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ANALYSIS OF HOUSEHOLD HEADS' DECISION-TO-SAVE WITH FINANCIAL INSTITUTIONS IN GHANA

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ABSTRACT

Savings in Ghana have generally being described as low in terms of the number of households who save, trends in amounts of savings and the attitude towards savings. This called for the examination of factors that motivate household heads to save in the Bole District of Ghana. A total of 120 household heads were interviewed and these heads were selected using stratified random sampling. The results of the logit regression show that educational status, value of assets, shock to household head and having commitment to financial institution positively and significantly explain the decision of households to save. The net dependents, being a male household head and being a Muslim household head negatively affect their decisions to save in the district. Therefore government needs to collaborate with stakeholders in education to educate communities on the need to get themselves education, and deal with cultural and religious traits that run at variance with savings.

Keywords: Household head, Analysis, Decision-to-save, Logit, Jaque-Bera, Ghana.
JEL Classification: C2, D10, D14.

1. INTRODUCTION

Savings have not only been described as a key financial and economic issue but also represent a fundamental driving force of economic growth and development at large. At the micro level, savings serve to mobilize financial resources as capital to start up new or expand existing businesses. Also, when the preceding argument is linked to the macroeconomic level, savings

mobilization is an avenue for increased capital accumulation, meeting household basic needs in times of income shortages, meeting precautionary demands for money balances and promoting investment of individuals, firms and governments which lead to increase national output, economic growth and development (Sutton and Jenkins, 2007; Jacqueline, 2010). Savings can be broadly categorized into public savings and private savings. Whereas public savings is the saving done by governments such as state, local and federal government, private saving is done by the private sector of the economy (Mankiw, 2001). Private saving is further categorized into personal or household savings and business saving.

Household savings refers to saving done by families and individuals, whereas business savings refers to the purchases of new capital equipment or the expansion of its operations. Households have been identified to have benefited in several ways from savings, including hedging against unexpected emergencies, acquisition of assets, investment, provision for retirement, buy improve or upgrade homes, debt settlements and acquisition of social services (such as health and education) (Mark *et al.*, 1999; Issahaku, 2011). Household savings also represents the large segment of sources of private savings (Rehman *et al.*, 2011). Notwithstanding the relevance of savings, the levels of savings have exhibited a downward trend particularly in Africa and Latin America over the past 30 years (Nwachukwu and Odigie, 2009) and this has remained a source of worry for policymakers because of the correlation between savings and economic development, and the evidence that countries have grown because of higher savings of their income (Touhami *et al.*, 2009).

In Ghana, only one third of all households have been reported to have bank accounts (Ghana Statistical Service, 2008) and households still continue to show lukewarm attitude towards savings. Also, (Andrea and Francisco, 1998) argued that trend of savings in Ghana has been relatively low and this does not only suggests a limited means and capacity of financial institutions in Ghana to mobilize domestic capital for investment and growth but again brings to fore questions regarding factors that account for households' decision to save. This negative savings behavour is more acute in the study area, the Bole District, because of the problem of some financial institutions mobilizing and escaping with the savings of households. This makes the problem of the unenthusiastic behavior of households towards savings prominent and worrying.

The effects of these low savings attitude and levels are several which include low productivity because households are not able to employ idle productive resources in the production process, inability of households to meet food security requirements (during off seasons), educate their children and access essential basic services such as health, as well as mobilize domestic financial resources to meet contributions towards development projects emanating either from within or without. This district just as any other rural district in Ghana has been given little attention by policy and analysis of savings behavior by researchers underscoring the basis for selecting this district for this study.

Generally, several studies have been identified in literature to exist on savings even before (Mills and Ricardo, 1884) through Harrod and Domar's postulation about the essence of savings on

economic growth to date. But most of these works focused on determinants of the amount or rate of savings (such as (Kelly and Williamson, 1968; Alma and Richard, 1988; Baustista and Lamberte, 1990; K., 1992; Muradoglu and Taskin, 1996; Wen and Ishida, 2001; Schultz, 2005; Gonzalez and Ozcan, 2008; Bendig *et al.*, 2009; Khalek *et al.*, 2009; Rehman *et al.*, 2010; Sabri, 2010; Issahaku, 2011)) macro level analysis (such as (Gupta, 1970; Khan *et al.*, 1992; Choudhury, 2005; Fasoranti, 2007)) and description of behavior of savings using descriptive statistics (see (Brata, 1999; Ahmad and Asghar, 2004; Kibet *et al.*, 2009; Komla, 2012)) leaving the quantitative analysis of the motivation to save as a fissure in literature. However, before proceeding to examine either the determinants of the level of savings and/or macro level analysis, it is expedient to understand the factors driving the motives to save. This gap of inadequate quantitative analysis (in terms of relationships and effects) called for this study to examine the explanatory factors of household heads' decision to save in Bole District of Ghana.

