Determinants of Savings Habits Among Cocoa Farmers in Ghana: A Case Study of Atwima Nwabiagya District of the Ashanti Region

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Abstract

Cocoa, the main agricultural foreign exchange earner for Ghana, is mostly produced on a small-scale level. Cocoa farmers suffer poverty in old age as no formal pension schemes exist for them. Therefore, the only remedy for these farmers is to save for future investment and consumption. The objectives of the study include: to identify the motives for saving and the barriers to saving, and to examine the factors which influence cocoa farmers to save. The study sampled 364 cocoa farmers from the Atwima Nwabiagya district of the Ashanti region using the multi-stage sampling technique, and the questionnaire as the main field instrument. The results from the binary probit model showed that age, family size, size of the cocoa farm and gender are the main determinants of the saving habits of cocoa farmers. The study also showed that the cocoa pension fund is new to many of the cocoa farmers, thus only a few contributed their savings to the fund. The study recommends that the saving culture of cocoa farmers should be enhanced. Specifically, this can be achieved through financial literacy programmes, financial education and awareness on the importance of

saving. Also, the cocoa farmers should be educated on the benefits of saving a portion of their income through the pension funds by the district Ministry of Food and Agriculture.

Keywords: Savings habit; cocoa farmers; financial education; probit regression; Ghana

Introduction

In every country, the total investible financial resources available are made up of savings and external resources, which are obtained in the form of foreign capital. Savings – defined as income that is earned in the current period but consumed in the next – is very important because it is closely related to investment; by not consuming income, resources may be freed up for investment (Scholtens, 2005; Virani, 2012).

Global statistics show that on the average, East Asia saves more than 35 per cent of gross national disposable income while sub-Saharan Africa saves less than 15 per cent (Brandywine Global, 2016). Further, in Northern Europe, average national savings range from 30 to 38 per cent (Brandywine Global, 2016). It is also worth noting that regional differences in saving have been increasing. Over the last three decades, saving rates have doubled in East Asia and Europe but have generally been stagnant in sub-Saharan Africa, Latin America and the Caribbean. Through a rapid upsurge in aggregate saving, the social value of saving can exceed its private value in many developing countries, thus the saving behaviour of citizens is critical to an economy (Chow et al., 2012). This corresponds mostly with the development trends in these economies and the general welfare of citizens.

Saving in Ghana is generally low and this has been documented (Baidoo et al., 2018; Baidoo and Akoto, 2019). According to the Ghana Living Standards Survey VI (GLSS, 2014), only 35.4 per cent of households in Ghana have a savings accounts (GSS-6, 2014). Comparing this figure with the previous round of the GLSS V which was 30 per cent (GLSS-5, 2008), it can be seen that there has not been much improvement. Further, it was recorded that the men (58.6%) held more accounts compared to women (41.3%). As expected, urban areas had a greater proportion of households saving compared with rural areas (GSS, 2014). Of course, people without

savings accounts may still save. It must be emphasized that people have different ways of saving which includes keeping the money at home and with friends. This behaviour is typical of people in the informal sector (Bremang, 2012; Sakyi et al., 2019).

Several efforts have been made by the government of Ghana since the Economic Recovery Program (ERP) in 1983 which focused on savings and investment as fundamental to drive economic growth and development. In addition, the liberalization of the financial sector through the Financial Sector Adjustment Program (FINSAP) in 1987 also brought about improved savings and financial deepening in Ghana. However, these policies did not focus exclusively on the informal sector.

Choices made by individuals and households about saving determine national savings. Savings data shows that household savings forms a larger part of the national savings volume and therefore it is the main source of investment funds. In this study, the saving habits of cocoa farmers in Ghana was the focus. This group makes up about 60 per cent of the agricultural base of the economy in terms of employment (Cocoa Initiative, 2017).

Cocoa is Ghana's main cash crop as well as its main agricultural export. Consequently, it is subject to regular policy interventions by the government. Cocoa has a long production cycle, far longer than many other tropical crops, which has an implication for the financial security of those involved in its production (Mondelez International, 2015). A poor saving culture has been identified as a major problem in cocoa communities in Ghana and this worsens the farmers' financial insecurity (Mondelez International, 2015). Determinants of saving by cocoa farmers are therefore of great importance, because the ability, willingness and opportunity to save and invest can significantly influence the rate and sustainability of farming activities leading to economic growth in Ghana.

