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Factors affecting economic status of farmers in ambo Woreda; the case of senkele faris kebele

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Aabstract: This study was conducted on the impact of the economic status of farmers in the case of Senkele faris kebele around Ambo woreda. The purpose of this study was to identify the main factors that are related to the economic status of farmers. For this study 120 samples of farmers were selected by using stratified random sampling method from the total number of 2495 populations (house hold farmers). The main source of data for this study was primary data, which is directly collected from the farmers through questionnaires and interview from the selected samples. Descriptive statistics and inferential statistics like chi-square test and Logistic regression was used to analyze data. This finding showed that saving habit, educational level, and family size has a significance effect on the economic status of farmers. The economic status of farmers is highly depending on habit of saving so that we recommended that the community should develop the culture of saving practice.

Key Words: Economic status of farmers, Saving habit, Educational level, Chi-square test, Logistic Regression.

1. Introduction

1.1 Background of study

Economic growth refers to the increase in prosperity and wealth of a nation or country. It is used as a synonym of GDP. Economic growth is a top priority for policy makers around the world. It is generally agreed that a number of factors influence an economy to grow, including productivity increases, population growth, better educated and healthier work force.

In a growing economy, success depends on many factors such as geographic location, availability of natural resources, access to major transportation channels, and the area's local workforce. This study focused on the last factor, the area's local workforce. If the local economy is successful at attracting and retaining valuable workers, then the future of the country economy is sure to improve. The question then becomes, who is a valuable worker?

Valuable workers could be older professionals that bring with them experience and knowledge that can only be attained with the passage of time. Valuable workers could be those types of individuals who understand the importance of technology and how it would affect a local economy. Valuable workers could also be those people who perform the jobs that most people did not like to do. Even if a country is abundant in natural resources and strong labor population, there is shortage of basic infrastructure or specific technology, that would be limited their economic growth. The technological innovation in the country is a decisive factor of economic progress.

Some demographic factors are urgent global problem in all developing countries, for instance countries like Ethiopia. Among this factors family size, socio-cultural, level of education, age of persons or households, marital status, gender and occupational status of the households/family are most popular factors which affects the economic status mostly in developing countries [2].

Ethiopia is one of the fastest-growing economies in the world and is Africa's second most populous country. The economy of Ethiopia is largely based on agriculture, which accounts for 46.6% of the gross domestic product (GDP) and 85% of total employment. Many properties owned by the government during the previous regime have now been privatized and are in the process of privatization. However, certain sectors namely, Financial and Insurance services, Air and Land Transportation services, and retail are considered as strategic sectors and would remain under state control for the foreseeable future. Almost 50% of Ethiopia's population is under the age of 18, and even though education enrollment at primary and secondary level has increased significantly, job creation has not caught up with the increased output from educational institutes. The country must create hundreds of thousands of jobs every year just to keep up with population growth. The current government has embarked on a program of economic reform, including privatization of state

enterprises and rationalization of government regulation. While the process is still ongoing, the reforms have begun to attract much-needed foreign investment. Despite recent improvements, with an exploding population Ethiopia remains one of the poorest nations in the world.

1.2 Statement of the problem

This study attempted to explore the major socio-economic, demographic, and cultural and environmental factors that affect the economic status of the farmers and society in the study area. The study designed to respond the following basic questions.

- ✓ What impact does family size have on economic status?
- ✓ Does level of education have direct or inverse relation with economy?
- ✓ What kind effect does age cause on economy?
- ✓ What kind effect does marital status on economy?
- ✓ Does head of house hold cause significant effect on economy?
- ✓ What effect does saving experience have on economy?

1.3 Objective of the study

1.3.1 General objective of the study

The general objective of this study was to identify factors that influence the economic status of the farmers around Ambo woreda in case of Senkele faris

1.3.2 Specific objectives of the study

The specific objective of this study has focused on the following ideas.

- To identify the effect of family size on economic status of farmers.
- To identify effect of demographic variables on economic status of farmers.
- To identify the association between the level of education and economic status of farmers.
- To identify the most important factors that affect the economic status of the farmers.
- To identify the effect of land size and it's fertility on economic status.
- To identify the effect of saving practice (saving and not saving) on economic status of the farmers.

1.4 Significance of the study

The study would be expected to show clearly the possibilities of assessing better economic status. The findings of the study serve as a source of information to solve the economic problem of farmers. In general the significance of the study can be summarized as follow:

- ➢ This study is mainly tried to identify whether the imbalance between the fertility pattern and economic status creates a problem or not on this study area.
- ➢ This study would be important to farmers of this area to know or learn the effect of factors that affects their economic status.
- ➢ It identifies the most important factors that affect the economic status of the society of the study area.
- ➢ It has encouraged the students, others administrators and farmers to know the effect of education level on the economic status.

1.5 Scope of the study

This study focus on factors that affect the economic status of farmers in Ambo district specifically in the case of Senkele faris kebele .That is the study mainly focuses on the major factors that affect the economic status of farmers in the study area only.

