ANALYSIS OF BREAD WHEAT (Triticum aestivum) VALUE CHAIN, IN ANNLEMO DISTRICT, HADIYA ZONE, SOUTHERN EHIOPIA

A Thesis Submitted to the School of Graduate Studies

JIMMA UNIVERSITY

By

TEMESGEN MATHEWOS

OCTOBER, 2015

JIMMA, ETHIOPIA

ANALYSIS OF GENDER IN BREAD WHEAT VALUE CHAIN, IN ANNLEMO DISTRICT, HADIYA ZONE, SOUTHERN EHIOPIA

A Thesis submitted to the school of Graduate studies

JIMMA UNIVERSITY

IN Partial Fulfilments of the Requirements for Degree of MASTER'S OF SCIENCE IN AGRICULTURE (AGRIBUSINESS AND VALUE CHAIN MANAGEMENT)

By

TEMESGEN MATHEWOS

Major Advisor: Dr. Lemma Zemedu (PhD)

Co-advisor: Amsalu Mitiku (Assistant Prof.)

OCTOBER, 2014

JIMMA, ETHIOPIA

JIMMA UNIVERSITY

COLLEGE OF AGRICULTURE AND VETERINARY MEDICINE

Thesis Submission for External Defence Request Form (F-07)

Name of Student: Temesgen Mathewos ID No. MSc **06561/05**

Program of study: M.Sc. In Agribusiness and Value Chain Management

Title: "**Analysis of Gender in Bread wheat value chain, In Ann lemo District, Hadiya Zone, Southern Ethiopia**".

Temesgen Mathewos _____

Name signature of student

Major Advisor: Lemma Zemedu (PhD), Assistant professor of Agricultural Economics, Haramaya University (Head of Agribusiness and value chain management), Ethiopia

Lemma Zemedu (PhD _____ _____ _____

Name Signature Date

Co-Advisor: Amsalu Mitiku (Assist PhD), Jimma University, Ethiopia

Amsalu Mitiku (Assist. Professor),

_____ _____ _____

Name Signature Date

Decision/suggestion of Department Graduate Council (DGC)

_____

_____ _____ _____

Chairperson, DGC Signature Date

_____ _____ _____

Chairperson, CGS Signature Date

DEDICATION

I dedicate this thesis to my father for his consistency in my spiritual strength by praying and preaching, financial support, moral and others success journeys but he was passed away from this world before a year ago.

STATEMENT OF AUTHOR

First, I declare that this thesis script is prepared by my endeavour with the guidance and close regulation of my advisors. The thesis has been submitted in partial fulfilment of the requirements for M.Sc. degree at Jimma University. It is placed at the University library to be made available to borrowers under the rules and regulations of the library. I declare that this thesis is not submitted to any other institution anywhere for the award of an academic degree, or any level of academy.

Concise quotations from this thesis are allowable without special permission provided that accurate acknowledgement of the source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or part may be granted by the head of the Department of Agricultural Economics and Extension or the Dean of the School of Graduate Studies when in his/her judgment the proposed use of the material is in the interest of scholarship. In all other needs, however, permission must be obtained from the author.

Name: Temesgen Mathewos. Signature_____

Place: Jimma University, Jimma

Date of submission: August, 2015

BIBLOGRAPHICAL SCETCH

The author was born on May 05, 1987 in, Hosaena (Lemo). He attended elementary school in Ana lemo primary and continued his high school in Wachamo. After passing of Entrance exam, he joined Debra Markos University in 2008 and graduated with B.Sc. in Rural development in 10th July, 2010. After graduation he served in Gombora Woreda Office of Civil services for 2 year and 3 months. Then he joined Jimma University School of Graduate Study in March, 2014 to follow his M.Sc. degree in Agribusiness and value chain management program.

ACKNOWLEDGEMENTS

First of all I would like to glorify the super natural , king of kings and lord God for giving me life and who took my place on the cross and save my life from hell.

I am thankful to my major advisor Lemma Zemedu (PhD), for his internal commitment in advising, guidance and constructive criticism starting from the very beginning up to thesis completion. Without his encouragement, nearby and professional expertise, the completion of this work would not have been possible. My thanks and exaggeration also goes to my co-advisor Amsalu Mitiku (Assistant Prof) for his valuable comments and advice on my research work.

I would like to thank NICHE Agribizz project, at Jimma University for financial grant for my research works. It is a great pleasure to extend my appreciation to JUCAVM specially library (ICT) and also Ethiopia agricultural institute research library. I would like to thank Gombora woreda Administration and my staff management head for their permission. I never forget advice of Mr. Mengistu who helped me in gender issue source and for his advice.

My special thanks and earnest appreciation extends to my family specially father and sister for their support and encouragement, correspondingly I would like to thank my mother for her prayer.

May God bless, exceed his grace and favour to each and every one.

ABBREVIATIONS AND ACRYNOMY

AAFC	Agriculture and Agri-Food Canada
AISE	Agricultural Inputs Supply Enterprise
AWADO	Ann lemo Woreda Agricultural Office
BLUE	Best Linear Unbiased Estimator
BOAFD	Bureau of Finance and Economic Development
BOARD	Bureau of Agriculture and Rural Development
CC	Contingency Coefficients
CIMMYT	Centrol International Mejoramiento Maize Y Trigo
CLR	Classical Linear Regression
CSA	Central Statistic Agency
DHDG	Ethiopian Grain Trade Enterprise
ECXA	Ethiopian Commodity Exchange Authority
EFDHPACA	Ethiopian Food, Drug and Health Prevention Administration and Controlling Authority
EIAR	Ethiopian Institute of Agricultural Research
ESE	Ethiopian Seed Enterprise
FAO	Food and Agricultural Organization
IFPRI	International Food Policy Research Institutes
ILRI	International Livestock Research Institute
KB	Kroenker-Bessett
MoAD	Ministry of Agricultural Development
NMM	Net Marketing Margin
RMA	Rapid Market Appraisal

SNNPR Southern Nations Nationality People Regional

TGMM Total Gross Marketing Margin

VIF Variance inflation Factors

WADO Woreda Agricultural development office

WTIO Woreda Trade and Industry Office

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

List of tables

Lists of figures

ANALYSIS OF WHEAT VALUE CHAIN, IN ANNLEMO DISTRICT, HADIYA ZONE, SOUTHERN EHIOPIA

Abstract

This study analyzed bread wheat value chain in Annlemo District, Hadiya Zone in southern Ethiopia with the specific objectives of mapping wheat value chain, describing gender roles and value addition, analyzing value chain actor's performance and examining determinants of wheat supply to the market. Primary and secondary data were collected. Primary data was collected from 138 producers, 35 traders and 20 consumers by using open and closed ended questionnaire, personal observation and focus group discussions using checklists. The study identified direct actors of wheat value chain such as input supplier, producers, collectors, wholesalers, importer, processors, retailers and consumers while indirect actors were supportive services and some enabling environment. In the study period, sample respondents produced 5244 quintals of wheat and 69.7% of it was supplied to the market. Since, all wheat value chain actors have positive margin, the value chain was profitable business and processors were the most value added actors with high profit. For this reason, the processors and retailers have governing role of value chain in the study area during the period considered under this study. Out of 138 sample producers 91(66%) of them were male headed household whereas the remaining 37 (34%) were female headed households. The result of the multiple regressions revealed that, wheat marketed surplus is significantly determined by 13 hypothesized independent variables out of which educational level, price of wheat, experience in production, land size and poor access to market information. Accordingly, couple training and gender consideration, accessing modern sources of information, increasing bargaining power of producers and other are recommended to make wheat value chain development competitive and sustainable in the market.

Key words: Wheat, Value chain analysis, Gender, Ann lemo, Multiple regressions Model, Map, Value, Performance, Actors

1. INTRODUCTION

1.1Background

Agriculture is very necessary and important sector for all over the world as food and input for different purpose of world's economy. From this agricultural importance, Cereals are the most important food crop of the world and it provides the world with a majority of its food calories and about half its protein (FAO,2007),. The main cereals crops are wheat, barley, teff, finger millet, maize and sorghum grown in varying proportions according to soils, altitude, and the prevailing climatic and market conditions of the year which highly produced. In the year 2007, 2029 million metric tons of cereals were produced globally from 658.5 million hectares of land with an average productivity of 30.83 quintals per hectares (Balasubramanian, 2007).

According to FAO (2007), the world cereal production in the year 2007 was increased by 4.8% from previous year production. In the same year Africa's contribution to the world output was 6.35% (about 133.1 million tons).

Wheat is the primary source of protein in African countries, where Africa is 1.2 billion people dependent on wheat for survival (CIMMYT, 2011). It has been projected that the demand for wheat in the developing world will increase 60 percent by 2050 (CIMMYT, 2011), which is a sobering forecast considering global wheat yields have remained constant for more than a decade. Wheat provides nearly 55 percent of carbohydrates, more than 20 percent of the calories and protein consumed globally (Bushuk, 1998), and it has the highest content of protein of all the staple foods and contains essential minerals, vitamins, and lipids.

Bread wheat (Triticum aestivum) is one of the world's most important cereal crop, mainly produced for sale and consumption are required which can meet the diversified needs of the wheat consumers as well as the needs of wheat processing industries. Wheat growers use inorganic fertilizer (DAP and Urea) and herbicide (2, 4-D) for bread wheat production, cereal grains and it is the Predominant Type of Wheat Grown .There are three major types of wheat: bread (Triticum aestivum), durum (Triticum turgidum durum), and emmer

(Triticum turgidum dicoccoides). Emmer wheat is the wild progenitor of the domesticated durum and bread wheat varieties.

In Ethiopia, Cereal production and marketing are the means of livelihood for millions of small holder households and it constitutes the only largest sub-sector in economy. Cereal accounts for roughly 60% of rural employment, 80% of total cultivated land, more than 40% of atypical household's food expenditure, and more than 60% of total caloric intake. The contribution of cereals to national income is also large. According to available estimate, cereal production represents about 30% of gross domestic product (GDP). This calculation follows from the fact that agriculture is 48% of the nation's GDP (World Bank, 2007), and that cereals' contribute to agricultural GDP is 65% (Diao et al, 2007) and Ethiopia ranks second in sub-Saharan Africa in total wheat area and production. Wheat is an important cool weather crop grown predominantly in the Ethiopian highlands at optimum altitude ranging from 1000 to 2300 meters above sea level. Wheat occupies large area (0.8 million hectares) of land and produces large amount of grain every year. It furnishes the flour to make bread and injera that is consumed throughout the country through the year. Wheat production like that of teff receives large amount of inorganic fertilizers and herbicides; to some extent fungicides against rust diseases (EIAR2011)

Our economy is also heavily reliant on agriculture, which results in severe food shortages during crop disease outbreaks and periods of severe drought. The majority of Ethiopian farmers are resource-poor, small-holder farmers that depend on staple crops for subsistence and as a source of income when they have a marketable surplus. The Ethiopian highlands are considered a centre of diversity for wheat and it has been cultivated in this region for several millennia with little change in farm implements and farming practices among small-holder farmers.

There are 16 major wheat producing zones in Ethiopia sharing more than 83 percent of the country wheat production:- eight zones from Oromia region (West Shewa, North Shewa, East Shewa, Arsi, Bale, South West Shewa, Horoguduro and West Arsi); six zones from Amhara region (North Gonder, South Gonder, South Wollo, North Shewa, East Gojjam and West Gojjam); South West Tigray zone from Tigray region and Hadiya zone from SNNPR region, each of which contribute a minimum of 2 percent in North Gonder zone

and a maximum of 11.7 percent in Bale zone to the national wheat production (ECXA,2008).

In the southern region of Ethiopia; agriculture is the backbone of the regional economy; contributing for about 73% of the regional GDP and more than 90% of the total employment (BOFED, 2009). Out of the total land size of the region 112,343.19 square kilometre, about 785,386.5 hectares of land had been used for the production of cereals and the estimated production was 11,172.4 million quintals. The land allocated in the region for the production of wheat in the year 2007 was 118,815. Moreover, the regional production of teff and wheat in the year 2007 was 2,322.5 hectares and 1974.6 million quintals (CSA, 2007).Maize, teff, wheat, sorghum, finger millet and barley are the leading cereals crops grown in the SNNPR. Based on the report of (BOARD, 2007), Hadiya, Guraghe, Kembata Tembaro, Siltie zones and Halaba special woreda are the major cereal producing areas in the region.

Hadiya zone is one of the most cereals specially wheat production potential area of southern part of the Ethiopia. The Zone is known with favourable climatic and natural resource conditions that can grow diverse annual and perennial crops required for household consumption and the market. Despite this production of wheat and other agriculture are largely dependent on rain fail but cannot boost the production through irrigation (HZADD, 2013/14).

Table 1 Wheat production potential of Hadiya Zone

Year	2009	2010	2011	2012	2013	2014	2014/15
Land(ha)	82693	74760	61483	63679	57772	57745	52176.9
Production(qt)	3943583	3873753	3015153	3268174	3065914	3128329	2926106.5
productivity(qt/ha)	47.7	51.8	49.04	51.3	53.06	54.17	56.08

Source: HZADD annuals reports

Ann lemo is one of the ten district in the Hadiya zone which is also has a great production potential of agricultural products. According to Woreda Agricultural development office (2014), the major wheat, teff, maize, barley, bean. Production of wheat by smallholder farmers of the woreda is mainly for market which is the most important and widely known cash crop of the area. According to woreda agricultural office, (2013) the land area covered by wheat in the woreda was 3724 hectares and produced203, 152 quintals of wheat.

Table 2 Wheat production potential of Ann lemo Woreda

Year	2009	2010	2011	2012	2013	2014	2015
Land	6652	5685	5434	5000	3724	3742	3550
Production per qls	332600	299624	287216	284250	189924	209032	224182.5
productivity(qt/ha)	50	52.7	52.85	56.85	51	55.86	63.15

Source: AWADO annuals reports

1.2 Statement of problems

Wheat is the major source of food for the population and hence the prime contributing sector to food security. In addition, it is expected to play a key role in generating surplus capital to speed up the country's overall socio-economic development, (Hassen, 2006). In Hadiya zone, small-scale farmers rely on low input and delay of time, unequal benefitting, rain-fed and mixed farming agriculture dominated with traditional technologies accounts.

Agricultural marketing is a very important factor in economic development but lack of a well-functioning agricultural market, gender in value chain and value chain performance severely hinders the increase of social welfare, income distribution, and food security of developing countries. Moreover markets and marketing system do not develop concurrently with economic growth. Improved information and marketing facility enables farmers to plan their production more in line with market demand, to schedule their harvest at the most profitable time, to decide which market to sell their produce to and negotiate on a more even balance with traders and it also enables traders to move their produce profitably from a surplus to deficit market and to make decisions about the economics of storage, where technically possible.

The efforts of increasing agricultural production and productivity have to be accompanied by a well-performing marketing chain which satisfies consumer demands with the minimum margin between producers and consumer prices. Higher prices for producer can encourage farmers to adopt new technologies, increase production. However, there are external and internal problems that influence the marketing efficiency in Ethiopia. This has to do with lack of relevant market information, poor marketing channels, less actors' linkage, poor development of marketing institutions and marketing infrastructure such as storage, transportation etc.

The possible increment in output and reducing costs resulting from the introduction of improved technology could not be exploited in the absence of well-functioning marketing system. An efficient, integrated, and friendly market mechanism is of critical importance for optimal allocation of resources in agriculture and in stimulating farmers to increase their output (James, 1972, as cited in Muhammed., 2011).

A well-functioning marketing system is not limited to encouragement but it also increases production by seeking additional output.

In Ethiopia, agricultural growth convinces higher overall growth than non agricultural sectors. This leads to faster poverty reduction since it generates proportionately more income for farm households who represent the mass of the poor. From within agriculture, staple crops have stronger growth linkage resulting from more than proportionate increase in total GDP. Moreover, such growth linkage becomes stronger overtime (Diao et al, 2007).

Supply of agricultural crop in the study area is subjected to seasonal variation where surplus supply at harvest is the main trait. The nature of the product on the one hand and lack of properly functioning marketing system on the other, often resulted in lower producers' price at harvest time. Regardless of the fact that the wheat in Ethiopia is operating freely as far as our knowledge is concerned little study has been done on integration of markets to explain the demand and supply responses of wheat market. Lack of such information about these markets has led to growing and persistent supply shortages in deficit markets. By assessing the extent of market chain and value chain across different actors, then it was determined the performance and supply of wheat in the study areas.

The demand for wheat as a staple crop is largely determined by the size, composition, distribution and market behaviour of the population (FPM report, 2004 part4 chapter3). The composition of the population and the variety of its needs have a major impact on the consumption of the product. A large section of the population of study area, even Ethiopia is poor, and is urbanizing at a rapid rate. Urbanization causes consumers to require more ready-to-eat food.

Bread is such a product and as staple food, it is a substitute for teff and maize-meal. In my study area there were high demands through the year but producers supplying seasonally, by this reason flour factors using imported wheat via government. There was no adequate information on the factors affect supply of wheat of the district. It is essential that the value chain of wheat operate efficiently.

Women in Ethiopia including my study area represent a incredible productive resource in the agricultural sector. They are major contributors to the agricultural workforce, either as family members or in their own right as women heading households. There have been recent policy initiatives to strengthen the position of women in the agricultural sector.

