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Effect of Social Networks on Food Security Status: The Case of Maize Producing Farmers in Ethiopia

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Abstract
Social networks are said to play crucial role in improving livelihoods. Farming communities in Ethiopia have strong social networks which provided them a means to exchange information, resources and serve them as a mechanism for ensuring social safety-net. This study was conducted with an objective of investigating whether social network have role in improving food security status of farm households. The study used data collected from 830 households in major maize growing regions of Ethiopia; namely, Oromia, SNNP and Benishangul Gumuz. Six variables that explain social network were included in a multinomial logit model to influence their effect on status of food security. Households were categorized in four food security status category (Food shortage throughout the year, Occasional food shortage, No food shortage but no surplus-self-sufficient and Food surplus). The model estimate indicated two social network variables: *No of relatives living within village HH depend on for information and support & No of non-relatives living within village HH depend on for information and support,* were found significantly influencing food security indicating that food security play role in improving food security in Ethiopia.

1. INTRODUCTION

This article focuses on the effect of social network on food security status of smallholder farmers in major maize growing regions of Ethiopia. In order to illustrate the hypothesized role of social network as a social learning process, and means for information and resources exchange among farmers in improving food security, there is need to understand the concept of social network within the context of present study. Social network has been recognized in various approaches as being an important element of social capital. For example, Lyon (2000) points that the most common themes that run through the definition of social capital are networks, norms and trust that facilitate co-operation and co-ordination. Adger (2003) concurs that at its core, social capital describes relations of trust, reciprocity, and exchange; the evolution of common rules; and the role of networks. Social networks evolve due to ties between actors, which may arise because of kinship, affection, or familiarity between them (Easley and Kleinberg, 2010).

A social network is a set of actors that have relationships with one another (Marin and Wellman, 2011). Social networks are seen as an important mechanism for the spread of information and technology. The theory of social networks has been applied to study general behavior, as well as outcomes that have social and economic implications, such as employment, prices and firm productivity and profitability (Borgatti et al., 2009). In the recent past, there has been growing interest in the use of this theory to assess participation in and impacts of development initiatives, such as health programs, and adoption and diffusion of technological innovations (Dufhues et al. 2011).

Some previous studies have investigated how informal networks have influenced agricultural adoption. Smith et al. (2007) demonstrate that farmers who invest in more efficient irrigation technology are prompted by word-of-mouth testimonials. This implies that farmers use other farmers as their main source of information and take and apply advices. According to this view, interaction between farmers fosters adoption of agricultural technology. Most research on this topic (Asfaw et al., 2004; Barham et al., 2004) focuses on how social network influenced technology adoption. Building on the theoretical conception of these previous works, this study focus on investigating how social network influence household's food security. The premises how social network influence food security emanate from the fact that strong social network provide households better access to agricultural production and market information, productive resources, financial resources such as credit, etc. Accesses to all these important assets are vital for improving food security of the household. The primary attribute of social networks is their potential to influence the capacity of individuals/groups to come together for collective action, leading to a broad range of benefits including improved food security for both the individual and community (Collier, 1998).These networks constitute a locus of access to resources; which in turn determine socio-economic outcomes (ibid).

Generally, several previous studies have investigated the positive influence of social networks on socio-economic performance. Most of these studies using the social capital framework looked into the dimension of how social networks influence technology adoption and access to economic resources. What is not clear is whether social network will have similar effects on food security status of farm households. The purpose of this study is therefore to investigate the effect of social network on the food security status of households in major maize growing regions of Ethiopia.

Concept of food security and food insecurity situation in Ethiopia

The concept of food security emerged in the 1960s and has been evolving ever since. Our understanding of hunger has become more complex over time. By the 1990s, one could find about 200 definitions (Petr et al., 2010). In 1996, the definition of food security was settled at the World Food Summit in Rome, which adopted the following definition: "*Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs, and their food preferences are met for an active and healthy life*. From this definition four aspects of food security are identified. The first dimension relates to food availability which *refers to the physical presence of food at an aggregate level (most often national), through domestic production, food stocks, commercial imports and food aid.* The second dimension is concerned with *food access which explains household and individuals' physical and economic ability to acquire a sufficient quantity of food*. Access is guaranteed by a combination of factors such as own production, stocks, purchases, gifts, borrowing or aid. The third dimension is about food utilization that embrace the issues of nutritional and safety aspects of food security. The fourth dimension '*food stability*' focuses on stressing that food must be available, accessible, affordable and properly utilized on a continuous, long-term basis. The four dimensions of food security described above explains the issues of food security primarily at national and household level while the focus of this piece of work deals with the second dimension which relates with the issue of household level food access.

