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Article

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Rural Farm Household Saving Habit in Ethiopia: Evidence from South West Amhara Growth Corridor

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Abstract

This study explores farm household saving habit. Data used was drowning from 420 farm households in Amhara national regional state of Ethiopia. Order probit model was used to explore the determinants of farm household saving habit. Model result show that education, land size, saving account, community based health insurance, number of formal financial institution nearby increae likelihood of the household's good saving habit formation while aid, festive expenditure and credit access were likely reduce households' good saving habit. We suggest intervention to reduce funereal spending, expanding community based health insurance and incresing financial inclusion are required to build and scale up good saving habit formation of rural farm households.

Key words

Saving habit, farm household, order probit, Ethiopia

JEL Codes: D14, E21, C21

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1. Introduction

Saving is considered as a catalyst for fostering economic growth and development through capital accumulation. When investment is financed mostly by local savings, the fruits of development are enjoyed by the country's citizens. A country's enrichment depends upon its ability to save and invest in productive enterprises. When national savings fall short of investment needs, countries resort to foreign borrowing in which future income will be transferred abroad in the form of interest and dividends (Girgis, 2008). Hence, low level of saving is the prominent reason for slow and stagnant economic growth and countries indebtedness (Todaro and Smith, 2009).Low level of domestic saving is the feature of LDCs including Ethiopia because of high unemployment, low wage, low productivity and engagement of huge population in the informal sector (Haileselassie *et al.,* 2013).

Ethiopia's savings rate is substantially lower than what would be expected for a low-income sub-Saharan Africa country (Geiger and Moller, 2013). The gap between Gross Domestic Savings and the investment rate widened over the past three decades. Investment raised from 15.7 percent of GDP in the 1980s to 23 percent in the 2000s, while Gross Domestic Savings declined from 10.5 percent to 6.1 percent of GDP over the same period. Recent revisions in the national accounts of Ethiopia indicate a growing savings rate again over the past years. This is mainly due to the fact that most of the households in Ethiopia are subject to extravagant festival norms and relay on agricultural sector, which is subjected to lower productivity and exposed to climatic variation (Abu, 2004; Wilcox, 2008). Negative real interest rates and demonetization are also the mentioned reasons for Ethiopia to achieve low saving rate performance (Geiger and Moller, 2013). Lack of savings implies both risks to the individual and potentially higher borrowing costs for businesses that choke off advancements in productivity and social welfare (Abu, 2004; Wilcox, 2008). On the other hand, LDCs low saving is esteemed not only from low level of income but also their overgenerous behavior. Hence, lack of ample national saving in most LDCs makes a trust on foreign capital inflows and hence resorting to external borrowing, in order to finance high levels of investment, will result in a gradual build-up of debt (Loayaza *et al.,* 2000; Geiger and Moller, 2013).

Keynesian proposition of higher disposable income lead to more saving is supported by the empirical findings of Hagos and Michael (2014), Kibret *et al* (2009), but it does not hold for others since it is not the disposable income that largely matter saving behavior but per capita income (Wilcox, 2008; Alessie *et al.,*2004). Moreover, according to conventional economic theories saving is the residual of household income. However, the theory does not consider on households with low income, which is characterstics of most households in LDCs, and little is known about the true determinant of household saving (Kibet *et al.,* 2009).