2. LITERATURE REVIEW

The concept of saving does not lend itself to concise definition. In macroeconomic literature, is has been considered as disposal income minus consumption (Appiah-Kubi, 2008). Frank and Bernanke (2001) define it as deferred consumption or the proportion of income not spent. They indicated the ways by which savings can be done to include putting money aside in a bank or pension plan and reducing expenditure such as recurrent cost in terms of personal finance. Also, (Issahaku, 2011) argues that saving extends beyond the proportion of disposable income that is not spent. For instance the author mentioned spending on durable goods such as furniture, home accessories, appliances, computer, equipment and accessories, automobiles among others as ways of saving. (Andrea and Francisco, 1998) pointed out that investment in human capital such as medical products, apparatus and equipment, professional health services, health insurance and so forth are forms of savings. However, the limitation with this view is that it obscures the clear distinction between expenditure and savings because several of the human capital components mentioned are more or less current expenditure items. Savings again has been defined as deposits in savings accounts which are done with banks, microfinance institutions, susu groups and saving avenues (Schultz, 2005) and this is the perspective this study seeks to consider savings as. The reason is that it is through these savings window that financial institutions get to increase their credit standing and promote investment.

(Alma and Richard, 1988) in their attempt to analyze savings behavior among rural households in the Philippians regressed a host of factors on savings. They found that, income, educational attainment, assets of household and interest rate were the most important variables affecting rural savings. Household size and transaction cost were demonstrated to negatively influence household savings. John and Grant (1998) used a regression model to analyze the effects of socio-demographic factors on savings rate to obtain an insight into household savings behavior in New Zealand. They found that age of a household head has a positive significant effect on household savings. Specifically, they stated that savings rate peaks in decade after households head reaches

age 50 and then declines somewhere in the age 60's but still remain well above zero. Their findings suggest yet again that income and education were variables that directly influenced household savings whilst household size was seen to have negative effect on savings.

Andrea and Francisco (1998) in employing income quintiles found no correlation between permanent income and savings rate. They used analysis of variance to confirm that the total variance in savings rate is better explained by differences in current income. They concluded that permanent income is not an important determinant of savings rate. (Mark *et al.*, 1999) researched into determinants of household savings behaviour in Australia by fitting a probit model. The empirical results of their study showed that gender, income level, age and household asset and size were found to have significant effect on savings whereas interest rate was not significant. They stated specifically that male has positive significant impact on savings because males appeared to be saving more than females.

(Annamaria, 2000) in gaining insights into household saving behavior and in explaining the differences in patterns of accumulation in United States of America conducted a regression analysis and found the educational status of the household to have considerable effect on savings. They indicated that household heads with higher education had higher savings. Again they found out that household who experience negative shocks in the past end up having lower wealth and savings and those who receive inheritances or other transfers have higher savings. Another finding was that households who have large pension save more and households who do not plan for retirement have low savings. The conclusion of the study was that lack of planning for retirement is an important determinant of low savings among many American households.

Quixia (2004) in his survey data used descriptive statistics in analyzing the impact of rural enterprise on household savings in three selected areas in China; Jiangsu, Shandong and Sichuan. The empirical result shows that income seems to be important determinant of savings. He saw a positive correlation between income and savings rate. Household size was found to have negative effects on savings rate but insignificant. He further used logit regression analysis and found that education level has positive impact on savings thus the higher the educational level, the higher the likelihood of saving. (Mark and William, 2005) in their attempt to research into household saving in Russia during transition made use of panel data to investigate into households characteristics that explain savings during the period of extreme dislocation. They found out that savings rate fall with household age but then rise with the trough occurring at approximately 43 years. They also established significant relationship between asset of household, occupation and employment status, adults experiencing arrears in both pension and wage payment on one hand and household savings on the other. They also found out that, composition of household income has an important impact on saving behavior.

(Kibet *et al.*, 2009) employ multiple linear regressions in analyzing determinants of household savings in rural areas of Kenya. The findings were that education, interest rate, income, occupation and services provided by financial institutions have positive significant impact on savings whereas transport cost and household size were found to have inhibited savings. The findings further show

that gender has significant impact on savings. The study concluded that males turn to save more than females. Touhami *et al.* (2009) used multiple linear regression analysis in their microeconometric analysis on household savings in Morocco. The results were that, savings rate impacts positively on household income in rural and urban areas. Household size was reported to have negative effect on savings in urban areas whereas in rural areas this had no impact on savings. The findings further suggested that, gender seemed to be important in influencing household saving behavior, because males were found to be saving more than females. Further empirical results from their study indicated that age and assets of households had no impact on household savings behavior.

