WOLKITE UNIVERSITY

Senior Research On Role Of Poultry Production In Household Food Security In Cheha Woreda

Research Project

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By: Boki Bedane
&
Cherinet Ayana

Advisor: Mr. Temesgen Hirko (Msc)

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LIST OF ABBREVIATIONS

CSA	Central Statistical Agencies
GDP	Gross Domestic Product
HH	House Hold

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ABSTRACT

The study attempted to access the role of poultry production in household income and saving, asset building, the level of household food insecurity and to identify the determinants of poultry production in Cheha district. The sample of 68 households were randomly selected from the randomly selected two kebeles of the district. Data was collected using key informant interview, focus group discussion and interview schedule. The descriptive and probit model was used for the analysis of collected data. The findings of the study showed that poultry producer households were enabled to generate more income, increased the trends of cash saving and asset ownership than that of non-producers of poultry in the study area. The results of study also indicated that a non-producer of poultry households were more food insecure than that of the producer households in study area. The result also revealed that family size, marital status, livestock holding and age of household head significantly affects the poultry production decision of the farmers in the study area. Therefore, the study suggest that action on these significantly affecting poultry production decision of households should get due attention to improve the food security status of the farming households in the study area.

Keywords: Cheha district, Food security, Poultry production, Probit regression

1. INTRODUCTION

1.1. Background of the Study

Agriculture is one of predominantly Ethiopia economy and Contributes 45% of GDP and provides more than 80% of rural people employment (Rande , 2009). Ethiopia has the highest livestock population in Africa and account of 17% of Cattle, 20% of sheep , 13% goats , 55% of equines and 17% Poultry (Alemu,.2008)of domestic animal in the Ethiopia the most numerated by goats and sheep each at 17% million of poultry and bovines are followed a head. Village poultry, home stead poultry, farming, indigenous poultry, and family poultry are commonly found in Ethiopian (Kitalyi 2003).

The role of Poultry products are considered to be affordable and healthy protein sources with no religious restrictions and thus poultry meat has become the World's preferred meat with the highest per capita consumption globally of all other meats. Poultry has the best feed conversion rate for feed to human food among terrestrial animals and the lowest environmental footprint in terms of energy and water use per kg of meat or eggs produced and an important economic, social and cultural benefit and plays a significant role in family nutrition in the developing countries (J. Daghir, 2017).

Poultry are acknowledged as livestock of poor, and poultry production is part of the smallest holder farming system in Ethiopia (Ale metal, 2008). Poultry fulfills many roles in the household building asset, smoothing consumption, and income generation. The problem of food insecurity at household level is the effect that they are constrained from asset building and income generating for access to food Poultry production a household level contributes to food security through income generation, saving and asset building and increasing the productivity and smoothing consumption. Therefore, this study will be conducted to assess the role of poultry production in rural household food security through addressing the impact of poultry production in household income, saving, asset building and consumption in Cheha Woreda, Gurage, Ethiopia.

The Ethiopian poultry population is estimated to be 56 million, of which 99 and 1% of the total population comprises of indigenous and exotic breeds of chicken, respectively. There was an increase in the number of exotic breeds of chickens in the recent years and at present it is estimated that the exotic breeds of chicken makes up about 2.56% of the total national poultry population (CSA, 2007). It has been reported that many exotic breeds of chicken (White and brown Leghorns, Rhode Island Red, Bovans, New Hampshire, Cornish, Australoup and Light Sussex) were introduced over the past years. The most important inputs have been the introduction of improved (exotic) breed, improved feed, vaccine and medicaments and credit aiming at increased productivity (Tamir *et al*., 2015).

Traditional poultry production system is characterized by low input, low output and periodic destruction of large proportion of the flock due to disease outbreaks. This system is the factor determinants of reducing the role of poultry production on household in food security (Tadelle *et al*., 2003). With the aim of improving poultry productivity organizations, the Ministry of Agriculture and Non-Governmental Organizations (NGO's, different breeds of exotic chickens (Rhode Island Red, Australorp, New Hampshire and White Leghorns) were imported to Ethiopia since the 1950's. Since then higher learning institutions, research) have disseminated many exotic breeds of chicken to rural farmers and urban-based small-scale poultry producers (Solomon, 2008**).**

Improving the productivity of village chicken through breeding and improved managements will result in increasing opportunities of equitable distribution of food and income for the households of rural areas of Ethiopia. Therefore, reviewing the research results and the best practices of local chicken productions in a region will enable the delivering of good information that will also be helpful for the future planning of the strategic breeding programs, and generally for improved indigenous chicken production projects of a region. Based on this outlined background, the Objective of this paper was to review the research findings of the Poultry production system and role of poultry production in region, and thereby to deliver information for breeding and improved village chicken production programs (World bank 2013).

1.2 Statement of the Problem

The statement problems of cheha woreda gurage zone are not use the modern poultry production system and not stetted in Ethiopia some year ago mainly in colleges and research stations. but, The activities of these institutions mainly produced on the introduction of exotic breeds to the country and distribution of these breeds to the farmers including management, feeding, housing and health care practices (Tadelle and Ogle, 2008).