Several researches have been conducted on cocoa farmers in Ghana. Most of these studies have investigated their challenges, access to credit and extension services among others (Boateng et al., 2017; Dormon et al., 2004; Knudsen, 2007; Awuah-Gyawu et al., 2015). Existing studies which focus on the financial behaviour of cocoa farmers have concentrated on their level of financial literacy and knowledge (Akoto, 2015; Adu-Asare, 2018). There are two cocoa seasons in Ghana: the major and the minor seasons. Farmers

therefore, earn their incomes in these periods and are able to spend them throughout the year. This makes the farmers very vulnerable financially during the off-season periods, without savings or non-cocoa income. There is, therefore, the need for cocoa farmers to save during the cocoa season. There is a dearth of studies on saving habits in Ghana devoted to cocoa farmers. It has become imperative therefore to investigate the factors that influence cocoa farmers to save. The present study seeks to fill this gap in the literature. This will help to inform policy on how to improve the saving culture.

The rest of the paper is organized into sections. The next section is devoted to related works on saving habits and it includes both theoretical and empirical literature. The third section is a discussion on the methodology used in achieving the objectives of this study and the fourth section presents the results and discussion of findings. Last is the conclusion and policy suggestions.

Literature Review

Several theories exist that explain the saving habit of individuals and households. Among these are: life cycle hypothesis (LCH), relative income hypothesis (RIH) and Keynes absolute income hypothesis (AIH).

The life cycle hypothesis was proposed by Franco Modigliani and his student, Richard Brumberg, in 1963 (Modigliani and Brumberg, 1954). This theory attempts to explicate the consumption pattern of people. It is an economic theory that is built on the expenditure and saving behaviour of individuals during their lifetime. The main premise of this theory is that individuals strive to preserve an established lifestyle. The theory argues that individuals do not spend their total income but instead save for periods when their income levels may experience a reduction, primarily in the course of retirement (Modigliani & Brumberg, 1954).

The theory proposes that there is a connection between the wealth of an economy and the retirement period. Population growth is greater among young people compared with their older counterparts. A greater proportion of young people will consequently save whilst the older population, the majority of whom may be in retirement, will use their savings to fund their expenses. Based on this, the higher savings among the young and the middle-aged will dominate the low savings by the older

population, which results in a net positive savings (Modigliani & Brumberg, 1954).

The relative income theory (RIH) was established in 1949 by James Duesenberry. It stresses that a person's consumption and saving pattern is controlled by his or her income in relation to those of other people. The fraction of a person's income that goes into consumption is dependent on his or her percentile location in the income distribution and not reliant on his or her level of affluence.

Moreover, the RIH posits that patterns of consumption are not rescindable. That is to say, as far as an individual accomplishes a level of consumption, it becomes tough for him or her to go below that specific level. In order for a person to sustain his or her spot in the income distribution, his or her consumption arrangement would have to grow relative to the consumption arrangements of other folks contained in the distribution. Consequently, earnings in excess of what is required for an individual's consumption so as to sustain his or her spot in the percentile distribution will be put into savings. These saved earnings may then be used as a supplement for consumption during periods when income reduces (Dusenberry, 1949).

Keynes developed the concept of marginal propensity to save in 1936. The absolute income hypothesis (AIH) studies the connection between consumption and income and emphasizes that the level of consumption of a family greatly depends on its absolute level or present level of income. As income rises, the theory stresses that consumption is also likely to rise, but not fundamentally at the same rate. The core notion behind this theory is that saving turns out to be promising when individuals have more than is sufficient to cater for their basic needs. This points out that individuals can merely save the excess of income after they have satisfied their basic needs (Keynes, 1936).

On the empirical side, Fisher (2010) used 392 randomly selected male and female subjects and a logit model to examine gender dissimilarities in personal saving behaviour in America. The study established that the likelihood of the female saving was less than the male. Moreover, the findings emphasized the dissimilarities in risk tolerance that accompanies gender and how it influences saving behaviour. The results exhibited that the number of females who confirmed low level of risk tolerance were

considerably less likely to save within the short span and as well turned out to be regular savers. This outcome was nonetheless not found with the males.