Nonetheless saving is not a residual but it is a vital component of the budget of households. It proves those poor households do also save because saving is influenced by other factors other than income.According to Kibet *et al.,*(2009) for Kenya household saving is the second and fifth most regular budget pieces for entrepreneurs, teachers and farmers respectively next to their basic expense. Accordingly, the relative irregularity of farmers saving is resulted from irregular monthly income change. On the other hand, LDCs households saving are low because of couple of credit and income constraint, financial illiteracy, and egalitarian norm (Harris *et al.,* 2002; Karlan and Morduch, 2009). Thus, egalitarian norm inhibits personal saving and the *"poor can't save" assumption* argues thatthe poor borrow at high interest rates to make investments. However, finding of Karlan and Morduch (2009) shows poor household save in different ways such as at home, with saving club, by lending to others. Money can be saved either in cash, bankable deposit and/ or other valuable assets including financial assets, inventories, livestock, equipment, and land assets. Saving in bankable deposit and other liquid form in financial market is transformed for borrowers through financial intermediaries (Scher and Yoshino, 2015; Fisher and Anong, 2012). Beside, studies of Pelrine and Kabatalya (2005) on Ugandan rural shaving habit shows that 80 per cent of rural Ugandans save in the form of cash or kind in both formal and informal organizations but they withdraw their saving in instance of festive, dry and wet season. Most of the emperical studiesliteratures have not been conclusive about the determinanats of saving andeven rely on national savings rates and their determinants, instead of household saving behavior but this macro level study is difficult to make inferences about individual economic agent (Basit *et al*, 2010; Fisher and Anong, 2012; Anang *et al.,* 2015). Policymakers often strive for target rates, but the variance in national savings rates is noteworthy in both developed and developing countries (Pelrine and Kabatalya, 2005).

In Ethiopia, some studies have been carried out with regards to saving behavior (Timerga *et al*., 2011; Teshome *et al*., 2013; Hailslassie *et al*., 2013; Hagos and Michael, 2014) and come up with the conclusion that household saving is very low but the previous studies would not clearly reflect not only the habits but also saving condition of farm household. Furthermore, investigation byHagos and Michael (2014) and Teshome *et al.* (2013) were through Tobit model in order to identify factors of saving, which are censored to zero and Timerga *et al.* (2011) employee's logistic regression so as to investigate saving behavior of employed household. More generally, the previous studies concern on the amount and the ratio of saving of either the entire household or the urban household which left aside the rural farm household saving and saving habit. Despite the fact, this study attempt to fill such gaps through the analysis of rural farm household saving habit in the rural parts of south west growth corridor of Amhara region. Unlike the previous studies, this study relies on choice of farmer household saving habit not amount of saving.

2. Literature review

Saving habit is a frugality not the abundances of money. Saving is the mechanism that allows people to defer part of their consumption today in favor of consumption tomorrow, where tomorrow could be next week, next year, retirement or even (in the case of saving for bequests) after death (Fisher and Anong, 2012). On the other hand, saving is not the residual of current income on current consumption, but reserved for use in the future (Gersovitz, 1988). In the household point of view, saving is a decision of abstaining current income consumption for retirement, precautionary, bequest and other motives such as target saving for durable consumption, festivity, vacation and education (Peter, n.d). Arguments of Keynes, a household with higher disposable income save more, is supported by the empirical findings of Hagos and Michael (2014); Kibret *et al.* (2009). But the theory does not hold for others since it is not the disposable income that largely matter saving behavior but per-capita income (Schmidt-Hebbel *et al.,* 1992). This indicates us household income share boost saving which is the deficient in farm household. Evidences from Netherland and Italy by Alessie *et al* (2004) showed children's income share improve household saving rate.

As Perine and Kabatalya (2005) study on Ugandan rural saving habit, shows 80% of rural Ugandans save in the form of cash or kind in both formal and non-formal organizations regardless of organizational preference through individual means including purchasing livestock, property and/ or keeping their money as cash in their house. They save in seasonal trends mirroring with the agricultural seasons mainly for medical emergencies, school fees and unforeseen problems. They save in harvesting season and low when school fee is due and planting season when cash is required for labor and other agricultural input. However, most farm household earn their income through farming, livestock rearing and retail trade, which is subject to their daily expense in their subsistence life. In addition to this they save lower or do not save because of their low personal interest and lack of trust on micro finance institutions. Surprisingly they withdraw their saving in instance of festive, dry and wet season. The empirical investigation of Anang *et al.* (2015) on Gahana using Binary probit model show that majority of the respondent were micro savers and their saving habit was influenced by factors such as age, gender and marital status of the respondent. But, it was found that income and educational status of the household were not significantly influence saving habits of the household.