Poultry production and management practice gurage zone cheha woreda can be characterized by traditional poultry production system and the production and productivity of village chicken is low due to flock mortality by disease, predator and poor management practice. Even if the population is high, the farmers do not benefited from the sector, because of traditional production system, predator challenge, disease prevalence, feed shortage and poor management practices (Malkamu and Wube, 2013). However, there is no enough information regarding with production constraints and opportunities of poultry production. Therefore, this study was designed to assess the constraints and prospects of poultry production in the study area. In accessibility of infrastructures like housing, transportation, telecommunication, water, sanitation; less production of agricultural productivity including animals are the common problems in all over Ethiopia. The study deals with Problems and prospects of Poultry production.

1.3 Research Questions

The following questions are expected to be answered by this study.

1, what are the determinants of household engagement in poultry production?

2, what are the role of poultry production in house hold income, saving and asset building?

3, what is the level of house hold food insecurity in the study area?

4, what are the determinants of poultry production in Cheha district?

1.4. Objectives of the Study

1.4.1 General objectives

The role of poultry production in household food security in Cheha Woreda

1.4.2 Specific Objectives

1. To identify the determinants of poultry production in cheha woreda

2. To examine the role of poultry production in house hold income, saving and asset building

3. To analyses the level of household food insecurity in the study area.

1.5 Significance of the Study

The finding of this study will be enhancing development productions, policy makers enhancing better knowledge to design an improvement effective poultry production strategy for sustainable food security.

1.6 Scope of the Study

This study is scope will be limited to Cheha Woreda in Gurage Zone Ethiopia. The study will be focused on the producer and non-producer household of the kebele administration, the sample producer of household head.

1.7 Limitation of Study

Different problem are could be faced during data collection and these will limit the study. The major problems during data collection are people perception for supplying available information. The scope of this study is limited by time, budget and other resources limitation.

1.8 Organization of the Paper

The paper is organized into four chapters. The first chapter is consists of the introductory part of the study which contains of background of the study, statement of the problem, general and specific objectives ,research questions , significance of the study , scope ,limitation and organization of the study. Chapter two deals with review of literature. The third chapter discuss about the methodology of the study. The fourth chapter is concerned with references.

2. LITERATURE REVIEW

2.1. Concepts and Definition of Food Security

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. According to Argenal,(2002) 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.

This World Food Summit (WFS) definition combines various different aspects, such as food supply and demand, as well as the quality of food and the way it is used, over a long-term perspective. Since then, it has remained the most commonly used reference point for the international community Adenew (2004).

- There are Four Dimensions of food security

The four factors from the 1996 definition bring together almost all the aforementioned aspects of food security:

• **Food availability** refers to the physical presence of food at an aggregate level (most often national), through domestic production, food stocks, commercial imports and food aid.

Food access concerns 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. A household's "Store of wealth (e.g., savings, liquid assets)" is an important determinant for food access when regular livelihood strategies are compromised by poor agro-climatic conditions, high prices, loss of employment, or illness.

• **Food utilization** refers to nutritional and safety aspects of food security; hereby the food is consumed in an adequate manner Thanks to clean water, proper sanitation and healthcare. It also refers to the household's knowledge of nutrition and childcare Techniques. Constraints to food

utilization include practices that negatively impact the consumption of nutritious food, such As loss of nutrients during processing and cooking, inadequate sanitation, improper storage etc.

• **Food stability** complements the previous factors by stressing that food must be available, accessible, affordable and properly utilized on a continuous, long-term basis.

The **relationship between these factors** is well expressed by Bonnard: adequate food availability at the aggregate level is a necessary condition, but not enough in order to achieve adequate food access at the household level, which in turn is necessary but not sufficient for adequate food consumption at the household or individual level. This complex understanding of food security comes close to the meaning of the right to food, according to which food must not only be available (a proper ratio of production to the population's demand) but also accessible. Each household has either the means to produce its own food or has sufficient purchasing power to buy the food it needs Berhanu (2004).

Food security concept is believed to have originated in the first world food conference and was narrow in its coverage and definition. This concept initially paid attention to the national and international level and was defined from the perspective of the food supply with special attention to stable food price and food availability with boosting awareness and dynamism of vulnerability to risks of food shortages, a more comprehensive and multidimensional approach to the concept of food security became emergent FAO (2008).

All the definitions above imply that food security is a wide concept and requires taking into account a wide array of causes and measurements. This paves the way for approaching the issue from a different perspective and provides evidence for consideration of the wider definition given by encompassing all elements of availability, accessibility, utilization, and sustainability. (Barrett, C. B., 2010).

The normative concepts of food security used for the research signifies an assumed and distribution of food to all social groups and individual adequate in quality and quantity to meet their national needs as well as effective demand above minimum. A broad concept of food security which as its principal aim the enhancement access to and distribution of food as well as acceleration of food production to achieved through both domestic and international measures an

effort to integrate welfare needs and to measures access to the basic food the need. In conceptual terms the three diminutions of food security (poverty, vulnerability and malnutrition) can be depicted. Broadly defined, food security means "access by all people at all time to enough food for an active, healthy life (World Bank 2013).

