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Original Research Article

Comparative Analysis of Savers and Non-Savers among Tomato Farmers in Ghana

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Abstract

The study sought to examine the differences between savers and non-savers among a cross-section of 562 farmers randomly selected from six districts in three regions (Ashanti, Brong Ahafo and Upper East) of Ghana. By means of descriptive statistics in the form of frequencies and percentages, the study segregated the respondents into savers and non-savers and Kendall coefficient of concordance was employed to identify the motives of saving among savers and non-saving among non-savers. In order to test whether savers and non-savers differ in relationship to some key socio-economic demographic characteristics, a series of Pearson's Chi-tests for independence were employed. Finally, by the application of economic-psychology theory on financial savings through binary logistic regression, the study examined empirical differences between savers and non-savers. The study found out that in terms of a key economic variable, that is, income generated from tomato production, savers tend not to differ from non-savers. The issue then is since savers are faced with similar economic challenges relating to their income generating activities, but still manages to save, then the differences between savers and non-saver go beyond economic reasons. Thus, the distinction between saving and non-saving which is underlined by psychological traits have been found to be mainly behavioural and demographic in nature conveying the idea that rural households themselves have a significant part to play with regards to forming, improving and maintaining their savings habits.

Keywords: savings; income; consumption; motives; households; conscious effort to save.

INTRODUCTION

Economic literature underlining (consumption) and savings behaviour either at the household or individual level basically highlights three major theories, which are (1) the life-cycle hypothesis (Modigliani and Brumberg, 1954; Modigliani and Ando, 1963); (2) the permanent income hypothesis (Friedman, 1957); and (3) the relative income hypothesis (Duesenberry, 1949). All three theories have their conceptual roots in the microeconomic theory of consumer (households or individuals) choice of foregoing present consumption in order to save or otherwise. In essence, it is acknowledged that savings decisions are at the heart of short and long run macroeconomic analysis as well as much of microeconomics. In the short run, spending dynamics are of central importance for business cycle analysis and the management of monetary policy. And in the long run, aggregate saving determines the size of the aggregate capital stock, with consequences for wages, interest rates, and the standard of living. It can therefore be concluded that savings for an economy is a predominant component (Melesse, 2015).

Much as savings plays a vital role in the lives of rural households, available evidence seems to suggest the actual decision regarding the planning and undertaking of savings by most rural households in most developing countries with Ghana being no exception, tends to be difficult for them to take. In the opinion of Bauer (2014), the act of making a conscious to save, that is, forming a savings habits by most people tends to be difficult for them and therefore, most poor households, an economic bracket which encompasses most rural households have been observed to spend their little disposable income on non-essential items such as alcohol and tobacco rather than saving. As to why people find it difficult to make that decision to save, Bauer deduced two main reasons. The first of these reasons borders on loss aversion of which researchers have determined that people require much more to give up something they already possess than they are willing to pay for it (Kahneman et al., 1991). In relating this to financial savings, researchers have deduced that setting aside money into a savings account may feel like a loss to most people because it prevents a gain in the current context. Therefore, in the opinion of Bauer (2014), in order to rise above loss aversion, banking and finance institutions should make the gains of savings accounts "more tangible". Thus, labelling accounts for "emergencies", "house"

or "retirement" may help remind people why they are saving. In addition to this, providing visual reminders why a savings account was set up may also remind people of future gains and distract them from the loss they are currently experiencing.

Importance of savings to rural households

Most rural households with tomato farmers being no exception are susceptible to a large number of risks and uncertainties related particularly to their production activities as well as risk and uncertainties bothering on diseases, conflicts and climatic changes. Nevertheless, certain risk mitigation actions can be put in place to help overcome or prevent some if not all of these risks. These risk mitigation actions may include preventative health care systems, free medical care, subsidies on basic goods and services, provision of food hand-outs and public support arrangements such as food for work programmes (Hoogeveen et al., n.d.). Despite the fact that these risk mitigation measures are important to help rural households to cope with risks and uncertainties, they have the inherent tendency of creating dependency syndrome among such households (Aidoo-Mensah, 2005). However, the establishment of reliable and appropriate safety nets such as promoting savings habits among rural households can enable them to handle some or all these risks and uncertainties on their own with little or no external assistance. Consequently, savings can be relied upon as an important tool of improving well-being, insuring against times of shocks, and providing a buffer to help people particularly rural households cope in times of crisis with little or no external assistance (Miracle et al., 1980; Rutherford, 1999; Zeller and Sharma, 2000). Besides, the relatively underdeveloped financial systems existing in the rural sector mean that accumulation of financial resources is often the only way to acquire productive capital or wealth that can be passed on to future generations (De Laiglesia and Morrisson, 2008). In addition, savings particularly at the household level is needed to finance capital (both physical and human) formation in order to increase output and wellbeing of rural households in developing countries (Bautista and Lamberte, 1990). In the opinion of De Laiglesia and Morrisson (2008), besides increasing investment rates in less developed countries, savings is a fundamental tool in the task of lifting rural households to a more sustainable and faster growth and development path.

Savings services are also necessary because many rural households may not be in a position to take advantage of credit for investment into their businesses. This is because investments opportunities in such rural settings may be limited to warrant borrowing. Moreover, in many cases rural households may be too poor and the fluctuations in their incomes and the risks they face are too high for them to rely on borrowing strategies alone to pull them out of poverty. Such households may require other or additional services such as savings besides credit to manage the household budget and risks. In rural settings where some forms of investments opportunities may exist, households may also require savings services to help them better manage their resources over time and to enable them to plan and finance their investments, as borrowing alone is not enough to pull them out of poverty. In this vein, Franco (2004) reported that about 200 million Chinese have been uplifted out of absolute poverty as a result of high domestic savings ratio.