1.6. Limitation of the study

Some of the back draws or limitations in this study are the following;

- Lack of computer.
- Shortage of time.
- Shortage of resource; for instance money.
- Shortage of related documented in study area.
- The researcher's language inability of the study area societies.
- Some of the respondents were not voluntary to give the response.

2. literature review

The popularity of this topic seems to have been growing over the past few years both at the international, national and state levels. Many demographers and scholars believe and recommend the need to conduct in depth studies on the various aspects of economic status in different demographic, economic and socio-cultural settings in developing countries. Shah investigate the two important relationship the first one is irrigation and agriculture productivity and second one is agricultural productivity and poverty alleviation in stage II of CRBC. He examines and discusses the socio-economic characteristic of the household and study the area before and after the construction of CBRC. For the analysis purpose two approaches have been used such as t-statistics and regression analysis. This study compares the per acre yield of different crops, area under cultivation, income, consumption and saving before and after the CBRC. The estimated results show that all relevant variables have increased significantly. Results show that variables have increased significantly after the implementation of CBRC.

Indian agricultural (2011) study the causes of low agriculture output by taking the country India as case study. Major causes are fertilizer abuse, reducing arable land, fragmentation of agricultural

land, agricultural indebtedness, water waste, low soil fertility, and climate change and food wastage. These are the main issues that Indian agricultural sector is facing. The solution of these problems lies in science, technology and education. Although solution is lies in the research but western research cannot solve these problems in India. That's why there is a need to look at acceptable Indian or regional options and to implement them in a purposeful way.[3]

S. Ahmed , *et. al.*, [4] discussed the share of agricultural in the progress of country by taking Pakistan as case study. They said that agricultural sector is the largest sector of the country and it provides the raw materials to the other sectors especially it contributes to country's economy. Besides this, they also proposed certain factors through which Agricultural sector can be promoted in future. For instance, they emphasized on the need to bring more land into production. For Pakistan, they recommended that the country should adopt more technological approaches and must rely on latest technical efficiency for the achievement of desired productivity and Agricultural growth in future.

Land is one of the most important resources in Kenya as it is the base upon which agriculture activities are carried out. Resource endowment is one of the factors affecting farmers' decision to adopt a new agricultural technology. Land size is often used as an indicator of wealth and proxy for social status and influence. Farmers with large farms are likely to be better informed , richer and more keen in searching for information on improved technologies.[5]

Literature about African agriculture proved that application of tree-based renewable soil fertility replenishment technologies such as agro forestry in the traditional agricultural sector is more profitable than the conventional farmers' practice of continuous crop production without external fertilization, however, its adoption is affected by several factors such as the biophysical characteristics of the technology itself, the individual and household characteristics of the farmers, Policies and the institutional context within which the technology is disseminated Among the factors that were found to influence African farmers' tree- based renewable soil fertility replenishment technologies adoption decision are availability of information about the technology, the technology perceived relative advantage and usefulness, perceived complexity, compatibility with farmers' previous experience and knowledge, land size and tenure . short-term profitability of renewable soil fertility replenishment technologies generally increase the probability of its adoption, economic models alone do not fully explain farmers' adoption behavior regarding these technologies and their adoption decisions appear to be guided by their households level of resource endowments and the prevailing social context such as customs, obligations and beliefs which are highly affected by factors such as farmers' education, age, cosmopolites and family size. [6].

Many researchers indicate that many rural households in developing countries, particularly in Africa, they do not have complete access to savings facilities in formal financial institutions. Instead, they use informal institutions for their savings. These include livestock, crop products, housing materials, farm equipments, and some other precious metals like jewelry.[7]

The relative agriculture performance was measured by using data envelopment analysis. The data set of ten countries which include the 28 years periods 1972-99 mathematical programming methods were used to measure Malmquist indices of total factor productivity. It is found from the results that, during that period of time, total factor productivity has a negative impact in sample countries. The results suggest that, most of the poor performance of factor productivity is attributable rather to the technological change then technical efficiency change. In a nutshell, the pattern of performance which was given in this study clearly demonstrates the role of each component on the evolution of total factor productivity.[8]

N. Jean (2003-04) studied the southwestern Rwanda and examines the degree to which farmer can improve agricultural productivity by the implementation of different agriculture principals. The study revolves around certain factors such as demographic pressure, deforestation, soil erosion and land degradation and these problems act as low agricultural output. These factors are interlinked and affected each other. The analysis from the study suggests that conventional agriculture or industrial agriculture may not solve the problem of food insecurity and improve environmental degradation. The main challenge to us is how to increase the productivity? The result of this paper tells us that we increase our agriculture output by human assets, social assets, physical assets and financial assets. Through these we can improve our productivity and environment. [9]

The major focus of this paper is describing all the matters regarding land tenure system, its rights, agricultural productivity and effects due to change in climate. The results proved that proper

land ownership policy is important for the majority of rural areas because their quality of life is totally dependent on farming. Besides that land administration departments of these countries should play their efficient role in ensuring proper land tenure and property rights. [10]

According to studies conducted in Ethiopia, ownership of livestock, farmland size, family labor, off farm income, market access, use of improved technology, education, health, amount of rainfall and distribution, crop diseases, number of livestock, and family size are identified as major determinants of household food security.[11]

3. Methodology

3.1 Study Area and Period

This study was conducted in farmers of Senkele faris kebele. This area is found in the western part of Ethiopia and around 114km away from the capital city of the country and 5km far from the City of Ambo. This area is particularly found in the west of Ambo town. Weather Condition of this area is middle as compare to some other parts of Ethiopia. The study period is from Decembery up to June 2007E.C

3.2 Study population

The study population for this study was farmers that are found in Senkele faris kebele particularly the appropriate sampled population.