In 2005, the Plan for Accelerated and Sustained Development to End Poverty, 2005/06 to 2009/10 (PASDEP) was launched to safeguard rights such as access to land, credit, and other productive resources, and to protect women from other dispossessions, such as longer working days, violence and discrimination, and, in the same year, the Federal Rural Land Administration Proclamation took walks to secure women's landholding rights

However, gender roles and relationships influence the division of work, the use of resources, and the sharing of the benefits of production. In particular, the introduction of new technologies and practices, strengthened via improved service provision, often closes the eyes to the gendered-consequences of market-oriented growth and many benefits bypass women and there is an imbalance between workloads and share in the benefits of production and trading. Men tend to control the income from many crop and livestock commodities where they dominate or share the workload such as field crops, vegetables, and large and small ruminants. There are also firms in which women and men share both the workloads and the benefits like wheat production, flour factory and bakery and others relying on the woreda. In contrast, there are very few firms in which women dominate both the workloads and the control of the benefits.

Moreover, there is a need to employ a value chain approach to fully understand and resolve the problem of wheat at all levels of actors. This study was addressed the popular information gap on the subject and contribute to apposite understanding of the problems and assist in expanding improved value chain development strategies to benefit of all actors (input suppliers producers, collectors, processors, whole sales, retailers and consumers) along the wheat value chain in the study area.

1.3 Research Questions:

1) What constraints do producers encounter to supply wheat to the market?
2) What is the map and role of wheat value chain actors in the study areas?
3) What is the performance of wheat value chain actors? and
4) What is the role (value addition) and benefit sharing of gender in wheat value chains

1.4 Objectives

General objective is to analysis wheat value chain in the study area.

The specific objectives are:

1) To map wheat value chain and describe role of each actors in the study area
2) To describe gender roles and benefit sharing among actors along the wheat value chain in the study area
3) To analyze the performance of wheat value chain actors in the study areas.
4) To identify determinants of quantity of wheat supplied to market

1.5 Significance of the Study

The study would analyze wheat value chain from input supplier to the consumer within the study area and from input supplier to national central market. Furthermore, this study was focuses on the determinants of wheat supply to the market, map of actors and their role's, value chain performance, benefit share of actors, gender roles and identifies opportunities and constraints wheat value chain in the study areas.

The information are help a number of organizations including: Research and development organizations, traders, producers, wholesale, processor, retailer, policy makers, extension service providers, government and non-governmental organizations would solve their activities and redesign their mode of operations easily.

1.6. Scope of the study

The area coverage of this study was enclosed to Ann lemo District. And it also focused on the wheat value chain functioning through vertical and horizontal integration and a linkage among the actors within the product flow, transportation, marketing information, finance, institutions involved in wheat value chain analysis and determinates of wheat supply in the study area. Mapping actor's role, functions and activities, list of channels of wheat grain and its products flow, gender roles and benefit's sharing of wheat value chain, and bargaining characteristics of producers and selling traders, and trader in the whole wheat value chain performance were seen.

1.7. Limitations of the study

The limitation of this study was mainly related to exposure of the study area and product. Because there are a number of well known Zones within the SNNP region and District's within Hadiya Zone wheat production area. The truth is that, but the study was focused only in Ann lemo District due to budgetary and time restrictions. In addition to above limitation, there were also others limitation like no or less investigation on agricultural value chain analysis and development (most of them were studied market chain) and issue of gender roles and benefit sharing from the agricultural value chain analysis of the study was that, this study being the first in the Zone and District even nations lack many detail assessment.

Also by focusing a survey on a particular crop, especially a cash crop or major staple crop, many of the other agricultural activities may be ignored. The other crops and activities may be small but important sources of income for individuals (Boys, Girls, Women and Men) within the household or contribute to household food security.

1.8. Organization of the study

The first chapter deals with the background, statement of the problem, research questionnaires, objectives, significance and limitation of the study. The second chapter consists of the review of the literature which includes definitions of terms, empirical and theoretical reviews and others.

The third chapter is methodologies are sketched and illustrates of area descriptions, designing study and prediction of the study. The fourth chapter deals with the results and discussions. Conclusion and recommendations are presented in the fifth chapter and to the last the sixth chapter is References

2. LITERATURE REVIEW

This chapter is more to discuss concepts such as value chain, supply chain, market chain market, marketing, value addition, value chain actors, value chain mapping, market channel, value chain performance, gender role and benefit sharing of value chain. In relation to these issues, the chapter highlights about the production and marketing of wheat and its products in the World, Africa and Ethiopia (specific to regional, zonal and district of study area)

2.1 Definition and Concepts in Analysis of Value chain

2.1.1 Definitions and concepts

In the agricultural marketing there are supply chain and value chains which seems to be same, but the reality is rather different even if some similarities among them as the following.

Supply chain: It means the physical flow of goods that are required for raw materials to be transformed into finished products. Supply chain management is about making the chain as efficient as possible through better flow scheduling and resource use, improving quality control throughout the chain, reducing the risk associated with food safety and contamination, and decreasing the agricultural industry's response to changes in consumer demand for food attributes (Dunne, 2001).

A value chain: is the full range of activities required to bring a product from conception, through the different phases of production and transformation. A value chain is made up of a series of actors (or stakeholders) from input suppliers, producers and processors, to exporters and buyers engaged in the activities required to bring agricultural product from its conception to its end use (Kaplinsky and Morris, 2001). Bammann (2007) has identified three important levels of value chain.

Table 3Generally supply and value chain differences

Measures	Supply chain	Value chain
Communication (info)	Little/none	Extensive
Value of focus	Cost/price	Value /quality
Products	Commodity	Differentiated products
Relationships	Supply push	Demand pull
Organizational structures	Independent	Interdependent
Philosophy	Self-optimization	Chain optimizations

Source; Toma and Bouma management consultants 1998

Value: is a price of something, a worth of something,

Value addition: -- refers to the act of adding value(s) to a product to create form, place, and time utility which increase the customer value offered by a product or service. It is an innovation that enhances or improves an existing product or introduces new products or new product uses (Fleming, 2005). Income growth, urbanization, and technological advances, along with ever expanding global trade in agriculture, have contributed to a growing global demand for processed products with added values. The emerging trend for processed agricultural products in the global market creates opportunities for smallholder farmers in the developing countries to benefit from such opportunities by linking their activities to value chains through vertical and horizontal linkages (Vermeulen et al., 2008). Yet, there are ample opportunities for smallholder farmers in the domestic markets for them to supply products with added values.

Value chain actors: The chain of actors, who directly deal with the products, i.e. input suppliers, producers, traders, processers, wholesalers and retailers own them.

Value chain supporters: The services provided by various actors who never directly deal with the product, but whose services add value to the product. .

Supporting Services: Given the importance of services and inputs to upgrading and management of risk in value chains, it is important to understand how gender influences access to such key services as public and private extension, marketing, financial services,

and technology. Additionally, in terms of public services, such as extension and sometimes technology development, it is critical to understand whether the key institutions consider and have the capacity to address gender equity.

Structure: Often change in a value chain is dependent on the structural environment, in terms of policies and regulatory frameworks that affect the value chain, as well cultural norms. Issues such as rule of law, policies that are consider gender, social roles for women should be part of a comprehensive value chain analysis. In addressing structure, donors need to make longer term commitments, given the institutional structures that need to be addressed—and typical program timeframes of two to three years are often not sufficient.

To sum up **Value chain**: It is a group of companies working together to satisfy market demands. It involves a chain of activities that are associated with adding value to a product through the production and distribution processes of each activity (Schmitz, 2005). An organization's competitive advantage is based on their product's value chain. The goal of the company is to deliver maximum value to the end user for the least possible total cost to the company, thereby maximizing profit (Porter, 1985).

The value chain concept entails the addition of value as the product progresses from input suppliers to producers and consumers. A value chain, therefore, incorporates productive transformation and value addition at each stage of the value chain. At each stage in the value chain, the product changes hands through chain actors, transaction costs incurred, and generally, some form of value was added. Value addition results from miscellaneous activities including bulking, cleaning, grading, and packaging, transporting, storing and processing (Anandajayasekeram and Berhanu, (2007) cited at Abrahem, 2011). Value chains encompass a set of interdependent organizations, and associated institutions, resources, actors and activities involved in input supply, production, processing, and distribution of a commodity. In other words, a value chain can be viewed as a set of actors and activities, and organizations and the rules governing those activities.

Opportunity cost for labour ; it is the income the family member would lose by not hiring himself or herself out to carry an activities on someone else's farm and in its place doing the same activities on his or her own farm / a measure of employing scarce labour resources in a chosen activities. For example family labour this is generally equal to the

cost incurred if a person is employed to do an activities normally carried out by a family member.

Opportunity cost for land; is the return on the land to another producer or for another use instead of the farmers producing a crop on it themselves**.**

Depreciation cost; means the wearing out of capital goods, such as machines and equipment, which need to be replaced after a while. To be able to pay for replacements companies should save money. The costs of these are called depreciation costs. However, as depreciation costs are not expenses they decrease income but not cash money. Quite understandably poor farmers and micro enterprises usually do not calculate depreciation costs. They need all their income to survive**.**

Value chain management; is about creating the added value at each link in the chain and a sustainable competitive advantage for the businesses in the chain. How value is actually created is a major concern for most businesses. Value can be created by differentiation along every step of the value chain, through activities resulting in products and services that lower buyers' costs or raise buyers' performance. In much of the food production and distribution value chain, the value creation process has focused on commodities with relatively generic characteristics, creating relatively small profit margins. Value chain intervention usually focus on economic activities like crops, animals, crop or animal products that have potential to contribute significant income to the involved actors, hence improve food security and reduce poverty. It is anticipated that value chain development initiatives like this will benefit farmers in gaining better prices for their produces. Apart from the government, non-governmental organisations that support government initiatives have adopted the value-chain approach in addressing the problems of agricultural production and marketing (International Journal of Asian Social Science, 2013, 3(2)).

Household surveys; it try to find to understand the range of household activities and the interactions among them.

Farmer surveys; it focuses on a particular crop or crops and collects detailed data on the production and marketing.

The farmer is usually defined as the person who makes the major agricultural decisions or the person who knows the most about the agricultural production. It is important that questions be asked to identify the appropriate respondent.

In addition, for agricultural censuses, the FAO now recommends that the data collection allow for joint holders as well as individual holders of parcels, where the holder is defined as the person or persons making the major decisions (IFPRI 2013)**.**

Rapid Market Appraisal: is a way for micro and small-scale entrepreneurs (MSEs) to collect market information to identify and develop new products or market products to new customers.

Gender refers to social characteristics that groups associate with being a man or a woman. These include the economic, social, political, and cultural attributes and opportunities as well as the roles and responsibilities that are associated with being a man or a woman. Gender is a socially defined category that is defined differently around the world and which changes over time.

Governance along the value chain: Enables an understanding of the social norms and power balances that include relationships between firms and between enterprises and labor. A governance analysis would bring a gender equity lens to issues such as contracting, outsourcing standards and workplace issues.

Statistical significance: probably true (not due to chance).

Sex-disaggregated data; are data that are collected and analysed separately on males and females. This typically involves asking the "who" questions in an agricultural household survey: who provides labor, makes the decisions, owns and controls the land and other resources. Or it may involve asking men and women about their individual roles and responsibilities. When talking about sex-disaggregated data, we are not referring to comparisons of male- and female-headed households and it is also actor's achievement data are reported for whole populations, or as aggregate data. It is not, however, until the data are disaggregated that patterns, trends and other important information are uncovered.

2.1.2 Gender role in value chain

Addressing gender issues within value chain analysis recognizes first, that value chains are embedded in a social context. Gendered patterns of behaviour define the types of work that men and to women do, the groups they join, and how resources and benefits are distributed. Thus the construction and operation of value chains reflects how gender

relations work from the household to the firm. At the same time, the process of building efficient and effective value chains can also transform gender relations both within and outside the household. Second introducing new technologies or new crops can change gendered relations of production with different outcomes for men and for women. When women gain access to labor-saving farm equipment, they can free up time for other productive activities. Or, in communities where land is typically owned by men, women may lose income from or access to their garden plots as new markets enhance the value of the crops grown on them and the land is repossessed. Formalizing market linkages can shift household financial management practices; whether by channelling payments to men as household heads and account holders or by using mobile phone based payments that can enhance women's independent access to income from sales. Finally, there is a third assumption that, with awareness of how value chains and the systems of gender relations intersect, it is possible to ensure that value chain development and supporting gender equity are mutually supportive goals (Rubin, Manfre, and Nichols Barrett, 2009; Rubin and Manfre, 2012).

Women and men enter value chains as wage workers, farm managers, unpaid family workers, and entrepreneurs (Deborah, Cristina, 2012) Their opportunities are shaped by their physical, financial and human assets of which access to land and other productive assets (e.g., land, credit, extension, inputs) are key enabling factors. Human capital endowments and social beliefs and norms can also expand or limit the character and extent of men's and women's involvement.

Traditions affect the roles that men and women play in value chains as it is in many other production activities (KIT et al., 2012). According to (Laven et al., 2009) in order to understand how gender roles and relations change in value chains it is important to combine value chain analysis with the gender approach on a development activity. However, most value chain development interventions involve women in the chain development activities based on what they already do in producing the crops and other related products. This generic value chain intervention anticipates that, as women are involved in value chain development activities the benefits obtained will also trickle down to women involved. (Laven et al., 2009) argue that the work that women and men take up within the chain may have implication on other economic activities such as subsistence farming for other crops, income generating activities or household tasks and on gender

roles and relation within the household or at the community level. Generalizations of the impact of value chain intervention on gender roles and relations are always tricky as farming systems differ from place to place (KIT et al., 2012). It is imperative to have empirical evidence from as many perspectives as possible whether value chain interventions change gender roles and relations and how such changes impact on women. Women, who are estimated to comprise about 43% of the agricultural labor force in developing country agriculture (FAO, 2011: 5), are among this group of new and newly recognized actors in these networks. Managing the global food system must contend with demands for efficiency and sustainability while at the same time encouraging greater equity in access and participation.

In agricultural value chains, women make up a large part of the work force (KIT et al., 2012). However, women rights and benefits they derive from their participation in the value chain are frequently violated, and their contribution to the economy is largely invisible. In the context of value chain development, excluding women, results in underutilization of their labour force which may decrease agricultural productivity. While women involvement in agricultural production has increased; their participation in value chain development activities is concentrated in lower levels of the value chain especially in production (KIT et al., 2006; Lastarria, 2006). According to the (World Bank and IFAD, 2008), there is a growing trend of more women being involved in agriculture as men seek alternative income generating activities in non-farm activities. Nevertheless, due to patriarchal nature of most rural societies, women generally do not have the same rights to productive resources as men. While women involvement in agricultural production contributes to increased production and export of high value crop (Lastarria, 2006), women do not equally benefit as men this is partly because of the gender relations that segregate women from participation or benefit from certain tasks in agricultural value chains.

Men and women stand to benefit in a number of ways from participation in value chains through employment, wages or other income, and empowerment, all of which can accrue to an individual or a household. Accessing these benefits is determined by the type of participation (e.g., as a wage worker or unpaid family worker), and the gender dynamics and power relations at multiple levels of the value chain that determine who gains, and

how these benefits are accessed and distributed. As Coles and Mitchell (2011) highlight, gendered patterns of benefit distribution are such that participation in the value chain does not always translate into gains, such as in the case in Kenya where women provided 72 percent of the labor but obtained only 38 percent of the income from their work (Dolan 2001).

Rural women in Ethiopia particularly my study area represent a tremendous productive resource in the agricultural sector. They are major contributors to the agricultural workforce, either as family members or in their own right as women heading households. There have been recent policy initiatives to strengthen the position of women in the agricultural sector. In 2005, the Plan for Accelerated and Sustained Development to End Poverty, 2005/06 to 2009/10 (PASDEP) was launched to safeguard rights such as access to land, credit, and other productive resources, and to protect women from other deprivations, such as longer working days, violence and discrimination, and, in the same year, the Federal Rural Land Administration Proclamation took strides to secure women's landholding rights (Lemlem, 20012)

The nature of market engagement differs significantly between women and men and is also influenced by the wealth of the household. Men from rich and middle wealth households often sell major cash crops in bulk on an intermittent basis and may travel to more distant markets to secure higher prices. They have the advantage of accessing transport to travel further afield (using cart or pack animals) and may be less pressed for time; however, one major downside of this increased mobility and access to cash income is the very real risk of HIV infection through unprotected sexual intercourse with an infected individual. In contrast, poorer farmers and women tend to accept prices at local markets which they can reach on foot. Women and the poor are more likely to sell directly to consumers, whereas men and more wealthy households sell to private traders and cooperatives.

In many instances, sales are triggered by the need for cash—especially in middle wealth and poor households to repay debts or to pay hired labourers or school fees— and to cover food deficits in poor households. The poor may have acquired the seed on loan and have to share the crop with the person who supplied them with seed or have to sell the crop to their money lenders. Therefore the poor farmers including female headed household

forced to sell their crop produces immediately after harvest when the price of the crop produces usually low (Lemlem, 2010).

Productive work: This is work that produces goods and services for consumption by the household or for income and is performed by both men and women. Women's productive work is often carried out alongside their domestic and childcare responsibilities (reproductive work) and tends to be less visible and less valued than men's productive work.