Downturns in income or shocks can have severe consequences for rural households particularly those that are struggling to subsist. Even households whose income is adequate, on average may face transitory food insecurity or the risk of it. Savings may therefore be needed to maintain adequate consumption levels especially in the periods of food shortages among rural households. For the poorest households, one large shock or a series of small ones can lead to major reductions in food intake, which can lead to permanent disability, especially of children, and lasting impoverishment of the entire household. Thus, the poorer, more risk-averse, and vulnerable a household is, the more important precautionary saving becomes a risk mitigation measure to such a household (International Food Policy Research Institute, 2002).

It is also significant to note that in many developing countries, more capital is held in the informal economy than in the formal economy. A large part of this capital is held in small amounts by those living near or below the poverty line. Developing countries can bring these numerous small capital holdings into the formal sector by providing poor households with savings services that can meet their needs and made readily accessible to them (Fernando, 1991; Dadzie et al., 1996; Adams, 2002; Sanusi, 2002).

Motives for savings

Much as the socio-economic benefits accruing from savings are varied, so also are the motives or reasons underlying individuals' savings decisions. This is not surprising as research in psychology has identified a hierarchy of saving motives ranging from the more concrete or immediate goals (like consumption), through intermediate goals (like security needs, retirement, debt avoidance and precaution) to the more abstract goals of self-esteem and self-gratification (Canova et al., 2005). Among the early economists to identify savings motives, was Keynes (1936) whose eight savings motives listed below have withstood the test of time:

1. Precaution: Setting aside for unexpected circumstances.
2. Foresight: Meeting anticipated future needs.

3. Calculation: Earning interest.
4. Improvement: Increasing a standard of living over time.
5. Independence: Needing to feel self-sufficient and in control.
6. Enterprise: Investing money into business.
7. Pride: Leaving money to heirs.
8. Avarice or miserliness: Being greedy or tightfisted.

To these motives suggested by Keynes (1936), Browning and Lusardi (1996) added a ninth one, that is, to accumulate deposits (savings) to buy houses, cars and other durables, termed as the down payment motive. Katona (1975) offered six more general motives for saving as follows: (1) for emergencies, (2) to have funds on reserve for necessities, (3) for retirement or old age, (4) for children's needs, (5) to buy a house or durable goods and (6) for holidays.

According to Fisher and Anong (2012) these motives may not necessarily be mutually exclusive but rather complementary. In the opinion of Browning and Lusardi (1996), there is considerable heterogeneity among the motives for saving. In other words, it is unlikely that a single motive will suffice for all members of a population at any given time or even for the same person over a long stretch of time.

However, among these savings motives, precautionary savings motive is considered as one of the most important and this has been confirmed by several empirical studies which show that precautionary savings may contribute to as much as 50 percent of aggregate wealth for individuals under age of fifty (Hurst et al., 2008). For instance, in a study of 2448 respondents in the Netherlands, Mastrogiacomo and Alessie (2012) established that precautionary savings accounted for 30 percent of savings motives among the respondents.

Characterization of savers and non-savers

It is acknowledged that savings decisions are at the heart of short and long run macroeconomic analysis as well as much of microeconomics. In the short run, spending dynamics are of central importance for business cycle analysis and the management of monetary policy. In the long run, however, aggregate saving determines the size of the aggregate capital stock, with consequences for wages, interest rates, and the standard of living. It can therefore be concluded that savings is a predominant component of any economy (Melesse, 2015).

Savers tend to approach saving in a way that is consistent with a deep-seated disposition and see saving as a priority in itself (Kempson and Finney, 2009). Non-savers on the contrary do not actively save at all and have no plans to start saving now or in the near future, that is, they do not make any conscious effort to save (Whyley and Kempson, 2000). In a discriminant analysis of savers, non-savers and non-savers with savings, the two latter groups were found to be similar (Warneryd, 1999). Thus, there are the two broad categorizations of savers and non-savers.

MATERIALS AND METHODS

Types and sources of data

The empirical research into to savings behaviour, that is, the dynamics of how people save including the choice to save or not to save is usually done using either of two approaches: macroeconomic (use of aggregate data) and microeconomic (individual) which is the same as the use of primary data (Niculescu-Aron, 2012). This study made use of the second approach, that is, the use of primary data. The primary data used in the study were collected mainly from tomato farmers. Data were collected through a combination of individual interviews and focus group discussions. Structured questionnaires were used to collect data from the sampled tomato farmers.

The employment of primary or micro data for the study stems from the fact that analysis of such data can be relied upon to give accurate information and important insights on savings habits of particularly households. Additionally, primary data may also yield considerably greater accuracy in the evaluation of the parameters than estimates based on aggregate data and also allows for the identification of those demographic characteristics that influence savings habits (Niculescu-Aron, 2012).