Using the ordinary least squares and probit model, Faridi and Bashir (2010) investigated the factors that influence the saving behaviour of households in the Multan district of Pakistan from 2009 to 2010. The results showed that the age of the household head is positively linked to household saving behaviour and a square of the age has an inverse relationship with saving. Moreover, the educational level of a household head, family size, expenditures on education of children, marital status, value of dwelling, and liabilities have a negative impact on household saving behaviour.

Similarly, using a sample of 2,246 workers in Malaysia, Delafrooz and Hj-Paim (2011) reported that financial management and financial literacy considerably affect saving behaviour positively. However, there was no statistically significant relationship found between financial stress and saving behaviour. In a related study conducted in Visakhapatnam district, Gedela (2012) documented that the gender and age of household heads, total number of dependents, expenses on medicals and income were significantly connected to saving behaviour. The study further showed that there was a positive relationship between the age of the head of a household and saving. It was also revealed that male-headed households saved more than female-headed households. Further, using a sample size of 160 households from Ho Municipality of Ghana, Komla (2012) revealed a positive relationship between the age of the household head and insurance, knowledge of saving and insurance and family size and difficulty in savings.

Similarly, a study by Nayak (2013) in Sundergarh district of Odisha, India revealed that the majority of the rural households had low levels of education which led to low saving. The study further indicated that households were stimulated to save in financial institutions with the expectation that there would be additional income added to their savings. Also, a study on Nigeria by Nwibo and Mbam (2013) revealed that accessibility to credit facilities can boost saving behaviour as some of these facilities need customers to save up to a specified period before credit can be freed up. A similar study carried out in Idanre area of Ondo State in Nigeria by Osundare (2013), which focussed on 120 cocoa farmers, also revealed that the age of the household head and the size of a household had

a negative effect on saving and investment and the amount saved. However, farming experience and farm size were positively related to saving and investment.

In a related study on Zimbabwe, Chikoko et al. (2013) employed the logit model to show that gender, age, marital status and educational background reduce the probability of saving by households. To be precise, young adult households are usually more active compared to their older counterparts and therefore save more, confirming the paradox of thrift. The study also indicated that income level increases household heads' likelihood of saving. Also, using a sample of 150 households from Nigeria, Ike and Umuedafe (2013) reported that rural farmers' farm income, non-farm income, years of experience in a saving programme, age of the farmer and the distance to formal financial institution determine the volume of saving among households. It was further revealed that lack of access to financial credit and low productivity were also main constraints to the accumulation of savings.

In a related study on Ghana, Anang et al. (2015) found that females saved more compared to males. The study also established a negative relationship between age and saving and a positive connection between being married and the saving habit. Again, using the ordinary least squares technique, Tandoh and Tandoh (2015) revealed a positive link between older people, higher income, higher educational levels and saving. A negative relationship between household size and saving was also revealed whereas a positive but insignificant relationship was found between being employed, married people and saving. Further, on Ghana, Addai et al. (2017) used the probit model to show that age, gender and income are the major determinants of savings. The study also revealed that providing for children's social and economic needs, purchasing of assets, investment and precautionary purposes were the major reasons individuals save. In addition, Olowoyeye et al. (2018) analysed the determinants and savings propensity of women in Ekiti State, Nigeria. The study showed that the marginal propensity to save (MPS) was at 0.254. The MPS of the respondents for every income generated was ₦0.254. The results also showed that age, education, household size and processing experience were negatively related to saving, whereas annual income, membership of an association and the amount of garri processed were positively related to saving.

Methodology

This section discusses the methods used for the study. It looks at the data issues as well as the modelling and estimation techniques.