Reproductive work: This work involves the bearing and rearing of children and all the tasks associated with domestic work and the maintenance of all household members. These tasks include cooking, washing clothes, cleaning, collecting water and fuel, caring for the sick and elderly. Women and girls are mainly responsible for this work which is usually unpaid.

Community roles: Women's community activities include provisioning and maintenance of resources which are used by everyone, such as water, healthcare, education. These activities are undertaken as an extension of their reproductive role and are normally unpaid and carried out in their free time. In contrast it is mainly men who are involved in politics at the community level. This work may be paid or unpaid but can increase men's status in the community.

Gender Division of Labor along the Value Chain: Often within value chains, women's participation may diminish as the chain progresses into higher value activities. An analysis of gender roles and responsibilities at the different steps in value addition and trade identifies issues that may influence this access, including ownership of capital goods, sources of information, working conditions and processes for decision-making. Management of Key Decisions and Processes for Adding Value:

Leadership roles in value chains are sometimes overemphasized—resulting in superficial interventions that seek to place women in decision making positions, resulting in titular leadership. A more nuanced understanding of women's role in leadership is needed, as well as the key levers of influence in decision making processes.

2.1.3 Market and marketing

Market can be defined as an area in which one or more sellers of given products/services and their close substitutes exchange with and compete for the benefaction of a group of buyers. Originally, the term market stood for the place where buyers and sellers are gathered to exchange their goods, such as village square. A market is a point, or a place or sphere within which price making force operates and in which exchanges of title tend to be accompanied by the actual movement of the goods affected (Backman and Davidson, 1962). The concept of exchange and relationships lead to the concept of market. It is the set of the actual and potential buyers of a product (Kotler and Armstong, 2003). Conceptually, a market can be visualized as a process in which ownership of goods is transferred from sellers to buyers who may be final consumers or intermediaries.

Marketing is an institution or mechanism that brings together buyers ("demanders") and sellers ("suppliers") of particular goods and services. As a basic definition, marketing is the process of satisfying human needs by bringing products to people in the proper form and at the proper time and place. Marketing has an economic value because it gives form, time, and place utility to products and services. As products definition it is the performance of all the transactions and services associated with the flow of good from the point of initial production to the final consumer. As business firm marketing is as a complete management concept through which the company sells itself as well as its line of product. And from the view point of society, it is defined as all the process necessary to determine consumers' physical and societal needs and to conceptualize and affect their fulfilment (Barson and Norvell, 1983, Cited as Assefa, 2009).

Marketing channel: Formally, it is a business structure of interdependent organizations that reach from the point of product origin to the consumer with the purpose of moving products to their final consumer destination (koler et al., 2003). The analysis of marketing channels is intended to provide a systematic knowledge of the flow of goods and services from their origin (producer) to their final destination (consumer). This knowledge is acquired by studying the "participants" in the process those who perform physical marketing functions in order to obtain economic benefits. In carrying out the functions, marketing agents achieve both personal and social goals. They add value to production and in so doing help satisfy consumer needs. This price also serves as a signal to all the

actors in the marketing channel, i.e. producers, rural assemblers, transporters, wholesalers, and retailers (Mendoza, et al., 1998).

Market performance can be evaluated by analyzing costs and margins of marketing agents in different channels. A commonly used measure of system performance is the marketing margin or price spread. Margin or spread can be useful descriptive statistics if it used to show how the consumer's price is divided among participants at different levels of marketing system (Mendoza, 1995).

Marketing costs: It refers to those costs, which are incurred to perform various marketing activities in the transportation of goods from producer to consumers. Marketing costs includes handling cost (labour, loading and unloading, costs of damage, transportation and etc) to reach an agreement, transferring the product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement (Holloway et al., 2002).

Marketing margin: It is a commonly used measure of the performance of a marketing system (Abbot and Makeham, 1991). It is defined as the difference between the price the consumer pays and the price that is obtained by producers, or as the price of a collection of marketing services, which is the outcome of the demand for and supply of such services (Crammers and Jensen, 1992; William and Robinson, 1990 and Holt, 1993). The size of market margins is largely dependent upon a combination of the quality and quantity of marketing services provided the cost of providing such services, and the efficiency with which they are undertaken and priced. For instance, a big margin may result in little or no profit or even a loss for the seller involved depending upon the marketing costs as well as on the selling and buying prices (Mendoza, 1995).

Measuring value chain; is a fundamental aspect of global value chain research is how 'value' itself, is conceptualized and measured. According to Gereffi (1999) profit, value addition and price mark-ups are indications of income shares across value chain actors. Value–added shares can be calculated for different links in the chain. A second way to calculate value added is to look its distribution by each value chain actors of wheat market and decomposing for each actor to get approximations of each value-added share. Marketing margin is the difference between the value of a product or a group of products at one stage in the marketing process and the value of an equivalent product or group of

products at another stage. Measuring this margin indicates how much has been paid for the processing and marketing services applied to the product(s) at that particular stage in the marketing process (Smith, 1992).

Benefit of Value Chain it is an innovation that enhances an existing product, or introduces new products or new product uses. This allows the farmer to create new markets, or differentiate a product from others and thus gain an advantage over competitors. In so doing, the farmer can ask a higher premium (price) or gain increased market share or access. Adding value does not necessarily involve altering a product; it can be the adoption of new production or handling methods that increase a farmer's capacity and reliability in meeting market demand. Value-added can be almost anything that enhances the dimensions of a business. The key is that the value-adding activity must increase or stabilize profit margins, and the output must appeal to the consumer (AAFC, 2004).

Value chain is useful as a poverty-reduction tool if it leads to increase on and off farm rural employment and income. Increased agricultural productivity alone is not a sufficient route out of poverty within a context of globalization and increasing natural resource degradation. A focus on post-harvest activities, differentiated value added products and increasing links with access to markets for goods produced by low-income producers would appear to be the strategy open to smallholders (Lundy et al., 2002).

Traditionally, little attention has been paid to the value chains by which agricultural products reach final consumers and to the intrinsic potential of such chains to generate value added and employment opportunities.

The pro-poor growth approach: it has become one of the key concerns of developmental organizations. The focus of the approach lies in the development of economic potentials of the poor and disadvantaged groups of people (OECD, 2006). The main aim is to enable them to react and take advantage of new opportunities arising as a result of economic growth, and thereby overcome poverty (Berg et al., 2006). The development of value chains in agribusiness aims to improve the competitiveness of agriculture in national and international markets and to generate greater value added within the country or region. The key criterion in this context is broad impact, i.e. growth that benefits the rural poor to the greatest possible extent or, at least, does not worsen their position relative to other

demographic groups. Pro-poor growth is one of the most commonly quoted objectives of value chain promotion. In recent years, the need to connect producers to markets has led to an understanding that it is necessary to verify and analyze markets before engaging in developmental activities with value chain operators. Thus, the value chain approach starts from an understanding of the consumer demand and works its way back through distribution channels to the different stages of production, processing and marketing (GTZ, 2006).

2.1.4 Major concepts in analysis of wheat value chain

There are four major key concepts guiding agricultural value chain analysis (Anandajayasekeram and Berhanu, 2009; Kaplinsky and Morris, 2000). These are effective demand, production, value chain governance, and upgrading.

Effective demand: Agricultural value chain analysis views effective demand as the force that drags goods and services through the vertical system. Hence, value chain analysis need to understand the dynamics of how demand is changing at both domestic and international markets, and the implications for value chain organization and performance.

Production: In agricultural value chain analysis, a stage of production can be referred to as any operating stage capable of producing a commercial product serving as an input to the next stage in the chain or for final consumption or use. Typical value chain linkages include input supply, production, assembly, transport, storage, processing, wholesaling, retailing, and consumption, with exportation included as a major stage for products destined for international markets. A stage of production in a value chain performs a function that makes significant contribution to the effective operation of the value chain and in the process adds value (Anandajayasekeram and Berhanu, 2009). Producing the required amount effectively is a necessary condition for competitive and sustainable relationships among chain actors. Thus, one of the aims of agricultural value chain analysis is to increase the quantity of agricultural production. By going beyond the traditional narrow focus on production, value chain analysis inspect interactions and synergies among actors. Thus, it overcomes several important drawbacks of traditional sector assessment.

Value chain governance: Governance refers to the role of coordination and associated roles of identifying dynamic profitable opportunities and share outs roles to key players

(Kaplinsky and Marries, 2000). Value chains entail repetitiveness of linkage interactions. Governance ensures that interactions between actors along a value chain reflect organization, rather than randomness. The governance of value chains emanate from the requirement to set product, process, and logistic standards, which then influence upstream or downstream chain actors and results in activities, roles and functions.

Value chains classified into two based on the governance structures: buyer-driven value chains and producer-driven value chains (Kaplinisky and Morris, 2000 cited at Berhanu, 2011).

Buyer- driven value chains are usually labor intensive firms, and so more important in international development and agriculture. In such firms, buyers undertake the lead coordination activities and influence product specifications.

Producer-driven value chains that are more capital intensive, key producers in the chain, usually controlling key technologies, influence product specifications and play the lead role in coordinating the various links. Some chains may involve both producer and buyer driven governance. Yet in further work (Humphrey and Schmitz, 2002; Gibbon and Ponte, 2005) it is argued that governance, in the sense of a clear dominance structure, is not necessary a constitutive element of value chains. Some value chains may exhibit no governance at all, or very thin governance.

Value chain upgrading: Upgrading refers to the attainment of technological capabilities and market linkages that enable firms to improve their competitiveness and move into higher-value activities (Kaplinsky, Muhammad and Morris, 2000/2011). Upgrading in firms can take place in the form of process upgrading, product upgrading, functional upgrading and chain upgrading. Upgrading entails not only improvements in products, but also investments in people, knowhow, processes, equipment and favorable work conditions. Empirical research in a number of countries and sectors (e.g. Humphrey and Schmitz, 2000; Humphrey, 2003; Humphrey and Memedovic, 2006) provide evidence of the importance of upgrading in the agricultural sector.

2.3 Empirical Reviews on Analysis of Wheat Value chain

Marketing of agricultural products consists primarily of moving products from production sites to points of final consumption. In this regard, the market performs exchange functions as well as physical and facilitating functions. The exchange function involves buying, selling and pricing. Transportation, product transformation and storage are physical functions, while financing, risk-bearing and marketing information facilitates marketing (Muhammad, 2010).

A number of studies investigated about factors that determine marketable supply of agricultural commodities. The main factors which determine market supply could be divided into economic factors which include product price, provision of consumer goods, production cost and market supply costs and political factors which include the level of government intervention (Wolday, 1994).

One of the expected important variables which influence the behaviour of the market supply of producers is price. If price increases, producers will gain high revenue and would be motivated to increase the market supply (Wolday, 1994 cited Muhammad, Page11).

According to Zekarias, Kaba ,and Zerhun (2012) the OLS results of the determinants supply of forest coffee analysis were educational states, experience in forest coffee, price of forest coffee, level of production, cost of transportation and access to market information

A study made in Alaba Siraro district by Wolday (1994), pointed out the major factors that influenced the marketable supply of teff, maize and wheat at Alaba Siraro district using cross sectional data and he investigated the relationship of farm level marketable supply of cereals to capture the influence of the independent variables on the marketable supply of food grain, he adopted multiple regression analysis with both dummy and continuous variables as explanatory variables. He identified that size of output (teff, maize and wheat) significantly and positively affected teff, maize and wheat supplied. On the other hand, access to market significantly and negatively affected volume of sale of teff and maize. Poor accesses to the market negatively affected maize sold while positively affected teff

and wheat sold. Family size also significantly and positively affected quantity supplied of teff and wheat while it negatively affected quantity supplied of maize.

Studies by Gebremedhin and Hoekstra (2007) identified determinants of household's market participation of three crops (teff, wheat and rice) from three districts of Ethiopia (Ada, Alaba and Fogera). For analysis, they used community level and household level data. At the household level, probit model was used to analyse the determinants of household choice to produce these market oriented crops. Also Heckman two-steps estimation was applied for the two crops (due to data availability rice result was not given) and the result shows that distance to market place didn't have effect on market orientation,

Another study by Wolelaw (2005) find out the major factors that affect the marketable supply of rice at Fogera district using multiple linear regression models. He investigated the relationship between the determinant factors of supply and the marketable supply of rice and her study revealed that the current price, lagged price, amount of rice production at farm level and consumption at household level had influenced marketable supply of rice at the district

The same is true in this study (Muhammad, 2010). the independent variables thought to have relationship with marketable supply of teff and wheat are described as sex of the household head, age of the household head, family size, quantity produced, farm size, lagged price, access to credit, access to market information, price of other crops (pepper), and access to extension service by using multiple linear regression model.

Tewodros (,2014) A multinomial logit model for determinants of chickpea Market Options show that family size, landholding, access to market information and Income from crops was positively influences wholesale market participation as compared to farm gate. Similarly landholding, access to market information and extension services positively influence consumer market participation than farm gate while access to information and income from crops positively influences retails market participation than farm gate. On the other hand membership to cooperatives was negatively influences wholesale, retail and consumer market participation than farm gate market option. Households distance from nearest market negatively influences wholesale market participation than farm gate market

option while off farm activities negatively influences retail market participation than farm gate.

3. METHODOLOGY

The chapter explains the research design and the selected procedures for testing the variables. It also describes location of the study area and the determination of sampling framework from the population. In addition to that the chapter explains the instrument used to collect data and data collection techniques and analyzing the data collection.

3.1 Description of the Study Area

This study was undertaken in southern part of the Ethiopia in Hadiya zone wheat growing district (Annlemo) which is known in wheat production. Details of the Woreda are as follows.

Ann lemo district is one of the ten Woredas found in Hadiya Zone of SNNP Regional State, Ethiopia. The Woreda is composed of 28 rural kebeles and 1 urban kebeles and Fonko is the administrative centre of the Ann lemo district and there are electricity and pure water access to inhabitants even if aren't required level.

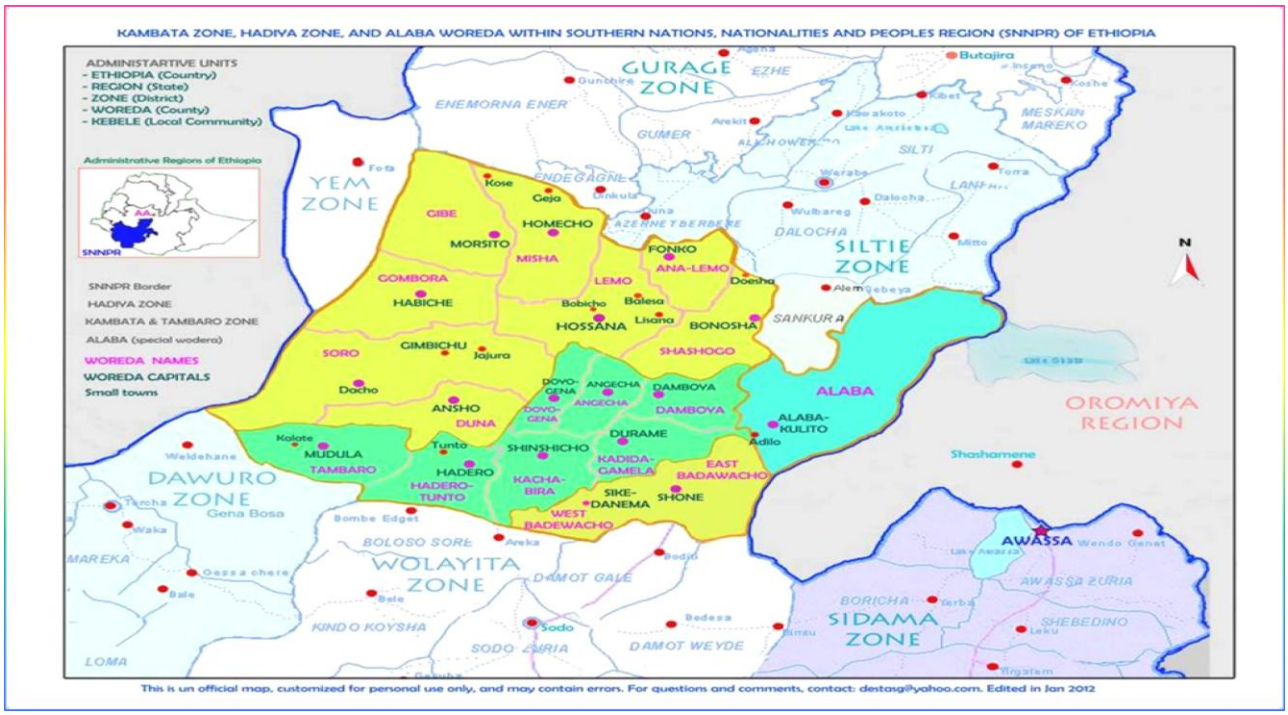
The Woreda is located about 210 Kms of Addis Ababa and 18Kms Hosanna town, the capital of Hadiya Zone of snnp Region. To voyage from Adds Ababa to Ann lemo (Fonko), you pass Jimma entrance (Sebeta) turn to left of Jimma way road, then go straight-line, via passing Oromia region, Gurage zone (Butajira is midpoint of A.A-Hosaina), Silte zone, Hadiya zone boarder two local towns, the third town is Fonko which is centre of the District(figure1).