Amartya Sen's 1981 book "Poverty and Famines: An Essay on Entitlement and Deprivation" contributed to an understanding that food availability alone could not guarantee food security. Sen showed that famine could occur without any change in production if the value of the people's production and work activities declined relative to the cost of the staple food. Sen's input led to a shift in approach from national food supply towards individual and household access to food. The focus of this study lies on household level food security.

An adequate supply of food at the national or international level does not in itself guarantee household-level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditures, markets and prices in achieving food security objectives (UNFAO, 2008). In Ethiopia, food insecurity among the population is widespread (Van derVeen and Tagel, 2011). Serious food shortages and high levels of malnutrition continue to affect a large number of people in several parts of Ethiopia still today. For example from 2005 to 2006, the number of chronically food-insecure people requiring food or cash assistance rose from 7.2 million to 9.8 million despite a bumper harvest during this time and annual growth between 8-11% over the past five years (Petr et al., 2010). This as well as regular occurrences of famine in one region and food abundance in the next highlights the increasing disconnects between agricultural production and the vulnerability of the poor population in Ethiopia. Food access thus currently appears to be a greater challenge to food security in Ethiopia than food availability.

Food insecurity is an enduring, critical challenge in Ethiopia as over 80 percent of Ethiopian population live in rural areas and are heavily dependent on rain-fed agriculture are extremely vulnerable to changes in weather conditions (Andersson et al., 2009). The 2016/17 El Niño drought conditions led to a sharp deterioration in food security and the estimated number of food insecure people was 4.5 million due to this vulnerable shock in August, 2015 , and by the end of the same year this figure had more than doubled (UNFAO, 2015). According to a Government-led multi agency assessment, 10.2 million Ethiopians are considered to be food insecure in 2015/16.

Many reports and research evidences have identified several factors of food insecurity in Ethiopia. The Ministry of Agriculture and Rural Development (MoARD) report indicates food insecurity situation in Ethiopia is highly linked up to severe, recurring food shortage and famine, which are associated to recurrent drought. Currently there is a growing consensus that food insecurity and poverty problems are closely related in the Ethiopian context. Droughts and other related disasters (such as crop failure, water shortage, and livestock disease, land degradation, limited household assets, low income) are significant triggers, more important factors which increase vulnerability to food security and undermined livelihoods (MoARD, 2009). According to Assefa et al (2003) factors contributing to the persistent food insecurity situation in Ethiopia are production fluctuations, low non-farm employment, low income, regional fragmentation of the markets, high rate of natural degradation, low level of farm technology, high level of illiteracy and inadequate quality of basic education, poor health and sanitation, high population growth, poor governance and inter-state, intra-state military conflicts and wars all these factors impede the achievement of food security and sustainable economic development.

How does social network affect food security?

Many researchers have investigated on the relationship that exists between social network and different social and economic life of rural people. Among these, studies conducted by Phulari et al (2010), Carroll and Rosson (2008), Preece and Krichmar (2002) demonstrated how social network brings about livestock productivity through pooling of resources such as useful information, employment opportunities, relationships and development skills by members of the network.

Social network effects on technology adoption have been demonstrated, and are often attributed to social

learning, but other less studied network effects may also be involved. The services social networks provide that may interact with peasant farmers' technology adoption decisions are, at least, threefold. A social learning environment is one of those services, while the other two are informal finance that may relax the farmers' credit or risk tolerance constraints, and facilitation of collective action where coordination of adoption is needed due to technological externalities. Each of these services interacts with a farmer's adoption choice through its own set of mechanisms that may be complex and contradictory (Carroll and Rosson, 2008).

In the rural economy in Africa, few have access to formal finance. Instead, many rely on informal finance. The most important sources of informal finance in rural Africa are (or have been) (i) interlinked contracts, where input purchases and output sales are made through the same marketing channels, (ii) private money lenders, and (iii) transfers within social networks. While in the concept of the market in classic economic theory, agents are anonymous, that is not the case within social networks. Many analytical studies have looked at endogenous formation of insurance networks, and how selection into networks leads to inclusion and exclusion of people according to individual characteristics (Krichmar, 2002).