Data

The target population included all cocoa farmers in the study area, Atwima Nwabiagya District, estimated at 4,000 (as of 2018) by Atwima Nwabiagya District Agricultural Development Unit of the Ministry of Food and Agriculture. The sample size for this study was therefore calculated using the following formula propounded by Yamane in 1967:

$$n = \frac{N}{1 + N(\alpha)^2}$$

where n is the sample size, N is the sample frame (4000), and using a 95 per cent confidence interval gives a margin of error (α) of 0.05 and 1 is a constant figure

$$n = \frac{4000}{1 + 4000(0.05)^2} = 363.64$$

Thus, the study sampled 364 cocoa farmers from the Atwima Nwabiagya district of Ashanti Region. The snowball sampling technique under the non-probability sampling method was employed for the study. With this method of sampling, participants were allowed to recruit other participants. This method was used because the cocoa farmers were not easily identified. Given that the focus of the work was cocoa farmers, it was important to use this method that made it easy to get the needed sample. Two main steps were used: first, potential respondents in the population were identified in the selected communities based on the recommendation of the District Agricultural Development Unit. In the second step, the initial participants then led the data collection team to other cocoa farmers. Primary data was obtained through the administration of questionnaires to cocoa farmers on their socio-demographic and economic characteristics and motives for saving. The data covered their personal and work characteristics. In this study, both self and assisted approaches to questionnaire administration were adopted in order not to ignore farmers who could not read, understand or write in the language (English) used in

designing the questionnaire. With these approaches, farmers who could read, understand and write in English were given the questionnaire to fill by themselves, whereas those who could not read, understand and write in English were interviewed and their responses were used to fill the questionnaire. Again, it must be emphasized that, prior to the data collection, the consent of the participants was sought. The intent of the data collection was explicitly explained to these farmers. This was to ensure that the participants would willingly provide the information required for the study.

Model specification and estimation technique

This study adopted the binary probit model to examine the factors influencing saving by cocoa farmers following the studies by Addai et al. (2017) and Faridi and Bashir (2010). A general probit model is specified in equation (1).

$$y_i^* = \beta_i X_i + \varepsilon_i \tag{1}$$

where y_i^* is the latent dependent variable representing probability to save, β_i is the parameter to be estimated, X_i is the explanatory variable and ε_i is the error term.

The specific probit model used to analyse why some cocoa farmers are more likely to save than others is specified in equation (2):

$$SAV_i = \beta_0 + \beta_1 Age + \beta_2 Age^2 + \beta_3 Gen + \beta_4 HSize + \beta_5 Educ + \beta_6 AnIncom + \beta_7 FmSz + \beta_8 FmExp + \beta_9 FmOwn + \beta_{10} GrpMem + \varepsilon_i \tag{2}$$

where SAV_i is the dependent variable representing whether a cocoa farmer saves or does not save. The explanatory variables are *Age, Gen, HSize, Educ, AnIncom, FmSz, FmExp, FmOwn* and *GrpMem* and they represent age, age square, gender, household size, educational level, total annual income, farm size, farming experience, farm ownership type, and group membership respectively. These explanatory variables are the socio-demographic and economic characteristics of

the cocoa farmers. β_0 is the constant term, βis (i= 1,2,3, …, 10) are the coefficients of the individual explanatory variables and ε is the error term.

Given that the coefficients of probit models do not have direct meaning and also do not show the magnitude of the impact of the explanatory variables on the dependent variable (Greene, 2012), the study estimated the marginal effect at the mean for each explanatory variable and was interpreted accordingly. Measurement of variables and their *a priori* expectations are shown in Table 1.

Table 1: Measurement and priori expectations of variables

Variable	Definition	Measurement	Expected sign
Save	This measures whether a farmer has any monetary saving	1=yes, 0= no	
Age	years of the farmer	years	-
Gen	Measures the gender of the farmer	1=male, 0= female	-|+
HSize	Number of people in the household	Continuous	-
Educ	This measures the formal educational level of the farmer	1=never, 2= basic, 3= secondary, 4= tertiary	+
AnIncom	This measures the total annual income (measured in Ghana cedi-GH¢) of the farmer (both farm and non-farm)	1=below 2000, 2= 2001-4000, 3= 4001-6000, 4=6001-8000, 5= above 8000	+
FmSz	This measures the average size of the farmer's cocoa farm	Continuous (acres)	+
FmExp	This measures the age of the cocoa farm	Continuous (years)	+
FmOwn	Represents the ownership structure of the cocoa farm	1=Sole owner, 0= otherwise	+
GrpMem	indicates whether or not the farmer is a member of a farming group	1=yes, 0 = no	+

Source: Authors' construct.