2.2. Empirical Review

Many factors contribute to food insecurity at the household level: political instability, civil friction and wars, macroeconomic imbalances, environmental degradation, poverty, increased population, gender discrimination, poor health and illiteracy (Smith *et al*., 2000). These factors may be categorized as follows:

(a) Insufficient food availability at the national level, resulting in food insecurity at the household level;

(b) Insufficient household food production or lack of economic power to purchas food; and

(c) Inequitable intra-household access to food.

Poverty, which falls into the second category, is strongly correlated with food insecurity (Barrett, 2010).

Therefore, it is necessary to address poverty and food security simultaneously. Further, it is of value to establish how agricultural extension can contribute simultaneously to alleviating poverty and achieving food security. This paper will explore this question by discussing cheha woreda food security condition, food security as a public and an economic good, pathways for households to exit poverty and food insecurity, agricultural extension in relation to achieving food security, and agricultural extension paradigms. The paper will finally suggest ways to achieve this dual objective by synthesizing the objectives of public agricultural extension with the food security and development targets.

The concepts of food insecurity are closely linked with the poverty. Food insecurity target depends heavily on indicators and measurements of food insecurity. Three categories of food insecurity indicators exist with their respective strengths and limitations: food unavailability indicators focus on food supply: food in access by individual to adequate resource for acquiring appropriate food for nutritious diet: food utilization through adequate diet; clean water sanitation

and health care to reach a state of nutrition well being. Inadequate utilization implies in adequate intake of vitamins, proteins, minerals and tuber as well as calorie (Taddele., 2001)

Ethiopia is one of the poorest countries in the world, and about 90% of the populations live in the rural areas. In this layer, more than half suffer from food insecurity (Barnett 2001). Similarly, Doocy et al. (2005) indicated that poverty and food insecurity are endemic and are exacerbated by the frequent droughts that plague the region, wars, and lack of public policy. In response to the threat of declining crop yield and food security, farmers react in a number of ways and adopt several land management technologies (Gafsi and Brossier 1997). Normally, they concentrate their conservation efforts on soils which are susceptible to high rates of erosion (Paudel 2001).

According to Feleke et al. (2005), seven factors affect household food security in Ethiopia. These are the technology used, farming systems, farm size, soil quality, family size, aggregated per capita production, and access to markets. A study conducted by Holden et al. (2005) also revealed that soil degradation is extensive, reducing the average agricultural production and increasing the farmers' vulnerability to drought.

2.2.1 factor affecting of poultry production

There are some factor affecting of poultry production when farmers are produce poultry production there is intensive systems, those are: Disease, predators, feeding, breeding (genetic potential), marketing, farmers organization and training & management**.**

2.2.2 Role of poultry Production in households Income, Saving and Asset building

In developing Countries nearly all families at the village level, even the poor and landless, are owners of poultry. Furthermore, poultry are mainly owned and managed by women and are often essential elements of female headed households. Poultry are socio-culturally important with few religious taboos attached. Production is feasible at village level, where only low cost technology is needed to improve production considerably. Low investments only are required to achieve

such change, land ownership is not a constraint, and village production is environmentally friendly (Upton, 2004).

The role of family poultry in poverty alleviation ,food security and the promotion of gender equality in developing countries is well documented (Gueye , 2000).Family Poultry production represents an appropriate system to contribute to feeding the fast growing human populations and to provide income to poor small farmers ,especially women (Gujit , 1994;Alders,1996;Kitayli and Mayer,1998). It makes good use of locally available resources, requiring low in puts. Though generally considered secondary to other agricultural activities by smallholder farmers, poultry production makes an important contribution to supplying local populations with additional income and highly quality protein, poultry products can be sold or bartered to meet essential family needs such as medicine, clothes and school fees. Village chickens are active in pest control, provide manure, are required for special festivals and are essential for traditional ceremonies (Alders et al, 2003).

There are various advantages which make poultry attractive in the context of poverty alleviation and quality protein supply in SNNP region. Poultry in one form or another is kept in most areas, there are no any religious or social taboos associated with it, it has a high reproduction rate per unit time, it is efficient in transforming feed protein and energy into human food, it uses a very low capital investment and space needed for small-scale poultry production which allows poultry production to be practiced even by landless families or other rural poor and eggs and meat represent consumable units which do not require storage and preservation facilities.

Traditional chicken rearing fits quite well to the conditions of rural households by creating employments and generating family income. The small feed cost and space requirement and the low price of the animals make chicken rearing a suitable farming activity for the rural poor. According to Gueye (2007) rural households in these areas value most highly the possibility of cash income from poultry keeping and believe that village poultry act as a “starter” that enables people to raise themselves and their families from degrading poverty to a stronger livelihood. According to Aklilu (2007), village poultry is the first step on the ladder for poor households to climb out of poverty. Moreover, poultry are used for strengthening marriage partnerships and social relationships.

A, Income: Poultry plays an important role in human nutritional income and income generation. The importance of poultry as source of income for the landless and marginal farmer's ,Poultry in rural areas especially in the area for supplying the fast growing human population with high quality providing income to resource farmers (Tadelle.D, 2001). Poultry provides an important source of income for the poor household that afford quality animal protein source for small holders far.