Sampling

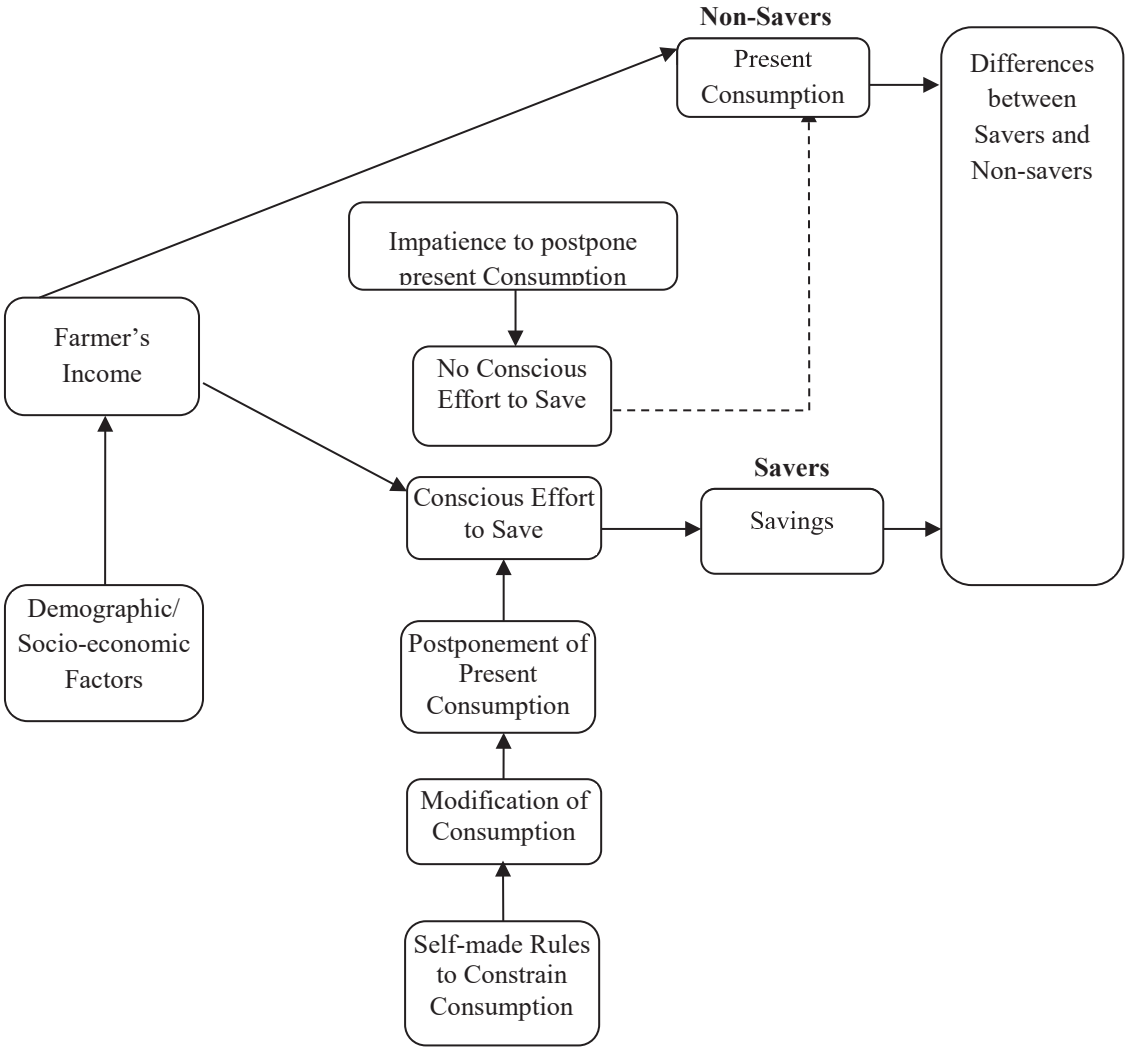
The study employed multistage sampling method to select three regions in Ghana and two districts from each of the three regions. The selection of the three regions and their respective districts was guided by the level of agricultural activities in particular tomato production based on official statistics from Ministry of Food and Agriculture (MoFA). Records of PPMED of MOFA (1997) for instance, indicates that the Ashanti and the Brong Ahafo regions together produce about 43% of the tomato output in Ghana. A third stage of the sampling involved simple random sampling procedure which resulted in the selection of 599 respondents. This was proportionally distributed across the six districts based on the number of households engaged in agricultural production obtained from the 2010 Population and Housing Census. However, the response rate was 94%, that is, 562 out of the 599 were fit for the analyses.

Analytical framework

Conceptual framework for the decision to save

The conceptual framework for the decision to save is akin to an individual's decision to participate in an

Figure 1. Conceptual Framework



Source: Author's Construct, 2015

activity which is dichotomous involving two mutually exclusive alternatives (Gujarati, 2004; Greene 2007; Ayamga et al., 2008). According to Hill and Kau (1973), the framework for this type of analysis has its roots in the threshold theory of decision making whereby a reaction to take a decision or not to do so occurs only after the strength of the stimulus to take a decision increases beyond the individual's reaction threshold. This according to Ayamga et al. (2008) implies that every individual decision maker when faced with a choice has a reaction threshold influenced by several factors. The primary focus of the framework is to outline the various processes underlying a tomato farmer's decision of making conscious effort to save and also identify the factors that influence these processes.

The framework is premised on the assumption that the decision of a tomato farmer to save begins with his/her income level as depicted in Figure 1. This is due to the fact that income has been identified as the main determinant of savings (Keynes, 1936). The tomato farmer's income level is hypothesized to be underlined by such demographic and socio-economic factors as gender, marital status, engagement in non-farm income generating activities, wealth, years of education, years of tomato farming experience, farm size, age, household size, family members who contribute to household income in the form of local or international remittances termed as secondary earners and contributions made by these secondary earners. The income of the tomato farmer is fundamentally channeled into two components, viz. present consumption, and future consumption which are the postponement of present consumption in order to take care of the future. Thus, according to the neoclassical theory on savings first propounded by Fisher (1930), savings is seen as an inter-temporal decision between consumption today and consumption tomorrow (future consumption). The result of this inter-temporal decision to postpone

today's consumption for tomorrow termed as savings is the monetary expression of an individual's willingness to sacrifice today's consumption (Jones, 2009). Such a decision either by an individual or household reflects more or less a conscious attempt at achieving the preferred distribution of income for consumption over the life-cycle of the individual or household as hypothesized by Modigliani (1986).

For this reason, the decision to forgo present consumption for a higher level of future consumption is seen as vision which defines one's conscious effort of saving towards his/her future. It is envisaged that each individual or household will hold such a vision with enough certainty that it would be worthwhile to use this vision as a basis for rational planning of consumption decisions. Therefore, the underlying psychology of saving termed as the psychology of postponement of instant gratification is such that the decision-maker in a household (in this case the farmer) puts enormous weight not on the present but on the future, thereby, drastically discounting present events (Laibson, 2007) in order to save to take care of the future. In addition, the underlying psychology assumes that most individuals are usually impatient and may want to consume their resources today and may be only willing to trade some consumption today for tomorrow at a price. Such impatience may be buttressed by the fact that traditional models of savings such as the life-cycle hypothesis (Modigliani, 1986) and the permanent income hypothesis (Friedman, 1957) assume that individuals are usually torn between the decision to consume now or postpone consumption to the future in order to save (Ashraf et al., 2003).

