COLLEGE OF AGRICULTURE AND NATURAL RESOURCE

DEPARTMENT OF AGRICULTURAL ECONOMICS

A SENIOR RESEARCH ON: DETERMINANTS OF DEMAND FOR MEAT CONSUMPTION BY HOUSEHOLDS IN WOLKITE TOWN

SUBMITTED TO DEPARTMENT OF AGRICULTURAL ECONOMICS FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENT OF BACHELOR OF SCIENCE DEGREE IN AGRICULTURAL ECONOMICS

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LIST OF ABBREVIATION

CSA	Central Statistical Authority
DDP	Desirable Dietary Pattern
EC	Ethiopian calendar
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HH	household
ILRI	International Livestock Research Institutes
Kg	kilogram
NGOS	Non-governmental organizations
Ss	sample size
SSA	sub Saharan Africa
ASF	Animal source food
VIF	Variance Inflation Factor
SRS	Simple Random Sampling

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ABSTRACT

This study was conducted to analyze the determinant of demand for meat consumption in wolkite town. *Multi stage sampling technique was used to select a sample of 83 households. Then, data were collected from individual interview of sample households using questionnaire. Both descriptive statistics and econometric model were applied for analytical purpose. The descriptive statistics such percentage, frequency, standard deviation, maximum, minimum were employed for examining the socio-demographic characteristic of sample households. The result revealed that variables like* income, educational level, family size, age of household head and marital status *were found to have significant effect on the consumption demand of meat. The result also indicates that c*onsumption habit of the people in the town varies over time and it shows seasonality on meat consumption. *The findings imply that emphasis should be given to solving problems about meat consumption by finding means to increase annual income of households by improving educational level and creating awareness or giving extra information of society.*

Keywords: Determinants, Meat consumption, multiple linear regressions, Wolkite town

1. INTRODUCTION

1.1. Background of the Study

Ethiopia is known to have one of the largest livestock populations in the world. The livestock sector accounts for over 26 percent of agricultural GDP, and 8 percent of export earnings (2010) (CSA 2010 National Statistics). Yet, the domestic consumption of livestock products remains low compared with other African countries (FAO 2010), consumption of animal source food (ASF) has always been low and declining, because most of Ethiopia people have low level of income, and continuously growing population (FAO 2005; UN 2005, (FAO 2005, Solomon et al 2003. in addition, The livelihood of smallholders is highly dependent on the cash income from livestock and livestock products (Tsegahun, 2000). However, the sector is characterized by low consumption resulting from low nutritional standards, prevalence of diseases, poor genetic potential, lack of marketing systems, and low living standard (Bekele et al., 1995).

Soedjana (1998) showed that the formulated desirable dietary pattern (DDP) with 20% animal products may not always be applicable to every country and that adjustment therein according to geographic condition, genetic, social, economic, cultural, and lifestyle of the people is considered was not comfortable. However, changes in the meat form to improve its competitive position have been slow and relatively unsuccessful. Price sensitive, health conscious and frequent meat consumers were willing to pay a lower premium for such a product than other consumers.

Socioeconomic characteristics of consumers were important indicators of the premium they were willing to pay for a fresh meat product (Dumler, 2000). And another issue, the share of meat in the human diet has been closely related with religious beliefs and human awareness. Religious-beliefs shape the social behaviors where differences in religious affiliations tend to influence the way people live, the choices they make, the food they eat, and with whom they associate (Kim *et al*., 2004).Varying in their beliefs; Ethiopia's religions have a significant role to play on consumption of meat and meat products by setting the feeding habits and customs of the people which in turn influences the pattern of meat consumption in the country.

The objective of this study could to analyze major determinants of demand for meat consumption. The attempts of changing the meat consumption patterns and the supply of meat sources in Ethiopia would be anticipated in order to enhance the utilization of meat from varies spices of animals, which could meet the challenge of improving the balance of nutrients available to the population, the opportunity of decreasing malnutrition, thereby improving food security and deriving economic benefits.

A gradual change of the people's behavior in their meat consumption can be achieved, for instance, by encouraging the supermarkets to sell meats of different animals, by celebrating national days of food which promote meat foods of different source animas. According to Abbera(2006), in order to achieve this, demand analysis could be pinpoint for comparisons of future consumption levels of households , as it could also allow market analysts to address such issue as what proportion of consumption can be supplied from domestic resources and whether the country is producing the right quality of meat to satisfy consumers demand.

1.2. Statement of the problem

Government policy of most countries in the world gives high priority to food and nutrition programs for the society by way of establishing food security and diversification in food consumption concepts to provide enough food with affordable price to the society.