It is bounded at the North Silte Zone, South Lemo woreda, in East Shashogo woreda and in West Misha woreda of Hadiya zone. The absolute location of the woreda is 7.54-7.7^{0}c, lo0ngitude 37.89-38.06. Highland (Degas) is 20%, midland (weynedega) is 42% and lowland (Qolla) is 38% of agro-ecological zones characterize the Woreda's climate. According to 2008 population survey, the total population are 93,078 from this male 45,696 and female 47,382.

The Woreda receives mean annual rainfall of 1001to1200 mm and temperatures ranges of 15-20^{0}c which is bimodal and erratic in distribution in which the small rains are from March to April and the main rainy season from June to October. The economy of the Woreda is dominated by traditional cash crop farming mixed with livestock husbandry.

The major crops produced in the Woreda include wheat, teff, maize, vegetables (potato, cabbage, beetroot, and carrot), and legumes (AWOARD, 2013).

Figure 1Ann lemo administrational (political) map



Where:

Journey from Adds to Fonko and vice versa

Journey from Hawassa to Fonko and vice versa

Journey from Jimma to Fonko and vice versa

3.2 Types, Sources and Methods of the Data Collection

3.2.1. Types of data

In this study both quantitative and qualitative data were collected. Quantitative data were collected for instances about price of buying and selling (input and output) cost (variables and fixed), amount of wheat (seed, produced, consumed sales and others, loss) age of respondents, year of production and trading, family size and number of employer ,income from wheat and its product's production and trading , land holding in hectare and so on. Qualitative data also collected about market access, information, access to extension services, sources product buying and selling, roles and benefit sharing of women and men, activities of actors, supportive services and enabling environment like.

3.2.2. Sources of data

In order to get the overall picture of wheat producers, traders, and consumers of the wheat value chain in the study area, the study used both primary and secondary data

The primary data: were collected from farmers focused on factors affecting wheat market supply, market channels, constraints and opportunities, market information, distance to Woreda market, credit access, accesses to market, wheat production cost, annual return from it, and demographic characteristics of the household. The researcher gathered primary data from trader focused on volume of buying and selling wheat, working capital, market information and buying and selling price, age of household head Sex of household head, experience of the HH head, and access to extension service, market channels constraints and opportunities, women's and men's role and benefit sharing and educational level of household head. For this study, data from traders and consumers quantitative and qualitative data are also collected. The sites for the trader surveys are market towns in which a good sample of wheat traders existed. The lists of traders were obtained from the Woreda and zone Trade and Industry office and department respectively.

The secondary data: The secondary data were collected from Woreda Agricultural Development Office and Trade and Industry, websites, journals, magazines, flour factories documents, articles and different published and unpublished document, Ethiopian grain trade enterprise and Trade Ministry, annually report of MOAD and EIAR, Ethiopian

journal of agriculture, lecture notes, Central Statistical Authority (CSA), Misty of Agriculture Development (MoAD), Ethiopia Agricultural institution research and other sources

3.2.3 Methods of data collection

Enumerators who have bachelor degree and working as rural entrepreneurs were recruited and trained for data collection. Before data collection, the questionnaire was pre-tested on six farmers and traders to evaluate the appropriateness of the design, clarity and interpretation of the questions, relevance of the questions and time taken for an interview.

Hence, appropriate modifications and corrections were made on the questionnaire. Data are collected under continuous supervision of the researcher

The qualitative data were collected using survey research tools such as: focused group discussions, key informant interview, personal observations and check list but quantitative data for value chain analysis were collected using structured questionnaire in HHH surveys and work labor surveys Data are typically collected on all household members. To get gender data rather than households head data it also tried to collect data from family members (boys, girls, women and men) at each value chain actors. These data are used to report the share of the working role in wheat value chain and to examine trends in the benefits sharing / decision making.

Primary data were collected: by observing people, places and practices and by asking structured questionnaires (open and closed ended) to actors and supporters of wheat value chain. The FGD was first conducted between eight to ten people, of whom half of were women at each sampled Kebele and second was collected between 6-8 females on gender access and control, work load and decision making , by means of female enumerator to get exact information without fear of her husband, son, father and or brothers. Information was gathered using an arrangement of participatory methods, including a gender analysis of division of labour (in hrs at productive roles) in production and marketing, access and control of resources and benefits sharing and decision-making.

A number of meetings, informal interactions and interviews were conducted with the professionals of support providing agencies, business entrepreneurs, and farmers for in-depth understanding on selected key issues of production, marketing, trading, processing,

customs, as well as constraints/ opportunities and potential interventions to remove the constraints and to take of the opportunities. Field visits also carried out to all the major wheat producing kebeles in the study area.

Questionnaire data were collected by asking questions to the wheat value chain actors (producers, intermediaries, wholesalers, retailers and consumers) and support providers. The structure of the questionnaire influences who were interviewed producers both female headed households and male headed households, these households are all complete families with presence of husband, wife and children who were economically active and employed in wheat production. The different sets of questions and checklists were prepared for the different group of actors/stakeholders and interviews/interactions held at actors and support services. Informal and formal surveys, and from key informants also has been used. The informal survey used Rapid Market Appraisal (RMA) technique using checklists. The formal survey was undertaken through formal interviews with randomly selected farmers (HHH and their members), traders (HHH and their members), and consumers using open-ended and a pre-tested semi-structured questionnaire for each group.

The secondary data were collected; from Hadiya zone interviewing more than one person in the household may be necessary if the survey is interested in obtaining data on the full range of agricultural production done in the household. One recent study suggests that it is important to interview both the husband and wife to obtain complete information on household income from farm households in Malawi (Fisher, et al 2010). Agricultural development department and Trade and Industry, woreda interviewing more than one person in the household may be necessary if the survey is interested in obtaining data on the full range of agricultural production done in the household. One recent study suggests that it is important to interview both the husband and wife to obtain complete information on household income from farm households in Malawi (Fisher, et al. 2010).

3.3 Sampling Procedure and Sample Size

3.3.1 Sample size and method of sampling techniques

3.3.1.1 Selection of producers

The sample frame of the study was the list of households that produce wheat in the selected kebeles for this study in Ann lemo District and KAs, which are found in the district. A multi-stage (three-stage) technique was used; the first stage involved the selection of District.

Second stage, selection of kebeles as well as villages using purposively sampling technique from specific wheat producer household. The choice of Kebeles and villages was based on volume of production of bread wheat, accessibility and potential. Selection of Kebeles and villages was done during pre-survey.

Third using the population list of wheat producer farmers from sample KAs, the sample size was determined proportionally to population size of wheat producer farmers. The study identified three potential wheat producer kebeles in the Ann lemo district out of 28 kebeles administrations in the district. Then, the study allocated samples to the selected sample kebeles based on probability proportional to the wheat growers' household size.

Accordingly, the total sample of 138, were allocated to each Kebele as indicated in Table 3 below.

The sample was included all actors that participate in wheat production and marketing in the study area. To determine the total wheat producer of the survey sample size Cochran (1963:75) developed a representative sample for proportions. This for HHH surveys but labor force surveys also have been collected to discuss about gender roles and benefit sharing or decision making in value chain development within the sampled HHH family separately

Where

n = sample size,

$$n = \frac{z^2 p(1-p)}{e^2} \quad \text{---------- 1}$$

Z = Z statistic for a level of confidence (1.96),

P = expected prevalence or proportion (in proportion of one; if 10%, P = 0.1 because, the less variable (more homogeneous) a population, and e = precision (in proportion of one; if 5%, d = 0.05).In this case p-is 1 because all are participants.

.Table 4 The kebeles administration and samples that have been selected

No	Name kAs	No of household	Wheat producer households	Sample size considered (+-5).		
					Gender (M= **C** − **F**)	
					M	F
1	North Darsha	1000	0.40	55	36	19
2	W. Lemo	900	0.36	50	30	20
3	Fonko	620	0.24	33	25	8
	Total	2520	1.00	138	91	47

Source; own survey results, 2015

3.3.1.2 Selection of trader stage actors

Traders were purposively selected from the list of traders obtained from the trade and industry office and department who had legal trading license. Hence were purposively selected and interviewed at their premises. From this all of traders were selected 100% but retailers were selected 50%.

3.3.1.3 Selection of consumers

Wheat products especially bread produced within and around the study area mainly reaches the consumers through sales or via retail outlets, and consumers who were get directly from producers, but they get unlike to who buy from retailer because wheat production is seasonal and producers couldn't store and provide wheat to consumers through the year.

Hence random sampling was employed to obtain consumers. Above all these sampled respondents, a research take into consideration the issue of privacy at all the time in the

way that issuer of voluntariness was also observed as respondents participated in the research voluntary no one was forced into participation.

3.4 Methods of Data Analysis

In these studies two types of data were analysized, namely descriptive statistics, econometric and value chain analysis were used for analyzing the data collected from wheat producers and traders. Both qualitative and quantitative data analysis methods were be involved. That is researchers used descriptions of the facts, to show the relationships of variables. The researchers used tables, graphs and some in charts for the descriptive information in order to make them understandable. Data collected from the primary sources was coded and entered in Statistical Package for Social Sciences (version 20) and micro excel.

3.4.1 Descriptive statistics:

It includes the use of mean, standard deviation and percentiles have been used to explain basic characteristics of the channel members besides econometric models. For this study, the data collected from the sampled producers and traders was first analyzed using descriptive statistics followed by determinants analysis of wheat supply using econometric model. The collected raw data were systematically coded and analyzed using descriptive statistics

3.4.2 Value chain analysis approach

This tool was used to map the bread wheat value chain linkages between actors, processes and activities in the value chain**.** Visualize networks in order to get a better understanding of connections between actors and processes in a value chain, exhibit interdependency between actors and processes in the value chain and create awareness of stakeholders to look beyond their own involvement in the value chain (Michael et al., 2010). As products pass successively through the various stages, transactions take place between multiple chain actors, money and information are exchanged and value would progressively added.

Mapping; is the value chain to understand the characteristics of the chain actors and the relationships among them, including the study of all actors in the chain, of the flow of

wheat through the chain, of employment features, and of the destination and volumes of sales. This information can be obtained by conducting surveys and interviews as well as by collecting secondary data from various sources.

Emphasizing governance role. Within the concept of value chain, governance defines the structure of relationships and coordination mechanisms that exist among chain actors. By focusing on governance, the analysis identified actors that may require support to improve capabilities in the value chain, increase value added in the sector and correct distributional distortions.

Thus, governance constituted a key factor in defining how the development objectives can be achieved**.** It helps to identify how value chain actors are linked along the value chain. Linkages analysis involves not only identifying which organizations and actors are linked with one another, but also identifying the reasons for those linkages and whether the linkages are beneficial or not. In this value chain analysis combinations of these tools have been applied where suitable. Through applications of the tools, wheat value chain maps developed, wheat value chain performance measured, governance and services and linkages of actors analyzed.

3.4.3 Analysis of wheat value chain performance

One of core activities in undertaking value chain analysis is to measure the performance of the chain in order to know the investment required to increase the competitiveness of the chain and measure the distribution of the value chain benefit. Cost and margin are key and used for this study indicators of value chain performance. Measuring costs and value addition enables the researcher to determine how pro-poor value chain should be developed (Bezabih, 2011).

Marketing margin/ value addition was calculated by taking the difference between producers and retail prices.

$$\textbf{Market}\frac{\textbf{margin}}{\textbf{VA}} = \textbf{Retailers price} - \textbf{Farm gate price} - - - -2$$

The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price to consumers' price. Mathematically, producers' share can be expressed as follow.

Estimates of the marketing margins are the best tools to analyze performance of value chain. Marketing margin was calculated by taking the difference between producers and retail prices. The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price to consumers' price. Mathematically, producers' share was expressed as:

$$\textbf{Farmer's share } (\%) = \frac{\textbf{farm gate price}}{\textbf{retailer price}} \times \textbf{100} \text{---------- 3}$$

The above equation tells us that a higher marketing margin, diminishes producers share and vice versa. It also provides an indication of welfare distribution among production and marketing agents.

The producers' margin was calculated as

Figure1

Where, GMM_P- producers GMM

Net Marketing Margin (NMM)

$$\textbf{NMM} = \frac{\textbf{Gross marketing margin} - \textbf{Marketong cost}}{\textbf{End buyer price}} - - - - - - - - \textbf{5}$$

Net Marketing Margin (NMM) is the percentage over the final price earned by the intermediary as his net income once his marketing costs are deducted. The equation tells us that a higher marketing margin diminishes the producer's share and vice-versa. It also provides an indication of welfare distribution among production and marketing agents. The marketing margin was compared with marketing service costs and the results were interpreted. Margins at each stage were calculated and the shares also was compared (implicitly and explicitly costs were studied).

3.4.4 Gender analysis

It examines the value chain roles of men and women were determined and how those roles affect the outcomes being benefited. Although the term gender analysis is often used to refer to studies that look at women, it is not possible to study women's behaviour without considering the broader contexts facing both women and men. Gender analysis examines

how the roles, rights, and responsibilities of men and women interact and how that affects outcomes. In agriculture, gender analysis provides insights into how socially constructed roles and responsibilities shape the countless decisions around agricultural production and processing.

To analyze these various questions about vale chain, data were collected at different of value chain. The first was that much more of the individual level data needs to be sex-disaggregated, which would require that the data collected at the level of the individual, rather than just at the household or farm level, or that data were collected both on the wheat value chain actors. Collecting additional data at the individual level would facilitate not only gender analyses but also a broader range of analyses across individuals based on age, status within the household, and other individual characteristics.

Thus, while the benefits of collecting sex- disaggregated data are critical for gender analysis, they were served a much broader purpose as well. Interviewing have made not only HHH, but also boys, girls women and men each in the household , because the survey was interested in obtaining data on the full range of wheat production and marketing, even consuming in the household. So that interviews were made both the husband and wife to obtain complete information on household labor force and income from wheat value chain in study area. This is in line with (Fisher, et al, 2010). Husbands did not report full information on their wives' incomes. For a smallholder farm, it may not be the case that one person owns the land and makes all of the agricultural decisions, from what to plant to how and where to sell the output. For example, the owner of the land may not be the person who makes the key decisions about what crops to plant (IFPRI,20,13) and the labor force results may be affected by how the questions are asked and to whom they are addressed (Bardasi et al, 2011)

Second, data were needed to analyze how value chain structures and its actors, such as markets for inputs and outputs, credit markets, and labor markets, are experienced differently by men and women and how this has an impact on the well-being of individuals and communities and the processes of value chain development and economic growth. This may used information collected at the community, household, and individual levels on control over resources, decision making, contributions of labor, and so on.

3.4.5. Factors that determine market Supply

It is not possible to include an exhaustive set of variables that could affect the household level marketable supply of the product (Tomek and Robinson 2000). But, in this particular study, an attempt was made to estimate determinants of marketable supply of wheat production in study area. In the course of identifying factors influencing wheat supply, the main task is to analyze which factor influences? Hence, potential variables which are supposed to influence the quantity of wheat supply need to be explained. Accordingly, the main variables were expect to have influence on quantity supply of wheat are explained.

3.4.6 Econometric analysis

In this study, multiple linear regression model was fit (all are wheat producers) to analyze data to generate information about determinants of wheat supply. This model is also selected for its simplicity and practical applicability (Greene, 2000). Based on literatures, the wheat supply model to be estimated in this study was taking the following form. Model is like

$$\mathbf{Y_i = F(x_1, x_2, x_3, x_4 x_5 x_6 x_7 x_8 x_9 x_{10}, X_{11})} \text{ ----------6}$$

Where: Y_i = quantity of wheat supplied

X_1 =Age of respondents

X_2 = Price of wheat

X_3= Experience in wheat production

X_4 = Access to market information

X_5= Access to extension services

X_6= Educational level of household head

X_7= Access to credit

X_8= Number of oxen

X_9= land size

X_{10}= family size

X_{11}= cooperative membership

X_{12}=Gender of respondents

X_{13}=Distance to market

Econometric model specification of supply function in matrix notation is the following.

$Y_i = \alpha + \beta X_1 + \beta x_2 + \beta x_3 + \beta x_4 + \beta x_5 + \beta x_6 + \beta x_7 + \beta x_8 + \beta x_9 + \beta x_{10} + \beta x_{11} + \beta x_{12} + \varepsilon_i$----------7

Where, Y_i= market supply of wheat for each model

X_i =a vector of explanatory variable, and 'i' is 1, 2, 3… n of the above β= coefficient of x_1, x_2, x_3, x_{13}, of the independent variable which are implies importance of variables among significant explanatory variables and it reveals unit change of a significant explanatory variable changes positively or negatively the amount supplied to market and if number explanatory variables added then error term decreases because R^2 near one.

ε_i= unobserved disturbance term

R^2 = show variation of explanatory variables and dependent variable (R^2 is more closure to one or 100% the explanatory variables are more explained dependent variable and remained 1-R^2 or 100%- R^2 % are variability of dependant variables explained by the error term and which are explained by predictors)

When some of the assumptions of the Classical Linear Regression (CLR) model are violated, the parameter estimates of the above model may not be Best Linear Unbiased Estimator (BLUE). Moreover, high multicolinearity may render important variables insignificant. Thus, it is important to check the presence of multicolinearity among the variables that affect supply of wheat in the area.

According to Gujarati, (2003) indicates, multicolinearity refers to a situation where it becomes difficult to identify the separate effect of independent variables on the dependent variable because existing strong relationship among them. In other words, multicolinearity is a situation where explanatory variables are highly correlated.