Tobit model result by Hagoes and Michael (2014) on North Gondar, Ethiopia show the common reason for the household not to save is because low income, low interest rate, inflation, cultural background, social affairs and unemployment. Likewise study by Rikwentishe *et al*. (2015) show that saving habit of Jalingo Taraba State household is affected by age, household size but education level, spouse spending habit and credit facilities have no effect on saving habit of the household.

3. Methodology of research

3.1. Brief Description of the Study Area

The study was conducted in south west growth corridor of Amhara national regional state, Ethiopia. The geographical coordinate of the corridor's territory extended between 9°50´- 11°40´north latitude and 35°10´ – 3°45´ east longitude. The growth corridor covers 21 per cent of the area of the region (BOFED, 2008). Within the growth corridor there are about 41 districts from west Gojam (10), east Gojam (18), Awi (9) and south Gondar (4) administrative zones. About 867 rural and 80 urban kebels[1] are found in the growth corridor. Moreover, the total population of the growth corridor was estimated about 6,436,005 million of which about 50.32 per cent and 49.68 per cent are female and male respectively. Out of the total populations in the growth corridor, 89.8 per cent of them live in rural part of the region and the remaining 10.2 percent are living in the urban areas (BoFED, 2008).

3.2. Data Set

In this study, we utilized a primary data collected from 420 farm household's selected using multistage random sampling technique. In the first stage three zones namely Awi, west Gojam and east Gojam were selected, in the second stage one district in each zone was selected randomly. In the third stage, two kebels in each districtwere selected and finally farm households in each kebeles were randomly drown. Cross sectional data on saving habit, saving motive, form of saving, and determinants of saving habits of farm household were collected using pre tested structured questionnaires in the form of face to face interview.

3.3. Specification of the Empirical Model

To analyze the determinant of saving habit order probit model was employed. This model was chosen because household saving habit choice is categorical or ordered (Wooldridge, 2010) and adopted by Harris *et al.* (2002). This categorical response choice range from 0 to 3, which represents: dis-saving, not- saving, irregularly saving, and regularly saving respectively. The model will be estimated in the form of:

$$S^* = \sum_{i=1}^{n} \beta X_i + \varepsilon_i \qquad (1)$$

Where S^* is an unobservable index (latent) of the household propensity to save; X_i is individual characteristics, ε_i represnts error term, β is parametrs to be estimated and I = 1 … n.

The alternative out line is given as:

$$S = \begin{cases} 0, & \text{if } s^* < 0 \\ 1, & \text{if } 0 \leq s^* \leq \mu_1 \\ 2, & \text{if } \mu_1 < s^* \leq \mu_2 \\ 3, & \text{if } \mu_2 < s^* \end{cases}$$

The model assumes that the observed saving response "S" is related with the underling latent variable: financial position regarding to saving, dis-saving and cut of points.

Hence, $S = F(S^*, \mu_j)$ (2)

The probability that individul i chooses alternative $j\ (j = 0, 1, 2, 3)$ are;

$Prob\ [S_i = 0/X_i] = \emptyset(-X'\beta)$, $prob[S_i = 1/X_i] = \emptyset(\mu 1 - X'\beta) - \emptyset(-X'\beta)$,

[1]Kebele is the smallest administrative unit.

$prob[S_i = 2/X_i] = \emptyset(\mu_2 - X'\beta) - \emptyset(\mu 1 - X'\beta)$, $prob[S_i = 3/X_i] = 1 - \emptyset(\mu_2 - X'\beta)$

More generally the model is specified as:

$$\boldsymbol{Prob[S_i \leq j/x] = P(S^* \leq \mu_j/X) = \emptyset(\mu_j - X'\beta)} \quad (3)$$

Where $0 < \mu 1 < \mu_2$ are cut-off points and X is the vector of all explanatory variables. The maximum likelihood parameter estimates can be estimated by maximizing the log likelihood function:

$$logl = \sum_{i=1}^{n}\sum_{j=0}^{J} Z_{ij} log(Prob[S_i \leq j/x] = P(S^* \leq \mu_j/X) = \emptyset(\mu_j - X'\beta))$$

With respect to β and μ. Z_{ij} is an indicator variable equal to unity if an individual i chooses alternative j and zero otherwise.