Limited market access, high dependence on subsistence agriculture, poor marketing infrastructure for perishable products (such as a lack of cold chains indivisible nature of the product ,and lack of rural retail markets for such products level of income , and separation of religion are all constraints faced by households, resulting in a low demand for meat consumption. Therefore, as population increase annual income receiving (gaining) from agricultural sector low. (Level of income and population growth hasn't goes to in parallel way. these situations require the analysis of meat consumption by households as well as demand influencers.

1.3. Basic Research Questions

A. What are the determinants of meat consumption in wolkite town?
B. Is there existence of seasonality in meat demand in the town?

1.4. Objectives of the study

1.4.1. General objective

TO Analyze Determinants of demand for meat consumption by households in wolkite town

1.4.2. Specific objective

1 To identify the determinants of meat consumption by households in wolkite town.
2 To Analyze the seasonality of meat consumption by households in wolkite town

1.5. Scope and limitations of the study

The study focused on analyzes determinants of demand for meat consumption by households and factor affecting meat consumption in wolkite town, specifically gubre and bakur rural sub city. The study encountered on different problem. From this some of them include: - shortage of time, budget constraints, limitation of access to computer and problem of weather condition other geographical areas couldn't included in the study.

1.6. Significance of the study

This study could give information concerning the meat consumption demand and its determining factors in wolkite town. The study result could be used by extension agents to give due attention on food security improvement extension agenda in the area. It could also be used by other researchers as information for further research work on issue.

1.7. Organization of the Paper

These study is composed of seven chapters the first chapter deals with introduction that contain background of study ,statement of the problem, objective of the study (general and specific objectives) significance of the study ,scope and limitation of the study ;second chapter express about review of related literature which decomposed in to the theoretical and empirical literature review; the third chapter consists of methodology that contain description of the study area, research design, sampling size and sampling techniques procedure, types and source of data, method of data collection, method of data analysis, hypothesis presentation, analysis, the fourth chapter results and discussion ,fifth chapter conclusion and recommendation sixth chapter reference, and the seventh chapter appendix.

2. REVIEW OF LITRATURE

2.1. Definition of some concepts

2.1. 2.The Concept of Meat Demand

The theory of demand states that demand is the functional relationship between prices and quantities of a product that buyers will purchase in a specified market, ceteris paribus. When consumers are willing to buy a larger quantity at the same price, or are willing to buy the same quantity, as before at a higher price, it could be said that there will be a real increase in demand. On the other hand, if consumers take the same quantity of goods only if the price is reduced, or take smaller quantity if the price remains the same, demand may be say to have decreased. Thus, demand refers to a quantity removed from a market in response to a variety of condition that includes: the price of the commodity, the consumers' income, prices' of the substitutes, family size, preferences, age, etc. (Lesser, 1993).

2.1.3. Meat Consumption

As Ethiopia's 2003 estimated population of 70.5 million continues to grow at a rate of 2.7 percent, it is critical to understand the food situation. Many Ethiopians, like residents of other developing countries, do not consume an adequate amount of meat. The few that do, however, maintain a meat diet of beef, sheep, goat, and poultry. In 1987, 51 percent beef, 19 percent sheep, 14 percent goat, and 15 percent poultry contributed to a meat diet composition (MapZones). Most. Ethiopians do not consume pork, in addition to17 many types of fish, due to religious beliefs and per Capita income.

2.2. Empirical review

2.2.1. Determinant of meat consumption

Religion

The consumption of animal products and more specifically meat and meat products is most strictly regulated in cases where religious considerations prevail (Shatenstein and Ghadirian, 1997).

It was posited by Sheikh and Thomas (1994) that the religious groups to which people belong could determine food practices according to their religion. Differences in religious affiliations tend to influence the way people live, the choices they make, what they eat and whom they associate with; the beliefs play significant parts in sculpting social behavior (Kim *et al*., 2004) and are inbuilt to dictate what a person can eat and what he cannot (Onuorah *et al*., 2003).

The consumption of meat and meat products in Ethiopia has very tidy association with religious beliefs, and are influenced by religions. One of the factors that limit meat consumption in Ethiopia has been the absence of meat retail market. People often consume meat during holidays or special occasions and it is considered rather as luxury food than essential component of daily household nutrition. The Orthodox Christians fasting influences consumption of meat by reducing the supply, for example, in the case of the Protestant Christian followers, 7% population, who their fasting doesn't forbid eating meat, children, people with medical case and others are forced to limit or withdraw from consuming meat.