Results and Discussion

This section of the paper presents the results of the study and the discussions of the results. It starts with the descriptive statistics of the main variables used for the study, followed by the discussion of the results obtained from the probit model and the implications of these results.

Descriptive statistics

The descriptive statistics of the variables used for the study are reported in Table 2. The results show that the majority of the cocoa farmers were male, which constituted 57.1 per cent. The mean age of the farmers was 48 years, and a standard deviation of 15.87 indicated that there is fairly high spread in sample distribution around the mean age. Regarding education, 21.2 per cent of the cocoa farmers had never had any form of education, while the majority had either basic education (44.8%) or secondary education (48%). Very few had tertiary education. The average household size was 5 and a standard deviation of 2.53 indicated the closeness of the sample distribution around the mean.

Respondents were further asked if they were engaged in any other economic activity other than cocoa farming and 63.7 per cent confirmed that they were. With annual income levels which included both cocoa and non-cocoa income, the highest proportion earned above GH¢8000 constituting 37.4 per cent of the respondents. The least proportion earned below GH¢2000 annually, representing 2.2 per cent. The average cocoa farm size of the respondents was 3.07 acres, with a standard deviation of 2.59 suggesting closeness of the distribution around the mean. Furthermore, it was realized that the majority (73.4%) solely owned their cocoa farms implying that they did not have any sharing arrangement with another person, thus income and expenditure on the farm was their sole responsibility. It was also gathered that the majority (67.9%) did not belong to any farmer-based group.

Table 2: Summary statistics of variables

Variable	Freq.	%	Mean	Std. dev.	Min	Max
Sex						
Male	208	57.1				
Female	156	42.9				
Total	364	100				
Age			47.79	15.87	23	78
Educational Level						
Never	77	21.2				
Basic	163	44.8				
Secondary	102	48.0				
Tertiary	22	6.0				
Total	364	100				
Household Size			5.34	2.53	1	15
Engagement in other economic activities						
Yes	232	63.7				
No	132	36.3				
Total	364	100				
Annual Income (GH¢)						
Below 2000	8	2.2				
2001-4000	75	20.6				
4001-6000	55	15.1				
6001-8000	90	24.7				
Above 8000	136	37.4				
Total	364	100				
Size of Cocoa Farm (Acres)			3.07	2.59	0.5	15
Average Annual Cocoa Farm Expenditure			581.73	437.99	100	3000
Years of Cocoa Farming			12.39	11.17	2	35
Sole ownership						
Yes	267	73.4				
No	97	26.6				
Total	364	100				
Group Membership						
Yes	247	32.1				
No	117	67.9				
Total	364	100				

Source: Authors' estimation.

Reasons for saving

The reasons for which the cocoa farmers saved portions of their income were assessed. These reasons were assessed based on a five-point likelihood scale from 1-5 signifying strongly disagree, disagree, neutral, agree and strongly agree respectively. The means of the various reasons were determined to evaluate the various reasons in terms of the most important to the least. The results are reported in Table 3.

Table 3: Respondents' reasons for saving

Reasons	Minimum	Maximum	Mean	Std. Deviation
Saving to meet emergencies	1	5	4.24	1.224
To cater for children's education	1	5	2.74	1.875
To cater for my basic needs	1	5	3.87	1.67
Saving for financial gain	1	5	1.86	1.341
To buy expensive items in the future	1	5	1.87	1.438
To invest in my farm	1	5	3.27	1.614
To acquire property	1	5	3.12	1.545
To start a new business	1	5	1.54	1.206

Source: Author's computation using field data.

