DMB). These zones represent localities where the Bank is operating a mobile banking system whereby mobile bankers are recruited by the Bank to register savers who make regular but often very small amount of savings with the Bank. Hence residents in these localities have the opportunity to save and the decision to save can be analysed as a dichotomous variable. Equal number of respondents was sampled from the four zones to give a total of 100 respondents out of which 97 provided complete information and were included in the analysis.

Model specification

The decision of a household to save is dichotomous involving the option to save or not. Ordinary Least Squares regression has been shown to be inadequate for the analysis of data involving binary decisions.

The appropriate regression framework is a binary choice model such as Probit or Logit analysis designed to handle dichotomous dependent

variables. Due to its wide application by many researchers we opted for the probit model to analyse the data.

Let us denote the decision to save by Y . Given that this decision is binary, we have:

$$Y_i = \begin{cases} 1 & \text{if saver} \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

Given a set of independent variables X_i which are assumed to explain savings habit Y_i , we can calculate the expectation of Y_i given X_i .

In general,

$$E[Y_i | X_i] = \Pr(Y_i = 1 | X_i) = F(X_i\beta) \quad (2)$$

β represents a vector of parameters to be estimated.

An OLS estimation of this equation is consistent only if $X_i\beta$ has a zero probability of lying outside (0, 1). The probit model is able to constrain the predicted probabilities to lie between 0 and 1. To achieve this, we let a latent variable Y_i^* indicate the propensity to save. The latent variable model is specified as:

$$Y_i^* = X_i\beta + e_i \quad (3)$$

If $e_i \sim$ standard normal, then

$$F(X_i\beta) = \Phi(X_i\beta) \quad (4)$$

Where Φ is standard normal cumulative distribution frequency (CDF).

The decision to save and its latent variable are related as follows:

$$Y_i = 1_{\text{if } Y_i^* > 0} \text{ and } Y_i = 0_{\text{Otherwise}} \quad (5)$$

For the present study, the probit equation is empirically specified as:

$$Y_i = \beta_0 + \beta_1 \text{Sex}_i + \beta_2 \text{Age}_i + \beta_3 \text{Education}_i + \beta_4 \text{Marital}_i + \beta_5 \text{Income}_i + v_i \quad (6)$$

Where Y_i is savings habit (=1 if the respondent has savings with Bonzali Rural Bank, 0 otherwise) and v_i is a random disturbance term. The rest of the variables are described in Table 1.

Description of variables used in the study

The variables used in the study and *a priori* expectation of their relationship with savings habit are presented in Table 1. Age of the respondent,

educational status, marital status and income level are hypothesised to have a positive relationship with savings habit. This implies that older respondents,

the educated, the married, as well as those having higher income level are expected to have a higher propensity to save.

Income is a major determinant of savings and savings typically increases with income. High income earners are therefore expected to have a higher propensity to save and vice versa. It is hypothesised that as income levels increase respondents will have the propensity to save any extra income as a form of security against both predicted and unforeseen emergencies as well as money to invest into their businesses. Kibet et al. (2009) found household income to be a significant predictor of savings among rural farmers, entrepreneurs and teachers in Kenya. Samuelson and Samuelson (1980) also noted that rich people save more than poor people both in absolute and percentage amounts.

Older respondents as well as married people are expected to have a higher propensity to save due to their responsibilities towards children’s education, family needs as well as social events such as funerals and weddings which place financial demands on many households. In addition, the need to save to meet unforeseen circumstances like bereavement and medical bills is greater for older and married people compared to younger and unmarried individuals. Chakrabarty et al. (2008) showed that households in Australia saved more as

the household heads become older while Attanasio (1998) found the peak of savings in the United States of America to be around age 57.

Similarly, female respondents are hypothesised to have a higher propensity to save compared to men because of their involvement in petty trading and other economic activities which contribute to the household income. Male respondents who are the breadwinners of their respective households typically have so many financial obligations and are less likely to save. Quartey and Blankson (2008) found that females hold more savings account than males in Ghana. Denizer et al. (2000) also found savings among women to be higher than men in Bulgaria, Hungary and Poland.

Educated respondents are expected to have a higher propensity to save compared to the uneducated because education brings exposure and enlightenment which helps the individual to understand and appreciate the benefits of savings and the need to save for investment purposes. In addition, educated folks are more likely to be gainfully employed which can impact on their earnings thus promoting savings. Annamaria (2000) studied household saving behaviour and patterns of accumulation in the United States of America. The author found that household heads with higher education had higher savings.