According to Avery (2004), about 85.3% butcheries in Addis Ababa were closed during the traditional Wednesday and Friday Orthodox Christians fasting to sell an average of 313.5kg raw beef per week. It was reported by Tewodros (2008) that the periods for low demand of cattle meat was observed in correspond to the fasting period of Ethiopian Orthodox followers. In respect to the Ethiopian Muslim religion, there is no any periodical or seasonal restriction for any of the permitted animal products that influence the consumption behavior of the followers.

However, there is a belief influence of the Muslim religion which is related with the restriction of the source of animal to which their fleshes are not allowed for food. Considering the two Ethiopian major religions in broad, the Christian sects in general and the Islam have influential role by restricting their followers for some of the type of animal's flesh foods. Both, Ethiopian Christians and Muslims in common do not eat pork as it is forbidden by their religious beliefs (Teklehaimanot, 2005). They have also types of meat animals they restrict independently.

Households' annual income:

The change in household income alone can hardly change meat consumption unless accompanied by change in market arrangements and culture of food consumption. As house hold annual income increase consumption of meat also increase (CSA, 2004).

LaFrance (1999) examined food consumption from 1989- 1994 and incorporated age-distribution, ethnic background, and habit formation into his analysis, in addition to the traditional meat demand determinants. Over this long time frame, LaFrance concluded ethnicity and age distribution both affected demand for meat consumption. Capps, Tedford, and Havlicek (1985) found that food product convenience attributes affected consumer demand. In particular convenient food products had more prices responsive demand curves than less convenient foods. A recent example of a factor that could be affecting meat demand consumption is the emergence of concerns about food borne illnesses.

In the United States, numerous food products have transmitted food borne illnesses to consumers via a myriad of known and unknown food borne pathogens (Centers for Disease Control and Prevention). In meats, common food borne diseases include *Listeria monocytogenes, Escherichia coli* (*E coli* O157:H7), and *Salmonella*. Recent research by Flake and Patterson (1999) examined the impact of health information and food safety on meat demand. A food safety information index was constructed by counting the number of Associated Press articles filed on BSE, and *E. coli* and salmonellosis contamination in meat. Their findings suggest food safety concerns have had a modest impact on meat demand.

The demand for meat in Africa is showing an increasing trend. As indicated by Delgado et al. (1999) population increases and anticipated decrease incomes in developing countries including Africa have led to projections that demand for livestock products will continue to out strip supply by year 2020. Attempts to deal with quality enhancement are also observed.
Education level of house hold: as education of an individual increase their level of income also increase then they consume meat in large amount. It is hypothesized that as Educational level increase demand for meat consumption also increase.

3. RESEARCH METHODOLOGY

3.1 Description of the study area

Wolkite town is one of two administrative sub city of Gurage zones. It has three main sub cities such as Gubre sub-city, Addis sub-city' and Bakur sub city. The study was conduct in Wolkite town which found in southeastern part of Ethiopia from Addis Ababa 158km far apart to south east direction in Gurage zone of the south nation nationalities' and peoples regional state (SNNPRS) of Ethiopia. It has altitude and longitude of 80 17N and 370 47E within elevation between 1910 and 1935 meters above sea level respectively. The annual average ran falls is from700-1300mm Belge rain from March to May, winter rain from June to September mid, and mean monthly temperature 290 c. Agro ecologically Wolkite town is classified as weina dega. According to (CSA, 2007) for population censes, this town have total populations 43,195 among those 21,963 is males and are 21,232 females. The main economic activities are, cultivation of land, rearing of animals, and trading activities as the source of income for the community. Wolkite town bordered in east by kebena woreda in north by goro woreda.

3.2 Research Design

The study adopted a cross sectional survey design and meat demand by households in the study area. The design enabled the collection of qualitative and quantitative data using questionnaires and interview ,data and aimed at answering the research questions was collected once and for all .the design was also used to compare study variables and establish the relationship.

3.3. Type, Source and Method of Data Collection

Two type of data namely primary and secondary data, for efficient and successful achievement of the specified target of this study, data could be collected from two main sources, primary and secondary sources. Primary data could be obtained from sample respondents using household interview method of data collection to get first-hand information about determinants of demand for meat consumption, and other determining factors. Secondary data was collected from reviewing the relevant reference materials such as research documents, journals, and Keble office reports. To collect the quantitative and qualitative data, these study use the following main instruments namely; questionnaire, interview and organizational documents from quantitative

data collection techniques and key informant interview from qualitative data collection techniques.