There are two measures that are often suggested to test the existence of multicolinearity.

These are: Variance Inflation Factor (VIF) for association among the continuous explanatory variables and Contingency Coefficients (CC) for dummy variables.

Thus variance inflation factor (VIF) is used to check multicolinearity of continuous variables. As" $R^{2"}$ increase towards 1, it is a co-linearity of explanatory variables. The larger the value of VIF, the more collinear is the variable X_i. As a rule of thumb if the VIF greater than 10 (this will happen if R^2 is greater than 0.80) the variable is said to be highly collinear (Gujarati, 2003). Multicolinearity of continuous variables can also be tested through Tolerance. Tolerance is 1 if Xi is not correlated with the other explanatory variable, whereas it is zero if it is perfectly related to other explanatory variables. A popular measure of multicolinearity associated with the VIF is defined as

$$\mathbf{VIF\ (X_j) = (1—R^2_j)} \text{ ----------8}$$

Where, R^2_j is the multiple correlation coefficients between explanatory variables,

The larger the value of Rj2 is, the higher the value of VIF (Xj) causing higher co linearity in the variable (Xj). Contingency coefficient is used to check Multicollinearity of discrete variable. It measures the relationship between the raw and column variables of a cross tabulation. The value ranges between 0 - 1, with 0 indicating no association between the raw (but which is not no collations) and column variables and value close to 1 indicating a high degree of association between variables.

To explain farmer's wheat market supplied, continuous and discrete variables were identified based on economic theories and the findings of different empirical.

On the other hand, test for heteroscedasticity have been undertaken for this study. There are a number of test statistics for the detecting heteroscedasticity; According to Guiarati (2003) there is no ground to say that one test statistics of heteroscedasticity is better than the others. Therefore, due to its simplicity, Kroenker-Bessett (KB) test of heteroscedasticity was used for this study.

Similar to other test statistics of heteroscedasticity, KB test is based on the squared residuals $\hat{U}i^2$

However, instead of being regressed on one or more repressors, the squared residuals are regressed on the squared estimated values of the regress and. particularly, if the original model

$$\mathbf{Yi = \beta_0 + \beta_1 \beta X_{1i} + \beta_2 X_{2i} + \cdots \beta_k X_{ki} + ui} \text{ ----------9}$$

Ui is obtained from this mode and then $\hat{U}i^2$ is estimated as $\hat{U}i^2 = a_0 + a_1 \acute{Y}i^2 +$ ui

Where, are the estimated values from the original model?

The null hypothesis is $a_1 =$ zero if this is not rejected one can conclude that there is no heteroscedasticity. The null hypothesis can be tested by the usual t-test or F-test.

3.5 Definitions and Hypothesis of Variables

In order to identify factors influencing wheat marketable supply both continuous and discrete variables will be hypothesized based on economic theories and the findings of different empirical studies. Accordingly, in order to investigate the determinants of market supply, the following variables will be constructed.

Dependent variable:

Quantity supplied (QT_SUPP) in 2013/14: It is a continuous variable that represents the marketable supply of wheat by individual households to the market, which was measured in quintals (qls).

Independent variables: The explanatory variables expected to influence the dependent variable are the following.

Distance to market (MKT_DST): It is a continuous variable measured in Kms. Distance from the market can negatively affect farmers to supply wheat produce to the market. If the farmer is located in distant from the market, he is poorly accessible to the market. The closer to the market the lesser would be the transportation cost and time spent.

Therefore, it is hypothesized that this variable is negatively related to market participation and marketable surplus. A similar study was conducted by Holloway (2002) milk-market development in the Ethiopian highlands. His result indicates that distance-to market causes market surplus to decline.

Price of wheat (PRICE): This is a continuous variable that measured annual average price of wheat in the market. When wheat price is high in the market, farmers are motivated to take their produced to the market. Therefore price is expected to have positive relation with market participation and marketable surplus. The study of Rehima

(2010) on pepper marketing behaviour in Alaba found a significant positive relationship between grain price and the probability of quantities sold

Age of the household head (AGE): Continuous variable. As an individual stays long, he will have better knowledge and will decide to allocate more size of land, produce more and supply more. Aged households are believed to be wise in resource use, and it is expected to have a positive effect on market participation and marketable surplus. However, some studies used proxy variables to identify factors affecting marketable surplus. Tshiunza, 2001 used age as the major farmers' characteristics that significantly affected the proportion of cooking banana planted for market. He found that younger farmers tended to produce and sale more cooking banana for market than older farmers.

Experience of the HH (EXPNCE): This is a continuous variable measured in number of years. A household with better experience in wheat farming is expected to produce more amounts of wheat than the one with only less experience and, as a result, he/she is expected to supply more amounts of wheat to market. Farmers with longer farming experience are expected to be more knowledgeable and skilful Abraham (2013), (Ayelech, 2011).Therefore, this variable is hypothesized to positively influence Wheat marketable surplus.

Poor Access to Market Information (MKT_INFO): This is a dummy variable if get poor information it is 1 but if they have better access is 0. The poor information farmers have the more likely they not supply wheat to the market. Farmers marketing decisions are based on market price information, and poorly integrated markets may communicate incorrect price information, leading to inefficient product movement. Therefore, it is hypothesized that market information is negatively related to production and marketable surplus. Awol (2010) found that poorly integrated market information is negatively related to market participation and marketable surplus

Access to extension (EXT_SRV)): It is a dummy variable and it takes 1 when yes and 0 no. An extension service is assumed to have positive contribution to farm marketable supply of wheat. Those farmers who have frequent contact with extension workers are more likely to know the advantage of cash crop production like wheat. Therefore contact with extension agent is assumed to have positive relation with wheat production and volume of marketable surplus.

Education of household head (EDU_LEV): it is continuous variable and refers to the schooling of a respondent. Those household heads who are educated, ready to accept new ideas and innovations, and easy to get supply, demand and price information and this enhances farmers' willingness to produce more and increase volume of supplies. Therefore, education will be hypothesized to positively influence market participation and marketable surplus. It also broadens farmers' intelligence and enables them to perform the farming activities intelligently, accurately and efficiently. Moreover, better educated farmers tend to be more innovative and are therefore more likely to adopt the marketing systems (Abraham, 2013**)**

Access to credit (CRED_ACC): This is a dummy variable and it takes for yes 1 and otherwise 0.Access to credit would enhance the financial capacity of the farmer to purchase the necessary inputs and increases output. Therefore, access to credit has positive influence on volume of wheat supply.

Land Size (Land) (FARMSIZE): it is continuous variable. This refers to the total area of land that a farm household owned in hectares. In agriculture, land is one of the major factors of production. The availability of land enables the owner to earn more agricultural output which in turn increases the marketable supply Therefore, land holding and marketable supply are expected to have direct relationship.

Productive Age Family Size (Family) (FAM_SIZE): Family size of a respondent is a continuous variable measured in terms of number of family members in the household. As wheat production is labour intensive activity, wheat production in general and market supply of wheat products in particular is a function of labour.

Accordingly, families with more household members tend to have more labor which in turn increase wheat production and then increase wheat market supply. On the other hand, family size also decreases market supply because high proportion of the product would be used for consumption. But for this study family size was expected to influence positively the volume of wheat supply to the market. Gezahagn (2010) found that family size have positive effect on the households' gross income from groundnut production.

Numbers of Oxen (NO_OXEN) - it is continuous variable which is measured by number of Oxen a hhh has. It has great role farmers' special small farmers to prepare land and cultivation of land, because a hhh has 1 Ox ploughs his or her land not more than four

times but other who has 2 and more Oxen or pair oxen cultivates/ploughed/ at least five and six time which is a great importance in wheat production and mainly supply of wheat to the market.

Cooperative members (Coopmr): It is binary variable and takes the value of 1 if the household is member of cooperatives, otherwise 0. Cooperative has great role in helping members during input supplying and output collecting at better price and market information. Therefore, it is expected to be allied with wheat market supply.

Sex of the household head (SEX): This is dummy variable that takes a value of 1 if the household head is male and 0 otherwise. Both men and women participate in wheat production. Male households have been observed to have a better tendency than female household in wheat production and supply of it to the market due to obstacles such as lack of capital, small land plot, better mobility, some activities need heavy physical work, and access to credit and extension services.

Assefa Abebe (2009) and Abraham (2013) discussed the determinants of market production of beeswax and honey and vegetables in wemberta and Habro and Kombolcha district respectively. In their study the male farmers tended to produce more cooking banana for market than female farmers.

Table 5 Description of dependent and independent variables used in econometric model

Variables	Description	Measurement	Sign	Types
Price	Price of wheat	in birr	+	Continuous
Edu_lev	Education of household head	grade they learned	+	Continuous
Age	Age of the household head	in number	+	Continuous
No_oxen	Numbers of oxen	in number	+	Continuous
Farmlysize	number of family	in number	+	Continuous
land-size	Land respondents have	in hectare	+	Continuous
Mkt_dst	Respondents distant to market	in kilometer	+	Continuous
Expnce	Experience of the respondents	in year	+	Continuous
Mrkt_info	Market information	yes=1,no=0	-(1)	Dummy
Cred_acc	Access to credit respondents	yes=1,no=0	+(1)	Dummy
EXT_SRV	Access to extension and training	yes=1,No=0	+(1)	Dummy
Coop	cooperative membership	yes=1,No=0	+	Dummy
Gender	Gender of respondents	male=1,female=0	+	Dummy

4. RESULTS AND DISCUSSION

This chapter summarizes the major findings of the study in relation to addressing the objectives of the study via different statistics. Like descriptive statistics, value chain and econometric analysis were used to analyze the primary data. Descriptive statistics were employed to describe the demographic characteristics of sample value chain actors and gender roles and benefit sharing. Moreover, the cost, profit and value addition of wheat, production, marketing and support services, market margins to measure the performance of wheat value chain actors. Econometric analysis was used to identify determinates of wheat supplied to market and unit change of each variable on dependant variable and to rank importance of significant explanatory variables to supply wheat to the market.

4.1 Results of Descriptive statistics

4.1.1 Demographic characteristics of sample households of producers

Demographic and socioeconomic characteristics of the sample respondents have been explained in the following tables demographic data needed are sex, age, education level, marital status, and relationship to household head or respondent for each of these people.

All of these characteristics may affect the roles that the individual plays in wheat production. From table5 reveals that the total sample size of producers respondents handled during the survey was 138 and out of the total sample respondents, 65.9% were male-headed households and only 34.1% were female-headed.

Therefore, from this information we can't justified that 65.9% and 34.1% of men and women respectively have labor division, access to , control of, decision making and other benefits from the wheat value chain, but it is simply sampled householeads. With regards to age, the Average household heads age was 50.5 years in Woredas, from this house hold heads maximum 5.8% were 55 and 61 and minimum 0.7% were 26 ,28,30,32,37,41,62,66,73,and 75 years old.

When come to marital states of the sample respondents 99.3% were married (137 persons) and 0.7% was unmarried (one person). Marital status may affect one's status within the community and one's access to both land and social networks. Women who are divorced, in particular, may have less access to a variety of resources, especially land. It may also

enclose how decisions are made within the household; even when women are considered as the farmer, their role as decision makers may vary, depending on whether they are married. So 99.3percent not affected their status by divorcing and widows

Table 6 Demographic characteristics of samples (categorical variables)

Variables		Frequency	Percent (%)
Sex	Male	91	65.9
	Women	47	34.1
Total		138	100
Marital states	Single	1	0.7
	Married	137	99.3
	Unmarried	-	-
	Divorced	-	-
Total		138	100.00

Source; own survey results, 2015

Table7 shows households head with regard to distance and land holding, so 23.9%, 36.9% and 39.1% sampled respondent households head were distant from 1-2.9km, 3-4km and 5-7.9km respectively to the woreda market. Whereas land allocated for wheat production based on their total number of hectares of land holding 22.5%, 29.0% and 48.5% have less than one , one and two hectares respectively. It ranges from 0.5ha-2ha with an average of 1.25ha per household heads

Table 7 Demographic characteristics of sample respondents (continuous variables)**.**

Variables	**N**	**Range**	**Mean**	**Std.Deviation**
Education level	138	12.0	6	2.8265
Year in production	138	43.0	14	9.8778
Age	138	47	50	10.795
Family size	138	9.00	5	1.56412
Distance to market	143	6.0	5.031	2.0643
Land allocated	138	1	1.63	.484

Source; own survey results, 2015

Table7 reveals that human recourse development is very critical task for wheat production and its supply to the market, those why more educated house head holds were produce more and supply better than others sampled respondents and accept new ideas, innovations and decision making. More educated farmers are expected to adopt new technologies to increase their land, productivity, and supply to the market. On average respondents were grade six educated and diploma holder also there. The rest of the respondents attended from grade nine to twelve Schools.

Family size ranges from two (2) to eleven (11) and average family size in household was five, also majority of households has five and six family size (25.4% and 23.9% respectively) table7. Agriculture is so much labor intensive activities in small holder farmers and non-machinery farming. So who has/have more labor producers can produce and supply timely than less labor force

Table 8 Households major means of income generation farms and its importance rank

Farms of income generation	Frequency	Percent	Rank	%of items for each rank							
				1	2	3	4	5	6	7	Total
Coffee production	132	95.7	7	-	0.7	-	1.4	0.7	1.4	95.7	100
Fruit production	90	65.2	5	-	-	-	1.4	65.3	32.6	0.7	100
Grain production	136	98.6	1	98.6	0.7	0.7	-	-	-		100
Inset production	59	42.8	3	-	26.8	42.8	22.5	6.5	1.4	-	100
Kyat pro and trading	84	60.9	6	1.4	5.8	13.8	8	7.2	60.9	2.9	100
Livestock	94	68.1	4	-	2.9	14.5	68.1	11.6	2.9	-	100
Vegetable productions	116	84.1	2	0.7	84.1	5.1	4.3	5.1 -		07	100

Sources; own survey results, 2015

Farming system of the study area is mixed farming and all of the actors who were functioning wheat production were small holder farmers. The respondents largely rely on different means of income generation agricultural product's activities, like production of grain, vegetables, inset, livestock, fruit ,kyat and coffee, while almost all have ranked grain first (98.6%,136 respondents) and coffee seventh or least as a means of income generation(table7). When come to inset, it is third as income generation, even if it was third ranked, it is habitual food products.

The survey results reveals (table8) that sources of the wheat production households were used family (10.6%), hired (8%), exchange (1.4) and cooperation (1.8) labor forces , 76.2% were used all the above sources of labor force. When come to seed used for input, improved (7.2%), local (1.4%), while the remained all used both (91.3). The respondents there were getting wheat market information largely from their neighbours (41.3%) and market visit (39.9%), but only one respondent have been getting from TV (0.7%).

With regard to access to advisory services and trainings provided by DAs (73.4%), RC (49%), WADO Experts (7.7%) and NGO (SOS) (10.5%).

Table 9Demographic characteristics of sample (dummy variables)

Variables and its sources		Frequency	Percent
Source of market information	Radio	5	3.5
	Cooperatives	16	11.2
	Market visit	57	39.9
	Neighbour	59	41.3
	Television	1	.7
Seed used	Improved	10	7.2
	Both	126	91.3
	Local	2	1.4
Extension services and training	Das	105	73.4
	NGOs	15	10.5
	Research centers	7	4.9
	Woreda ADO experts	11	7.7
	Family labor	13	10.6
Source of labor	Labor exchange	2	1.4
	Hired labor	10	8.0
	Cooperation	4	1.8
	All	109	76.2
	Total	138	100%

Source own survey 2015

4.1.2 Demographic characteristics of sample households of traders

The demographic characteristics of traders and processors summarized in terms of age, sex, marital status and education level, (Table9). The age (figu11) of traders ranged from 28 to 60 with an average age of 44 years old. The survey result indicates that, mass of the sampled wheat and its products traders were males (74.3%) while women were (25.7%).

With regard to marital status of the respondents about 85.7% of them were married but other actors or traders were 14.3% single. In addition, 20 consumers from the nearby towns were included in the study. Moreover, 3 support providers‟ officials (MFI, Agriculture, and cooperative sectors) were interviewed.

Table 10Gender of traders

Gender of traders	Marital status		Total
	Single	Married	
men	5	29	34
women	5	16	21
Total	10	45	55

Source; own computation, 2015

The skill and knowledge dimensions of traders (App table35), all traders were attended formal education and five of them were diploma and one bachelor degree holder. Table shows that women (4) better has been participated in retailer's and collector's(3) stages of value chain than wholesaler's(1) and processor's(1) stage of trader or actors due to high capital capacity during entering

4.2 Value chain analysis

4.2.1 Map and role of each actor in wheat value chain

Bread Wheat (Triticum aestivum) is one of the world's most important cereal crop, mainly produced for sale and consumption are required which can meet the diversified needs of the wheat consumers as well as the needs of wheat processing industries.

A value chain map illustrates the way the product flows from raw material to end markets and indicates how the industry functions and it is about drawing a preliminary visual representation of the structure of the wheat value chain and detecting its main characteristics.