4. Descriptive analysis

Variables that are supposed to affect farm household saving habit formation were included for this study. The descriptive statistics reveal many appealing findings (Table 1). On average, the household head is aged 50 years old which deviates by 12 years from the mean. On average, the head and the counter spouse has educated 2 and 1 years of schooling with the range of null schooling to 12 years of schooling respectively. There are about 6 family members per head. But, the average family size of the sample household is higher than the national average of 5 member per household (CSA, 2010).

The average land holding is about 1.67 hectares. Of the total sample households, around 66 per cent of them have an access to mobile phone (proxy variable for technology access) for communication which increases the living standard of the farm households' by way of facilitating transaction and communication. The farm household in the study area celebrates at least 3 funeral festivals by spending birr 6499 pear years on average. Moreover, on average there are about 3 financial institutions accessible to farm households with 4.5 kilo meters away from the homestead of the farm household.

Table 1. Socioeconomic and demographic variables

Varibles	Observation	Mean	St.Dev.	Min	Max
Sex	420	0.82	0.39	0	1
Age	420	49.6	11.85	21	88
Education of head	420	2.1	3.22	0	12
Education of spouse	420	1.04	2.33	0	12
Family size	420	5.65	2	1	12
Dependency ratio	420	0.39	0.21	0	1
Land size in ha	420	1.67	0.91	0	5
Mobile	420	0.66	0.47	0	1
Number of festive	420	3.63	1.32	0	7
Funeral expense in Birr[2]	420	6499	7767.9	36	47500
Number of financial institutions	420	2.5	0.96	0	5
Distance to financial institutions	420	4.5	2.33	0	20

As shown in figure 1, 20 percent of the household has the behavioural intent of zero saving which is more intense in Awi zone with 30.7 percent. Of the total sample farm household's, 14 percent are living with subsistence life of borrowing which is very high in Awi (27%) and west Gojam (16.4%) zones respectively. Furthermore, only 35 percent and 30.2 percent of the household have irregular saving and regular saving respectively. Surprisingly, good saving habit formation is poor in west Gojam with 16.4 percent dis-saving habit and only 10 percent of the farm households have regular saving habit. But saving habit is somewhat good in east Gojam zone with 67.9 percent regular saving and zero dis-saving habits. The survey results displayed in figure 2 show that regardless of farm household saving behavior and the institution preference for saving purpose low income, frequent unforeseen expense, and unplanned spending were the first, second and third frequently mentioned reasons contributed as hindrance of saving respectively and lack of trust in financial institution, unavailability of saving institution and low interest rate have low contribution to hinder farm household saving.

[2]Birr is Ethiopian currency. 1 Ethiopian Birr (ETB)=0.037 USD as of October 2017.