B, Saving: Small holder poultry keeping has potential to improve consumption and marketing and saving habit of poor people especially. They found that household sells more on their poultry products, both egg and build. When located closer to the markets and increasing the contraction of poultry sector in integrated production systems and saving is to reduce vulnerability to food insecurity.

C, Asset building: Building up on the current emphasis the importance of asset in increasing the productivity and reducing the vulnerability of poor people's livelihoods. An approach to understanding and facilitating development the sustainable livelihood approaches contains the basic needs and concerned with food securing and then poverty alleviation and reduction (Maxwell 1998). Asset support consumption by contributes to overall production and income, risk managing and productive.

3. RESEARCH METHODOLOGY

3.1 Description of Study Area

Cheha Woreda is found in Gurage Zone; Southern Nations Nationalities and Peoples Regional state of Ethiopia. It is bordered in south by Enemorina Eaner Woreda, Guraghie zone, in west by the Oromia Region, in north by the Wabe River which separates it from Abeshge and Kebena Woreda of Guraghie zone, in the east by Ezha Woreda, Guragie zone, and in the southeast by Gumer and Geta Woreda of Guragie zone. The administrative center for Cheha Woreda is Emdibir which is 195km far from Addis Ababa and 40 km far from the Wolkite town, the capital of Guraghie Zone (GZSA, 2014).

As it indicated in the same source the altitude in the Woreda ranges from 1710 to 2800 m.a.s.l. The mean annual temperature of the woreda ranges from18^{o}C to 27^{o}C. The climate of the woreda is classified in to two agro-climatologically zones: dega (20%) and (80%) woyina dega. The average annual rain fall of the woreda ranges from 900 mm to 1500mm.

According to Cheha Woreda Office of Agriculture 2014 report, the Woreda covers the total land area of 69,764 ha classified in to 42 kebeles (39 rural and 3 town kebeles) and it is considered as one of the potential crop producing Woredas of the zone. According to the population projection reports of CSA (2010), the total number of rural household in 39 rural kebeles of the woreda is 18, 088, out of these 15, 047 are male headed and 3041 are female headed. The total population of the woreda is 137,665 out of which 67509 (49%) are male and 70,156 (51%) are female.

3.2 Sampling Method and Sample Size Determination

There are different ways to determine the appropriate sample size for a study. For this study, Yamane (1967) formula was used to determine the representative sample size. For determining the size of samples representing small and homogenous population, it comparatively minimizes the sample size related biasness and hence it is preferable. According to Yamane, for a given finite population with certain confidence level and precision (e), the sample size can be calculated as:

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

Where; n =the sample size to be determined, N= Total no of households under sample frame of the study, e = degree of precision.

Therefore; by taking e as 10% and N = 220; the total number of households in the sample two kebeles, the sample size for this study was estimated as:

$$n = \frac{220}{1+220(0.1)^2} = 68.75 \approx 68$$

Thus, a total of 68 household heads will be selected randomly from the identified two kebeles of Cheha Woreda for an interview of the questionnaire.

Kebeles	Total number of households			Sample households		
	Total	Male	Female	Total	Male	Female
Canco	118	109	9	41	36	5
Gasorie	102	78	14	27	41	3
Total	220	187	23	68	60	8

3.3 Data Type, Sources and Methods of Data Collection

The study used data generated from both primary and secondary sources. Interview schedule was mainly used as a data collection tool. Accordingly, primary data were collected by interviewing smallholder farmers and sectors rearing poultry during 2010 production. Cross sectional data of 2010 production was used. This contains both quantitative and qualitative data collected from selected households with semi-structured questionnaire. During the personal interview, primary data on key demographic, institutional and socio-economic factors affecting poultry production were collected. While, secondary data were collected from source like CSA, books, journals and other published and unpublished documents, from district agricultural offices, websites and other related sources to supplement primary data.

3.4. Methods of Data Analysis

The study used both descriptive statistics and econometric model for analyzing the data.

3.4.1. Descriptive Analysis

Descriptive statistics such as means, and percent, were used to characterize the agricultural system of the study area. Inferential analysis is used to explain the different socio-economic characteristics of the sample households. These include t-test and $\chi 2$-test of occurrence for the producer and non-producer of farmers poultry production in study district.

3.4.2. Econometric Analysis

Model Specification

The data analysis, interpretation and discussion will depend on the dependent and independent variables that are listing in the following econometric model parts to analyze the factors affecting the poultry production.

The Probit Model

The response (dependent) variable of this study is dichotomous taking two values, 0 if producers and 1 if non –prducers. In this regard, a probit and logit model is used to estimate the dummy variable taking two values. In most applications the models are quite similar, the main difference being that the logistic distribution has slightly fatter tails but, there is no compelling reason to choose one over the other. Probit model is one of the most, which to estimate the factors affecting poultry production by some explanatory variables.

These probit and logit models are appropriate when the dependent variable is a binary variable. In this study the response (dependent) variable is dummy variable taking two values, o if producers and 1 if non-producer. Because of the fact that the binomial probit model is preferred in this study due to easier to estimate and simpler to interpret.