3.4. Sample size and sampling Techniques

An important decision that was to be taken was be selecting a sampling technique was about the size of the sample. Multi stage sampling procedure was used to select sample respondents. In the first stage, wolkite town would be select purposively. In the second stage, gubre and bakur rural sub city were select purposively due to different reason. In the third stage, we select target house from the two rural sub cities. Gubre and bakur rural sub city are the home of different household consuming meat than the other rural sub city. The total target populations from the two rural sub city were 900. By considering the limitation of the time, budget and different constraints we select respondent randomly 300 from gubre sub city and 200 from bakur sub city. Would be employed to select the sample households in the two rural subcity 500 in gubre and 400 in bakur of wolkite town. The study used probability sampling techniques. The respondents of our research were both the workers (employed) and rural households.

The sample size of the respondents would be select based on simple random sampling. Because (SRS) gives equal chance of to be chosen of the population .By using Slovin's sampling formula with 90 percent confidence level to determine sample respondents.

Slovin Formula n=

Where: n = was sample size

N = was total number of household from two rural sub city

e =was margin of error

Numbers of respondent in gubre sub city =300

Numbers of respondent in bakur sub city =200

N =300+200=500 $\qquad$ $n = \frac{500}{1+500\,(0.1)^2} = 83$

N =500

3.5 .Methods of data Analysis

3.5.1. Analysis of Descriptive Statistics

The descriptive parts of the data analysis is explaining and describing of the determinants of demands for meat consumption like percentages, frequency, maximum and minimum value and standard deviation of sample households

3.5.2. Multiple Linear Regression Analysis

Research questions of the study, the following variables will identify. Linear Regression Analysis. Linear regression is a method of estimating or predicting a value on some dependent variable given the values of one or more independent variables. Like correlations, statistical regression examines the association or relationship between variables. Unlike correlations, however, the primary purpose of regression is prediction. In this study multiple regressions would employed. Multiple regression analysis takes into account the inter-correlations among all variables involved. This method also takes into account the correlations among the predictor scores .They added multiple regression analysis, which means more than one predictor is jointly regressed against the criterion variable. This method is used to determine if the independent variables will explain the variance in dependent variable.

Regression Functions

The equation of regressions on this study is generally built around two sets of variables, namely dependent variable (demand for meat consumption) and independent variables, family size, Age of household head, educational level of Household Heads,' Marital Status, Sex of house hold: Household annual income. The basic objective of using regression equation on this study is to make the study more effective at describing, understanding and predicting the stated variables.

Regress Performance on Selected Variables

$$\mathbf{Yi = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3\ X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + BX7 + \mu i}$$

Where:

Y is the response or dependent variable

β0, is the intercept term- constant which would be equal to the mean if all slope coefficients are 0.

β1, β2, β3, β4, β5, β6, and BX7 are the coefficients associated with each independent variable which measures the change in the mean value of Y, per unit change in their respective independent variables.

X_1 =family size, X_2 =annual Income, X_3 Age of household head, =, X_4 Household Heads' Marital Status =, X5 Sex of house hold =x6 education level of house hold=, X7religion of households U=Error term/omitted variable.

3.5.3. Definition and Hypothesis of variables

A). Dependent (explained) Variables

Demand for meat consumption (DFMC) The dependent variable for this study is continuous variable. It is the total amount of meat consumed by households in kilogram per year.

B). Independent (explanatory) Variables

There are different independent variables that correlate with meat consumption demand by households; some of the variables are the following.

Age of household head (AGEHHH): age is a continuous explanatory variable peculiar to the household head, and measured in years. As age of household increases, it is assumed that HHs could acquire more knowledge and experience. Age, as a proxy, indicates that and pre assume vulnerability and risk conditions of food insecurity is low among aged HHs. They are more risk averter and the chance of a household to become more demanded for meat consumption increases along an increase in age. Thus, it is hypothesized that age of the household heads and demand for meat are positively correlated.

Family size (FAMSIZ): Family size is a continuous variable and measured in numbers and it refers to the total number of household members who lived and eat within household head at least for six months. It is an important variable which determines the state of demand for meat consumption and expected to have positive impacts on demand for meat consumption. Thus, it is hypothesized that family size has positive association with demand for meat consumption.

Household annual income: household annual income is a continuous variable and refers to the total annual cash earning to the families from selling of crops, livestock and livestock products after meeting family's requirements. As income Increase the demand for meat will also increase. Therefore, so it is hypothesized that household annual income and demand for meat consumption are positively correlated.

Education level of household head (EDUHHH): It is a continuous variable and measured in level of grade. Education is an important variable determining of demand for meat consumption. This variable is expected to have positive relationship with demand for meat consumption.