Figure 2wheat value chain map and products flow

Where;

Channel of processed products
Channel of wheat grain/unprocessed
Channel of fixed price marketing (imported wheat)
Channel of by-product
Flow of information along the wheat value chain

Source: own survey results, 2015

Figure 3Wheat market channels

According to figure(2) the main receivers from producers were collectors, wholesalers, processors, multipurpose cooperatives and consumers with a calculated percentage share of 50 %,25% ,10%, 10% and ,5% respectively

4.2.2. Actors and their role in wheat value chain

The above value chain map decorated the involvement of different actors who are participated directly or indirectly in the wheat value chain. According to KIT et al. (2006, by cited Abraham (2012) page (53)), the direct actors are those involved in commercial activities in the chain (input suppliers, producers, traders, consumers) and support services are those that provide financial or non-financial support services, such as credit agencies, business service providers, government, NGOs, cooperatives, researchers and extension agents**.**

4.2.2.1 Wheat value chain actors

These are actors who participate in wheat value chain directly by input supplying, producing, trading, processing, retailing and consuming. Each of these actors adds value in the process of changing product title. Some activities or roles are performed by actors discussed as following.

Input supply: these are marketing actors who participate largely in providing inputs for production of wheat. At this stage of the wheat value chain, there is at least more than one actor who is involved in wheat production input supply in the study area. Those are cooperatives, and farmers themselves, research centre, and NGOs (SOS) are the main source of input supply. From such actors Agricultural development office and department, Research centre, and multipurpose cooperative responsible to supply agricultural inputs like improved seed varieties, fertilizers, herbicides, pesticides and equipments which are essential inputs at production and stage (land preparation, ploughing, sawing and harvest time, like) while SOS providing farm equipments. More than half of the sample producers (60.9percent) get from their own and research centre (Table 11). Table11 regarding improved variety and local seed, some farmers used only; local and improved seed variety were 1.4percent and 7.3percent respectively. While some farmers used both improved and local seed 91.3percent depending on the soil fertility and experience status as perceived by the farmers. Pesticides are supplied mostly by private salespersons last 12 months, but currently government are supplying it.

Table 11 Sample respondents input/seed getting sources

Sources/ suppliers	Frequency	Percent
Own seed	6	4.3
Research centre	24	17.4
Own and Research centre	84	60.9
Cooperatives	12	8.7
Relatives/other farmers	12	8.7
Total	138	100

Table 12Respondents of producers used wheat variety during wheat production

Variety	Frequency	Percent
Improved	10	7.3
Local	2	1.4
Both	126	91.3
Other	-	-
Total	138	100

Producers: the next direct wheat value chain actors following input suppliers are wheat producers. They are most largely participate than other actors, all were smallholder farmers and they are the key actors who are directly involved in wheat production activities, having different land size with an average land holding of only 1.5ha per household (Table 13). They perform most of the value chain functions right from farm inputs preparation on their farms to post harvest handling and marketing. The major value chain functions that wheat producers perform include supplying seed, land preparation, sawing/planting/, weeding, pest/disease], harvesting, threshing and post-harvest handling, sacking and marketing.

Table 13Respondents of household heads average land holding size

Items	Frequency	Percent
<1hec	31	22.5
1hec	40	29.0
2hec	67	48.5
Tot	138	100%

N	Minimum	Mean	Maximum
land in hectare	1	1.5	2

Source; own survey results, 2015

Wheat production in the study area was based on rained system and they were producing once a year. Regarding to volume of production on average 38 quintal and total of 5244 quintal were produced from these volume supplied on average 26.5 quintal , consumed 11.8qt, for seed 1, other 2.5, losses after tally in different cases on average 3.5qt (table14). From table19 69.7percent out of total produced wheat grain were supplied on market. Whereas losses, there were before and after tally of grain in sacks, for example as forwarded in FGD losses before counted in sacks (during sacking, storing in local storage, eaten by livestock, transportation etc losses in the field, during threshing place hiding into grasses so on). The average price of wheat grain they sold was 8.5birr in last 12 months.

Table 14Sampled households wheat grain volume of production, supplied, consumed and losses

Wheat volume in Qt	N	Mini	Mean	Max	Total	Percent
Produced	138	12	38	78	5244	100
Supplied	138	3	26.5	50	3657	69.7
Consumed	138	1	4.5	8	621	11.8
Used for seed	138	0	1	2	138	2.7
For others	138	0	2.5	5	345	6.6
Losses after tally	138	1	3.5	6	483	9.2
Price of a qt	138	7	8.5	10		

Table15 show that majority (73.4percent) of sampled producers were get extension and advisory services from development agents and by small level (10.5percent) also get from woreda agricultural development experts about production, harvesting and like, but they

were not gave that much about marketing of wheat to the market. Agricultural extension services are expected to have direct sway/influence on the production and marketing behaviour of the farmers. The higher access to the extension service, the more likely that farmers adopt new technology and innovation. To this end, the government has been attempting to fill the required knowledge and achieve food self sufficiency in the country by placing in each Kebele administration three development agents (DAs) and building a farmer training centre. Inline this (Mohammed,2011) table15show that majority (73.4percent) of sampled producers were get extension and advisory services from development agents and by small level (10.5percent) also get from woreda agricultural development experts about production, harvesting and like, but they were not gave that much about marketing of wheat to the market.

Table 15 Provider of the advisory services to producers

Sources	**Frequency**	**Valid Percent**
Development agents	105	73.4
NGOs (SOS)	11	7.7
Research centers	7	4.9
Woreda ADO experts	15	10.5
Total	**143**	**100.0**

The amount of marketable surplus primarily depends on access to market information and the willingness and ability of farmers to use the information. It is assumed that producers and traders with access to market information can make better decision on when to produce and how much to produce and market. However, there was no organized market information system to support farmers in the study area accessible. Based on figure1 about 41percent of wheat producing sample households revealed that they received the price information of neighbours before they sold their product. About 39.9percent, 11.2percent, 3.5 and 0.7percent of wheat producers had obtained price information from their neighbours, the market visit, cooperatives, radio and TV respectively before selling their produce.

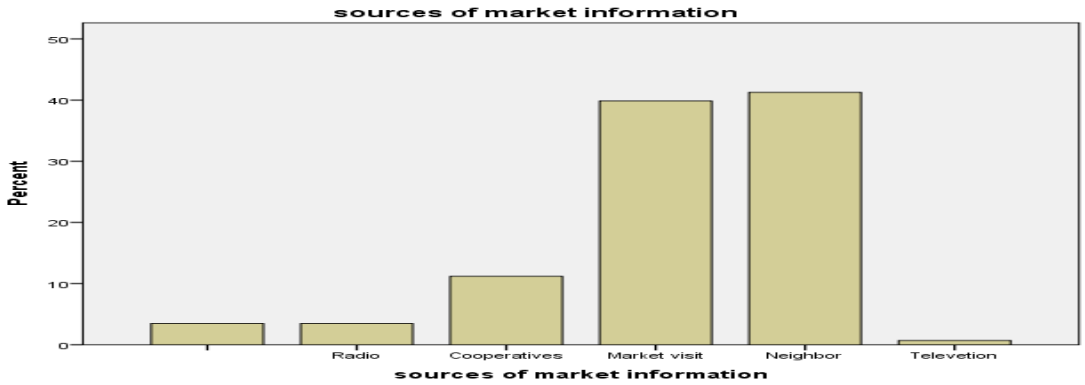


Figure 4 source of market information

According to appendix figure6 producers sell wheat grain to different traders/actors. About 17.4%, 58.7%, 10.4%, 9.4% and 3.6% wheat sold to consumers/farmers, collectors, cooperatives, wholesalers and processors respectively.

Assembly: They are traders in assembly markets who collect grain from producers in district markets and retailers of raw wheat. They use their financial resources and their local knowledge to simplify transaction during buying. They play on important role and they do know areas of surplus, and season of supply. Collectors are the key actors in the wheat value chain, responsible for the trading of wheat, from district (production) areas to wholesale and processors markets in the study areas. The trading activities of collectors include buying and assembling, repacking, sorting, transporting and selling to next traders/actors. Smaller actors in a value chain face problems often more forcefully than bigger actors. Limited resources and capacity make it difficult for small actors to become suppliers to larger actors, compete in value chains and enter higher-value markets. While large actors/firms can often use their bargaining power in their supply chain, small ones need to follow the decisions taken by others. Often they have no other choice than to accept prices or product requirements that are given by a buyer.

Cooperatives are also one of actors which act as collectors, and it an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise." Cooperatives can be formed by any group of actors, for example, farmers, wholesalers, retailers or workers or a combination of them (Coop Africa). These are multipurpose cooperative associations that supply agricultural inputs to farmers in time of production and buy farmers' agricultural output at harvest. When come to study area what all cooperatives have common is that they are owned and controlled by their members.

The cooperative must balance between serving its members and satisfying customers. As social venture they have obligation to social functions. Profits generated by the cooperative are democratically decided how they should be used or they can be distributed to its members. Cooperatives have often formulated and created a strong sense of belonging among their members (ILO, 2010). In the study area there are five multipurpose cooperatives and they were collect wheat, store, repack, transport and sell to flour union (Licha flour factories).

Wholesalers: they were located in district and urban markets and are major market participants of value chain who usually market larger wheat volume than any other actors in the value chain and resell the grain to processors and some other merchants (ultimate customers). The number of employees, initial capital (all were greater than or equal to medium scale level), volumes of stored grain greater than that of assembled collectors had, because they bought from sources of producers and collectors then, put together in one place (store) to be supplied to processors and shipped to the deficit fatal markets (Worabe, Dilla,) for sale directly themselves. Some activities they did are purchasing, packaging, transport, store and sell

Importer: Following the problem of wheat shortage in the local market, the government bought 6,869,958 quintals of milling wheat from Ukraine for 500Br per quintal, and spent total of 3.4 billion Br in 2014, government had imported 6,869,958 quintals nationally, of also purchased from this, SNNP region receipt 1,233,099 quintals (18%), of wheat is stored at Hawassa, Shashemane and Sodo town warehouses. The cost of the wheat to the government, including transport, is 776 Br, said Biruk, state minister for trade. The government sells this to the factories at a subsidized price of 560 Br a quintal.

The factories make 73kg of flour from a quintal of wheat, according to Abraham Worku, licensing and marketing core process coordinator, which they sell to bakeries for 796 Br. The distribution of wheat place warehouses at each regional capital every 30 days. Factories which are a good capital have, VAT registered, long time planted, tone of flour milled a day were selected while bakeries also vat registered and have bread beam balance(100kg,200kg and300kg bread). Then these factories supply flour to bakeries identified by the Trade and industry bureaus, department and office, Ethiopian food, drug and health administration and controlling authority. Monthly distribution of wheat to flour

factories were 2352 qls which has 960 qls flour milling capacity machine and 1519 qls for 600qls producing machine.

Processor: These are six private factories and cooperatives/union long time established in Hossaena town. They purchase wheat from different sources (very small amount from producers, some amount from collectors, large from wholesalers and in fixed price from importers or government) and woredas in the Hadiya zone also varies areas of the SNNP region, because all of these wheat supplied by Hadiya zone's woredas including study area couldn't balanced their demand.

Wheat intake and pre-cleaning: the major operations are clearance, weighting, pre-cleaning and transmitting to storage silos or transferring to the working throw away of the cleaning room.

Wheat cleaning and preparation: it is weighing, transmission, destining, impurity separation, ferromagnetic separation, scouring, aspiration, dampening, tempering.

Milling; it is one of the core activities processors did and the millers powder the wheat into flour and wheat bran. The flour goes into the industry while wheat bran is used mainly in animal feed manufacturing. Out of one quintal of wheat grain 73%, 23% and 2% were flour, bran and useless powder respectively. Specific activities done are weighing, breaking open, scalping, scratching, detaching, sifting, purifying, milling (grounding), resifting.

Packing and dispatching; activities here are collection of flour streams and bran, mixing and aerating, resifting, packing, sewing, loading and dispatching. The flour factory requires both operational and administrative human resources than other actors.

Licha flour factory union. It is oldest cooperative/ union in southern region even in a nation. Union has triple actor roles in wheat value chain (being input supply, processors and retailers). It purchases wheat from farmers and multipurpose cooperatives of woredas in Hadiya zone including the study area.

Retailers; They are the last link between producers and consumers. They mostly buy from processors and sell to urban consumers and local consumers. They sell either in the form of flour and/or bread after they bake it. Baking firms; are highly decentralized with several retailers throughout urban and local areas. Major bakeries were in-house bakeries in

supermarkets, restaurants and hotels. Households also buy flour for home baking**.** They produced breads in the preference of consumers with different grams like 100grams, 200grams, and 3000grams then sell it based on numbers of grams level by setting price.

Consumers; there are the end user of wheat and its products. Wheat is produced mainly for human consumption with only small quantities of poorer quality wheat marketed as stock and born to livestock feed

Products from wheat such as flour, bread and other sweet products are consumed by mainly urban and local households and other consumers such as hotel, restaurants customers etc through the numerous actors but mostly retailers outlets. Wheat bran, a wheat milling by product, is used for manufacturing livestock feed. Consumers said during survey bread our much-loved, not seasonal and ordinary food spherically at breakfast. Bread is gradually becoming an important source of carbohydrates for most house-holds especially urban families. Bread is substituting maize meal and other sources of carbohydrates such as rice and potatoes (J Mutambara, A P Zvinavashe & E Mwakiwa, 2013).

4.2.2.2 Service providers

Table 16The key service providers for wheat in the study area

Supporters	Main support in	Actors which benefit
Agricultural dev't office	Extension and training services	Producers
Cooperatives	Input supplying	Producers, unions, consumers
Research centre	Input and technology supplying	Producers
Microfinance	Credit accessing	Producers, collectors and retailers
Ngo/SOS	Input and material helping(farm equipment)	Producers
Trade and industry	Licensing, training, controlling and setting price	Except Producers, all
Banks	Lending and keeping	Wholesalers and processors
Municipality	Land accessing	Collectors, wholesalers, importers, processors
EGTE	Supplying and distributing wheat	Processors , retailers and consumers
EFDHACA	Evaluating and controlling health	Processors, retailers and consumers

Source: Own survey results,2015.

Support service providers are vital for value chain development and they are acting as input and equipment providers, financial services, extension training and services, technology suppliers, advisory service, etc. The key support providers for wheat in the study area are pictorially giving a picture of in figure4 and table18. Some service providers extend service beyond one function and others are limited to a specific function.

4.3 Value chain performance

One of the core activities in undertaking value chain analysis is to measure the performance of the chain in order to know the venture required to increase the competitiveness and sustainability of the value chain and measure the distribution of the value chain benefit. Cost and margin are key indicators of value chain performance. Wheat value chain actors that have cost incurred and benefits gained during production, trading and processing of wheat grain and its product. Consequently from the survey results researcher tried to evaluated wheat value chain performance in two classes (table16and17) based on their firm function similarities like producer's and trader's value chain performance.

4.3.1 Producer's production costs and profit last twelve months of the survey (2015).

Producer's costs; costs which incurred for input buying, opportunity cost of land, opportunity cost for labour (it is the income the family member would lose by not hiring himself or herself out to carry an activities on someone else's farm and in its place doing the same activities on his or her own farm), cleaning and transport to home, packing, marketing, physical losses and others like transaction costs last 12 months.

Table16 reveals that the most cost incurred from all variables and fixed costs were land rent (29%) and wheat production input purchased (23.7%). Regarding to the profitability of the production amount of value added or margin is 131birr/qt which account for 12percent share of value added per qt by these actors (figure7). As can be understood from appendix figure10 81.3percent of farmers were price taker (price stetted by buyers) especially at harvest time which was majority of producers they supply wheat to the market, so that the value is somewhat buyer-driven. So they were dominated by traders even if they were participated in value addition along the wheat value chain, because they were fewer linkages with the market than traders.

Table 17Marketing margin of Producers

Activities	Unit	Quantity	Costs (birr/ha)	Share of cost (%)
Input cost				
0pportunity cost of land	Hect	1	8000	29
Seed (local improved)	Kg	200	2500	9
Fertilizer (DAP & Urea)	Kg	200	6500	24
Chemicals	Litre	1	450	2
opportunity of Labor				
Land preparation	Man-days	24	840	3
Ploughing and sawing	Pair Oxen days	24	600	2
Weeding	Chemicals-litre	1	450	2
Harvesting, threshing and winnowing	Man-days	30	1800	7
Transporting and cleaning	Man-days	10	1000	4
Packaging	Socks	38	266	1
Marketing	Man-days		60	0
Transport cost	Donkay-qnt	30	600	2
Tax	Birr-hect	1	60	0.0
Loss	Qnt	2	1700	6
Other costs	Birr		2500	9
Total cost			27326	100
Total cost/Qnt	Bir719			
sells price	Birr 850			
Revenue	850*26.5Birr=22525			

value added V	Birr 131
% value added = V/TVA*100	12%

Source; own survey computation 2015

4.3.2 Collectors' costs and benefits

The result of table17 shows that collectors of wheat value chain in the study area during the survey period earned attained a margin of 80Birr per quintal of wheat. This signifies that the performance of value chain of wheat collectors for the specified last 12 months was showing positive numeral. From this table also gives us an idea about, other costs like costs losses which were the biggest cost charged than other cost types during the operation takes in the chain. Collectors were participated by packaging, storing, sorting, transporting and others activities in order to add value on the commodity. According to figure7 there was 7 percent share of value added during last 12 months in the study area. Therefore wheat value chain is profitable venture to the collectors. The breakeven point tells us the collectors 0.045 qt or 4.5kg of wheat have to sell before they start making profit and they were the least from all in value addition but better linkages than producers to the market.