Table 1: Definition of the variables used in the probit model

Variable	Definition	Expected sign
Savings habit	Dummy: 1 if respondent had savings; 0 = otherwise	
Age	Age in years	+
Sex	Dummy: 1 if male, 0 if otherwise	-
Educational Status	Dummy: 1 if educated, 0 if otherwise	+
Marital Status	Marital status (binary): 1 if married, 0 if otherwise	+
Income	Annual Income in Cedis	+

Results and Discussion

The following section gives the empirical results of our study and a discussion of the main findings. The distribution of the respondents according to savings habit and the amount of savings is followed by the result of the probit analysis of the factors influencing savings rate.

Distribution of the respondents according to savings habit

The distribution of the respondents according to savings habit is presented in Table 2. The preliminary investigation of the data shows that savers were older and had more income compared to non-savers. The proportion of males who did not save was very high compared to those who saved. Hence male respondents are less likely to be savers from the sampled respondents. As indicated above, females tend to have a propensity to save to finance income-generating activities. Similarly, the proportion of educated individuals who did not save was higher than the proportion that saved. The implication is that education is likely to have an inverse relationship with savings habit in the study area.

Table 2: Distribution of respondents according to savings habit

Variable	Savers (N = 31)	Non-savers (N = 66)	Overall (N = 97)
Age in years	43.1	36.2	38.4
Sex (1 = Male)	0.16	0.58	0.44
Educational Status	0.26	0.39	0.35
Marital Status	0.90	0.80	0.84
Annual Income in Cedis	821	778	792

Distribution of amount of savings by respondents

The amount of savings by the respondents is given in Table 3. From the Table, it is observed that majority of the respondents (61 percent) saved up to GH¢500.00. This shows that the respondents are mainly micro-savers. Women save little amounts on daily basis with the intension of using the accumulated savings as start-up capital for business. Eighty-four (84) percent of the respondents were able to save up to GH¢1000.00 per annum. Only one person in the sample was able to save more than GH¢500.00 per annum. Quartey (2002) found that the proportion of households who had savings accounts in Ghana was very low. As indicated by Komla (2012), the low savings could be attributed to inadequacy of financial intermediaries as well as low incomes of the populace. Our current study shows that 32% of the respondents were able to save. Even though the proportion is very low, it gives an indication that despite the generally high poverty level in rural areas, poor people can save. Hence, poverty reduction strategies that empower rural people to gain access to employment are needed to enhance rural savings mobilisation in Ghana and other developing countries. Providing the youth with

employable skills will enhance their employability and incomes which will lead to higher savings mobilisation which will enable local entrepreneurs to take advantage of investment opportunities in their communities.

Table 3: Distribution of amount of savings by respondents in Tolon-Kumbungu district

Amount of savings (GH¢)*	Frequency	Percentage	Cumulative (%)
1 – 500	59	61	61
501 – 1000	22	23	84
1001 – 1500	5	5	89
1501 – 2000	3	3	92
2001 – 2500	3	3	95
2501 – 3000	1	1	96
3001 – 3500	0	0	96
3501 – 4000	2	2	98
4001 – 4500	0	0	98
4501 – 5000	1	1	99
Above 5000	1	1	100

*GH¢1.00 = US\$0.27

Determinants of savings habit

The results of the probit analysis of the factors influencing savings habit in the Tolon-Kumbungu District are presented in Table 4 below.

Table 4: Maximum likelihood estimates for parameters of the probit model of savings

Variable	Coefficient	z	P> z	Marginal effects
Age	0.285 (0.162)	1.75	0.080*	0.010
Sex	-1.024 (0.337)	-3.04	0.002***	-0.321
Educational Status	-0.002	0.01	0.994	0.001

	(0.344)			
Marital Status	0.850	1.79	0.074*	0.227
	(0.475)			
Income Level	0.018	0.17	0.866	0.006
	(0.106)			
Constant	-1.969	-2.18	0.029**	-
	(0.903)			

***, ** and * stand for statistical significance at the 1, 5 and 10 percent level, respectively. Numbers in parenthesis are standard errors. Number of observations = 97, Log-likelihood = -49.7, Wald Chi2 (5) = 22.2, Prob > Chi (2) = 0.001. McFaddan R-squared = 0.183, Percentage correctly predicted = 73.2.