Sex of household head: It is a dummy variable that is taken as one factor for demand for meat consumption. It is hypothesized that demand for meat consumption worse in female headed household this can be as result of that males are to some extent more engaged in income generating activities than female.

4. RESULT AND DISCUSSION

This chapter analyses the result for determinant of demand for meat consumption by households by using descriptive statistics and econometrics Model (multiple linear regressions).

4.1. Descriptive analyses

The descriptive analyses tools used are to know mean, percentage min, max, and standard deviation. The descriptive statistics was run to observe the distribution of the independent variables.

4.1.1. Socio-demographic characteristic of Sample Households

The demographic characteristics of house hold defined in terms of sex, education level, age, family size, income, marital status, religion and seasonality are presented bellow. The survey has collected a wide range of information which is essential to the interpretation of the findings and the understanding of the results of demand for meat consumption

Table; 1 Demographic characteristics of sample household for dummy variables

Sex of household head	freq	Percent	Cum.
male	51	61.45	61.45
female	32	38.55	100.00
Total	83	100.00	
religion of			
Households head	Freq	. Percent	Cum.
orthodox	36	43.37	43.37
catholic	8	9.64	53.01
Muslim	27	32.53	85.54
protestant	12	14.46	100.00
Total	83	100.00	
Marital status of household head	freq	percent	Cum.
single	13	15.66	15.66
married	51	61.45	77.11
widowed	10	12.05	89.16
divorced	9	10.84	100.00
Total	83	100.00	

Source; Own survey 2019

From the results of (Table1) out of the sample households headed 51(61.45%) and 32(38.55%) are Male and Female respondents respectively. This specifies that consumption of meat is higher in male households heades as compared to female households headed. These results of those males are to some extent more engaged in income generating activities than female. From the results of (table 1): the followers of orthodox religion consumption level of households are cover higher percentage (43.37%) based on this of the population living in the study area was orthodox. Next to orthodox the consumption level of Muslim follower are (32.53%) As indicated in the result, among the respondents 36(43.37%) are Orthodox, 27(32.53%) Muslims, 12(14.46%) are protestant and 8(9.64%) are catholic. Based on results from study area from the sample households 83 respondents 51(61.45%) cover married households of meat consumption, 13(15.66%) are single, 10(12.05%) widowed, and 9(10.84%) are divorced.

Table: 2 Descriptive Summary of Continuous variables

Variable	No observation	Mean	Std. Dev.	Min	Max
age	83	37.92771	13.07276	14	70
Family size	83	4.156627	2.205768	1	8
income	83	23893.72	21066.67	1243	86098
Educational level	83	7.012048	4.443395	1	17

Source: Own survey 2019

Based on the finding of the study area the average age of the respondents are 37.92, with standard deviations (13.07) of years and their minimum and maximum ages are 14 and70 respectively. From the total observation the average family size are 4.15 with standard deviation 2.2 of and their minimum family size is 1 and the maximum one is 8.in similar way the average income of households are 23893.72 with standard deviation 21066.67 and the maximum and the minimum income of households are 86098 and 1243 respectively .the average educational level of households are 7 with standard 4.44 and the minimum educational levels of households are 1 and the maximum level of educations are 17.

4.2. Results of Econometric model (multiple linear regression model) and discussion

In order to identify the most significant in this study an attempt had been made by using multiple linear regressions models. We must test multicolinearity and goodness of fit.

Test for Multi-co linearity: The test for multicollinearity tests whether there are no perfect linear relationships among the explanatory variables. However, multi-co linearity problem is the existence of a "perfect," or exact, linear relationship among some or all explanatory variables of a regression model (Gujarati, 2004). In order to test the existence of multicollinearity problem, VIF (Variance Inflation Factor) is utilized. As a rule of thumb for multicollinearity, test of the model states a variable whose values are greater than 10 or whose 1/VIF value is less than 0.1 indicates possible problem of multi-co linearity. Thus, in this study there is no value greater than 10, all value of the Variance Inflation Factors are less than 3.29 or all values of 1/VIF are greater than 0.245496 and the mean value of vif is 3.64 (**APENDIX –D).**

***Goodness of Fit*:** One of the techniques used to assess the goodness of fit of a model is R square and T test. The test is used to accept or reject the alternative hypothesis "the model adequately describes the data". If the significance level of the test is less than 0.05, it indicates that the alternative hypothesis is rejected and the null hypothesis is accepted. The significance level of the test was found to be less than 0.05. Thus, the alternative hypothesis which states that the model is adequate to describe the data was accepted. The R square is also must be greater than 50%. In this study the R is 80% this indicates 80% of dependent variable consumption of meat demand is explained by the independent variable in the model.**APENDIX –B.**

Table :(3) the regression result of econometrics analysis of variable

Number of obs=	83		Prob > F	=	0.0000
R-squared	= 0.8055		Root MSE	=	7.2383
Adj R-squared	= 0.				