(Issahaku, 2011) employed multiple linear regression analysis in explaining the factors influencing the savings of rural households in Nadowli District of Ghana and found that income level, educational status, assets of household heads, age and occupation have directly and significantly account for household savings level. The author reported household size to have negative and significant impact on household savings. The study concluded that there is the existence of the tendency to save in the district and called for financial and nonfinancial institutions as well as the government to capitalize on this potential.

(Amu and Amu, 2012) utilized data from 160 rural households in the Ho Municipality to examine their savings behaviour. The authors used descriptive statistics and found that families informal ways of savings is the predominant compared to the formal ways of savings. Also, families were reported to have an irregular pattern of saving conduct and as such only saved as and when they had surplus income. The authors recommended sensitization programmes for rural families about the relevance of savings.

3. METHODOLOGY

3.1. Analytical Frame Work

Several decisions made by households are "either-or" in nature and such choices can be represented by a binary variable which assumes the value of one (1) for a chosen outcome and takes the value of zero (0) otherwise (Hill *et al.*, 2008). The variable of interest in this study is a binary variable with two options "decision-to-save" or "decision-not-to-save". The models for analysing binary regressand include the Linear Probability Model (LPM), Probit model and Logit model (Greene, 2003; Gujarati, 2004; Abdul Mumin *et al.*, 2012). Hill *et al.* (2008) argue that the logit model is the frequently used alternative to the LPM and the probit model and as a result the usage of the logit model in this study. Also, the probit model is based on the assumption of normality of the error terms and the result of the Jarque-Bera test suggest otherwise.

The logit model is a way of estimating the probability that an event occurs or not, by predicting a binary dependent outcome from a set of independent variables (Maddala, 1992). The logit model is first based on a representation likes as follows;

$$P_i=[E(Y=1|X]_i)=1/[1+e]^(-(\beta_1+\beta_2 X_i)) \quad (1)$$

This can be restated for simplification purpose as below;

$$P_i=1/[1+e]^([-Z]_i) =e^z/[1+e]^z \quad (2)$$

where Zi=β1+β2Xi and Equation (2) is defined as the (cumulative) logistic distribution function (Gujarati, 2004b). If Pi is the probability of one saving, as given in (2), then (1 – Pi), the probability of not saving is

$$[1-P]_i=1/[1+e]^(Z_i) \quad (3)$$

When this is rewritten in the odds ratio form, we will have;

$$P_i/[1-P]_i =[1+e]^(Z_i)/[1+e]^([-Z]_i) =e^(Z_i) \quad (4)$$

where Pi/(1 – Pi) is the odds ratio infavour of saving (thus the ratio of the probability that a household head will save to the probability that s/he will not save). Taking the natural logarithm of (4) result as follows;

$$L_i=ln(P_i/[1-P]_i)=Z_i=\beta_1+\beta_2 X_i \quad (5)$$

where Li is the log of the odd ratio, which is linear in variables and parameters (Gujarati, 2004c), and is referred to as the logit.

The econometric specification of the estimation form of the logit model is thus given as:

$$L_i=ln(P_i/[1-P]_i)=\beta_1+\beta_2 X_i+\varepsilon_i \quad (6)$$

where the β's are parameter estimates and ε is the stochastic error term. The empirical specification of the logit model used by this study to explain the determinants of household heads decision to save or otherwise is of the form;

$$[Sa]_i=ln(P_i/[1-P]_i)=\beta_1 A_i+\beta_2 G_i+\beta_3 S_i+\beta_4 O_i+\beta_5 R_i+\beta_6 H_i+\beta_7 E_i+\beta_8 T_i+\beta_9 [As]_i+\beta_{10} I_i+u_i \quad (7)$$

Where Sa is decision-to-save, A is age, G is gender, S is shock in the past two years, O is occupation, R is religious affiliation, H is net dependents, E is educational status, T is natural logarithm of transport cost, As is natural logarithm of value of assets, I is institutional commitment and [u]_i is the error term. The measurement and descriptive statistics of the variables are presented in Table 1.