Thus, studies on decision-making processes underlying savings suggest that savings is underlined by a conscious effort on one's part which demands self-control to overcome undue impatience in order to postpone present consumption (Warneryd, 1999). This implies that simply having excess money after present consumption has been taken care of does not necessarily mean that the excess money has been saved or will be saved (Kodom, 2013) unless one makes conscious effort to do so. Hence, regardless of income level, savers it is hypothesized make this conscious effort to save, that is, they tend to approach saving in a way that is consistent with a deep-seated disposition of self-control which makes postponement of present consumption possible (Kempson and Finney, 2009). Non-savers on the other due to impatience to postpone present consumption as a result of lack of self-control do not make the conscious effort to save. The exhibition of self-control in ones consumption entails altering ones consumption preferences or modifying these preferences entirely. The modification of consumption is guided by self-made rules that constrain opportunities to consume (Mbuthia, 2011) as conceptualized in Figure 1.

It is assumed that in making the self-made rules that constrain present consumption, the individual looks at the utility to be gained from postponement of consumption in order to save. Following Maddala (1999), Kiiza and Pederson (2002), Mbuthia (2011), the utility function of the individual is given as:

$$U_{ij} = U_{ij}(X_{ij}), \text{ where} \quad (1)$$

U_{ij} = Utility of the ith individual derives from postponing consumption in order to save with jth financial intermediary.

X_{ij} = Vector of characteristics (socio-economic and demographic) of the ith individual who postpones consumption in order to save with jth financial intermediary.

Equation (1) can be specified as:

$$U_{ij} = X_{ij}\beta + \varepsilon_i \quad (2)$$

Where β is a vector of coefficients to be estimated, and this underscores the socio-economic and demographic characteristic of the decision-maker who postpones consumption in order to save.

ε_i represents the error term which is assumed to be randomly distributed as well as independently and identically distributed.

From the foregoing, savings demands a conscious effort requiring some degree of will-power on the part of the saver in order to do so. Therefore, supposing an individual makes a conscious effort to save or not to do so resulting in a binary dependent variable, Y_i which is estimated by using logistic distribution such that Y_i takes a value of either 1 or 0 and y_i being the realisation of Y_i which is defined as:

$$y_i = \begin{cases} 1 \text{ if the individual makes conscious effort to save} \\ 0 \text{ if otherwise} \end{cases} \quad (3)$$

The probabilities of conscious effort to save or not can take probability values of π and $\pi - 1$ respectively. It implies that if:

$$y_i = 1, \textit{ that is} \text{ conscious effort } \textit{to save, we obtain } \pi \quad (4)$$

And if:

$$y_i = 0, \textit{ that is does not make conscious effort to save, we obtain } 1 - \pi \quad (5)$$

For the ith individual, the utility of postponing consumption is given as U_{ij} that is making conscious effort to save. This is opposed to the utility, U_{ij}' of consuming now, that is, one does not make any conscious effort to save. The two scenarios are expressed as below:

$$U_{ij} = X_{ij}\beta + \varepsilon_i \text{ (Option 1)}$$

$$U_{ij}' = X_{ij}'\beta' + \varepsilon_i' \text{ (Option 2)}$$

Where X_{ij} and X_{ij}' are the vectors of the characteristics of the parameters, β and β' respectively.

Assuming that the utilities U_{ij} and U_{ij}' are randomly distributed such that the ith individual chooses the Option 1, thus $U_{ij} > U_{ij}'$, as given below:

$$(X_{ij}\beta+\varepsilon_i)>(X_{ij}'\beta'+\varepsilon_i') \quad (6)$$

By equating β to $(\beta - \beta')$, Equation (6) can be re-arranged and re-written as:

$$\varepsilon_i' - \varepsilon_i < X_{ij}\beta \quad (7)$$

It is also assumed that the two error terms, ε_i and ε_i' are independently and identically distributed and are drawn from a Log-Weibull distribution such that the probability of a respondent choosing for instance Option 1 given is given by the cumulative density of the difference between the two $(\varepsilon_i' - \varepsilon_i)$ to the point $X_{ij}\beta$. The probabilities of the two options are modelled by the distribution function (cumulative probability function) of the logistic distribution (Chatterjee and Hadi, 2006).

Empirical application of the model

The logistic function is given by:

$$f(x)=\frac{1}{1+e^{-x}} \quad (8)$$

$$Y_i^* = \beta_1 + \beta_2 x_{2i} + \mu_i \quad (9)$$

The logit model can be in the form of the standard linear regression model given as:

$$y_i = \begin{cases} 1 \text{ if the individual makes conscious effort to save} \\ 0 \text{ if otherwise} \end{cases}$$

Using the logistic function, π_i , that is the conscious effort to save by an individual is given by:

$$\pi_i=\frac{1}{1+\exp^{-Y_i^*}} \quad (10)$$

That is:

$$\pi_i=\frac{1}{1+\exp^{-\beta_1+\beta_2 x_{2i}+\mu_i}} \quad (11)$$

Not making conscious to save is given:

$$1-\pi_i=\frac{\exp^{-\beta_1+\beta_2 x_{2i}+\mu_i}}{1+\exp^{-\beta_1+\beta_2 x_{2i}+\mu_i}} \quad (12)$$

Representing $\beta_1 + \beta_2 x_{2i} + \mu_i$ by ϕ
Equation (12) becomes:

$$1-\pi_i=\frac{e^{-\varnothing}}{1+e^{-\varnothing}}=\frac{\frac{1}{e^{\varnothing}}}{1+\frac{1}{e^{\varnothing}}}=\frac{\frac{1}{e^{\varnothing}}}{\frac{e^{\varnothing}+1}{e^{\varnothing}}} \quad (13)$$