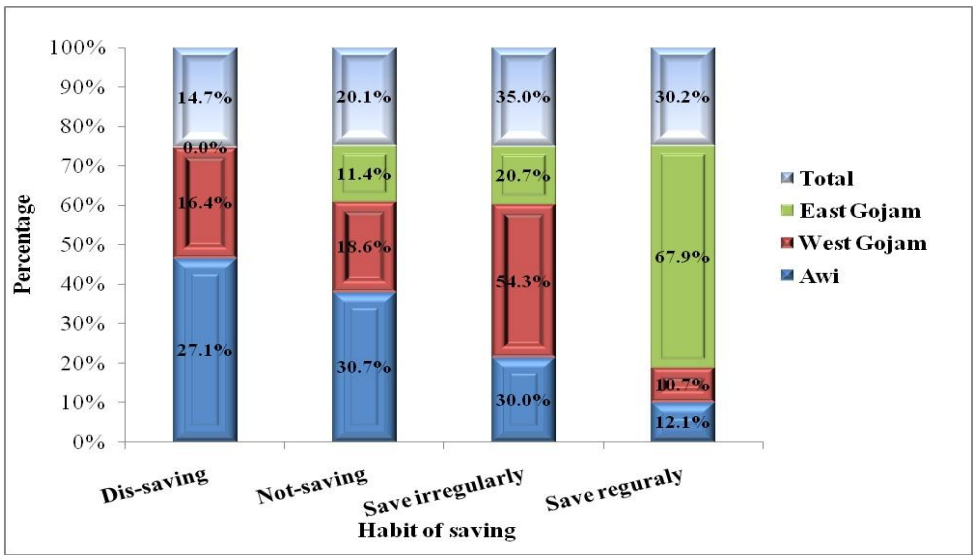

Figure 1. Saving habit of sample farm household

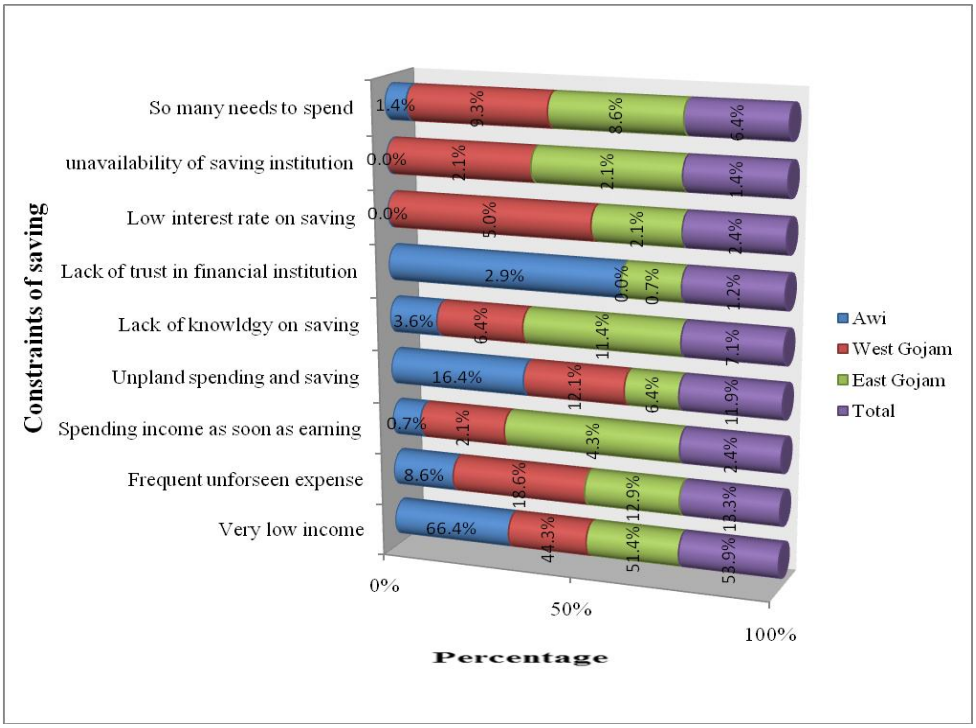

Figure 2. Constraints of saving

4.1. Order Probit Model Results

The model results showing the relations of saving habit and covariates are found to be the best fit according to all regression tests. The overall significance test shows that all variables are jointly significant [LR chi2 (16) =178.2; Prob>chi2 = 0.0000]. The estimated discrete model in table 2 shows the probability of having good saving habit is improved as year s schooling increase. Thus, one more year of schooling decrease the probability of the household's dis-saving and not-saving habit by 1.02 per cent and 1.27 per cent respectively; and increase the probability of the household's regular saving habit by 2.1 percent, but does nothing to influence random saving habit. This is due to the fact education enables to develop planning and management skill and ability to smooth consumption by allocating the available resource for contingency, investment and retirement purpose. The result is consistent with the empirical finding of Lopez and Bua (2015).

Similarly, the econometric estimation result shows that households who possesses wide land holding have higher likelihoods of adopting regular saving habit. The main reason is that wide land holding expands the opportunity set of production and serve as a collateral for accessing loan to purchase modern agricultural inputs which increases productivity level of farmers and in turn it improve saving habit formation (Lamberte *et al*., 2006).