According to Granovetter (1973), bilateral transfers through social networks complement other sources of finance, or even substitute for them where they are missing, and if this informal financial market functions the same way as a formal financial market does, it should have the same expected effect on farm management decisions. Better access to finance, of any kind, should relax farmers' cash constraints, and enable them to invest more in their farms' productivity. This could be termed the economic "enabling" model, implying that more credit means more economic freedom and higher ability to adopt. The most important and best-known model for social learning is the "learning from others" model, where information about new technologies spread from mouth to mouth through collective experimentation, discussion and persuasion or by direct observation of neighbors' experiments. Conversely, if a community has become disenchanted with a new technology, community members may succumb to conformity pressure and dis-adopt it.

Traditionally, farmers have been assumed to be passive recipients of knowledge that is provided to them by change agents, such as extension officers or sales agents representing producers of, e.g., new machinery, seeds, or other farm inputs (Rogers 1995). But farmers may also be actively trying to figure out new ways to solve their own problems themselves, and instrumentally use social networks to seek information they need as inputs in their own experimentation process. Since useful sources of information are likely to be found outside the social networks people participate in on a daily basis, this will often involve mobilization of weak social ties.

2. DATA

The data collected specifically for this study apart from the socioeconomic, demographic, farm related, are a network data set, where the interviewed farm households were asked to the number of relatives and non-relatives, traders living both within and outside the village that they know and depend for information and resource exchange, they like to discuss issues of farming.

The data used for this study is obtained from farm-household survey conducted during 2015/16 by Ethiopian Institute of Agricultural Research (EIAR). The data was collected with a purpose of maize technology adoption analysis and its impacts on smallholder producers. The sampling frame covered three regional states; namely, Oromia, Benishangul Gumuz and Southern nations and nationalities region. A total of 830 farm households were interviewed. A multi-stage stratified sampling procedure was employed to select villages from each agro-ecology, and households from each kebele/village. Farm households in each village were randomly selected. The data was collected using a pre-tested structured questionnaire by trained and experienced enumerators who have good knowledge of the farming systems and speak the local language.

3. DESCRIPTION OF VARIABLES

Each household were classified into four major food security status categories depending on availability of food for the household. Accordingly, each household is categorized in one of the following four categories; f*ood shortage through the year*, *occasional food shortage, no food shortage but no surplus, food surplus. We can also further classify the first two categories of farmers as food insecure and the remaining two as food secured households.* The proportion of households which encounter food shortage throughout the year across all the regions constitute 6% while the proportion of HHs that face occasional food shortage is about 30%. The proportion of food secured households (*no food shortage but no surplus and food surplus producing households*) together constitute 64% of the total studied farm households. SNNP has the higher proportion of food insecured farm households (households that encounter f*ood shortage throughout the year and those that have occasional food shortage*) which is about 43% of the total farm households taken as sample from the region. Oromia region has the highest proportion of food secured farm households constituting around 64% of the total farm households included in the study from the region.

Table 1: Food security status of households disaggregated by regions

Food security status	Proportion of HHs by food security status			Total
	Oromia	Benishangul Gumuz	SNNP	
Food shortage throughout the year	31(7%)	2 (2%)	17(6%)	50(6%)
Occasional food shortage	130(29%)	18 (20%)	105(37%)	253(30%)
No food shortage but no surplus (Self-sufficient)	259(56%)	61 (67%)	139(49%)	459(55%)
Food surplus	36(8%)	10 (11%)	22(8%)	68(9%)
Total	456	91	283	830

Each farmer, irrespective of their own food security status, was asked, "*how many relatives and non-relatives both within and outside the village which you rely on for information and supportare there?" and some more questions, "how many traders do you know both within and outside of the village for who you sell produces and get market related information and support?"*These responses to these questions measures the number of different sources of information and support the farmer has access which explains why social networks matter for food security status of farm households. Specifically the questions asked that explains social network of the farmers are; i) how many relatives are there within the village which you rely on for information? ii) how many non-relatives are there within the village which you rely on for information? iii) how many relatives are there outside the village which you rely on for information? iv) how many non-relatives are there outside the village which you rely on for information? V) No of traders within village HH sells produces and vi) No of traders outside village HH sells produces

The six different social network variables along with their mean estimate are summarized on table 2. In all regions two social network variables (No of relatives living within village HH depend on for information and No of non-relatives living within village HH depend on for information) have high mean value indicating that the social network of household is largely founded on with network established with individuals living within the same village.