Table 18Trader costs and value of wheat value chain

Item of costs	Collectors	Wholesalers	processors	Retailers
Purchase price/in birr per ql.	850	1000	1350	2100
Marketing				
• Loading/unloading	6	7	8	4
• Transport	-	15	10	10
• Utilities	-	-	0.2	-
Daily labor cost	-	-	72(24*3)	-
Materials / packing	9	9	30	7
Depreciation				
• Tax	2	8	16	--
• Building	0.50	0.07	2.6	1.67
• Wage/permanent	0.4	1.95	0.52	2
Total fixed cost	2.9	10.02	19.12	3.67
Losses%	5%= 42.5	10%=85	12%=162	1%= 21
Others(Transaction--) costs	10	25	100	10
Total cost	920	1151.25	1751.32	2155.67
Selling prices	1000	1350	2100	2500
value added V	80	198.75	348.68	344.33
%of value added V/TVA100	=7	= 18	= 32	=31
Break even pot=FC/P-VC	0.041	0.056	0.052	0.011

Source; own survey results 2015.

.

Figure 5Value chain margins summary

Source; own survey results 2015

4.3.3 Wholesaler's costs and benefits

Table20 shows in relation to cost of operation of wholesalers, physical and volume losses of grain are highest (85Birr per Qnt) and the breakeven point is 0.056 qt which is amount of wheat in quintal wholesalers have to sell before start making profits. Wholesalers carry out to add value in the wheat value chain in the study area under taking such activities like better storing, good packing, grading (based on quality, volume, type), handling, transporting and so on. As we know all this activities were done by money which is costs to facilitate the trade. With regard to the performance of wholesalers' in the value chain was active and competitive actor in the wheat value chain being profitable (198.75Birr per qt) during 2014 in the study area. Again from figure7 we can say that wholesalers were percentage share of value added was 18 and which makes them third rank in percent of value added in the wheat value chain in the study area for last twelve months.

4.3.4 Costs and profits of processors during processing and trading activities in 2014

Processors were also very activate value chain actors in adding values by doing varies tasks like, Wheat Intake and Pre-Cleaning, Wheat Cleaning and preparation, Milling, and Packing and Dispatching while all this charges money. From table22 we can say that 162Birr and 72Birr are highest cost incurred per quintal and processors of the study area

during the survey period were obtained a margin 348.68 per Qnt wheat flour and 32% of value added which is highest value added along the value chain in the study area during 2014 year and 0.045 qt or 4.5kg of wheat have to sell before they start making profit (breakeven point of processors).

This indicates that the performance of processors in the value chain for the particular year 2014 was showing positive figure, whereas the amount of percent of value added per Qnt was highest than all the actors. This makes processors the dominant value chain actors play facilitation role.

4.3.5 Costs and benefits of retailers

With regard to cost of operation, transport and transactions costs are the second highest next to costs of losses (table22) and this table also indicates that value added Birr 344.33 per Qnt and percent share of value added is 32percent to the wheat value chain development of the sample bread retailer's found in the sample markets, so it was a performed the chain positively. Retailers are second rank in value added and percentage share of value added along the value chain.

4.3.6 Wheat value chain governance

The dominant value chain actors play facilitation role. They determine the flow of commodities and level of prices. In effect they govern the value chain and most other chain actors subscribe to the rules set in the marketing process. The assessment made indicates that the processors are the key value chain governors. They have sufficient information about the supply of wheat and / flour and which direction it flows along the marketing channels and markets in different parts of the country since they closely work with many local traders and consumers. They also set prices and influence local traders and producers. It is known that value chains classified into two based on the governance structures: buyer-driven value chain, and producer-driven value chains (Kaplinisky and Morris, 2000). The study shows that during study period, wheat value chain was buyer-driven value chain because it was usually labor intensive firms, traders specially processors undertake the lead coordination activities and influence product specifications. There is no vertical linkage between value chain actors but there is horizontal linkage between traders. In some cases, there are conflicts among the traders regarding payment and failure to keep their commitment. Overall, the governance of the wheat value chain is buyer driven with minimum trust between various actors. Traders are always blaming that the farmers are not providing quality product while farmers are complaining the traders for cheating weighting and offering low prices. The smallholder farmers are not organized and governing the value chain. Hence, they are price takers and hardly negotiate the price due to debt returning at the time of agreement if not repayment would be includes interest. Going beyond the quantitative data of costs and margin of processors to do, this is access to market information because they have better linkages with market (wheat supplier and flour demand) than other actors.

4.4 Synopses of gender roles and benefit sharing along the wheat value chain

Value chains are embedded in a social context and the functions of the chain actors cannot be isolated from the gender roles and relations in the larger society (Deborah R. and Cristina M, 2012), so that it should goes to addressing gender issues within value chain analysis recognizes first, it is right to property and second sustainability and competitiveness of business. Gender roles and benefit sharing outlined at producers, traders and processors stage of wheat value chain in the study area.

4.4.1 Overview of gender functions and benefits sharing in wheat production.

4.4.1.1 Gender Access and control resources and services for wheat production

Extension services and training, credit and market information are very essential elements to produce and supply to the market or value addition which are presented in Table18. The minimum and maximum number of land in hectare to produce wheat via both women and men is 0.75 and 2 respectively. Table18 shows that total sampled women were 47, from this more than half of (27women) and less than half of women have 0.75 and one to two hectare of land respectively accessing and controlling to produce wheat. Unlike to women out of 91 men sampled respondents more than half of them have one to two hectare of land used to produce wheat in the area. From this we say that the number of sampled respondents larger numbers of men have one up to two hectare of land while larger numbers of women have 0.75land in hectare during wheat production last 12 months ago in the study area. The same sheet also in, information received about wheat market, credit borrowed to purchase input and extension services and training contacts with either DAs or other concerning body/organization to get knowledge and build their skill in technology and its usage greater numbers of men counterpart are advantaged than women (table18), but the variation is not that much exaggerated at FHHH and MHHH while exaggerated on mate one. Extension is often provided by men agents to men farmers on the erroneous assumption that the message will drop "across" to women. In fact, wheat production and marketing knowledge is transferred inefficiently or not at all from husband to wife. Also, the message tends to ignore the unique workload, and responsibilities facing women farmers. Women farm smaller and more dispersed plots than men and are less likely to hold title, secure tenure, or the same rights to use, improve, or arrange of land.

Table 19Gender access and control land, market information, credit and advisory training

Crosstab				
% Within gender		Men	Women	Total
Access to credit	Yes	82.4$_a$	70.$_a$	78.30
	No	17.6$_a$	29.8$_a$	21.70
Access to Mrkt_info	Yes	94.$_a$	91.7$_a$	93.30
	No	6.0$_a$	8.3$_a$	6.70
Advisory and training	Yes	98.9$_a$	97.9$_a$	98.60
	No	1.1$_a$	2.$_a$	1.40
	Total	100.00	100.00	100.00
Land holding	<.75hec	31	20f	91f
	1-2hec	60f	27f	47f
Each subscript letter (a) denotes a subset of gender categories whose				138=N
Column proportions do not differ significantly from each other at the .05 level. Subscript letter "f" frequency of gender & sample size				

4.4.1.2 Labor design and decision making of gender

It is known that women's work often takes place in the valued parts of home-based workers or informal workers more generally. Women have a tendency to be underpaid and their tasks are less secure in wheat production and are often not visible, while they do a large part of the wheat value chain activities. The allotment of wheat production tasks and income sharing between women and men vary according to, the farming system, the technology used, educational level and the wealth of the household (FGD) on wheat production in the study area, but the majority of households on wheat production activities are almost the same which is done by men's and women's task.

Table19 reveals that productive roles activities like ploughing, sowing, herbicide spraying, protecting from livestock, harvesting (locally mached), winnowing are more done by men while women more hours per day than men and boys did activities are land preparation and carrying wheat with straw to the threshing place (awdema) during 2013/14 in the study area. From this above men's activities like ploughing, sowing, herbicide spraying and winnowing are done by men and boys not only more than women and girls but also fully which is agreed with all sampled respondents wheat production value chain stage.

Women and men were equally participated hour/s per day activities in wheat production are threshing and feeding livestock (7hrs per day).

The overall and average time of working hours during wheat production period men and women in the second stage of wheat value chain is 70hrs and 39.3 hrs respectively in productive roles. With regard to reproductive roles it is more qualitative, unseasonal, unplayable, and forceful to do the productive roles which is always done by women but men's participation was activated at the time of their wives and or daughters/sisters in poor health unless always done by women jointly with girls. This is true for female headed and male headed households.

"Even if, average work hours per wheat production period of Women in production was 39.30hrs, they are busy up to sleep, thus they work for between 14–16hours per day and 1/5 of which is spent on unplayable duties like; food preparation, fetching water, collecting wood, home clean, and looking after child" (FGD)..

Table 20Gender workloads and spent of time in wheat production

Economic activities	**Men (hrs/day)**	**Women (hrs/day)**	**N=138(m&w)**		**Income per day. 8hrs=60birr**	
			Frequency	**Percent**	**Males**	**Females**
Land preparing	6	8	135	98%	45	60
Ploughing	7	0.3	138	100%	52.5	2.25
Feeding livestock	5	5	132	96%	37.5	37.5
Sowing	7	0	138	100%	52.5	0
Herbicide spraying	10	0	138	100%	75	0
Protecting from livestock	6	4	102	75%	45	30
Harvesting	8	2	136	99%	60	15
Farm to harvest place	4	8	137	99%	30	60
Threshing	7	7	138	100%	52.5	52.5
Winnowing	5	1	138	100%	37.5	7.5
Storing at home	5	4	135	98%	37.5	30
Total/average	70	39.3	138	100%	525birr	294.75birr
Domestic activities	**M**	**W**				
Food preparation	No	Always				
Fuel collecting	Often	Always				
Water fetching	Often	Always				
Looking after Child	Often	Always				
H.clearing	Occasional	Always				

"In reproductive roles men also participle 0ften means at the time of women sick and mobile" (FGD).

Source; own computation, 2015

According to table19 average employment income in wheat production of labor for a day (8hrs) in the area was being paid equally sixty birr for both women and men, these is largely practical in own farm plot but FGD shows most of the time hired labor are men rather than women. The highest payments to the women from the participated tasks were

sixty and fifty two birr and the lowest also two birr, twenty five cents and seven birr per day, the total income from wheat production labor division they received was 294.75birr during that season of 2013/14. When come to men's income from their participation in wheat production activities totally 525birr from land preparation to harvest (store at home).

When to compare income of women and men from wheat production stage's of this value chain, men's 230.25birr greater than women received birr. Whereas in reproductive roles women are predominate and they add more value to the wheat products and other food items before arrived at table to eat at home. Therefore, women are greater participant of value addition (value of, form, time utility and place) than men, even if the payment from it was less than men. All this information displayed on above table19, FGD and personal observation or checklist shows that except activities like land preparation, sowing, threshing and winnowing, the remain activities were not agreed up on all sampled respondents but it was decided in a sense of all most all respondents households circumstances in the study area, this means there are some a few of households are there women and men equally or totally all activities done via women(no male/s family and poor to hire men) and men (no female/s family and poor to hire women) (FGD).

4.4.1.3 Gender benefiting and value addition producers' level

The total cost incurred in wheat production during last twelve months in the study area via women and men is equal but average wheat price they sold was 840 and 850 birr respectively (table20). With regard to value addition and its percent share of it, men is greater value added by ten than women and out of producers percent share of value added women's is 48% whereas men's is 52% due to men are more access to extension services and training, market information, credit, season of supply to the market, bargaining power and land holding rather than women (FGD). To did this the above table18 mentioned access and control plays significant role of gender (Agnes et al, 2013) and the main factor to add more is time of wheat sold by women and men.

Figure 6Gender benefits sharing and value addition at wheat producers' stage

Source; Own computation, 2015

4.4.1.4 Gender decision making on choice of wheat variety and its output marketing

Decision making of women and men on wheat production pre-preparation like choice in type of crop to sow or plant, its variety, hectare of land allocated to wheat and, its output management and benefiting such as amount of consumption, reserving for seed next coming season, marketing to repay input cost, school and cloths of children, taxpaying, contribution for public institutions construction, other house furniture and others were decided by men, women and both men and women in the study area (table24).

In type of crop choice, seed variety, land hectare to plant and other input application 36 % decided by men only, decision made by male with jointly was 38percent, women only decided her feeling 3%, both women and her son decision made 23percent. Look it men are typically stereotyped as the dominating species even in female headed while women are the subordinates.

Table 21Decision making women and men in wheat production and marketing

1.The distribution of decision making over type of crop , seed variety choice and land to plant		
N=138HHs(families)	Frequency	Percent
Males only	49	36%
Females only	4	3%
Joint, more males	53	38%
Joint, more females	32	23%
Total	138	100%
2.Decision making over wheat to; consume, seed, sell and other on Households output		
N=138HHs(families)	Frequency	Percent
Males only	20	14%
Females only	5	4%
Joint, more males	81	59%
Joint, more females	32	23%
Total	138	100%

Source: owns survey result computation, 2015

Voice of gender in decision making to consumed wheat as stable food or as alternative, seed to sow next season, sold to get money at different time based on their households and other purposes for example edir for the time of bad, giving to beggar and so on. Table25 shows men alone decided 14percent, by women voice decided four percent, jointly voice of men and women respected through men facilitation the meeting 59%, and more women idea decided were 23percent. When women only decided decision amount they consumed, store for seed, volume of wheat for sell, and others above table25 reveals almost near to null percent (3 and 4%), but only men decided is near both voice made (36 and14) decision.

4.4.2 Gender roles and benefiting sharing at trader's chain stages

There are both women and men actors actively engaging in wheat value chain at collectors, wholesalers, processors and retailers stages. As table25 shows unlike men, women engaged in small scale budget requesting trade types of value chain than large scale trading. For instance, only one female has own wholesaling and flour factory but four retailers and three collectors were there adding value whereas at the consumers stage men were participated less than women even if they consume equally or greatly to the women. From this table25 we can say that women are more roles in family food securing and provision than men, because 12 women and 8 men there were available in wheat flour and bread shops, supermarkets, bakeries and cafes.

Table 22 Gender of traders

Gender of traders	Retailer	Wholesaler	Collectors	Processors	Consumers	Total
Men	11	4	7	4	8	34
Women	4	1	3	1	12	21
Total	15	5	10	5	20	56

Source; own survey results, 2015

4.4.2.1 Gender labor division and load at collectors and wholesalers stages

In the study area in that year of wheat marketing men and women were did different activities as hired and family labourer to sustain the business competitively with others. So that men were largely accessed in employing opportunity and received income from it than women, this was also true in all actors of collectors and wholesalers (women's owned business). Men owned collectors and wholesalers, women role was store cleaning only while women owned business they were participated besides to store cleaning in balancing and paying, packing and selling wheat to next actors. To sum up men were more work loaded and employment than womentable26.

Table 23Owned by women and men collectors and wholesalers chain stages labor division and access to employment.

	Men's own business			Women's own business		
Employment activities	Men	Women	N=15	Men	Women	N=15
Store cleaning	-	X		-	X	
Balancing and buying	X	-		-	X	
Unloading	X	-		X	-	
Sorting and tagging	X	-		X	-	
Packaging	X	-		X	x	
Loading	X	-		X	-	
Selling	X	-		-	X	
Guarding store	X	-		X	-	

Source; own computation, 2015

Like collectors and wholesalers owned by men's and women's, processors and retailers actors were also women and men participated in wheat value chain development in the study area. Unloading wheat from vehicle, labelling wheat factories store, preparing it to wash, washing, and milling, taking flour in to sacks (done by women), balancing flour and packing it, again labelling flour, loading, selling and cleaning were some major activities are done by men and women (table23). Men owned factories work load and employment opportunity to women is less accessible than women's owned, for example women didn't employed milling, packing, balancing and selling, but in women's owned one they were participated , milling, taking flour, balancing, packing, selling and cleaning. Labor division of men and women at retailers market, women retailers didn't actively engaged in baking bread. Women time spent activities on women owned business are unloading and loading, weighing bread before cooking and selling. From this women and men roles was differed being giving opportunities to both but not naturally.

Table 24Women and men work division and employment opportunity

	Men's own business		Women's own business	
Employment activities	Men	Women	Men	Women
Unloading and loading	X	-	X	-
Labelling	X	-	X	-
Preparing to wash	X	-	X	-
Washing	X	-	X	-
Milling	X	-	X	x
Taking flour in sacks	x	-	-	X
Balancing	X	-	X	X
Packing	X	-	X	X
Labelling flour	X	-	X	
Selling	x	-	X	X
Cleaning	-	X	-	X
Unloading and loading	X		-	X
Weighing	X		-	X
Baking	X		X	-
Selling	X		-	X

Source; own survey results, 2015

4.4.2.2 Gender benefiting and value addition in wheat value chain at trader stages

The number of women was participated in wholesalers and processors wheat value chain development is one, which is very men dominate chain stages (table25). Women's and men's collectors, wholesalers and retailers were equally Value added which is 80birr, 198.75 birr and 344.33birr respectively per quintal, but the only difference is number of women in collecting and wholesaling wheat business were less than men. Figure9 recognizes that processors Value added are 348.65 and 328.65birr a quintal by men and women respectively. Dou to high transaction costs of women (said Elfua she is marketing manager of Aba Lewi flour factory), men get 20birr more margin than women in processing wheat in to flour. Unlike to women processors, women retailers (345.33birr per ql) were added more value than men retailers (344.33birr a ql) because women retailers were very careful than men retailer in order to keep from loss flour and bread.