DDMT	Coef.	Std. Err.	t	P>t
sex	-4.967589	1.748945	-2.84	0.006
age	.2893256	.1361201	2.13	0.037

Family size	-1.499201	.7519304	-1.99	0.050
religion				
Catholic	3.470918	2.883179	1.20	0.233
Muslim	5.188772	1.958653	2.65	0.010
protestant	3.207802	2.57326	1.25	0.217
Marital status				
Married	8.782385	3.214232	2.73	0.008
Widowed	5.549845	4.563279	1.22	0.228
Divorced	11.16694	4.324177	2.58	0.012
income	.0003433	.000077	4.46	0.000
Educational level	1.122234	.3434019	3.27	0.002
_cons	-4.419459	4.35792	-1.01	0.314

4.2.1 Interpretation of meat consumption demand and other independent variables

Meat consumption demand is affected by different variables weather positively or negatively in significance or insignificance econometric analysis. Based on the following econometric equation we can select those factors that affect the meat demand consumption of households significantly.

$$Y= @+ \beta 1_{EDU}+ \beta 2_{AGE}+ \beta 3_{MAR\_STA}+ \beta 4_{FAM\text{-}SI}+ \beta 5_{RELIG}+ \beta 6_{SEX}+ \beta 7_{ANNINCM} + e_u$$

Where; @=constant term, EDU=education, AGHH=age of household head, MARTS=marital status=, FASIS=family size, RELIG= religious status of households, SEX=sex, ANNINCN= annual income of households income and e_u = error term Among the Seven explanatory variables were considered in the econometric model. All Variables were found to be significant determinants of the sample households at 1%, 5% and 10% level of significance. Econometrics multiple linear regression analysis shown that household meat consumption demand in the study area is significantly and positively associated to household income, age, educational level and sex with P-value 0.000, 0.037, 0.002, and 0.006 respectively.

The final econometrical regressed value for significant variables expressed as follow;

Y -4.419459 +1.122234edulevel+.0003433income+0.050family size+5.188772relgion+8.782385 Married+11.16694divorced +eu.

The effects of each explanatory variable on the determinant of demand for meat consumption were discussed as follows.

Education level of the household head (EDHH): educational level of households has significant and positive relation with the dependent variable at 1% significant level. Based on the result from (Table 4), as education level of the household head increase by 1 class year, quantity of meat consumed by households increase by 1.12 kg. Based on this, Education level of the household head increases, their awareness about consumption of meat also increases by enhancing their ability to compare the advantages and disadvantages of consumption of meat.

Annual income of households (AIHH): annual income has significantly and positively affects dependent variable (demand for meat consumption) at 1% significant level. When annual income of households increase by 1 unit, the quantity meat consumed by households increase by 0.0003kg. This is because when annual income of households increase demand of consuming meat also increases since meat is normal good.

Sex of households: The study result revealed that sex of household heads have significant the effect on the demand for meat consumption by households at 1% significance level. As compared to male headed households, the consumption meat for female headed households is lower by 4.93 kg. Because female headed households have no more way of income diversifications, enforcement of work inside the house.

Family size: The result (table3) also shows that family size have significant and negative relationship with demand for meat consumption by households at10% significant level. The finding indicates that when family size increase by one person, demand for meat consumption by households decrease by 1.49 kg. In rare case annual income of households decrease due to unexpected condition like drought, thefts of property. Do to this family size increases consumption level of meat consumption by household decrease.

Age of Household: as results from the (table3) age of households has significance and positive relationship with dependent variable at 5% significance level. As age increase by one year the consumption demand of households for meat also increase by 0.29 kg. When age increase productivities farmers and level of education increase for extension agent so annual income receive from that activities also increase based on this as age increase consumption levels of meat by households also increase.

Religion status of households: Concerning the result for this variable Orthodox religion is the base category. The result indicates that the being follower of Muslim religion have significant and positive relationship with demand for meat consumption by households at 1% significant level. As compared to orthodox follower, the meat consumption demand for Muslim religion follower households in the study area was found to be higher by 5.18kg.

Marital status of households: The base category for this variable result is those household heads that are single. A result from (table3) shows that marital status of married and divorced has significant and positive relationship with dependent variable. As compared to single household heads, the married household head and divorced household head have higher consumption demand for meat by (8.7kg) and (11.1kg) at 10% and at5% significance levels of respectively.