Table 2: Mean value of social network variables disaggregated by regions

Social network variables	Oromia (N=456)		SNNP (N=283)		Benishangul Gumuz (N=91)	
	Mean	Std.dev	Mean	Std.dev	Mean	Std.dev
No of non-relatives living outside village HH depend on for information and support	5.07	10.99	6.36	15.65	2.86	6.89
No of relatives living outside village HH depend on for information and support	9.52	26.05	11.31	24.18	6.09	20.90
No of relatives living within village HH depend on for information v	12.92	28.84	15.23	41.96	5.32	1.82
No of non-relatives living within village HH depend on for information and support	13.01	41.31	11.19	38.86	5.81	14.62
No of traders within village HH sells produces	2.78	5.83	2.91	7.78	2.06	2.28
No of traders outside village HH sells produces	3.41	8.96	5.60	10.90	4.04	7.07

Table 3 gives means, proportion and standard deviations on the different social network related variables and other households and socio economics characteristics, disaggregated by food security status. As it is indicated the mean income of surplus producing farm household and households that face no food shortage but produce no surplus (self-sufficient) is much higher than those households that are food insecured. Largest proportion of model farmer belongs to surplus producing farm household category which implies that tentatively model farmers are food secured. Social network variables "no of relatives living within village HH depend on for information and support", "no of non-relatives living within village HH depend on for information and support", "no of relatives living outside village HH depend on for information and support", "no of non-relatives living outside village HH depend on for information and support" and "no of non-relatives living outside village HH depend on for information and support" have higher mean value for households that are food secured while the mean value of these variables is very small.

Table 3: Descriptive statistics of respondents

Variables	Food security status							
	Food shortage through the year		Occasional food shortage		No food shortage but no surplus		Food surplus	
	Mean/ (%)	Std.Dev	Mean/ (%)	Std.Dev	Mean/(%)	Std.Dev	Mean/ (%)	Std.Dev
Household and income related variables								
total income	3750.2	4725.6	5051.7	7582.39	5566.4	11638.1	17327.5	55234.7
Age	48.2	13.5	49.7	10.8	49.2	14.1	48.8	13.4
Gender (Male=1)	70%	-	86%	-	86%	-	91%	-
Model farmer (model farmer=1)	2%	-	3%	-	14%	-	35%	-
Nonfarm employment (employed in non-farm sector=1)	38%	-	47%	-	40%	-	40%	-
Credit received=1)	7%	-	17%	-	9%	-	7%	-
Income from crop production	944.2	341.98	931.54	325.09	980.77	306.32	935.17	307.3
Income from livestock production	130.48	197.29	181.11	207.49	196.44	185.80	226	186.4
family size	6	2.64	6.65	2.22	6.43	2.56	6.60	2.53
Social network variables								
no of relatives living within village HH depend on for information and support	14.13	14.44	6.42	7.30	16.13	41.73	16.10	32.12
no of non-relatives living within village HH depend on for information and support	7.08	7.49	8.88	16.11	15.5	49.48	20.82	51.59
no of relatives living outside village HH depend on for information and support	.17	5.57	7.92	15.63	13.05	31.49	13.43	26.03
no of non-relatives living outside village HH depend on for information and support	5.18	5.06	5.01	5.51	8.37	18.01	9.65	11.43
no of traders within village HH sells produces	4.74	3.38	2.29	4.32	3.07	5.87	3.64	4.76
no of traders outside village HH sells produces	4.67	3.66	3.81	4.55	4.82	8.57	6.32	9.23
Regions								
Region_Oromia	7%		28%		57%		8%	
Benishangul Gumuz	2%		20%		67%		11%	
Region_SNNP	6%		37%		49%		8%	

4. EMPIRICAL PROCEDURES AND ANALYSIS

Econometric model

In order to analyze how the different social network elements affect the food security status of a household, a multinomial logistic regression model were employed based on random utility framework (Maddala, 1983). The multinomial logit model is used with alternative-invariant regressors and the probability that individual *i* will select alternative *j* is:

$$P(y_i = j|x) = \frac{\exp(X\beta_j)}{[1 + \sum_{j=1}^{4} exp\,(X\beta_j)} \ldots\ldots\ldots\ldots j = 1, \ldots 4$$

Where$j$ represent the four defined food security status (*food shortage throughout the year, occasional food shortage, no food shortage but no surplus and food surplus*) of household$i$, X represent a set of independent variables that are hypothesized to influence food security status of the household. The independent variable includes household and individual characteristics of the respondents. An individual related variable includes income, age, gender and whether the farmer is a model farmer or not and whether the household head is engaged in non-farm employment or not. The households' related characteristics that are included in the model as independent variables include family size, no of contact with extension workers during the year 2015, whether the household received credit or not, no of relatives living within village HH depend on for information, no of non-relatives living within village HH depend on for information, no of relatives living outside village HH depend on for information, no of non-relatives living outside village HH depend on for information, no of traders within village HH sells produces and no of traders outside village HH sells produces. Regions dummies were also included to control for variation among regions in terms of infrastructure and basic social and economic services.