3.3 Target population

The target population for this study was all farmers that are found in Senkele faris kebele or the study area population.

3.4 Methods of Data Collection

In any statistical investigation the first step is to collect a set of observations from which conclusion may be drawn as all statistical conclusions are based on sample data. So, the set of related observations (data) has to be collected in scientific manner that will ensure as far as possible their reliability according to source we classify as primary and secondary, i.e. data may be obtained either primary source or secondary source.

The type of data collection for this study was primary data collection Method, i.e. data was collected from farmers by using questionnaire and interviews method from the sample of the population.

3.5 Sampling technique

The appropriate sampling technique for this study is stratified random sampling technique. We divide the population in to three strata, where the variation with in strata is small relative to between strata. Zones in the Kebele are considered to be as stratum. Accordingly zone-1 is allocated as stratum 1with N1 as a population size and n1 as sample size drawn from this stratum, zone-2 is allocated as stratum 2 with N2 population size and n2 sample size, etc.

For this study almost all the Zones have equal probability to be selected. Also the farmers of this study area have equal probability to be chosen. Since all the farmers are the sampling elements (the ultimate sampling unit) of this study. So the study would be tried to use stratified random sampling technique.

3.6 Sample Size Determination

In a research conduct we always required that taking a sample and have the stage of deciding the sample size. Determining sample size is very important issue, because sample that is too large may be waste time, resource and money while sample too small may lead to inaccurate results. Appropriate sample size is one of the means of gaining high precision. In this study the sample size is determined by using proportional allocation by making stratification for any element in the population. Allocation of The sample size to strata is proportional to these stratum sizes: determination formula adopted for this study is;

$n = \frac{no}{1 + no/N}$ Where, (Cochran)

n - The desired sample size

$$n_o = \frac{(Z_{\alpha/2})^2 pq}{d^2}$$

Zα/2 - critical value at 95% confidence level of certainty (1.96)

d - The margin of error between the sample and the population (0.08)

p – Population proportion

Pilot survey questions are the flowing

1.What is your average annually income?

Less than 10000 ETB

More than 10000 ETB

P=number of cases success/total number of cases

From the pilot study we can find population proportion

No	High/success	Low/failure	total	Proportion
1	7	3	10	0.7

According to the above formula the sample size is as follows

Then, For p

$n_o = \frac{(Z_{\alpha/2})^2 pq}{d^2}$ $=[(1.96)^2*0.7*(1-0.7)]/(0.08)^2$

=126.05

, there for p is our population proportion.

Since $n_{o/N>0.05}$ adjustment is needed. Means that 126.05/2495=0.0.0505>0.05

There fore

$$n = \frac{n_o}{1 + n_o/N} = \frac{126}{1 + 126/2495} = 120$$

When the size of the stratum n_h, is the only available information and there is difference in size between strata, a proportional allocation is used. With proportional allocation the sample allocation to each stratum is proportional to the total number of units in the stratum. That is in proportional allocation, a small sample taken from a small stratum and a large sample taken from a large stratum and the sample size in each stratum is fixed.

The proportionality formula is written as; $n_h = \frac{N_h \times n}{N}$

Where; N_h= total number of population in the h^{th} stratum

nh = the number of respondents selected in h^{th} stratum

n_1= (745*120)/2495=36

n_2= (848*120)/2495=41

n_3= (902*120)/2495=43

Table :1 Stratum of the population

Stratum (zones)	**Total population in each stratum**	**Sample size in each stratum**
Senkele (N1)	745	36
cawaka (N2)	848	41
faris (N3)	902	43
Total	2495	120

Table :2 Variable coding

	variables	category	coding
Dependent Variable	Economic status	low	0
		high	1
In dependent variable	sex	male	0
		female	1
	age	Below30	0
		Between 30&40	1
		Above40	2
	Marital status	single	0
		married	1
		divorce	2
	Family size	<3	0
		3-5	1
		>5	2
	Saving habit	no	0
		yes	1
	Fertility of soil	Non fertile	0
		fertile	1
	Educational level	illiterate	0
		<4grede	1
		4-8grede	2
		>8grede	3
	Land size in hectare	0	0
		<3	1
		3-5	2

Table :3. Variables in the study

Dependent Variables	Independent variable
Economic Status of the Farmers.(low or high)	Educational level (illiterate, below grade4,between grade 4&8,above grade 8)
	Age (below30,between30&40,above40)
	Sex (male, female)
	Farm land size (no,below3, between 3&5)
	Fertility of the land for production (fertile ,non fertile)
	Saving practices (having saving habit, no saving habit)
	Maritual status(single,married,divorced)
	Family size (below 3,between 3&5,above 5)

3.7 The Study variable

In this study, the variables included in the study are dependent and independent variables. Dependent variable is the variable that is affected by variables independent and it is the economic status of the study population. In other case, independent variables: are variables that can influence on the dependent variables. These are included the following.