4.3. Seasonality of Meat Consumption by months

In the months of January and April the meat consumption demand in the religion being of orthodox follower is high due to festival, wedding ceremony according to our study. As compared to other religion the level of consumption for orthodox was high, other religion have no restriction from abstain from meat consumption except in rare case. In the other way round the consumption level of meat high in the month of July and august for religion of Muslim follower due to fasting.

During festivals and holidays consumption of meat demand households is higher than other seasons, and the families get together wherein they spend time to prepare and eat meat

4.3.1. The peak and off peak meat consumption months

The month of February and March are months when meat consumption is minimum due to Easter fasting for orthodox follower. April is a month when meat consumption reaches at maximum for religion of orthodox follower, in this time the demand of meat is higher. Reasons for high consumption in the indicated months are festival and winter season Reasons for low consumption on the other hand are fasting, low annual income of households, and product unavailability.

Another seasonality of meat consumption demand by households was consumption habit of peoples in the study area varies from time to time. Due to financial problem, and income variation of households. The result indicates that once a time income of households fluctuates over time

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Ethiopia is known to have one of the largest livestock populations in the world. Yet the overall contribution to Ethiopian households' daily consumption meat is very limited. Meat consumption demand by households was vary by different influencing factors such as religion, sex income of households, and family size of households headed

This study was aimed at identifying factor influencing demand for meat consumption, and assesses seasonality of meat consumption. The general objective of this finding was factor influencing consumption level of meat demand by households; assess seasonality of meat consumption demand. The data was collected from both primary and secondary sources. The primary data was collected through questionnaires, and individual interview and secondary data collected by reading journal, by reading different reference book concerning about meat consumption demand and others.

The study used multi-stage sampling techniques to select the district area. The analysis was made using descriptive statistics and econometrics model using and STATA software. Consumption habit of the people of wolkite town is various. This is due to religious motivation and other variation, like educational level, households' annual income, family size and such like factor influencing the consumption level of households headed in the study area. Those are the variable which affects meat demand consumption levels of households positively and negatively. Among those variable family size and sex of households are significant and negatively affect the consumption levels of households headed in study area.

As family size increase especially in rural area, in unexpected condition decrease annual income the consumption level of households headed also decrease. Sexes of households headed also significant and negatively affect meat demand consumption level of household headed. Based on the result prevailing of study area, male household headed are higher consumption than female.bceause most of the time female household headed consuming time by talk caring their children, doing different activities inside the house. Other determining factors, educational level annual income of households headed age and such like significant and positively affects meat demand consumption level of households. As educational level, age, and income of households

headed increase, meat consumption demand also increases other factor held constant. The finding of the study leads to the following

RECOMMENDATIONS.

Education has an effect on meat consumption by increasing the knowledge and awareness of the people. Therefore, should be a means to increase the education level of the target by considering suitable means of delivering education such as adult education in the study area.

Annual incomes of households have positively affects consumption. So in order to increase annual income of households society should be work hard and government should be adjust some suitable condition to raise income of households. Policies aiming at raising household income such as direct fiscal interventions through taxes and subsidies are likely to have significant effects on household consumption of meat demand who serve the poor segment of consumers might play a role in enhancing consumption of meat.

Lower aged headed household were found to consume less meat which affect their nutritional security. Therefore, awareness creation should be done in the area to improve the meat consumption demand of the households in the study area.

The gender related problems that might affect female headed households to consume less meat as compared to male headed households should be improved creating awareness and empowering the women in the society.

Finally based on findings, it is recommended that the research center, university and the Bureau of Agriculture should give more attention to food security improvements.

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7. APPENDIX

Appendix A

Summary on survey questionnaire general information

A. individual Background

1, sex household head 0, male 1, female

2. Age of household head _____

3. Educational status of household head: 0, literate 1, illiterate

4. If you are literate what is your highest grade level? 0. Primary and secondary school 1. Higher level education _____

5. Marital status: 1, single 2, married 3. Widowed 4, divorced

6. Numbers of family size living in one household

7. Do you have awareness about meat consumption 0, yes 1, no

8. What is your source of income? 1. Crop production 2. Livestock 3. 1 & 2 4. Trading 5. Others (specify)_____

NO	Types of animal	No of animal	Price of one animal	Total amount birr/year
1	Ox			
2	Cow			
3	Goat			
4	Sheep			

NO	Major crop produce	Total production/Qt	Price /Qt	Annual income per birr
1	Maize			
2	Teff			
3	Pepper			
4				