The results show that saving to meet emergencies had a mean response of 4.24, with a standard deviation of 1.224 suggesting that respondents generally agreed that it is an important reason for saving. Thus, saving to meet emergencies was ranked as the top reason for saving. This was in line with the findings of Addai et al. (2017), who found that people save for precautionary reasons. The next important reason was saving to cater for basic needs, which had a mean of 3.87 and a standard deviation of 1.670. Saving to invest in farming activity was ranked third with a mean and a standard deviation of 3.27 and 1.614 respectively. These results suggest that generally, respondents neither agreed nor disagreed, but with those who agreed, further explanation was given that cocoa farming requires financial resources to boost production, thus they needed to save towards that. Saving to cater for children's education had a mean of 2.74 and a standard deviation of 1.875 suggesting a neutral response. Many

respondents generally disagreed that they saved for financial gain, to buy expensive items and to start a new business as indicated by their means of 1.86, 1.87 and 1.54 respectively. The disagreement by respondents with saving for financial gain was contrary to the findings of Nayak (2013), who highlighted that households are encouraged to save in financial institutions with the anticipation that there will be extra income added to it.

Perceived barriers to saving by respondents

The perceived barriers to saving indicated by the farmers are presented in Table 4. The majority (56.3%) of the respondents mentioned that low income affected their ability to save. Also, 26.1 per cent mentioned the high dependence on cocoa as a factor affecting their saving. They further explained that there are typically two cocoa harvesting seasons, so during the non-harvest period, those who depend solely on cocoa production struggle to cater for their basic needs and this affects their ability to save. None of the respondents mentioned low interest on savings as a barrier to their saving ability though a few indicated that there was no benefit in saving. However, the majority of the respondents did not attribute their poor saving habit to the location of financial institutions which are mostly located quite far from their places of residence.

Table 4: Perceived barriers to saving

Barrier	Yes (%)	No (%)
Low income	56.3	43.7
Location of financial institution	4.9	95.1
Low interest on saving	0	100
No benefit of saving	6	94
High number of dependents	18.1	81.9
High dependence on cocoa farm	26.1	73.9

Source: Author's computation using field data

Factors which influence cocoa farmers to save

In order to examine the factors that influence cocoa farmers to save, equation (2) was estimated, as well as the marginal effect at the mean and these results are reported in Table 5.

Table 5: Estimated results of the binary probit regression mode

Explanatory variables	Coefficient	Std. error	Prob. value	Marginal effect
Age	-0.241	0.054	0.000	-0.060
Age square	0.002	0.0005	0.000	0.0005
Gender (female)				
Male	-1.202	0.254	0.000	-0.292
Household Size	-0.099	0.039	0.011	-0.025
Educational level (never)				
Basic	0.043	0.293	0.884	0.011
Secondary	0.156	0.339	0.646	0.039
Tertiary	0.430	0.545	0.430	0.102
Annual income (< GH¢2000)	0.466	0.655	0.477	0.123
2001-4000	0.207	0.646	0.749	-0.057
4001-6000	0.448	0.636	0.481	0.118
6001-8000	0.324	0.568	0.569	0.087
Above 8000	0.264	0.096	0.006	0.066
Cocoa Farm Size	0.038	0.028	0.171	0.009
Cocoa farming experience	-0.345	0.270	0.201	-0.086
Cocoa Farm ownership	0.124	0.335	0.712	0.032
Sole owner	6.631	1.436	0.000	
Group Membership				
Yes				
Constant				
Number of observations	364			
Wald $Chi^2(15)$	112.25			
Prob > chi^2	0.0000			
Log pseudo likelihood	-159.862			
Pseudo R^2	0.278			

Note: In parenthesis are the reference categories.

Source: Authors' estimation using field data and Stata (version 13).

The log pseudo likelihood of -159.862 with a probability value of 0.000 indicated that the entire model is statistically significant; thus, it fitted better than a model with no predictors. Further, this showed that age, age square, gender, household size, annual income, cocoa farm size, cocoa farming experience, ownership of cocoa farm and group membership mutually predict the likelihood of cocoa farmers' saving or not.

The coefficient of age of cocoa farmers was found to be statistically significant and negative at 1 per cent level. This suggested that as the age of cocoa farmers increase, their likelihood of saving decreases. The marginal effect indicated that a year increase in age decreases the probability of saving by 6 percentage points. This is explained by the life cycle hypothesis which states that young people tend to save more than older people because individuals save when they earn income and spend it during retirement or during periods which they do not earn any income. This finding disagreed with those of Rheman et al. (2010) and Gedela (2012) who found a positive relationship between age and saving but is consistent with those of Chikoko et al. (2013) and Osundare (2013) who also found a negative relationship.