Table 2. Order probity model result

Variables	Coefficients	Outcome=1	Outcome=2	Outcome=3	Outcome=4
Sex+	0.143	-0.0237	-0.028	0.0078	0.044
Age	0.00091	-0.00014	-0.00018	0.00003	0.0003
Education	0.065*	-0.0102*	-0.0127*	0.0024	0.0205*
Dependency ratio	-0.102	-0.016	-0.0201	-0.0038	-0.0323
Land size	0.235*	-0.0369*	-0.0463*	0.0087	0.0745*
Aid+	-0.459***	0.0936	0.0809**	-0.051	-0.1236**
Per capita income	-4.43e-06	$6.94e^{-07}$	$8.71e^{-07}$	$-1.64e^{-07}$	-1.40e-06
Training	-0.0345	-0.0054	-0.0068	0.0013	-0.0109
Expected income+	0.461*	-0.0874**	-0.0844*	0.0411***	0.1307*
Festive spending	-0.0000138***	$2.08e^{-06}$***	$2.61e^{-06}$***	$-4.92e^{-07}$	$-4.20e^{-06}$***
Health insurance	0.456*	-0.0778*	-0.0866*	0.0268***	0.1376*
Mobile +	0.302**	-0.0507**	-0.0582**	0.0168	0.0922**
Saving account	0.772*	-0.170*	-0.1240*	0.0981*	0.1953*
Financial institution	0.2684*	-0.0421*	-0.0528*	0.01	0.0849*
Remittance	-0.000022***	$3.45e^{-06}$ ***	$4.331e^{-06}$ ***	$-8.17e^{-07}$	$-6.97e^{-06}$***
Credit access+	-0.2249***	0.0331***	0.0444***	-0.0041	-0.0733***
/cut1 =1.157721					
/cut2 = 2.032504					
/cut3 =3.20548					
Observation =420					
LRchi2(16) =178.2					
Prob>chi2 = 0.0000					
Pseudo R = 0.1592					

Remark: + indicates dy/dx is for discrete change of dummy variable from 0 to 1; and
*, **and *** indicates significant at 1 per cent, 5 percent and 10 percent significance levels, respectively.

The result is in line with the empirical finding of Markos (2015) in Sidama zone, Ethiopia and Komicha (2007) in southern Ethiopia. The model result also revealed that households who received aid have higher probability of adopting dis-saving and not-saving, but had lower probability of adopting regularly saving habit than their counterparts. The possible explanation might be because aid offering makes the household to develop the sense of laziness and they have never enjoyed the luxury of saving.

Households save their money if they have high income risk due to unforeseen economic (policy) and natural shocks like drought, storm, and pest and so forth (Guarglia, 2001). The estimated result (table 2) reveal that, compared to their counterpart, those households who expect an increment in future income experiences higher likelihood of adopting regular saving habit (13.07 percent) and lower probability of adopting dis-saving and not-saving habit by 8.74 per cent and 8.44 per cent respectively. An increment in festive (funeral and ceremonies) expense was found germane to dishearten household good saving habit and is significant at 10 per cent level. One birr extra spending for festive activities reduce the probability of farm household regular saving habit formation by 0.00042 per cent annually and it increase the likelihood of farm household being dis-saver and not-saver by 0.00021 per cent and 0.00026 per cent respectively, cetries paribus. The possible reason is spending for festive activity causes depletion (selling and leas out) of productive assets and increase leisure activity. Thus, households loss good saving habit formation and adopt spendthrift habit.

Investment on human capital such as health care financing through community based health insurance (CBHI) has also a substantial effect on encouraging farmers to be a regular saver. At citrus paribus, being a membership to community based health insurance scheme lowers probability of adopting dis-saving and not saving habit by 7.78 per cent and 8.66 per cent respectively; and increases the likelihood of adopting regular and irregular saving habit by 13.76 per cent and 2.68 per cent respectively. This is because community based health insurance helps to cut back unforeseen spending for health care and enable them to save money aside and hence formation of good saving habit. The finding is in line with the empirical finding of Wang *et al.* (2006) medical expenditure and illness reduce saving habit formation of farm household in rural china.