NO	Nonfarm activities	Annual income
1	Trade	

2	Teacher	
3	Extension worker	

9. What is the level of income? _____

10. Respondent's religion _____ 1. Orthodox 2. Catholic 3. Muslim 4. Protestant 5. No religion 6. Other (specify),

11. from where you get meat? _____1. Butcheries 2. kircha 3.. Others

12. Do you have consumed meat?

13. How much kg of meat consumed by household per week/month on average?

14. What is/are the reason/s for not consuming meat products? 1. Cannot afford, 2. Not available at purchase spot 3. Point of purchase too far away 4. Bad quality 5. Too expensive 6. Others (specify) _____

Consumption comparison by month and the reasons

1. Which month of the year meat products consumed highly by household? 1,January2, February 3,March 4, April 5, May 6,June 7=July 8=august 9=September 10=October 11=November 12=December
2. What is/are the reason/s for high consumption?_____

   1. Festival 2. Increased household income 3. Lower prices 4. Doctor's recommendation 5. Increase in HH size 6. Other (specify) _____
3. Which month of the year meat consumption is low?

   1=January 2=February 3=March 4=April 5=May 6=June 7=July 8=August 9=September 10=October 11=November 12=December
4. What is/are the reason for low consumption of meat _____

5. Unaffordable 2. Low house hold income 3. Decrease in HH size 4. Others (specify)_____

APPENDIX B

Results of econometric regression

```
. regress DDMT sex age familysize i.religion i.maritalstatus income edulevel, level(90)

      Source |       SS       df       MS              Number of obs =      83
-------------+------------------------------           F( 11,    71) =   26.72
       Model |  15401.3194    11  1400.11995            Prob > F      =  0.0000
    Residual |  3719.86132    71   52.392413            R-squared     =  0.8055
-------------+------------------------------           Adj R-squared =  0.7753
       Total |  19121.1807    82  233.185131            Root MSE      =  7.2383

------------------------------------------------------------------------------
        DDMT |      Coef.   Std. Err.      t    P>|t|     [90% Conf. Interval]
-------------+----------------------------------------------------------------
         sex |  -4.967589   1.748945    -2.84   0.006    -7.882379   -2.052798
         age |   .2893256   .1361201     2.13   0.037     .0624678    .5161833
  familysize |  -1.499201   .7519304    -1.99   0.050    -2.752368   -.2460342
             |
    religion |
           2 |   3.470918   2.883179     1.20   0.233    -1.334188    8.276023
           3 |   5.188772   1.958653     2.65   0.010     1.924482    8.453062
           4 |   3.207802    2.57326     1.25   0.217    -1.080793    7.496396
             |
maritalsta~s |
           2 |   8.782385   3.214232     2.73   0.008     3.425547    14.13922
           3 |   5.549845   4.563279     1.22   0.228    -2.055314      13.155
           4 |   11.16694   4.324177     2.58   0.012     3.960271    18.37361
             |
      income |   .0003433    .000077     4.46   0.000      .000215    .0004715
    edulevel |   1.122234   .3434019     3.27   0.002     .5499206    1.694548
       _cons |  -4.419459    4.35792    -1.01   0.314    -11.68237    2.843449
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
         sex |      1.15    0.871112
         age |      4.96    0.201779
  familysize |      4.31    0.232263
    religion |
           2 |      1.15    0.871871
           3 |      1.33    0.749687
           4 |      1.30    0.770796
maritalsta~s |
           2 |      3.88    0.257912
           3 |      3.50    0.286068
           4 |      2.86    0.349193
      income |      4.11    0.243076
    edulevel |      3.64    0.274422
-------------+----------------------
    Mean VIF |      2.93

.
```

APPENDIX C:Results of destributive statistics

```
. summarize DDMT edulevel income maritalstatus religion familysize age sex
```

Variable	Obs	Mean	Std. Dev.	Min	Max
DDMT	83	24.24096	15.2704	1	65
edulevel	83	7.012048	4.443395	1	17
income	83	23893.72	21066.67	1243	86098
maritalsta~s	83	2.180723	.8285247	1	4
religion	83	2.180723	1.149173	1	4
familysize	83	4.156627	2.205768	1	8
age	83	37.92771	13.07276	14	70
sex	83	.3855422	.489682	0	1

```
. vif
```

APPENDIX:D

```
. vif
```

Variable	VIF	1/VIF
age	4.07	0.245496
familysize	3.91	0.255683
income	3.29	0.304103
edulevel	3.29	0.304255
Mean VIF	3.64	

```
.
```