As the main purpose of this piece of paper is to look into how social network influence food security status of the household, six independent variables that related to social networks: "no of relatives living within village HH depend on for information", "no of non-relatives living within village HH depend on for information", '*no of relatives living outside village HH depend on for information*, '*no of non-relatives living outside village HH depend on for information*, '*no of traders within village HH sells produces*' and '*no of traders outside village HH sells produces'* are included in the model to measure how social network variables influence food security status of the household. We hypothesized that social networks positively influence households become food secured.

5. FINDINGS

Effect of social network on food security

Two models were estimated to analyze the effect of individual and households variables on food security status and these variables are expected to influence food security status of the household. The first model included individual and household characteristics. In the second model six additional variables that explain social network of the household were included apart from those already included in the first model. The second model also captures regions dummy to control for the possible variations among the three regions in terms of infrastructure, social and economic services etc. Results of the models are presented on table 1. In the multinomial logit model employed, "*No food shortage but no surpluses'* was designated as reference category.

The baseline estimates of the determinants of food security status are presented in (table 4). The parameter of interest is the effect of farmer's social network on the food security status. Multinomial logit coefficients are estimated in relation to the reference or base outcome and therefore not easy to interpret directly like the linear models (Wooldridge, 2002).

Total income of the household which include both cash and in kind income has positive and statistically significant level of influence on the probability that the household become surplus food producer while the same variable has shown negative but statistically influence on the probability of that households face food shortage throughout the year or encounter occasional food shortage. This could be due to the very obvious reason that households that have better income can be food secured as increased income could enhance households' capacity to fulfill the own annual food requirement through purchase from market. This implies that households that does not produce enough from own farm can be food secured as long as they earn higher income from other sources.

Table 4: Multinomial models for determinants of food security

Variables	Food shortage through the year		Occasional food shortage		Food surplus	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Income (cash and inkind)	-0.43**	-0.60***	-0.04	-0.04**	0.28*	0.24*
	(0.18)	(0.23)	(0.10)	(0.11)	(0.17)	(0.19)
Age	0.14	0.16	0.11	0.04	0.01	0.32
	(0.18)	(0.22)	(0.01)	(0.14)	(0.19)	(0.21)
Gender	0.12	0.13	0.21	0.19	0.17	0.11
	(0.22)	(0.16)	(0.24)	(0.23)	(0.14)	(0.13)
Model-farmer (model farmer=1)	-1.00	-0.128	-1.75	-1.73*	0.93**	0.69*
	(1.06)	(1.14)	(0.63)	(0.67)	(0.50)	(0.55)
Non-farmemployment (non-farm employment=1)	-0.42	-0.82	-0.08	0.08	0.16	0.12
	(0.52)	(0.57)	(0.27)	(0.30)	(0.48)	(0.51)
Credit	-0.12	-0.24	0.34	0.28	-0.033	-0.40
	(0.80)	(0.85)	(0.35)	(0.38)	(0.78)	(0.82)
Family size	0.07	0.07	0.38	0.06	0.07	0.11
	(0.11)	(0.14)	(0.05)	(0.06)	(0.09)	(0.10)
No of contact with extension workers during the last year	0.05*	0.10**	0.05**	0.06**	-0.13*	-0.11*
	(0.04)	(0.05)	(0.02)	(0.02)	(0.12)	(0.12)
No of relatives living within village HH depend on for informationand support		-0.054**		-0.004*		-0.01*
		(0.02)		(0.01)		(0.01)
No of non-relatives living within village HH depend on for informationand support		-0.17**		-0.03*		-0.02*
		(0.09)		(0.02)		(0.09)
No of relatives living outside village HH depend on for informationand support		-0.12*		-0.005		-0.04*
		(0.07)		(0.02)		(0.02)
No of non-relatives living outside village HH depend on for informationand support		0.11		-0.01		0.01
		(0.08)		(0.03)		(0.02)
No of traders within village HH sells produces		0.08		-0.05		0.05
		(0.08)		(0.05)		(0.06)
No of traders outside village HH sells produces		-0.03		-0.04**		-0.003
		(0.05)		(0.02)		(0.01)
Region_(Oromia=1)		13.48		0.51		-0.51
		(620.2)		(0.60)		(0.79)
Region_(SNNP=1)		14.46		1.09**		-0.33
		(620.2)		(0.59)		(0.79)
Constant	1.02	-10.54	-0.32	-0.19	-4.69	-2.95
	(1.66)	(620.29)	(0.96)	(1.25)	(1.67)	(1.95)
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000
Loglikelihood	-315.32	-290.27				
Observations		790		790		790