The model diagnostics show a good fit of the data as shown by the Wald and Goodness-of-fit tests as well as the percentage of correctly predicted cases. From the results of the study, age of the respondent, sex and marital status were the significant factors influencing the savings behaviour of respondents in the study area. The variables also maintained their expected signs.

Savings habit in the study area was significantly related to age of the respondent at the 10 percent level of significant. The positive sign on the coefficient indicates that an increase in the age of the respondents increases the propensity to save. A unit increase in the age of the respondent increases the probability of saving by 0.01, as indicated by the value of the marginal effect. The result of our study is in consonance with John and Grant (1998) who investigated household savings behaviour in New Zealand. The authors found that age of a household head had a positive relationship with savings. Mark et al. (1999) also found age to be a positive contributor to household savings in Australia. As indicated earlier, older people have additional responsibilities and therefore are more likely to save to meet family needs and unforeseen emergencies such as bereavements and medical bills.

The gender of the respondent had a negative and highly significant relationship with savings habit

implying that being a man was negatively associated with the propensity to save. Hence women were found to have a higher propensity to save compared to men. Women's propensity to save was 0.32 higher than men, indicating a significant difference between the sexes on savings behaviour. The result agrees with Mumin et al. (2013), who investigated the decision by household heads to save with financial institutions in the Bole District of Ghana. The authors found that being a male household head was negatively related to the decision to save. Similarly, Kodom (2013) found that women saved more than men in the Ga-East Municipality of Ghana. Our finding is however at variance with Mark et al. (1999) who found that being a male had a positively significant impact on savings in Australia. Women's higher propensity to save can be attributed to the fact that they save to invest in petty trading and other business opportunities while men tend to focus on meeting the family responsibilities thus making it difficult for them to save.

The marital status of the respondents had a positive and significant relationship with savings habit at the 10% level, suggesting that married people were more likely to save compared to the unmarried. The propensity of the married to save was 0.23 higher than the unmarried. The result also highlights the difference in savings behaviour of the married and unmarried. Kodom (2013) however obtained a

positive relationship between being married and savings habit using a logistic regression but the relationship was not significant. The married have the responsibility of taking care of their families and tend to be mindful of unforeseen circumstances that have the ability to imperil their livelihoods. Hence, despite their family responsibilities, married people tend to be savings-conscious. Married couples are also able to pool their resources together to achieve better living conditions that enable them to save, even if just a little amount at a time.

The educational and income level of the respondents were however not significant factors influencing the savings behaviour of the respondents. Income level maintained its expected sign. However, contrary to our *a priori* expectation, educational status was negatively related to savings habit in the study area. Hence the education variable is not an important factor influencing the decisions or choices of respondents, as only 26% of savers have obtained any form of formal education. Efforts to empower rural dwellers require a concerted effort at improving access to education and particularly the enrolment of girls and women in school. The study showed that 74% of the women who took part in the study did not have any formal education compared to 53% for their male counterparts.

Conclusion and Recommendations

Savings behaviour is important for savings mobilisation for rural development. However, the ability to save thrives on having the ability to earn an income. The ability to earn an income also depends largely on the level of education. In most rural areas, educational levels are very low which impact negatively on earnings and the ability to save. The current study investigated the determinants of savings habit among clients of the Bonzali Rural Bank in the Tolon-Kumbungu District in the Northern Region of Ghana with a view to finding measures to promote savings mobilisation. Using a cross-sectional data from 97

respondents selected at random, the results of the study showed that 32% of the respondents were savers. The amount of savings was however very low which could be attributed to poor incomes, low levels of education and the general lack of employment opportunities. Respondents' age, marital status and gender were the significant factors which determine savings habit. Educational level had a negative and non-significant effect on savings habit while income level was positively related to savings habit but was insignificant in its effect on savings behaviour. The authors recommend that to stimulate rural savings mobilisation, there is the need to target women who according to this study tend to save more.