Equation (13) can be simplified as:

$$1-\pi_i=\frac{1}{e^{\varnothing}}*\frac{e^{\varnothing}}{e^{\varnothing}+1} \quad (14)$$

Equation (14) is the same as:

$$1-\pi_i=\frac{1}{1+e^{\varnothing}} \quad (15)$$

Equation (15) can be written as:

$$(1-\pi_i)(1+e^{\varnothing})=1 \quad (16)$$

$$1+e^{\varnothing}-\pi_i-\pi_i e^{\varnothing}=1 \quad (17)$$

$$e^{\varnothing}-\pi_i e^{\varnothing}=\pi_i \quad (18)$$

$$e^{\varnothing}(1-\pi_i)=\pi_i \quad (19)$$

$$e^{\varnothing}=\frac{\pi_i}{1-\pi_i} \quad (20)$$

Taking natural log of both sides of Equation (20) yields:

$$Ine^{\varnothing}=In\left(\frac{\pi_i}{1-\pi_i}\right) \quad (21)$$

Equation (21) implies that:

$$\varnothing=In\left(\frac{\pi_i}{1-\pi_i}\right) \quad (22)$$

Substituting Equations (9) and (12) into Equation (22) yields:

$$Y_i^*=\beta_1+\beta_2 x_{2i}+\mu_i=\varnothing=In\left(\frac{\pi_i}{1-\pi_i}\right) \quad (23)$$

The logistic regression model equates the logit transformation (that is, the log-odds of the probability of a success (making conscious effort to save) to non-success, that is (not making conscious effort to save), to the linear component:

$$CES=In\left(\frac{\pi_i}{1-\pi_i}\right)=\beta_1+\beta_2 x_{2i}+\mu_i=\beta_0+\sum_{k=0}^{k} X_{ik}'\underline{\beta}_k+\mu_i \quad (24)$$

CES is the conscious effort to save when it is 1, thus, we obtain π_i; or *CES* is not making conscious effort to save when it is 0, that is $1-\pi_i$. X_{ik}' is the vector of independent variables of interest (factors characterizing an individual who makes a conscious effort to save or who does not make conscious effort to save). $\underline{\beta}_k$ is the vector of coefficients and β_0 represents the intercept or unobservable fixed effects. The logit model, that is, Equation (24) is a non-linear model so its parameters are estimated by non-linear estimation such as the Maximum Likelihood Estimation procedure.

Specification of empirical model for the characterization of savers and non-savers

From equation 24, the empirical model for the characterization of savers and non-savers is given as:

$$L = X_i'\beta + \varepsilon_i \quad (25)$$

The variables characterizing savers (tomato farmers who make conscious effort to save) from non-savers (tomato farmers who do not make conscious effort to save) were identified from literature, thus, the empirical model is given as:

$$L = \beta_0 + \beta_1(Farmsize) + \beta_2(Nonfarm) + \\ + \beta_3(Yrsedn) + \beta_4(Income) + \varepsilon_i \quad (26)$$

Definition and measurement of variables and their underlying hypothesis

Farmsize – This is a tomato farmer's size of tomato farm during the 2015 both major and minor seasons and it is measured in hectares (ha). It is hypothesized that all things being equal as farm sizes increase, it is assumed that production would equally increase resulting in increased incomes, thereby, making a tomato farmer more a saver than non-saver.

Nonfarm – Engagement in non-farm is a dummy variable given as one (1) if a tomato farmer engaged in non-farm income generating activity and zero (0) if otherwise. It was expected that all things being equal, engagement in non-farm activity was likely to increase a tomato farmer's income, thereby, increasing the probability of one being a saver than non-saver.

Yrsedn – Years of education indicate the number of years a tomato farmer has had formal education. It is hypothesized that as the number of years of education of tomato farmer increases to the level of secondary education and above, it is expected that the farmer would have higher inclination of being a saver than non-saver.

Income – The income of the respondents for the study included their total income from their tomato production activities during both the major and minor tomato seasons in 2015 as well as income from other crops, animals and non-farm activities. This was measured in Ghana Cedis (GH¢). Increase in income was expected to increase the probability of tomato farmer being a saver than non-saver.

RESULTS AND DISCUSSION

Conscious effort to save among the respondents

according to the neoclassical theory on savings first propounded by Fisher (1930), savings is seen as an inter-temporal decision between consumption today and consumption tomorrow. Hence consumption is seen as the final purpose of economic activity. Psychology underlying consumption assumes that most individuals are usually impatient and may want to consume their resources today and may be only willing to trade some consumption today for tomorrow at a price. The result of this inter-temporal decision to postpone today's consumption for tomorrow termed as savings is the monetary expression of an individual's willingness to sacrifice today's consumption (Jones, 2009).

Studies on decision-making processes suggest that savings is underlined by a conscious effort on one's part which demands self-control in order to postpone present consumption (Warneryd, 1999). The underlying psychology is the psychology of postponement of instant gratification such that the decision-maker in a household puts enormous weight not on the present but on the future, thereby, drastically discounting present events (Laibson, 2007). Therefore, savings demand a conscious effort bordering on behavioural action or inaction such as self-control (Wu, 2005) on the part of an individual. As seen on Table 1, majority of the respondents (88%) indicated that they make conscious effort to save.