The PROBIT procedure computes maximum likelihood estimates of the parameters β and C of the probit equation using a modified Newton-Raphson algorithm. When the response Y is binary, with values 0 and 1, the probit equation is

$$P = Pr(Y = 0) = C + (1 - C) F(x'\beta)$$

Where:

β is a vector of parameter estimates

F is a cumulative distribution function (the normal, logistic, or extreme value)

P is the probability of a response

C is the natural (threshold) response rate

X is a vector of explanatory variables which is a vector of variables explaining level of production. In this case these variables are Sex, Age, Education, Family size, Income, Marital status, Religion and Total livestock owned.

Yi is the output variable that can take either 1 or 0, given the input variable xi is assumed to be $P(yi=1/xi)=F(xi\beta)$

Where: F(x)= is the cumulative distribution function of the standard normal distribution and β is a Kx1 vector of coefficients.

$P(yi=0/xi)=1- P(yi=1/xi)= 1-F(xi\beta)$

3.5. Definition and Hypothesis of Variables

3.5.1 Dependent variable

Status of poultry production: It is a binary variable taking the value of 0 and 1. 0 if the respondent is currently practice/ produce poultry production and 1 if the respondent is currently not practice/produce in poultry production.

3.5.2 Independent variables

Independent variables (socioeconomic, demographic, and institutional) and its combination affect the dependent variables. Those variables can exist by it. The independent and dependent variables poultry in this analysis are listed below. The independent variables are hypothesized to influence role of poultry in foods side positively (+), negatively (-), or both positively and negatively (+/-).

Sex of the respondent head (sex): It is a dummy variable taking 1 for female and 0 for male respondents. Male respondents are expected to have positive relation with producer poultry status than female.

Age: It is represented by the number of years that the respondent passed since his/her birth time. As age increases the probability of poultry production decreases.

Education status (education): It is a dummy variable considering the respondents education from illiterate up to the literate. It takes 1 for illiterate and 0 for literate respondents

Family size: numbers of household head who live to gathers. It is categorical variables.

Marital status: dummy variable. The married person that have the most Produce poultry than single person, because married this is responsibilities that lead the family than that single person single the depend on family.0 for non marital status and for another and1for marital status.

Income: categorical the respondents that have income the more produce poultry and there is no access to income the more chance to produce.0 for that have no access to income and 1 for the respondents that have access to get the income 2 for respondent that have high income.

4. RESULTS AND DISCUSSION

In this chapter overall findings of descriptive and econometric analysis and discussions are presented. It is divided into two sections. The first section provides descriptive analysis of both producers and non-producers. While, in the second section the econometric analysis results from probit model are presented and discussed.

4.1 Descriptive Analysis

Descriptive analysis made use of tools such as mean, Range, Percentage, and frequency distribution to describe the socio-economic characteristics of respondents, household's income, assets and level of food insecurity at household level percentages as well as the probability levels of all explanatory variables were used to analyze and interpret the data. While, inferential statistics, such as t-test for continuous and chi-square tests for dummy and categorical explanatory variables were used to examine data for differences and associations between producers and non-producers..

4.2 Descriptive Statistics for Dummy Explanatory Variables.

Sex of house hold head: In this study, out of the total 68 sample households 30(43.72%) were male-headed households and the rest 38 (55.93%) were female-headed households. The male-headed household was 23.53 % for non producers 20.19% . Whereas, the female-headed households of the producers (32.35%) and non-producers 23.58%.

Education level of household head: As indicated in Table 1, about sample households had illiterate, 20.06% were literate 38.82% are producers . and 20.53% of sample households were at literate non produceres and Out producers 23.53% were illiterate non producers.

Marital status: as table 1 express amounts of producer single12(17.65%), married 21(30.88%), divorced 45.88% and widowed1(1.47) were producers, &13(19.12),married17(25.00) were not produced. In this divorced and widowed are not participate in non producers.

Income of household: as indicated from this table there was expressed by the percentages of household headed poultry production. these were low income engaged in production by 15(22.06%),medium income 20(29.41%) and high income 3(9.91%).in the studied area most

numbers of people are under medium income, so to improving their income participation in production practices were determined. the non producers percentage were low income 7(10.29%),medium 21(30.38%) and high income 2(2.94%).

Religions of household head: as show from Table:1, numbers of Muslim which produce poultry 18(26.47%),Christian 15(22.06%),protestants 3(4.41%) and others were 2(2.99). from those percents of household headed 16(23.535)were not producers,10(14.71%) Christian, 2(2.4%) and 2(2.29%) were not producers.