References

- Agrawal, P., Sahoo, P., and Dasha, R. K. (2009). Savings behaviour in South Asia. *Journal of Policy Modelling* 31 (2009):208–224
- Alguacil, M., Cuadros, A. and Orts, V. (2004). Does saving really matter for Growth? Mexico (1970–2000). *Journal of International Development* 16, 281–290.
- Amu, M.E.K. and Amu E.K. (2012). Savings behaviour in Ghana: A study of rural households in the Ho Municipality of Volta Region. *Journal of Social Sciences Research*, 1(2): 54-61.
- Annamaria, L. (2000). Explaining why so many household do not save, Dartmouth College and University of Chicago.
- Attanasio, O.P. and Banks, J (2001). The assessment of household savings – Issues in theory and policy. *Oxford Review of Economic Policy*, 17 (1):1-19.
- Attanasio, O.P. (1998). Cohort analysis of savings behaviour by US households. *The Journal of Human Resources*, 33(3): 575-609.
- Chakrabarty, D., H. Katayami and Maslen, H. (2008). Why do the rich save more? A theory and

Australian evidence. *The Economic Record*, Vol. 84, Special Issue, September 2008, S32-S44.

Dei H.K., Konadu, K.O, Otchere E.O. and Djang-Fordjour, K.T. (2007). Housing of small ruminants in the Tolon-Kumbungu district of the Northern Region of Ghana. *Proceedings of the fifteenth Biennial Conference. KNUST-Kumasi*, pp.85-88.

Denizer, C., Wolf, H. and Ying, Y. (2000). Household Savings in the Transition. *Journal of Economic Literature Classification Numbers: D12, D31, D91, O16*, pp.36.

Dziwornu, R.K. and Anagba, K.K. (2014). Understanding the Factors that Influence Saving Decision among Small Business Owners in the Greater Accra Region, Ghana. *European Journal of Business and Management*, 6(32):113-120.

GLSS (2000) Population and Housing Census (PHC). Ghana Living Standards Survey. Ghana Statistical Service (GSS), Accra, Ghana.

GLSS (2006) Population and Housing Census (PHC). Ghana Living Standards Survey. Ghana Statistical Service (GSS), Accra, Ghana.

Issahaku, H, (2011). Determinants of Saving and Investment in Deprived District Capitals in Ghana – A Case Study of Nadowli in the Upper West Region of Ghana. *Continental J. Social Sciences* 4 (1): 1 – 12.

John, K.G. and Grant, S.M. (1998). Household saving in New Zealand Cohort analysis, Department of Economics University of Waikato, Private Bag 3105, Hamilton, New Zealand.

Kibet, L. K., Mutai, B. K., Ouma, D. E., Ouma, S. A., and Owuor, G. (2009). Determinants of household saving: Case study of smallholder farmers, entrepreneurs and teachers in rural areas of Kenya. *Journal of Development and Agricultural Economics*, 1, 137-143.

Kodom, M. (2013). Savings habit and use of savings among households in Ga-East Municipality. Dissertation submitted to the University of Ghana,

Legon, in partial fulfilment for the award of a Master of Philosophy Development Studies degree.

Mark, N.H., Joanne, L. and Elizabeth, W. (1999). Determinants of household savings in Australia, Melbourne institute of applied economics and social research, University of Melbourne, University of Melbourne.

MoFA (2007). Tolon-Kumbungu District Profile, Ministry of Food and Agriculture, Tolon-Kumbungu District, Northern Region, MoFA, Accra, Ghana.

Mumin, Y.A., Razak, A. and Domanban, P. B. (2013). Analysis of Household Heads' Decision-To-Save with Financial Institutions in Ghana. *Asian Economic and Financial Review*, 3(11), 1466-1478.

Muradoglu, G. and Taskin, F. (1996). Differences in household savings behaviour: evidence from industrial and developing countries. *The Developing Economies*, 34, 138–153.

Nwachukwu, T. E. and Odigie, P. (2009). What drives Private Saving in Nigeria. Centre of the Study of African Economics Conference.

Quartey, P. (2002). Finance and small and medium enterprise development in Ghana. An unpublished PhD thesis, University of Manchester.

Quartey, P. and Blankson, T. (2008). Household savings in Ghana: Does Policy Matter? In Aryeetey, E. and Kanbur, R. (Eds), *The Economy of Ghana: Analytical Perspective on Stability, growth and Poverty*, James Curry Woeth Publishing Services, Accra New Town, Ghana.

Samuelson, P. and Samuelson, W. (1980). *Economics*. McGraw-Hill International Book Company, Auckland.

Savannah Agricultural Research Institute (SARI) (2004). Annual report for the year 2004, Nyankpala, p. 22.