"No food shortage but no surplus" is reference food security status (base outcome category)
Figures in oarenthesis are standard errors
Significance levels; *, **, and *** for 10, 5 and 1%, respectively.

Another important dummy variable '*model farmer*' has also significant and positive influence on the likelihood that the household become food secured. This shows model farmers are food secured compared to those non-model farmers. This is probably due to their relatively better access to agricultural information and improved access to agricultural technologies compared to non-model farmers. Model farmers are farmers that are being used as agents in the Ethiopian agricultural extension system for dissemination agricultural technologies and information, they have better access to improved agricultural technologies and information from direct sources and they get direct support from extension workers (Kaleb, 2016).Model farmers have also bigger social network which have helped them gain better access to information, technologies and are able to get access to resources both from within and outside the community.

Table 5: Average marginal effects of factors on probability of household become food secured

Variables	dy/ex	Delta method	
		Std. Err.	z
Lnincome	0.012**	0.1	-1.24
Age	-0.02	-.01	-1.12
Gender	0.1	-0.11	1.13
Model farmer (model farmer=1)	0.017**	0.01	-1.43
Nonfarm employment (employed in non-farm sector=1)	0.002	0.01	0.18
Credit	-0.001	0.01	-0.07
Family size	0.102	0.002	-0.07
No of contact with extension workers during the previous year	0.081		
No of relatives living within village HH depend on for information and support	-0.001***	0.004	-2.54
No of non-relatives living within village HH depend on for information and support	-0.002**	0.001	-2.92
No of relatives living outside village HH depend on for information and support	-0.001	0.001	-1.27
No of non-relatives living outside village HH depend on for information and support	0.002	0.002	0.31
No of traders within village HH sells produces	0.001	0.001	1.00
No of traders outside village HH sells produces	-0.03	0.001	-0.31
Region_(Oromia=1)	0.010	0.140	0.01
Region_(SNNP=1)	0.120**	0.111	0.12

, **, and* denotes significance level of 1%, 5% and 10%, respectively*
Region 'Benishangul' is reference category, hence excluded from the model

Social network variable-*no of relatives living within the village HH depend on for information* has statistically significant but negative effect on the probability that the household is food insecured. While the same variable has positive and significant influence on the probability that the household produce surplus beyond self-sufficiency. This might be associated with the fact that farmers in developing countries face imperfect markets, including transactions costs and scarce information. For instance, Ethiopian farmers have inadequate information about various information about technologies, input and output markets, off farm employment opportunities, financial markets etc which all have direct or indirect influence on the households food security status. Under these circumstances, social networks could facilitate the exchange of information, enable farm households to access inputs on schedule, and overcome credit constraints, know where wage employment opportunities are available etc.

6. CONCLUSIONS

The study was conducted with an objective of investigating the effect of social network on food security status of farm households. The data for the study was collected from major maize producing regions of Ethiopia (Oromia, SNNP and Benishangul Gumuz). Different social network variables were included in multinomial logit model to see how these variables affect the food security status of households. Econometric model estimate for these social network variables indicated in general households with higher and strong social network have higher probability of becoming food secured.

The multinomial logit model estimated two variables of social network (No of relatives living within village HH depend on for information and support & No of non-relatives living within village HH depend on for information and support) statistically significant and positive influence on the negatively that household become food insecured meaning that same variable has significant and positive effect on the probability that farm households become food secured. The implications that can be drawn from the finding that social network has positive influence on food security status of farm households could be the following:

- Social networks is an important social mechanisms which keep and maintain members of farming communities ensure their daily requirement for food and therefore it is a social safety-net mechanisms of farming communities that ensure everybody should have access to food.
- In communities where sharing of information and mutual support system among relatives, neighbors and friends very common, interventions that aims at improving food security situation of farm households should understand the existing social networks. Then interventions that aim at improving food security should target the informal social network, and any interventions that deteriorate such networks should be cautiously implemented.

7. REFERENCES

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