Table 1: Soco-economic characteristics of sample household headed

variable	Components	Poultry production					
		Producer	%	Non producer	%	Total	x2-value
sex	Male	16	23.53	14	20.19	30	
	Female	22	32.35	16	23.58	38	0.1415
Marital status	Married	21	30.88	17	25.00	38	4.583
	Single	12	17.65	13	19.12	25	
	Divorced	4	5.88	-	-	4	
	Widowed	1	1.47	-	-	1	
Education	Literate	23	38.82	14	20.53	37	1.2982
	Illiterate	15	20.06	16	23.53	31	
Religion	Muslim	18	26.47	16	23.53	34	
	Christian	15	22.06	10	14.71	25	0.3818
	Protestant	3	4.41	2	2.4	5	
	Others	2	2.99	2	2.94	4	
income	Low	15	22.06	7	10.29	22	
	Medium	20	29.41	21	30.38	41	2.2231
	High	3	4.41	2	2.94	5	

Source: Own Survey result, 2019

4.3. Descriptive Statistics for Continuous Explanatory Variables

Age of the household head: As indicated in Table 2, the mean age of sample respondents at the time of the survey was 38.92 years with standard deviation of 10.8. The age structure of the sample respondents showed that producers were younger (average age of 38.92 years with standard deviation of1.587) than the non producers (average age of 34.23 years with standard deviation of). The two groups were found to be significantly different in terms of age at 10% probability level.

Family size: The availability of large working labor force in the household is considered as the number of individuals who resides in the household's house to perform production activities. In this study, the average family size of sample households was about 3.323529 with standard deviation of 1.364365 The average family size of sample producers and non producers households was 3.7631and 1.667401 with standard deviation of 2.7667 and 1.977169 respectively.

Total Livestock: Livestock is the farmers' important source of income and draught power for crop cultivation and is one of the main cash sources to purchase production inputs. In the study area livestock production constitutes an important element of the farming system of the community. As indicated in Table 2, the average livestock holding of the sample households was 5.54 with producers' deviation of 2.1 Producers were found to own more livestock than their counterparts. It was observed that producers of improved poultry production had livestock holding of 5.18 with standard deviation of 2.09 and non producers had 6 with standard deviation of 2.067 this study indicated that, mean difference among adoption categories related to livestock holding was statistically significant at 5% probability level.

Table 2. Descriptive Statistics for Continuous Explanatory Variables

	Poultry production									
		Producer		**Non producer**				**Combine**		
Variable	**obs**	**mean**	**Std. deviation**	**obs**	**mean**	**Std. deviation**	**obs**	**Mean**	**St. deviation**	**t-value**
Age	38	38.92	1.583	30	34.23	9.357	68	36.85	10.83	1.800
Family size	38	3.763	1.667	30	2.7667	1.977	68	3.32	1.364	2.25
Total livestock	38	5.18	2.1	30	6	2.068	68	5.544	2.099	-1.61

4.2. Determinants of poultry production

In this section, results and discussions from an econometric model analyses were presented. Accordingly, probit model was used to analyze the influence of various demographic, socio-economic and institutional variables on poultry production. The dependent variable for the probit model is the production decision of sample households. A total of nine explanatory variables, of which five dummy and four continuous, were included in the model. Out of nine explanatory variables, four variables were found to be significantly determined households' decision of poultry production.

The likelihood ratio of chi-square result revealed that the overall fitness of the model was found to be significant at 5% probability level. Significant variables from this model are discussed as follows.

Age of the household: Age of household head was found to be negatively and significantly influenced the probability of poultry production at 5% level of significance. Other variables held constant an increase in age of house hold head by 1 year would result in 1.4% decrease on the probability poultry production decision of households. This implied those older farmers are less likely to poultry production than younger farmer.

Family size: Family size household head influenced negatively and significant probability of poultry production at 5% of significant levels. As family size of household increase by one, the probability of poultry production would decrease by 8%. This implies to large family size do not have interest poultry production.

Marital status: in marital status household also influenced negatively poultry production. Divorced poultry production are significant level at 10%. When comprised divorced household with married, divorced are higher production than married household because, their amounts of land size are very low but poultry production are not need more land area ,so divorced are gain medium and high cash from poultry.

Livestock holding: The number affected positively and significantly the probability of land size at % probability level. Other variables held constant, as the number of livestock increase by 0.2 the probability of poultry production increases by 23%. This result showed that those producers of poultry production than those who own small number of livestock. The result could be explained as, better risk bearing behavior of those wealthy farmers with better livestock would enable them to try those newly poultry production. In addition, livestock could be a source of income that can be used to purchase inputs such as improved seeds, fertilizer and chemicals. It also enhances the shock absorbing capacity of the households.

Table 2: probit regression and marginal effects after probit

Variable			
Pro	Coef.	Marginal effect	P>z
Age	-0.036	-0.0139	0.039
Sex	-0.198	-0.077	0.568
Fams	-0.196	-0.077	0.041
Edu	0.528	0.206	0.157
Rel	0.114	0.0445	0.596
marts			
single	.073		0.570
Divorced	-0.447	-0.2328	0.090
Widowed	-0.45		0.375
Inco	0.518	0.203	0.102
TolLi	0.227	0.887	0.018
_cons	0.224		0.817

Source: Own Survey result, 2019

4.3 The Role of poultry production in house hold income, saving and asset building

The order to achieve the second specific objective of the study, role of poultry production in household income, saving and asset building was assessed. In this study the impact of poultry production at household level was assessed in terms of livestock ownership, income, and personal cash saving in the study area. With this respects the results and discussion of study on the role of poultry production are presented in this subsection. Have earned high proportion of annual income and they could have high opportunity to access to food in the study area.