3.8 Method of data analysis

In this study both descriptive and inferential statistical methods are used to analyze our data. Data were presented using frequency distribution methods, graphs and charts which are among descriptive statistics. In addition to that mean, variance and other measures were also used in the study to explore the characteristics of data and variables. Among inferential statistics chi-square, logistic regression would be used to determine whether there is a significance relationship in the independent variables and dependent variable.

3.8.1 Descriptive statistical analysis

This study was used different types of descriptive statistical analysis such as Frequency distribution, Bar chart, Tables and pie-chart. Frequency distribution used as the indication of the number of counts found under each category bar chart used for the clear justification of the problem that are under study. Tables used to summarize the statistics either descriptive or inferential which are included for the investigation.

3.8.2 Inferential statistical analysis

This study was used different types of inferential statistical analysis such as chi-square test logistic regression to determine whether there is a significance relationship in the independent variables and dependent variable.

3.8.2.1 Chi-square test of independence

Chi-square test is used for determining whether there is any association or independent between two variables. It is based on the composition of the table of observed frequency and the expected frequency of two attributes which are independent

The model of chi-square can be written as;

$$X^2_{cal} = \sum_{i=1}^{2}\sum_{j=1} \frac{(0_{ij} - e_{ij})^2}{e_{ij}}$$

Where; oij = Observed values

Eij = Expected values

The expectation of the certain category being in one economic group is written as;

$$E_{ij} = \frac{a_i.a.j}{a}$$

Assumptions of chi- square test

- The observation must be independent of each other.
- The sample must be randomly selected from the population.
- The population must be normally distributed to the variable.

The expected frequency of each category must be at least 5.(At least 80% of them have an expected frequency of greater than 5).

The hypothesis to be tested is therefore,

Ho: the two attributes are independent or there is no significant association between the two attributes.

H1: the two attributes are dependent or there is significant association between the two attributes.

Where the attributes are the possible categorical variables used in the study.

3.8.2.2 Logistic Regression

The most popular model for binary data is logistic regression. It is used when the regressed, the dependent variable or the response variable is qualitative in nature or categorical. Qualitative response variable are either binary (dichotomous variable) or multiple category.

Binomial or binary logistic regression is the form of regression, which is used when the dependent variable is dichotomous, and the independent are of any type. Multinomial regression can handle the case of dependent variables with more than two classes.

Logistic regression can be used to predict a dependent variable on the basis of continuous and Categorical independent variables to determine the percent of variance in the dependent variable explained by the independents, to rank the relative importance of independent variables to assess the

interaction effect and to understand the impact of covariate control variables.

Logistic regression models are special cases of Generalized Linear Models (GLM_s) for binary data. In logistic regression our objective is to find the probability of something happening (probability of success). It is used in various areas of social sciences and medical research.

For a binary response y and a quantitative explanatory variable X, let $\pi_{(x)}$ denote the success probability when X takes value x. This probability is the parameter for a binomial distribution. The logistic regression model has linear form for the legit of this probability,

$$\log it(\pi) = \log\left[\frac{\pi}{1-\pi}\right] = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k \text{ OR}$$

$$\frac{\pi}{1-\pi} = \exp(\beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k)$$

$$\pi = \frac{\exp(\beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k)}{1 + \exp(\beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k)}$$

Where, π - the probability of success

$(1-\pi)$ - the probability of failure

β_0 - the constant term

β_i- coefficients of independent variables, for i=1,2,3,…,K

X_i- independent variables, for i=1, 2, 3… K

- The ratio of probability of success to probability of failure that is [p / (1-p) is odd ratio of success.
- Exp (βj) where j = 1, 2… k is a factor by which the odds of occurrence of success change by a unit increase in the j^{th}independent variables.
- If in [π / (1-π)] is positive, it means that the value of the repressor(s) increases, the odds that the regressed equals one (meaning some event of interest happens) increases. If in is negative, the odds that the regressed equals one decreases as the value of x increases.

Assumptions:

- ✓ Dichotomous dependent variable is assumed for binary logistic regression.
- ✓ Absence of multicollinearity.
- ✓ The error terms need to be independent.

3.9. Goodness of fit of the model

To check whether the fitted model is adequate or not should be checked by Homer-lemshow test.

Homer Lemshow Test

If Homer Lemshow Test goodness of fit test is greater than 0.05, we not reject the null hypothesis that there is no difference between observed and model predicted values, implying that the model estimates fit the data and acceptable level..

4. Results

4.1. Descriptive statistics

Descriptive statistics describes the data collected through numerical measurement, chart, frequency distribution table and statistical graph etc.

The main purpose of descriptive statistics is to provide an over view information about the collected data. In most cases, descriptive statistics used to examine or explore one variable at a time. Always analysis of statistical data begun by describing the raw data; in order to achieve this, descriptive statistics plays an important role.

Socio demographic characteristics shows that majority of the study population were males, age between 30&40, father as house hold head, married, educated, unsatisfied with their income and uses crop sale as source income .