3.2. Data

Cross sectional data from primary sources were utilized for this study. In all 120 household heads out of 1, 433 household heads (made up of 1,003 males and 430 females) were selected in the district and a questionnaire designed to cover the profile of household heads, transportation cost, access to financial institution and value of household assets among others was administered. Stratified random sampling technique was used in the selection of the household heads on the basis of gender. Household heads were categorized into male and female heads and the selection was done proportionately (i.e. 84 males and 36 females).

4. EMPIRICAL FINDINGS

4.1. Descriptive

The results in Table 1suggest that majority of the household heads interviewed in the district were found to be saving. This represents 55.8 per cent of the household heads interviewed. The average age of household heads in the area is 38 years with a standard deviation of 13.42. Also, majority of the households (70 per cent) were headed by males which is a characteristic of an area with male chauvinistic cultural traits. Table 1 also shows that up to 73.3 per cent of the household heads indicated that they did not have any shock such as lost of a household member/immediate family kin, loss of job or suffer severe business loss during the past two years. Religion is another component that appeared to be influencing the lives of people in the area and particularly with respect to saving with conventional financial institutions. The area is predominantly Islamic and about 69.2 per cent of the household heads interviewed were Muslims. The average net dependents is 8 households suggesting that household heads in the area have more dependents to cater for than they have in the case of non-dependent household members who could work to support the household head.

4.2. Determinants of Decision-to-save

Table 2 that follows presents the logistic regression results together with the diagnostic statistics. The overall predictive ability of the model is high and stands at 90.36 per cent. This implies that the model correctly predicts up to 90.4 per cent of the probability of household heads deciding to save. The diagnostic statistics again shows a pseudo R-squared of 0.7108 and a Wald chi-square of 25.50 with a probability of 0.005. The probability of the Wald chi-square of 0.005 indicates that the pseudo R-squared and the Wald chi-square are statistically significant at the 1 per cent level of significance. Hence, all the regressors (age, educational status, transport cost, asset value, net dependents, gender, shock, occupation, religion and institution) do not only jointly explain the decision of household head to save in the district but also explains up to 71.1 per cent of household heads' decisions-to-save. Almost all the variables have the expected signs except gender and occupation.

Educational status of the household head positively affects his/her decision-to-save and it is statistically significant at 1 per cent significance level. This has a marginal effect of 0.086 suggesting that an additional year spent in school increases the probability of a household head saving by 0.086. This shows the importance of education in household savings behavior in the area because with increase in educational status of household heads, they are able to get employed in better jobs and also appreciate the need to save at least towards retirement. Transport cost to the nearest savings institution is not significant but its marginal effect is significant at 10 per cent. This means that the probability of a household head saving decreases by 0.234 with increasing transport cost showing the role of proximity to savings institutions in explaining the savings behavior of household heads in the area. Discussions revealed that the district has very limited financial institutions located only in the capital which put people, found outside the district capital at a disadvantage.

The asset value of the household head is significant at 0.01 alpha level and has a positive relationship. The marginal effect of asset value indicates that the probability of household heads saving increases by 0.792 with a percentage increase in the values of assets of household heads. The value of household heads' assets includes their income received, worth of businesses and real properties. These components, particularly real properties (such as a house), play very crucial role in the lives of people in the area. Discussions revealed that people consider it as an act of nobility and accomplishment to put up a house as a source of security and a legacy to be left for his/her children. Once these assets are acquired the household head stands a better chance of saving ceteris paribus.

Net dependents (number of dependents – number of independent household members) negatively affect the savings decision of household heads in the area and this is statistically significant at 5 per cent significance level. This shows that generally there is high dependency ratio on household basis in the district. The marginal effect value of 0.038 means the probability of household heads saving reduces by 0.038 with an increase in the net dependents of the household. This implies that household heads usually have more to cater for than support received from household members partly explaining the low savings in the district. Gender of the household head also negatively affects household heads' motivation to save and statistically significant at 5 per cent significance level. This implies that female household heads in the area saves more than male household heads. It has a marginal effect of 0.427 suggesting that the probability of household heads saving falls by 0.427 when the gender of the head changes from male to female. Household heads who did not have shocks by either losing household member and spending on funeral, losing their job or suffering a major business loss during the past two years were more likely to save relative to their counterparts who had any of these shocks. This was significant at 0.1 alpha level. This has a marginal effect of 0.234 indicating that the probability of saving increases by 0.234 for household heads who did not experience any shock in the past period specified.