Level of income is one of the major determinants for having high quality productions of poultry as households who have high level of income can easily produces high and better quality of poultry than households having less level of income. Having good character of saving is also raise poultry productions income saving is an important ways for high poultry production and having access of assets is other base for good practices of poultry production, such assets are either cash and non cash like equipment, materials and other non ,monetary assets.

In generally level of income, assets and saving is the main important for production of poultry.

4.4 Household level of Food Insecurity

This study measured household food security in terms of the adequacy of daily local consumption per adult equivalent. Sampled households reported that over 5 food items were used for consumption during the last 7days prior to the survey period and for the purpose of this paper they are categorized into seven food types just to indicate the contribution of each group to total kcal consumption. The most commonly eaten foods were teff, maize, wheat, livestock products, vegetables, sugarcane and other. Those all types of food consumption are the more important in daily activity or at list 1or2 in each week. in this case food security in adequacy are decrease the human force, interest and add the value of food consumption in society.

5, CONCLUSIONS AND RECOMMENDATION

5.1 Conclusions

The study was conducted with specific objectives of describing the socio-economic characteristics of the study respondents, assessing the role of poultry production in household income and saving and examining the contribution of poultry production in asset building and assessing the level of household food insecurity. The study findings indicated that the proportion of producer households that owed number of assets is relatively higher than non- producer households in the study area. The study results revealed that the proportion of producer households that own livestock higher than non- producer households in the study area. The results revealed that the proportion of particular households that had cash saving higher than non- producer households. Producer and non- producer households were gained from different income activities in the study area. The study shows that sample producer households had consumed more types of food per day than that of the non- producer households. The findings of the study revealed that sample producer households have consumed more times per day than that of the non- producer. Furthermore the study revealed that the level of food insecurity was higher in the sample non- producer's households than producer households in the study area.

In this area, poultry production is an important in form of food and income. A total of 68 sample households selected from 2 kebeles of the Woreda were interviewed using structured interview schedule. Mainly Chi-square test and t-test were used to test the variation of the sample group towards livelihood. The probit econometrics model was employed using to estimate the effects of hypothesized independent variables on dependent variable. This study was conducted in order to identify factors influencing of poultry production by farmers in the study area. The probit analysis of factors affecting of improved poultry production showed that age of the household and family size and marital status are negatively influenced the probability of improved poultry production. However improved to total livestock owned by house hold head are positively affect the poultry production in study area.

5.2 Recommendation

Based on the finding of the study, we are identified following consideration:-

Based on the finding of this study the following basic recommendations have been forwarded and been considered as important for policy maker's poultry producers and other responsible bodies accordingly. Therefore, the result can be used by policy makers to promote technological change that is directly needed for the economic development of the country. The following are the major recommendations forwarded based on the finding of this study:

- Access to poultry production to rural households should be pursued to build assets and improve their food security situation is a critical path way.
- Promotion support in education to rural households in order to diversify their income sources need to be required.
- As owing large number of livestock and having higher non-farm income contributes positively for the households poultry production, great attention should be given to support the households to have more number of livestock and to improve their non-farm income
- Age of household head had negative and significant effect on the of poultry production. Therefore, stakeholders in the study area including the district offices of agriculture and agricultural experts need to arrange experience sharing and provision of short-term training programs so as to create awareness among older farmers.
- Marital status of household head had negatively and effects on poultry production. so the administrations of this area should solve the problem negatively affect poultry production which relate with marital status.

6. REFERENCES

Adenew, Berhanu. 2004. "The Food Security Role of Agriculture in Ethiopia." Agricultural and Development Economics Division (ESA) FAO, eJADE - electronic Journal of Agricultural and Development Economics 1, No. 1 (2004): 138-153. ftp://ftp.fao.org/docrep/fao/008/ae717e/ae717e00.pdf

Alders R. (2004). Poultry for profit and pleasure. Diversification Booklet No. 3. Rome: Agricultural Support Systems Division, Food and Agriculture Organization of the United Nations. [Google Scholar]

Alders R. G. (2009). The AusAID Southern Africa Newcastle Disease Control Project: its history, approach and lessons learnt In: Alders R.G., editor; , Spradbrow P.B., editor; and Young M.P., editor. (eds) Village chickens, poverty alleviation and the sustainable control of Newcastle disease. Proceedings of an international conference held in Dar es Salaam, Tanzania, 5–7 October 2005. ACIAR Proceedings No. 131, pp. 8562- 66. [Google Scholar]

Alders R. G., Bagnol B., & Young M. P. (2010). Technically sound and sustainable Newcastle disease control in village chickens: Lessons learnt over fifteen years. World's Poultry Science Journal, 66, 433–440.

Alders R., dos Anjos F., Bagnol B., Fumo A., Mata B. & Young M. (2003). Controlling Newcastle disease in village chickens: A training manual. 2nd Edition. ACIAR Monograph N° 86.