Motives for non-saving

As to why they do not make any conscious effort to save, the 12% who indicated that they do not make any conscious effort to save gave varied reasons for their non-saving habit. As indicated on Table 2, "***Income too small***" was ranked as the most important reason for non-saving. This is not surprising as the most often cited reason for non-saving has been low levels of income, and in particular insufficient disposable income (Kempson et al., 2000). In reference to the respondents who by the nature of their dominant economic activity – tomato cultivation, do earn their income on

Table 1. Distribution of conscious effort to save among respondents

Conscious effort to save	N	%
Make conscious effort to save	496	88
Do not make conscious effort to save	66	12
Total	**562**	**100**

Source: Field Survey, 2015

Table 2. Ranking of motives for non-saving

Motives for Non-Saving	Mean	Rank
Income too small	6.151515	**1**
Too many financial commitments	5.166667	**2**
Recurring emergencies like sicknesses etc	4.818182	**3**
I have a very busy schedule	3.378788	**4**
No convenient place to save	3.08	**5**
You cannot deposit small amounts	2.76	**6**
Inconvenience hours of opening and closing of financial institution	2.651515	**7**
Number of observations (N)		**66**
Kendall's W		**0.402203857**
Chi-square		**159.2727273**
Df.		**6**
Asymptotic significance		**0.00000**

Source: Field Survey, 2015

seasonal basis, small size of income is almost become a seasonal norm. This is because available data suggest that over the past two decades, the tomato sector in Ghana has been stagnant and possibly declining, both in terms of area cropped and yield possibly due to low benefits accruing to the farmers in terms of price levels as farm-gate prices are essentially becoming lower and variable with time (Robinson and Kolavalli, 2010).

"***Too many financial commitments***" was ranked as the second most important reason for non-saving. It is generally said that the demand of everyday living with its attendant many financial commitments deprive many households and individuals to plan their future by adequately laying aside some money as savings (Dezyk and Slater, 2003).

Many households or individuals in the developing countries with little or no access to insurance to help cope with unpredictable and recurring emergencies such as sicknesses, fires etc., have been observed to find it difficult saving because the occurrence of these afore-mentioned events tends to have great toll on their finances (Kempson and Finney, 2009). In line with this, the respondents who do not make conscious effort to save ranked "***Recurring emergencies like sicknesses etc***" as the third most important reason for non-saving.

Degree of association among non-savers on their reasons for non-saving

In order to examine the degree of agreement among the non-savers on their reasons for non-saving, the Kendall's coefficient of concordance was employed. Kendall's W-value of 0.402203857 as seen on Table 2 indicates a reasonable degree of concordance among the 7 items rated by the respondents, and therefore the null hypothesis that there is no agreement among the ratings is rejected at any reasonable level of significance ($P < 0.01$).

Motives for saving

As to why they deem it important to save, the 88% who indicated that they make conscious effort to save gave various reasons why it is important for one to save. A ranking analysis method (Table 3) was used in order to understand why these respondents think it is important to save. They were asked to select as many as possible among 13 items (motives to save) and to rank their choices from 13 as the most important to 1 as the least important.

The result as depicted on Table 3 indicates that "***Taking care of future consumption***" is the most important motive respondents think is the reason one has to save. The choice of "taking care of future consumption" as number one motive to save is in line with life-cycle hypothesis of consumption (or LCH model). The model defines consumption pattern of an individual from one's early life till retirement and ultimately death. In other words, individuals are assumed to plan a lifetime pattern of consumer expenditure based on expected earnings over their lifetime.

According to the model, early in one's life consumption expenditure may exceed income as the individual may be making major purchases like buying a new home, starting a family, and beginning a career. At this stage in life, it is hypothesized that the individual will borrow from the future to support these expenditure needs. In mid-life however,

Table 3. Ranking of motives for saving

Motives for Saving	Mean	Rank
To take care of future consumption	11.06855	1
To serve as insurance against emergencies	9.737903	2
To raise capital for investment	9.582661	3
To raise capital for expanding my business	9.913306	4
Social security	8.945565	5
Meet basic household needs	8.949597	6
To start a business	7.653226	7
To control expenditure	7.381048	8
Financial freedom	2.453629	9
Safe custody of wealth	3.419355	10
To buy an expensive item	4.177419	11
Social reasons (Weddings, bride price etc)	4.096774	12
To pay back loan	3.620968	13
Number of observations (N)		**496**
Kendall's W		**0.597081285**
Chi-square		**3553.827809**
Df.		**12**
Asymptotic significance		**0.00000**

Source: Field Survey, 2015

these expenditure patterns begin to level off and are supported or perhaps exceeded by increases in income. At this stage the individual repays any past borrowings and begins to save for her/his retirement. Upon retirement, consumption expenditure may begin to decline, however, income usually declines dramatically. In this stage of life, the individual will dis-save or live off past savings until death (Modigliani, 1986; Ruby, 2003).

Moreover, the choice of "***taking care of future consumption***" as number one reason to save is in line with neoclassical economic theory which generally considers consumption to be the ultimate end of economic activity. Hence, households/individuals are deemed rational when their ultimate motive to save is focused on taking care of consumption now and in the future.

It has been observed that many people lack the financial resilience to keep up with demands on their finances particularly in the event of unexpected occurrence. For many of such individuals and households in developing countries where formal insurance systems are not well developed or in some cases totally absent the only means to take care of such shocks is to save towards the shocks. It is therefore not surprising that the respondents ranked "***To serve as insurance against emergencies***" as the second most important motive to save.

In recent decades, it has been observed that the numerous initiatives of governments as well as development agencies worldwide more particularly in developing countries to provide some form of access to financial services to rural households had not achieved the expected positive impact (Rabobank, 2005). Thus, rural households in most cases have resorted to the creation of sources of funds for investment into such items as farm machinery to ease drudgery through their own personal savings. Therefore, it is not out of place that "***To raise capital for investment***" was ranked as the third most important motive for making conscious effort.

Degree of association among savers on their motives for saving

In order to examine the degree of agreement among the savers on their motives for saving, the Kendall's coefficient of concordance was employed. Kendall's W-value of 0.597081285 as seen on Table 3 indicates there is about 60% agreement between the respondents

Table 4. Chi-square test for the relationship between Gender, Savers and Non-savers

Gender	Savers		Non-savers		Total
	Freq	%	Freq	%	N
Males	397	80	53	80	450
Females	99	20	13	20	112
TOTAL	496	100	66	100	562

Source: Field Survey, 2015 Pearson Chi-square $\chi^2 = 0.003$ df = 1 p = 1.0000 Not significant

in the ranking of the 13 items explaining the motives for saving and therefore the null hypothesis that there is no agreement among the ratings is rejected at any reasonable level of significance ($P < 0.01$).