Nonetheless the quadratic term of age had a positive relationship with saving and this was statistically significant at 1 per cent level. This means that age has a negative relationship with saving until cocoa farmers reach the age of 60 years. Thus, beyond the age of 60 years, cocoa farmers are more likely to save at a probability of 0.05 percentage points. This finding is attributed to the possibility of cocoa farmers engaging in farming even after the conventional retirement age of 60 years, thus they may be able to earn an income and save a portion of it.

The results also showed that gender had a statistically significant and negative effect on saving. Specifically, a male cocoa farmer was less likely to save than a female cocoa farmer. This is attributable to the fact that the respondents were mainly household heads, and being male suggests that they had many responsibilities which increased their household expenditure. The marginal effect indicates that being a male cocoa farmer reduces the probability of saving by 29.2 percentage points at 1 per cent significance level. This finding is in line with those of Chikoko et al. (2013) and Anang et al. (2015), who found that females are more likely to save compared to their male counterparts.

The results further reveal that household size was statistically significant and had a negative relationship with saving. This indicates that the larger the size of the household, the lower the probability of saving, which was expected because larger households signify more responsibilities which negatively affects saving. The marginal effect indicates that an increase in household size by one member decreases the probability of saving by 2.5 percentage points at 5 per cent significance level. This finding is in line with those of Tandoh and Tandoh (2015) and Olowoyeye et al. (2018) who also found a negative relationship between household size and savings.

The coefficient of size of cocoa farm was positive and statistically significant at 1 per cent level just as expected. This implies that an increase in the size of cocoa farm increases the likelihood of a cocoa farmer to save. This is attributable to the possibility of increase in yield which comes with cultivating larger areas. Obtaining higher yields in turn increase income and therefore increase the likelihood of saving. The marginal effect reveals that an acre increase in farm size increases the probability of saving 6.6 percentage points. This is in line with the finding of Osundare (2013) who reported that there is a positive relationship between farm size and the probability of saving.

The study however found no statistically significant relationship between the decision to save and educational level, income level, cocoa farming experience, cocoa farm ownership and the group membership of cocoa farmers.

Conclusion and Policy Suggestions

This paper sought to investigate the saving habits of cocoa farmers in Ghana. Specifically, the study identified the motives for saving, the barriers to saving and examined the factors which influence cocoa farmers' decision to save. The study sampled 364 cocoa farmers from the Atwima Nwabiagya district using the snowballing sampling technique and a questionnaire was the main field instrument. The main analytical tools used in the study were descriptive statistics and the binary probit regression model.

Given the findings, the study concluded that most of the cocoa farmers saved a portion of their income. The farmers saved to meet

emergencies, provide basic needs and invest in cocoa farms. It also concluded that the main barriers to saving among the cocoa farmers were high dependence on cocoa production and the location of financial institutions which are quite far from the farmers' residence. Also, the farmers are not very educated but the level of education did not have an influence on their decision to save. Again, the cocoa pension fund is new to many of the cocoa farmers, thus only a few contributed their savings to the fund. Regarding the determinants of saving, the study further concluded that age, gender, household size, and cocoa farm size were the main factors which influence cocoa farmers' decision to save.

Based on the findings and conclusions, the study recommends that the saving culture of the cocoa farmers be enhanced. Specifically, this can be achieved through financial literacy programmes, financial education and awareness on the importance of saving to both the farmers and the economy at large. Also, the study recommends that the cocoa farmers should be educated on the benefits of saving in their pension funds by the district Ministry of Food and Agriculture. This will go a long way to help the farmers to contribute to the pension fund in order to secure their future and also for any contingencies. In all, when these cocoa farmers save portions of their income, it will serve as funds for investment which is also a prerequisite for economic growth and the development of the country. With regard to areas for future research, the level of financial literacy among cocoa farmers and its effect on saving behaviour can be studied. In addition, future studies can investigate the determinants of investment behaviour among these farmers since saving is closely related to investment.

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