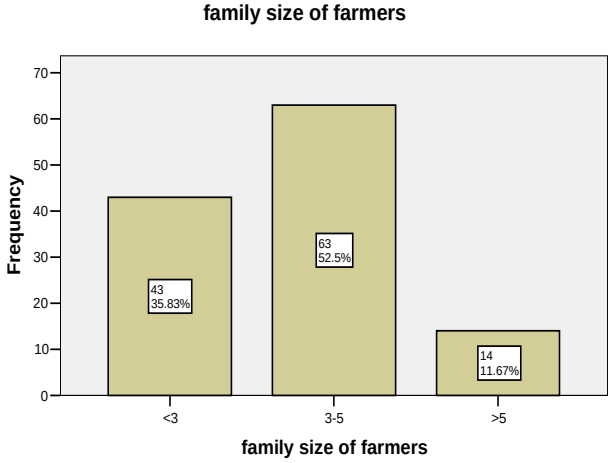

Fig.1. Bar-chart of family size of respondents

From the above bar-chart we can see that 43(35.83%) of respondent have less than three family, about 63(52.5%) of respondent have between 3&5 families, and about 14(11.67%) of respondents have greater than 5 families.

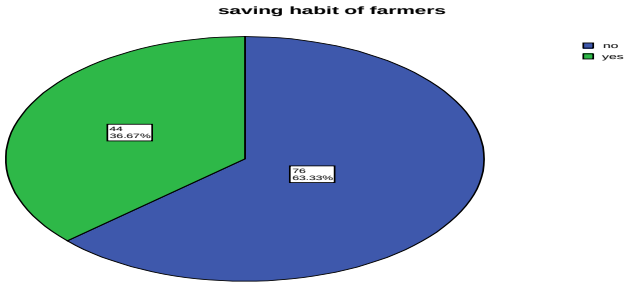

Fig 2. Pie chart of saving habit of respondents

From the above pie chart we can see that 44(36.67%) of the respondents have saving habit and 76(63.3%) of the respondents do not have saving habit.

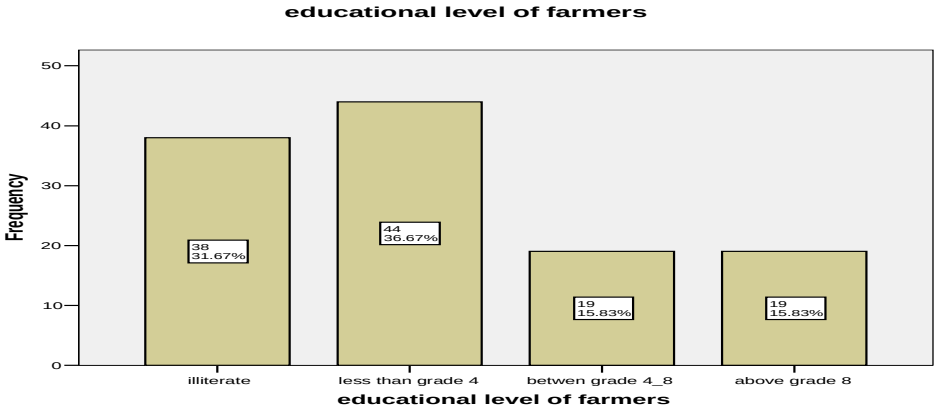

Fig 3. Bar-chart of educational level of respondents

The above graph shows that the educational level of farmers 38(31.67%) of the respondents were illiterate, 44(36.67%) of the respondents were below grade four, 19(15.83%) were between grade four and eight, and 19(15.83%) were above grade eight.

Table 4: Summary of descriptive statistics for the study variables

Variable	Category	Economic status			percentage
		Low	high	total	
Sex	Female	13	20	33	27.5%
	Male	31	56	87	72.5%
Age	Below30	17	21	38	31.7%
	Betwwen30&40	22	41	63	52.5%
	Above40	5	14	19	15.8%
Land size	Have no land	9	18	27	22.5%
	<3hectar	29	46	75	62.5%
	3-5hectar	6	12	18	15%
Fertility of soil	Not fertile	25	44	69	57.5%
	fertile	19	32	51	42.5%
Family size	<3	8	35	43	35.8%
	3-5	26	37	63	52.8%
	>5	10	4	14	11.7%
Marital status	Single	5	5	10	8.3%
	Married	29	56	85	70.8%
	divorce	10	15	25	20.8%
Saving habit	No saving habit	36	40	76	63.3%
	saving habit	8	36	44	36.7%
Educational level	Illiterate	21	17	38	31.7%
	<grede4	9	35	44	36.7%
	Grede4-8	5	14	19	15.8%
	>grede8	9	10	19	15.8%

From the above summary table we can see that among 120 farmers 87(72.5%) are male and 33(27.5%) are Female, the age distribution is 38(31.7%)of farmers whose age is below30 years old and among category 63(52.5%) are between 30&40,and 19(15.8%) are greater than 40.The table also show that 75(62.5%) have farm land size of less than three hectare ,27(22.5%) have no their own farm land ,and 15% have 3-5 hectare. When we come to marital status of farmers , from a total of 120 samples 10(8.3%) of them are single, 85(70.8%) of them are married and the rest 25(20.8%)were divorced, and 69 (57.5)% farm land is not fertile, and 51(42.5%) farm land is fertile,43(35.8%) of respondent have less than three family, about 63(52.8%) have 3-5 families, and about 14(11.7) of respondents have greater than 5 families. When we see saving habit 44(36.7%) of the respondents have saving habit and 76(63.3%) of the respondents do not have saving habit. The table also shows that the educational level of farmers 38(31.7%) of the respondents were illiterate, 44(36.7%) of the respondents were below grade four, 19(15.8%) were between grade four and eight, and 19(15.8%) were above grade eight.