Chi-square test analysis between savers and non-savers

In order to test whether savers and non-savers differ in relationship to some key socio-economic demographic characteristics, a series of Pearson's Chi-square tests for independence were employed for some key variables. The fundamental reason for the characterization is to determine the various variables which differentiate savers from non-savers and through a regression analysis determine the strength and direction of the relationship underlying these differences.

Characterization of savers and non-savers by gender

In order to test if savers and non-savers were actually significantly different from each other in terms of their gender, a Chi-square test of independence was employed. A cross-tabulation analysis method was used to collapse the set of variables concerning gender, make conscious effort to save (termed savers) and do not make conscious effort to save (termed non-savers) into one composite interrelated factor as indicated on Table 4.

The comparison of savers and non-savers on the basis of their gender is based on the assertion that asset ownership and its subsequent safe-keeping have psychological, political, economic and social undertones. Thus, women's and men's savings behaviour may differ because of the differences in the degree of economic vulnerability they face, and because gender roles and norms cause their economic interests to diverge (Chowa, 2006).

Moreover, research has shown that the decision underlying savings is related to expected and existing safety needs of households and individuals (Nagarajan et al., 2011). Along with the fact that in most societies in developing countries women are the primary managers of the household, they may be motivated to accumulate assets for the household as insurance or security. Therefore, they are more likely to engage in precautionary savings behaviour (Chowa, 2006).

Based on the above assertions, it was hypothesized that gender could be a factor to differentiate between savers and non-savers. Following the Chi-square test of independence the null hypothesis ($\chi^2 = 0.003$ **df = p = 1.000**) was accepted, since the test statistic of 1.000 is greater than the alpha level (that is, $P > 0.05$) as seen on Table 4. It is therefore concluded that gender has no impact on savings among the respondents. This is probably due to the fact that male and female respondents have equal access to information on savings, that is, financial intermediaries may not discriminate in their outreach programme of reaching out to possible clients.

Characterization of savers and non-savers by age

The rationale behind the age characterization of savers and non-savers is based on the fact that a positive relationship between age and savings has been in reported in a number of studies (Browning and Lusardi, 1996). Table 5 indicates that about 76% of the respondents who indicated that they make conscious efforts to save (termed savers) are those

Table 5. Table 5. Chi-square test for the relationship between Age, and Savers and Non-savers

Age	Savers		Non-savers		Total
	Freq	%	Freq	%	N
<30	111	22.4	21	31.8	132
30–65	377	76.0	44	66.7	421
>65	8	1.6	1	1.5	9
TOTAL	496	100	66	100	562

Source: Field Survey, 2015 Pearson Chi-square $\chi^2 = 2.892$ df = 2 p = 0.236 Not significant

Table 6. Chi-square test for the relationship between years of education, Savers and Non-savers

Years of education	Savers		Non-savers		Total
	Freq	%	Freq	%	N
< = 6	218	44.0	43	65.1	261
7–9	98	19.8	6	9.1	104
>9	180	36.2	17	25.8	197
Total	496		66		562

Source: Field Survey, 2015 Pearson Chi-square χ^2 = 11.062 df = 2 p = 0.004 Significant

within the age bracket of 30–65 years. This is in conformity with the life cycle hypothesis which predicts a high proportion of savers in the active working age brackets of 30–65 years. However, in sharp contrast to this, is the equally high proportion of non-savers about 66.7% in the same age bracket. Following a Chi-square test of independence the null hypothesis (**Chi-square χ^2 = 2.892 df =2 p = 0.236**) was accepted, implying that age has no bearing on either saving or non-saving among the respondents. A possible explanation for this finding could be that regardless of the differences in age, both savers and non-savers have relatively similar life experiences regarding savings (Melesse, 2015).

Characterization of savers and non-savers by number of years of education

kiiza and Pederson (2002), in their study of financial savings mobilisation in Uganda, indicated that the decision to open bank saving account among poor households is positively related to a number of factors of which education is paramount. Likewise, Devaney et al. (2007) found that higher levels of education, that is, the higher the number of years of education attained, the greater the likelihood of getting higher levels of savings through relatively high income levels from one's job.

Following a Chi-square test of independence (**χ^2 = 11.062 df = 2 p = 0.004**), the null hypothesis that number of years of education has no bearing on either saving or non-saving among the respondents was rejected. A possible explanation for this finding lies in the percentage differences between savers and non-savers in terms of literacy levels reached, that is, number of years of education as indicated on Table 6. The table shows that the majority of the respondents (about 65.1%) who have less than or equal to 6 years of education are more likely to be non-savers. This essentially means that majority of non-savers could not complete Junior High School. This is because for one to have completed junior high school, one should have spent 6 years at the primary school and 3 years at the junior high school level, making a total of 9 years. Moreover, from the table savers are in the majority (36.9%) in terms of years of education beyond 9 years as compared to non-savers (25.8%). Thus, the percentage between savers and non-savers in terms of their literacy levels may mean that savers who tend to be more literate have more exposure on information on savings than their non-saving counterparts.

Characterization of savers and non-savers by household size

According to Anyanwu (2013), the absence of well-developed social security systems in developing countries especially in Africa tends to encourage large family sizes particularly among the poor in order for parents to have economic support from children when parents reach old age. However, high poverty rates due to reduced income per capita have been associated with large family size in China (Zhang et al., 2012) which has the tendency of affecting the potential of a household's ability to save.