Religious affiliation and commitment to financial institution significantly, at 5 per cent, affect household heads decision-to-save. The coefficient of religion is negative and the marginal effect is

0.502. These suggest that the probability of household heads saving decreases by 0.502 when the religious affiliation of the head changes from non-Muslim to Muslim because of the frown of Islam on the interest system of conventional finance. Although people do save in other forms apart from with the financial institutions in the area, the operation with the financial institution is quite significant because up to 60 per cent (Table 1) of the respondents had accounts or commitment with a financial institution. This leads to the next factor which is positively related to motivation to save and has a marginal effect of 0.463. The marginal effect implies that the probability of saving increases by 0.463 when a household head without an account with or commitment (particularly loan) to a financial institution operates an account with a financial institution in the district.

4.3. Summary and Conclusions

This study examined the factors that determine the decision of household heads to save. Savings is eminent among the household heads in the district and most of the households were headed by males. Dependency ratio in the district is relatively high and above the national average. This erodes any residual income that would have remained after consumption and adversely affects the tendency of household heads to be able to save with financial institutions. Higher educational status of the household head is a driving force of people wanting to save in the area. Proximity to financial service influences savings especially with financial institutions. Investment in assets is considered prominent in the area and the possession of these promote savings. A key cultural trait that dissipates the incomes and savings of households is spending on funeral and other ceremonies. Finally, Islam has an impact on the savings behavior of people in the district.

4.4. Policy suggestions

The government should liaise with the Ghana Education Service and Non-Governmental Organizations to promote both formal and non-formal education of household heads to appreciate the essence of saving with financial institutions. Government through the Bank of Ghana need to pursue favorable policies and regulations to enable financial service providers to broaden their scope of coverage by opening more branches, collaborating with rural and localized banks. This will also encourage financial institutions to implement personal (door-to-door) service provision to enhance the savings and investment functions in the area.

Government through the State Housing and individual financial institutions need to consider providing mortgage facilities to household heads in order to augment their effort to acquire these assets. Also, financial institutions should encourage households to save with them because when people have commitment to financial institutions encourages them to save to free themselves. Government and the District Assemblies should intensify engagement with communities in the district through sensitization and other educational programmes for communities to see the need to discipline their spending on socio-cultural events and how savings can help them even in times of financial depression.

It is expedient for future studies to consider assessing the prospects of Islamic banking and finance in the area by looking into the willingness of people to adopt it, potentials and challenges of its implementation among others.

Table-1. Description, Measurement and Descriptive Statistics of Variables

Variable	Description	Measurement	Mean	Standard deviation
Sa	Decision-to-save	Dummy: 1 is saving and 0 otherwise	0.558	0.499
A	Age	Number of completed years	38.05	13.42
G	Gender	Dummy: 1 is male and 0 otherwise	0.700	0.460
S	Shock	Dummy: 1 if the respondent had no shock in terms of funeral, loss of job or suffers business loss during the past two years and 0 otherwise	0.733	0.604
O	Occupation	Dummy: 1 is employed in public sector and 0 otherwise	0.558	0.499
R	Religion	Dummy: 1 is Islamic and 0 otherwise	0.692	0.464
H	Net dependents	Number of (Dependent – non-dependent) household members	8.000	5.082
E	Educational status	Number of completed years in school	7.067	4.079
T	Transport cost	Ghana cedis expressed as a natural logarithm	2.417	1.886
As	Total asset value	Ghana cedis expressed as a natural logarithm	461.2	622.2
I	Institutional commitment	Dummy: 1 is hold an accounts/commitment to financial institution and 0 otherwise.	0.600	0.492

Source: Field Survey, 2012.

Table-2. Logit Regression result of Determinants of Household Heads Motivation to Save

Variable	Coefficients		Marginal effects	
	Estimates	Z-value	Estimates	Z-value
Age	0.036	1.13	0.007	1.11
Education	0.431***	0.13	0.086***	3.95
Log Transport cost	-1.171	-1.64	-0.234*	-1.72
Log Asset value	3.959***	3.56	0.792***	4.17
Net dependents	-0.190**	-2.31	-0.038**	-2.19
Gender	-2.794**	-2.28	-0.427***	-3.63
Shock	1.169*	1.86	0.234*	1.86
Occupation	-0.329	-0.41	-0.065	-0.41
Religion	-3.500**	-2.36	-0.502***	-3.59
Institution	2.267**	2.24	0.463***	2.60
Constant	-21.367	5.798		
Model Diagnostics				
Wald x^2 = 25.50	**Prob (x^2) = 0.005*** **	**Pseudo R^2 = 0.7108**	**Predicted probability = 90.35%**	

Source: Field Survey, 2012.

Note: "***", "**" and "*" denote significance at 1%, 5% and 10%, respectively.

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