4.2 Inferential statistics

Inferential statistics is statistical method deals with making inference or conclusion about population based on data obtained from a limited number of observations that come from the population.

4.2.1 Chi-square test of independence

Table 5: sex * economic status Cross tabulation

			Economic status		
			Low	high	Total
sex	female	Count	13	20	33
		Expected Count	12.1	20.9	33.0
		% within sex	39.4%	60.6%	100.0%
	male	Count	31	56	87
		Expected Count	31.9	55.1	87.0
		% within sex	35.6%	64.4%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within sex	36.7%	63.3%	100.0%

$H_{O=}$There is no association between family size and economic status

$H_{1=}$There is association between family size and economic status

Level of significance $\alpha=0.05$

Test statistic is Pearson chi –square value

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.146b	1	.703

a. cells (.0%) have expected count less than 5
b. The minimum expected count is 12.10..

From table of results of chi-square analysis the Pearson chi-square

Calculated value is 0.146 and p value=.703 is greater than the level of significance $\alpha=0.05(5\%)$.

Therefore we fail to reject H_O and we conclude that there is no association between sex of respondents with their economic status.

Table 6: age * economic status Cross tabulation

			Economic status		
			Low	High	Total
age	below30	Count	17	21	38
		Expected Count	13.9	24.1	38.0
		% within age	44.7%	55.3%	100.0%
	between 30&40	Count	22	41	63
		Expected Count	23.1	39.9	63.0
		% within age	34.9%	65.1%	100.0%
	above 40	Count	5	14	19
		Expected Count	7.0	12.0	19.0
		% within age	26.3%	73.7%	100.0%
	Total	Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within age	36.7%	63.3%	100.0%

Hypothesis

H0=There is no association between age and economic status

$H_{1=}$There is association between age and economic status

Level of significance α=0.05

Test statistic is Pearson chi-square value

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.025[a]	2	.363

a. 0 cells (.0%) have expected count less than 5.

b. The minimum expected count is 6.97.

From table of results of chi-square analysis the Pearson chi-square Calculated value is 2.025 and p value=0.363 is greater than the level of significance α=0.05(5%). Therefore we fail to reject H_O and we conclude that there is no association between ages of respondents with their economic status.

Table 7: Marital status * economic status Cross tabulation

			Economic status		
			low	high	Total
Marital status	single	Count	5	5	10
		Expected Count	3.7	6.3	10.0
		% within marital status	50.0%	50.0%	100.0%
	married	Count	29	56	85
		Expected Count	31.2	53.8	85.0
		% within marital status	34.1%	65.9%	100.0%
	divorce	Count	10	15	25
		Expected Count	9.2	15.8	25.0
		% within marital status	40%	60%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within marital status	36.7%	63.3%	100.0%

Hypothesis

$H_{O=}$There is no association between marital status and economic status

$H_{1=}$There is association between marital status and economic status

Level of significance α=0.05

Test statistic is Pearson chi-square value

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.123[a]	2	.570

a. 1 cells (16.7%) have expected count less than 5.
b. The minimum expected count is 3.67.

From table of results of chi-square analysis the Pearson chi-square
Calculated value is 1.123 and p value=.570 is greater than the level of significance α=0.05(5%).
Therefore we fail to reject H_O and we conclude that there is no association between marital status and economic status.

Table 8: Family size * economic status Cross tabulation

			Economic status		
			low	high	Total
Family size	<3	Count	8	35	43
		Expected Count	15.8	27.2	43.0
		% within family size	18.6%	81.4%	100.0%
	3-5	Count	26	37	63
		Expected Count	23.1	39.9	63.0
		% within family size	41.3%	58.7%	100.0%
	>5	Count	10	4	14
		Expected Count	5.1	8.9	14.0
		% within family size	71.4%	28.6%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within family size	36.7%	63.3%	100.0%

Hypothesis

H_O=There is no association between family size and economic status
H_1=There is association between family size and economic status Level of significance α=0.05
Test statistic is Pearson chi –square value

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.901[a]	2	.001

From table of results of chi-square analysis the Pearson chi-square. Calculated value is 13.901 and p value= 0.001 is less than the level of significance α=0.05(5%).Therefore we reject H_O and we conclude that there is association between the respondents family size with their economic status.