Table 7. Chi-square test for the relationship between House size, Savers and Non-savers

Household Size	Savers		Non-savers		Total
	N	%	N	%	N
≤3	99	20.0	15	22.7	114
4–6	254	51.2	36	54.5	290
7–9	117	23.6	11	16.7	128
>9	26	5.2	4	6.1	30
Total	496		66		562

Source: Field Survey, 2015 Pearson Chi-square χ^2 = 1.644 df = 3 p = 0.649 Not Significant

Table 8. Binary Logistic Function Results for Conscious effort to save (N = 562)

Variables	Coefficient (B)	S.E.	Wald	df	P-value	Odds Ratio Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Farm size	–.684	.261	6.901	1	.009***	.504	.303	.841
Engagement in non-farm income generating activities (1 = YES)	.269	.391	.473	1	.492	1.308	.608	2.814
Years of education	–.056	.028	3.995	1	.046**	.945	.895	.999
Respondents' total income	.000	.000	.993	1	.319	1.000	1.000	1.000
Constant	–.465	.659	.498	1	.480	.628		
Conscious effort to save (reference) 1								

Source: Field Survey, 2015 ***significant at 1%, **significant at 5%, *significant at 10%

Table 7 indicates that the majority of the respondents (about 54.5%) who are within the 4–6 household size brackets are more likely to be non-savers. However a Chi-square test of independence (χ^2 **= 1.644 df = 3 p = 0.649**), indicates household size has no bearing on either saving or non-saving among the respondents.

Empirical characterization of savers and non savers

Economic-psychology studies of savings have shown that a combination of economic, socio-demographic and psychological variables seem to differentiate savers from non-savers (Warneryd, 1999). Thus, regardless of one's income level, people tend to approach saving in a way that is consistent with a deep-seated disposition underlined by one's economic, socio-demographic and psychological traits.

Binary logistic regression analysis was employed to predict the probability of a respondent being a saver (make conscious effort to save) or non-saver (does not make conscious effort to save) based on four predictor variables. The predictor variables are farm sizes, respondents' total income, years of education and engagement in non-farm activities. Their various coefficients are reported on Table 8. A test of the full model versus a model with intercept only was statistically significant at $\chi^2(4, N = 562) = 28.499, p < .001$. Even though, the model explained 9.6% (NagelkerkeR^2) of the variance in one's decision of making conscious effort to save or not, it correctly classified 88.3% of the decisions. The results indicate that farm size ($p = .009$ and years of education ($p = .046$) added significantly to the model/prediction but engagement in non-farm activities ($p = .492$) and respondents' total income ($p = .319$) did not add significantly to the model.

Table 8 indicates a significant but negative relationship between farm size and farmer's decision to make conscious effort to save. This may suggest that a tomato farmer may reduce farm size in order to make conscious effort to save. In order to fully understand the import of such a decision, consideration is made of the odds of a tomato farmer who engages in non-farm income generating activities and also makes conscious effort to save which is 1.308 greater than when one engages in non-farm income generating activities but makes no conscious effort to save.

In essence, it may mean that in order for one to make conscious to save one has to reduce one's tomato farm size so as to have enough time to engage in non-farm income generating activities. This sounds plausible since engagement in non-farm activities is deemed as an important component of income diversification which enables practitioners to seek business or employment opportunities other than traditional crop production and livestock rearing (Kim, 2011). This has been necessary particularly for tomato farmers in Ghana since the sector's performance in terms of sustaining and improving the livelihoods of practitioners keeps on declining (Robinson and Kolavalli, 2010) mainly due to the volatility of tomato prices in recent times (Tutu, 2010). Thus, income diversification for the tomato farmers becomes a significant livelihood strategy which may enable these farmers to save even in the face of declining fortunes of the tomato sector. This therefore gives credence to the fact that participation in non-farm activities may enable farm households to smooth out not only their consumption but also their savings

in the event of fluctuations in agricultural income that might occur on seasonal basis or as a result of unexpected events (Gordon and Craig, 2001).

Table 8 also indicates a significant but negative relationship between years of education and farmer's decision to make conscious effort to save and this is not consistent with *a priori* expectation. This may suggest that a tomato farmer may reduce number of years of education in order to make conscious effort to save and can be explained by the fact that not all levels of education lead to higher income and that longer school enrollment tends to delay employment, thereby, negatively affecting ones income (Yabiku and Schlabach, 2009).

From Table 8, the odds ratio of savers to non-savers in terms of their total income, that is, Exp(B) of total income =1.000. This means that one can confidently accept the hypothesis that the odds ratio in question is 1 (the value expected if there was no effect). This suggests that in relation to the amount generated as income from tomato production, savers and non-savers are not significantly different from one another. This implies that non-savers are not earning significantly less than their saving counterparts since they are all in similar circumstances and have comparable resources at their disposal and therefore cannot blame their inability to save on their lack of income or lower income levels. The issue then is since savers are faced with similar increased living expenses or deteriorating living standards but still manage to save, then what do non-savers do with the money they earn?

CONCLUSION AND RECOMMENDATIONS

The study looked at the differences between savers and non-savers among tomato farmers in Ghana by taking into consideration some demographic and socio-economic variables, such as gender, age, farm size and years of education. However, the study found out that under most of the variables discussed, savers were not different from their non-saving counterparts and that the differences between these two groups of economic actors may be due to a deep-seated disposition which savers have and which non-savers lack. Thus, non-savers may be likened to people who want instant gratification in the sense that when given a choice between a relatively small reward that is available immediately (present consumption) and one that is relatively bigger but available with some delay (postponement of consumption to save) tend to choose the small immediate reward.

Though, the preference for the small but immediate reward in itself is not irrational taking into consideration of the uncertainties of the future. Nevertheless, such a preference may defy rational thinking due to the economic and financial values which accrue from saving to secure the future because of the very uncertainties which may prompt immediate consumption rather than saving. It is therefore recommended that governmental agencies such as extension section of Ministry of Food and Agriculture as well as non-governmental organisations which deal with farmers should incorporate savings elements into their programmes. This should aim at helping people, particularly farmers, to overcome certain behavioural patterns which do not encourage them to save.

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