Access to mobile phone communication technology promotes good saving habit of farm households. A household who own mobile phone have higher probability of adopting regular saving habit and lower likelihood of adopting dis-saving and not-saving habit than their counterparts. This is because access to technology promotes information dissemination and reduces transaction cost and also enables the farm household to develop money management capacity. The finding is consistence with the finding of Leydier (2016) in Kenya. Financial inclusion of farm household encourage saving habit of the household. Households who own saving account at formal financial institution have higher probability of adopting regular (19.53%) and

irregular (9.81%) saving habit than households who don't own saving account. The result is intuitive since saving account provides easy access for people to save their money for meeting the future living standard, which able to adopt habits of saving money regularly. In addition to this, the result reveals that number of formal financial institution available near to the household homestead help to adopt good saving habit by increasing financial service accessibility and accessibility. On average the availability of one more financial institution to farm household's homestead increase the probability of being regular saver and reduce probability of dis-saving and not-saving habits by 8.49 percent, 4.21 per cent and 5.28 per cent respectively. This is because the farther the financial institution, the higher will be it requires more resources3 to access financial service (Sebhatu, 2012; Athukorala and Sen, 2004).The result is in line with Chemonics (2007) in Sub Shara Africa.

Moreover, the empirical result of this study implies that remittance income discourage the likelihoods of good saving habit formation. Other things held constant, one birr additional remittance received by the farm household reduce the probability of forming regular saving habit by 0.000697 per cent and increases the probability of dis-saving and not saving habit by 0.000345 per cent and 0.000433 per cent respectively. The possible justification might be receiving remittance might develop dependency habit of the farm household, which mean plan spending through remitted income level. Finally, access to credit (loan) strongly discourages the probability of having regular saving habit but encourages the likelihood of dis-saving and not saving habit and is significant at 10 percent. This might be due to the fact that: (1) availability of credit increase borrowing which will be spend to satisfy the basic utilities of life not for productive activities and (2) the household might also borrow over their income to settle prior debt (Sando,2006). This finding contradicts with the empirical finding of Rikwentishe *et al*. (2015) in Jalingo Taraba State and the life cycle hypothesis theory of consumption.

5. Conclusions

The main aim of this study was to explore farm household saving habit in south west Amhara growth corridor by employing order probit regression model. Results revealed that saving habit of the farm household were found to be very low. Of the total sample farm households, only 35 percent and 30.2 percent have regular and irregular saving habit respectively while, the remaining 35 percent of the household have no saving habit at all. Order probit model result show that saving habit is likely influenced by education, land holding size, ownership of saving account, aid, changes in expected income, spending on festive, community based health insurance, access to technology (mobile), number of formal financial institution nearby, remittance and access to credit. The empirical finding of this study calls that good saving habit formation is a necessary condition for improving saving capacity of the household and the nation; therefore efforts should be geared towards building good saving habit. Based on the empirical finding the following policy recommendations are suggested:

- Vocational training and functional literacy on proper utilization of resources should be given for farmers.
- Though land size is fixed, focus has to be given for improving productivity of the existing land through land management system.
- Aid should be offered in the form of productive asset not in the form of cash and final good and services.
- Farm households should reduce engagement in extravagant funeral celebration activities through developing planning capacity for future life and money management ability and the government should set polices to limit expenditure on funeral activities such as limiting number of festive celebrated in a year and forced saving like saving for pension of farm household.
- The government and other concerned body should facilitate the access and opportunity to use community based health insurance.
- Investment on technology infrastructure to the rural parts should be done so as to increase information dissemination.
- Commendable progress has to be done to increase financial inclusion and deepening by increasing access to financial services through branch expansion or out late service and door to door service in rural area.
- Loan provision should be given only for productive activities and fungible of loan should control through strong monitoring and evaluation mechanism.
- Finally, future research has to be done to fully scrutinize the trends of saving habit and capacity by using longitudinal data.

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[3] Resource include time, transport cost and labor

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