Table 9: Saving habit * economic status Cross tabulation

			Economic status		
			low	high	Total
Saving habit	no	Count	36	40	76
		Expected Count	27.9	48.1	76.0
		% within saving habit	47.4%	52.6%	100.0%
	yes	Count	8	36	44
		Expected Count	16.1	27.9	44.0
		% within saving habit	18.2%	81.8%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within saving habit	36.7%	63.3%	100.0%

Hypothesis

H_O=There is no association between saving habit and economic status
H1=There is association between saving habit and economic status
Level of significance α=0.05
Test statistic is Pearson chi –square value
Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.222[a]	1	.001

0 cells (.0%) have expected count less than 5.
The minimum expected count is 16.13.

From table of results of chi-square analysis the Pearson chi-square
Calculated value is 10.222 and p value= 0.001 is less than the level of significance α=0.05(5%).
Therefore we reject H_O and we conclude that there is association between saving habit and economic status.

Table 10: Fertility of soil * economic status Cross tabulation

			Economic status		Total
			low	high	
Fertility 0f soil	Non fertile	Count	25	44	62
		Expected Count	25.3	43.7	69.0
		% within fertility of soil	36.2%	63.8%	100.0%
	fertile	Count	19	32	51
		Expected Count	18.7	32.3	51.0
		% within fertility of soil	37.3%	62.7%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within fertility 0f soil	36.7%	63.3%	100.0%

Hypothesis

H_O=There is no association between fertility of soil and economic status
H_1=There is association between fertility of soil and economic status
Level of significance α=0.05
Test statistic is Pearson chi –square value
Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.013[a]	1	.908

a. 0 cells (.0%) have expected count less than 5.
b. The minimum expected count is 18.7.

From table of results of chi-square analysis the Pearson chi-square
Calculated value is 0,013 and p value= 0.908 is greater than the level of significance α=0.05(5%).
Therefore we fail to reject H_O and we conclude that there is no association between fertility of soil and economic status.

Table 11: Educational level * economic status Cross tabulation

			Economic status		
			low	high	Total
Educational level	illiterate	Count	21	17	38
		Expected Count	13.9	24.1	38.0
		% within educational level	55.3%	44.7%	100.0%
	<4grede	Count	9	35	44
		Expected Count	16.1	27.9	44.0
		% within educational level	20.5%	79.5%	100.0%
	4-8grede	Count	5	14	19
		Expected Count	7.0	12.0	19.0
		% within educational level	26.3%	73.7%	100.0%
	>8grede	Count	9	10	19
		Expected Count	7.0	12	19.0
		% within educational level	47.4%	52.6%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within educational level	36.7%	63.3%	100.0%

Hypothesis

H_O=There is no association between educational level and economic status. H_1=There is association between educational level and economic status. Level of significance α=0.05

Test statistic is Pearson chi –square value

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.453[a]	3	.006

a. 0 cells (.0%) have expected count less than 5.

b. The minimum expected count is 6.97.

From table of results of chi-square analysis the Pearson chi-square. Calculated value is 12.453 and p value= 0.006 is less than the level of significance α=0.05(5%).Therefore we reject H_O and we conclude that there is association between the respondents educational level with their economic status.

Table 12: Land size in hectare * economic status Cross tabulation

			Economic status		
			low	high	Total
Land size in hectare	0	Count	9	18	27
		Expected Count	9.9	17.1	27.0
		% within land size in hectare	33.3%	66.7%	100.0%
	<3	Count	29	46	75
		Expected Count	27.5	47.5	75.0
		% within land size in hectare	38.7%	61.3%	100.0%
	3-5	Count	6	12	18
		Expected Count	6.6	11.4	18.0
		% within land size in hectare	33.3%	66.7%	100.0%
Total		Count	44	76	120
		Expected Count	44.0	76.0	120.0
		% within land size in hectare	36.7%	63.3%	100.0%

Hypothesis

H_O=There is no association between land size and economic status

H_1=There is association between land size and economic status

Level of significance α=0.05

Test statistic is Pearson chi –square value

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.344[a]	2	0.842

a. 0 cells (.0%) have expected count less than 5.

b. The minimum expected count is 6.60.

From table of results of chi-square analysis the Pearson chi-square Calculated value is 0.344 and p value= 0.842is greater than the level of significance α=0.05(5%). Therefore we fail to reject H_O and we conclude that there is no association between land size and economic status.

Table 13:Output of Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	sex(1)	-.235	.720	.106	1	.745	.791	.193	3.245
	Age			.859	2	.651			
	age(1)	-.150	1.007	.022	1	.881	.861	.120	6.189
	age(2)	.419	.923	.206	1	.650	1.520	.249	9.285
	marital status			3.864	2	.145			
	marital status(1)	-2.040	1.295	2.482	1	.115	.130	.010	1.645
	marital status(2)	.373	.732	.259	1	.611	1.452	.346	6.097
	family size			9.644	2	.008			
	family size(1)	2.705	.983	7.578	1	.006	14.952	2.179	102.570
	family size(2)	.952	.859	1.227	1	.268	2.591	.481	13.962
	saving habit(1)	-2.354	.723	10.593	1	.001	.095	.023	.392
	Fertility of soil(1)	-.481	.659	.533	1	.465	.618	.170	2.249
	Educational level			13.045	3	.005			
	Educational level(1)	-.584	.854	.468	1	.494	.558	.105	2.972
	Educational level(2)	1.874	.841	4.970	1	.026	6.516	1.254	33.855
	Educational level(3)	1.326	.917	2.089	1	.148	3.766	.624	22.745
	Land size in hectare			1.537	2	.464			
	Land size in hectare(1)	-.642	1.206	.284	1	.594	.526	.049	5.596
	land size in hectare(2)	-1.230	1.119	1.210	1	.271	.292	.033	2.617
	Constant	1.503	1.735	.750	1	.386	4.495		