Alders, R.,Cambaza, A.B.,Harun,M.2003. Village chickens, food security and HIV/AIDS mitigation. Australia. AusAID Southern Africa Newcastle Disease Control Project,Maputo

Alders,R. 2003. Facilitating women's participation in village poultry projects:experiences in Mozambique and Zambia. Proceeding's of the 20th World's poultry Congress, New Delhi, and India VolIII, 441-447

Alemu, D,T.Degeffe,S. Frede ,S.Chief Cheung and D.Roy.2008 over view and background paper on Ethiopia poultry sector.

Argenal, Amanda Rives, and Mickey Leland. "FOOD SECURITY FOUNDATIONS - History of Food Security in International Development:

Background paper developed for Christian Children's Fund Honduras." CHC/CCF Hondura Congressional Hunger Centre and Christian Children Fund Honduras, 2002.

BARRETT, C. B., 2010. Measuring Food Insecurity. Science **327**, 825-828. [Online] Available at: http://www.sciencemag.org/content/327/5967/825.full.pdf.

Branckaert, R.D.S., Gaviria, L., Jallade, J. & Seiders, R.W. 2000. Transfer of technology in poultry production for countries. In FAO Sustainable Dimensions Montreal, Canada (under also available at www.fao.org/ag/aga/AGAP/LPA/fampo1/links.htm).

Cheha Woreda Agricultural Development Office 2007) Cheha Woreda.

CSA (Central Statistical Agency). 2013. Agricultural Sample Survey: Area and Production. Vol. I. Addis Ababa, Ethiopia.

FOOD AND AGRICULTURE ORGANISATION, 2004. The State of Food Insecurity in the

Gueye, E.f.2000. The role of family poultry in poverty alleviation, food security and the promotion of gender equality in rural Africa. Outlook on Agriculture, 29(2)-136.

Gujit,I. 1994.Making a difference : integrating gender analysis into PRA Training. Rapid Rural Appraisal Notes No.19, Special Issue on Training, Sustainable Agriculture Programme, International Institute for Environment. February 1994, 49-55.

Kitayli. Aichi J,1996. Village Chicken's production System in rural Africa. House hold food security and gender issue in Rome.

Kityali,A,J., Mayer,A. 1998. Village Chicken's production System in rural Africa. House hold food security and gender issue in Rome (Online). Rome (Italy). The food and Agricultural Organization of the United Nations (FAO).

ODI. "Economic Theory, Freedom and Human Rights: The Work of Amartya Sen." Overseas Development Institute - ODI , November 2001. http://www.odi.org.uk/resources/download/1564.pdf

Shiferaw F.Kinnel.2003.Determination of food security of North Shoa,Ethiopia.

Taddle,D, and B, Ogle,2001. Village poultry production system in the central highland of Ethiopia tropical animal health and production.

Wooldridge, J.W. 2002. Econometric Analysis of Cross Section and Panel Data. Massachusetts Institute of Technology Press, Cambridge, USA

World Bank (2013) Ethiopia: Agriculture managing resources to maximise sustainable growth. Washington, D.C.: World Bank.

World bank.2013.access by all people at all time to enough food for an active health life.

World. Economic crises – impacts and lessons learned. Rome.

APPENDEX

PART I. BACK GROUPING OF INFORMATION

1. Name of kebele administration ----------
2. 2. Name of respondent ----------
3. Types of household head 1) producer in poultry production 0) Non-Producer Poultry Production
4. Date of interview _____ Time of Started _____ Time of started _____ Finished_____

PART II. HOUSEHOLD CHARACTERISTICS

5. Sex of Household head 1) Male 0) Female
6. Age of household head in year 0)20 -35 1) 36-49 2) >50
7. Marital status of the household head 0) Married 1) Single 2) Divorced
8. Numbers of family size----------
9. Do practice in poultry production? 1) Yes 0) No
10. What is your income Source 0) Crop production 1) Animal rearing 2) Poultry production 3) others _____
11. What is your average annual income? 0) low 1) medium 2)high 3) very high
12. How many types of food your household head consumed per last 7 day?
13. How many times your household consumed per last 7 days?

0) One 1) Two 2) Three 3) More than three times

PART III. HOUSEHOLD FOOD PRODUCTION

15. What kinds of cereal crop are produced for food production in last 12 months?

PART IV. HOUSEHOLD ASSET OWNERSHIP

16. What kinds house you live

0) Roof 1) Hat C) others, _____

17. What kinds of housing items you have? 0) Table 1) Bed 2) Fridges 3) others _____

18. What kinds of asset did you have?

PART V. LIVESTOCK OWNERSHIP

Table 2.

S.No	**Livestock**	**Number livestock owned in 2019**	**Number of livestock**	**Income obtained from sold**
1	Oxen			
2	Sheep			
3	Goat			
4	Hen			
5	Others specify			

PART VI. QUESTIONS FOR KEY INFORMANTS

1. What is the role of poultry production in household head income?
2. What is the role of poultry production in household head cash saving?
3. What is the role of poultry production in household head asset building?
4. What is the role of poultry production in household head level?

PART VII. FOCUSED GROUP

1. Did you think poultry production as help for your annual income household head? If yes how?

2. What is the impact of poultry production in asset build, and cash saving?

3. What are factors of food insecurity at household head level?

4. What are factors affects of poultry population reduce?