4.2.2.Logistic regression

From the above output we have the p-values of 0.001, 0.005, and 0.008 for saving habit, educational level, and family size respectively are less than the α-value=0.05 indicate that there is sufficient evidence to conclude that the factors have a significant effect on the economic status of the farmers. On the other hand the variables which have p-value greater than the α-value=0.05 indicate that there is no sufficient evidence to conclude that the factors have a significant effect on the economic status of the farmers. Since our significance variables are saving habit, educational level and family size for our response variable economic status.

The following is the logistic regression output for the economic status versus some socio-economic factors.

The odds interpretation

Having no saving habit versus having saving habit, decreases the log odds of high economic status of farmers by -2.354. OR being having good saving habit, the odds of being having good economic status(versus being not having good saving habit)increases by a factor of 0.095.

- The estimated odds ratio 0.558 indicate that the farmers whose educational level is illiterate for the effect of high economic status is 0.558 times that of educational level above grade 8.OR being illiterate versus being having educational level above grade 8, decreases the log odds of high economic status of farmers by -0.584.
- Having educational level below grade 4, the odds of being having high economic status of farmers' increases by factor of 6.516.OR being having educational level below grade 4 versus above grade 8 increases the log odds of high economic status increases by 1.874.
- Having educational level between grade 4& 8, the odds of being having high economic status increases by a factor of 3.766.OR being having educational level between grade 4& 8 versus having above grade 8 increase the log odds of high economic status increases by 1.326.
- Having family size below 3 versus having family above 5 increases the log odds of high economic status increases by 2.705. OR being having family size below 3 the odds of being having high economic status increases by a factor of 14.952.
- Having family size between 3&5 versus having family above 5 increases the log odds of high economic status increases by 0.952. OR being having family size between 3&5, the odds of being having high economic status increases by a factor of 2.591.

5 .Conclusions and Recommendation

5.1 Conclusion

Based on the result of the study the following conclusions were drawn:

- ✓ According to this study the variables we conclude that among the assumed variables only some of the variables are significantly affect the economic status this are saving habit, educational level and family size.
- ✓ The economic status of the farmers depends on the family size; means that as family size increases the economic status of farmers becomes low.
- ✓ Saving practice has a significant effect on the economic capability of the farmers; means that the economic status of farmers increases when saving habit increases.
- ✓ The educational level of the farmers has a vital role in their economic status that means the economic capacity increase when the education level increases.
- ✓ The society who use their resources wisely and properly are economically capable to fulfill their basic necessities.
- ✓ From the model analysis we conclude that economic status is positively affected by educational level and saving habit of farmers'.

5.2 Recommendations

Based on the result of the study the following recommendations were drawn:

- ➢ The community should develop the culture of saving.
- ➢ The community should educate their children's to solve the economic problem for the future time.
- ➢ The community should practice family planning in order have better economic status.
- ➢ The administration should give awareness on how the society can use family planning.
- ➢ The government should give a proper training for the farmer's in order to have a change on their economic status.

6. References

1. M. Shah, Irrigation, Agricultural Productivity and Poverty AlleviationGomal University Journal of Research, **(2008)**. 109-122.
2. OS Shirivastava, Demography and population studies **(2004**), 120 – 150.
3. Shiya. Causes for Low Productivity of Indian Agriculture Preserve Articles**.(2011)**
4. S.Ahmed, , and A. Imran, "An Overview of Agricultural Development Policy. **(2000).**
5. T.I. Okwu, O.Jand Iorkaa, An Assessment of Farmers' Use of New Information and Communication Technologies as Sources of Agricultural Information In Ushongo Local Government Area, Benue State, Nigeria **(2011).**
6. O.C. Ajayi, and R. Katanga, Improved Fallows and local institutions. LEISA, **(2005)**.21 (4): 18
7. S. Rutherford, The Poor and Their Money. New Delhi: Oxford University Press**(2000).**
8. B.N. Guy, G. Jim, and K.Harounan, Explaining the Failure of Agricultural Production in SSA **(2003).**

9. N. Jean, Where Sustainable Agriculture means Agricultural Productivity? The case study of Gikongoro in Southwestern Rwanda. LUMES **(2003)**.
10. T. Shimelles, and P.Tuulikki, Effects of Land Tenure and Property Rights on Agricultural Productivity in Ethiopia, Namibia and Bangladesh. **(2009),**33 – 45.
11. N. Regassa, Small holder farmers coping strategies to household food insecurity and hunger in Southern Ethiopia. Ethiopian Journal of Environmental Studies and Management **(2011)** Vol. 4 No.1