Source; own computation, 2015

Figure 7 Gender value addition and benefit from it in study area during last 12 months.

4.5 Constraints and opportunities

One of the merits of value chain approaches is that it helps to clearly identify bottlenecks to the development of the chain right from input supply up until the consumption level in table31

Table 25 Summarizes the constraints and opportunities identified in this study area.

Issue	Value chain Functions				
	Input supply	Production	Trading	Processing	Consumer
Constraints	limited seed and fertilizer need of producers, poor storage, dependency symptom of producers, delayed payment, low demand for improved seed ,	In production (Absence /shortage of oxen, High fertilizer price , Poor access to credit, Diseases ,Weed , Erratic rain, Poor source of information, Soil exhaustion, Poor postharvest handling, Pressure in input use by gove't,Poor infrastructure, small land size) and In marketing(Poor extension contact in wheat marketing, Unfair pricing and cheating of weighting, Multiple Taxes, Wheat importer competition, traders fixed price)	High and multiple taxes, Bureaucracy in credit, Shortage of finance, Farmers mistrust us, Unfair competition with unlicensed traders, High transportation cost, poor product quality, fixed price by processors /lack of competitive	low skilled labor, shortage and seasonality of supply, high utility cost, high duty on imported flour, series problem of Electric city and water,	low supply, fake weighting, poor bread handling, charging unfair price, a few and far away of bread retailers
Opportunities	Existence of cooperatives and unions	Presence of NGOs, suitable climate, Enabling policy environment from GOs and NGOs, high production potential, it is an effective way of fostering rural-urban linkages.	Existence of research centre, regular demand to wheat, road, market info-, policy, high demand	well storage, high bread flour through the year, availability of labor, imported wheat	Government subsidy with fixed price

Interventions needed	strengthen cooperatives, increasing transparence, building warehouse,	Providing inputs low price and receiving its price at harvest time, Awareness raising couple, extension services on marketing also, Build the capacity of the producers to claim their right, strengthen cooperatives, Create value chain forum at woreda level, Creating linkages and partnership traders in production level with producers, Creating a conducive environment for direct foreign investment in order to improve access to finance and infrastructural development	constant and regular monitoring of unlicensed traders, creating trust among producers, collectors and wholesalers, enhancing bargaining power with processors	accessing and caballing of water and electric city, hiring technically trained labor and giving short and on job training to workers	Enhancing numbers of bakeries and bread retailers near to consumers homestead

4.6 Analysis of Econometric model Results

The econometric analysis was intended to explore determinates of amount of wheat supply to market. The analysis was undertaken by multi-linear regression model. For the parameter estimates to be efficient, assumptions of Classical Linear Regression (CLR) model should hold true. Hence, multicolinearity and heteroscedasticity detection test were performed using appropriate test statistics for each as follows.

4.6.1. Determinants of wheat market supply

In the study area, production of wheat is mainly for market and is important cash commodity. According to the survey report, all sample respondents of the wheat grain producers were potential market suppliers last 12 months.

Foregoing the regression in the multilear model, all the hypothesized independent variables were checked for the existence of multi-co linearity and heteroscedasticity problem. All VIF values are less than 10. This indicates absence of serious multicolinearity problem among independent continuous variables (Appendix Table 2).

Contingency coefficient results indicated absence of multicolinearity problem among the independent dummy variables (Appendix Table 3).

Examined residuals plots to check error variance assumption (heteroscedasticity) and normality annex--, reveals there is no heteroscedasticity of error variance in the model.

Goodness of fit of the regression model is measured by the coefficient of determination (R^2), it is 0.775, meaning that approximately 78% of the variability of wheat supplied to the market or dependent variable is accounted for by the variables in the model, or 78% of volume of wheat supplied to the market was determined via explanatory variable and the remain 22% was influenced by disturbance term.

Thirteen explanatory variables were hypothesized to determine the household level marketable supply of wheat. Among these variables, only seven variables that is to say educational level, land size in hectare, market information, number of oxen, year of wheat production, access to credit and price were found significantly pressure marketable supply of wheat positively and negatively (access to credit and market information).

Table 26 Determinants of wheat volume supplied to the market

	B	Std. Error	Beta	t	Sig.
(Constant)	-5.418	11.500		-.471	.638
GENDER	1.311	1.236	.053	1.061	.291
AGE	-.067	.058	-.061	-1.157	.250
DST-MRKT	.634	.340	.109	1.863	.065
EDUCN	1.300	.291	.282	4.466	.000**
EXPR-PRO	.134	.062	.114	2.174	.032*
LAND-SIZE	6.178	1.351	.253	4.573	.000**
MRKT-INFO	-11.348	-1.953	-.343	-5.809	.000**
PRICE/QL	3.925	.903	.227	4.346	.001
ACCICRDT	-1.749	2.483	-.033	-.704	.483
NO_OXEN	2.735	.682	.204	4.008	.078
ACC-EXTN	-3.520	4.647	-.036	-.758	.450
COOPMMR	2.810	1.208	.114	2.326	.122
FAMLY-SIZE	.542	.305	.090	1.776	.078

Dependent Variable: Wheat supplied to the market, N=138, R=89%, R^2=78%. Adje.R^2 =75%
**and * show the value statistically significant at 1% and 5% respectively

Source: own survey results, 2015

Education level of HHH: Education has illustrated direct effect on wheat amount sold with significance level at 1%. On middling, if wheat producer were skilled and knowledgeable through education to his /her task, the amount of wheat supplied to the market increases by 0.282 quintal when other remaining constant. The result point out that, education has improved the producing household ability to get advanced idea in relation to new technology, seed variety and other input application during wheat production, market information and season of selling, thus improved productivity and thereby increased marketable supply of wheat. The finding agree with Rehima Mussema (2006) which indicated that educated producers of local chicken the skill and knowledge obtained helps the supply of chickens and egg to the market increases, in Alaba and Siltie.

Price of wheat (PRICE/QL): As proposed before survey, price was found to have a positive and significant influence on supply of wheat to the market at 1% level of significance. According to table28 reveals, when there is a unit increment in wheat price per ql, the supply of wheat to the market raised by 0.227. The work is in line with Assefa A, 2009 who illustrated that as the price of honey at market rises, the quantity of honey

sold at the market also rises, which in turn increases quantity of honey sold per household per year.

Land allocated to wheat (LAND-SIZE): it significance at level of 1% whereas, the positive coefficient for land allocated to wheat production implies that an increase in land allocated to wheat production increases marketable supply of wheat. An increase in the size of one hectare of land allocated to wheat resulted (table26) in an increase in supply of 0.253quintal of wheat, keeping other factors constant. In support of the finding here, Alemnew (2011), illustrated that hectare of land allocated to red paper production in Bure woreda, west Gojjam zone, Amhara, positively and significantly influenced market supply of it, Similarly, Kindie (2007) indicated that the area of land allocated for sesame production in Metema District significantly and positively affected farm level marketable supply of sesame.

Year of wheat production (EXPR-PRO): The result implied that, as produce's experience more supply also more and significant effect at 5% significant level with expected positive sign increase by one year, the wheat supplied to market increased by 0.114 quintals when other variables kept constant. This likes finding of Ayelech's (2011) who illustrated as farmer's experience increased the volume of avocado supplied to the market has increased in Gomma, District which is found in Jimma zone.

Access to poor market information (MRKT-INFO): Information on prices of wheat in markets is essential for informed decision making, reducing transaction costs and risks, enabling efficient storage and facilitating the flow of goods from production to demand areas. Poor market information to marketable supply of wheat determines negatively and significantly at 1% significance level. On average if a wheat producer gets poor market information, the amount of wheat supplied to the market decreased by 0.343 quintals. Its coefficient suggests that when producers were being poor access to market information, they didn't know volume and time of wheat supply to the market. The implication is that its source (41% got from their neighbours which makes less obtaining market information hinders to supply more quantity of wheat. This is contrast with Mohammed (2011) who illustrated access to market information by farming households increase marketable supply of teff significantly in Halaba especial woreda.

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary and conclusion

This study was generally conducted with intending of analysis of wheat value chain in Ann lemo wereda of Hadiya Zone, SNNP of Ethiopia. The wheat has been selected in the study area as main cash and stable crop. The specific objectives of the study focus on mapping wheat value chain, identifying determinants of wheat market supply, analysis of gender roles and value addition in wheat value chain and look at, of wheat value chain performance via value added and its percent share.

The qualitative and quantitative data types were collected from primary and secondary sources of data in different techniques. For instance primary data were collected from individuals and group via interview using pre-tested semi-structured questionnaire, FGD, personal observation, key Informant interview and checklist. Besides this households and farmers survey also has been tried to more target on gender roles and decision making at wheat production stage. The data were analysize by using descriptive statistics, value chain analysis and econometric model using SPSS software. All the sampled households were wheat producers, so multiple regression model was used in the study to analysize determinants of wheat market supply.

The total sample size of producers respondents handled during the survey was 138 and out of the total sample respondents, 65.9% were male-headed households and only 34.1% were female-headed. On average age of respondents was 50.5 years old while marital states of the sample respondents 99.3% were married and 0.7% was unmarried. land allocated for wheat production based on their total number of hectares of land holding 22.5%, 29.0% and 48.5% have less than one , one and two hectares respectively where as average family size in household was six.

Among the sampled respondents, about 0.7 % was illiterate (grade zero) and diploma holder whereas majority of were first (grade 3 which 14.5%) and second cycled (grade 7 which is 15.2%) educated. With regard to traders survey 35 traders were selected and from this 74.3% were male and 25.7% also women. In addition, 20 consumers from the nearby towns were included in the study.

According to wheat value chain map, input suppliers, producers, collectors, wholesalers, processors, retailers and consumers were participated directly and support services providers involved as indirect actors along the wheat value chain. Input suppliers includes Agricultural development office and department, Development agents, multipurpose cooperatives, and farmers themselves, research centre, Omo microfinance, NGOs (SOS), banks, EGTE, municipality, trade and industry office and EFDHACA . Importer also main supplier to processors with fixed price.

Wheat production was solely undertaken by small holder farmers who were living there. The sampled respondents produced in the year of study were 5244qls of wheat, from this 69.7% supplied to the market. About 39.9percent, 11.2percent, 3.5 and 0.7percent of wheat producers had obtained price information from their neighbours, the market visit, cooperatives, radio and TV respectively before selling their produce. They sell to consumers (5%), collectors (50%), wholesalers (25%), cooperative (10%) and processors (10), with different price but the same profit due to transport and transaction costs differences.

Wheat value chain performance was measured by value added or margin and average costs charged at each actor per quintal. Average costs of producers during value addition with in a study period was 719bir a ql and value added or margin was 131, and percent of value added by producers was 12% out of all actors. On average collectors, wholesalers, processors, and retailers were incurred costs during their value addition to be competitive and sustainable the wheat value chain development in the market was 920bir, 1151.25bir, 1751.32bir, 2155.67bir per ql respectively. Added value or shared benefits from wheat businesses by collectors, wholesalers, processors and retailers were 80bir, 198.75bir, 348.68bir and 344.33bir a qtl respectively. Percentage share of value added were 7% collectors, 18%wholesalers, 32% processors and 31%retailers. Processors and retailers were leading the chain most adding value.

Therefore, wheat production and trading was profitable business or value chain because its performance was at good stand at each value chain actors.

Gender data were collected at producer stage from male and female hhh, and boys and girls who were labours productive with in family members. Access and control of land, advisory and training, market information and credit were more accessible to men than women, even female hhh boys get more it representing his mother. With regard to work

load and its benefits or employment access in wheat production (productive role) and trading dominated by men, but total hours per day worked in both productive and reproductive role was women over men, even men worked more hours in productive role. This works done by men were mostly seasonally while reproductive roles always there. Average value added per ql by men and women, were 131bir and 121bir respectively. Decisions made largely by jointly and alone mechanisms within the family members. Volume of wheat for sell, and others decided only women voice 4%, men only 14% and jointly 82%, whereas, decision made about type of crops and wheat variety choice, size of land allocation through men only, women only, jointly were 36%, 3% and 61% respectively. At the trader level of the chain data were collected from female and male owner of the venture and some data also were collected from men and women employers in the venture. Female and male collector and wholesalers businesses were add value equally but female and male own flour factories and retailers add variable value or benefits in their business.

The multi linear regression model was run to identify determinants influencing wheat supply to the market. The regression reveals that wheat supply to market significantly influenced via educational level, price of wheat per ql, land size, market information, and experiences of producers in its producing.

Thus, producers and other actors should be given attention in such variables to supply and get more money from wheat businesses.

5.2. Recommendation

The following recommendations can be recommended from this study:

Demand to bread is not only the poor family concern but also all income level of communities concern, due to these in the study area demand to wheat or traders crying to get wheat and balance their demand to bread, but still wheat market supply are daily question of its demand.

Thus, the results of multi regression model analysis has revealed that the most affecting variables determining the volume of wheat market supplied in the study area in the survey period were educational level, price of wheat per ql, land size, market information, and experiences of producers in its producing.

- Educational level of households has developed their attitude towards socializing new technology, internalizing it application, sense of business idea, use of input variety, seeding time, true source of information, land treatment , timing to sell , minimizing production cost, post harvest management and others . In view of that, concerning government body or other partners should focus on giving elder education, continuous training on wheat input application, production post harvest management, storage and marketing.
- Price of wheat still needs attention, when it raises producers encouraged enlarge land to wheat planting and production, supply more, can be competitive and sustainable in the wheat value chain development.
- Regression model output find out that, size of land allocated by individual households was found to weighting the volume of supply significant positively during the survey time. For this reason, producers tried to add hectare of land to wheat planting from their total holding by reducing other less demand commodity planted and also treat land to make it fertile.
- The results of econometric analysis indicate that wheat supply to the market is negatively and significantly affected by poor access to market information which means better access affects positively. The problems related with market information (majority receiving from their neighbours) lead to low-priced and availability of timely and exact market information increases producers' bargaining capacity to negotiate with buyers of their produce. To be part of this fruit there is

need to improve sources and extension system which focusing flowing good and timely information by cooperatives and other stakeholders.

- Experience in wheat production also affecting its quantity supply to the market, consequently concerning body should prepare experience sharing conferences to new entrant.
- Create value chain forum at woreda level which helps to creating linkages and partnership traders in production level with producers.

Even though, all wheat value chain actors were performing well and the business was profitable at every stage of the chain but collectors and producers were least share of margin than other actors. Accordingly, producers and collectors should search mechanism which reduce the costs or increase bargaining power.

Recognizing the gender dimension of value chain is important for two basic reasons:

The first is that it is a issue of human rights. Although women and men both contribute to and benefit from value chain , women still lack, equal and property rights like land (not garden) in male hhh, as well as access to finance. The economic gap between women and men continues to widen, as do the differences between women of different social categories including age, economic standing, caste and education.

Second, it is a matter of improving agricultural business. Gender inequality produces inefficiencies, so is a root cause of poverty: when half of society is under-mobilized or excluded, this represents a lost opportunity for development and for business.

It is known that, women are in nature greater potential than men in rising best solution ideas on a raised problems and challenges within a household and community level but in the area the real circumstances was satisfactory and poor level participation socio-politically of women especially who are unlike to female headed household women.

- ✓ As a result, couple's training will be an approach where both husbands and wives are trained together. It widens opportunities for women to get the necessary information, skills and knowledge for the production and marketing of agricultural commodities. Partners also understand, assist and appreciate each other technically so that they gradually build up their knowledge together, thereby overcoming the weakness of relying on husbands to pass informant to their wives after training.

- ✓ It helps women strengthen their role in decision making in the household regarding which technologies to use, size of land to wheat, and which variety to produce and supply to the market. It also helps breaking forbidden about the traditional gender division of labour contributes to bringing about gender equality on value addition and employment in reproductive role.

6. REFERENCE

Abay Akalu, 2007. Vegetable Market Chain Analysis: The Case of Fogera Woreda in ANRS of Ethiopia. An MSc Thesis Presented to the School of Graduate Studies of Haramaya University.

Abraham t., May, 2013. Value chain analysis of vegetables: the case of Hasbro and kombolcha woredas in Oromia region, Ethiopia, Haramaya University. Whilst

Adugna Eneyew, 2014 Course Material on Gender and Value Chain Management for ABVM BSc students JUCAVM

Adugna Gessesse, 2009. Analysis of Fruit and Vegetable Market Chains in Alamata, Southern Zone of Tigray: The Case of Onion, Tomato and Papaya. An MSc Thesis Presented to the School of Graduate Studies of Haramaya University.

African Journal of Agricultural Marketing, 2013 Available online at www.international scholars journals.org© International Scholars Journals

Agnes R. Quisumbing, Agnes R. Quisumbing, Deborah Rubin, Cristina Manfre, Elizabeth Waithanji, Mara van den Bold,Deanna Olney, and Ruth Meinzen-Dick,2013 Closing the Gender Asset Gap: Learning from value chain development in Africa and Asia Agricultural-IICA, San Joes, Costa Rica.

Agriculture and Agri-Food Canada, 2004. Value-added agriculture in Canada. Report of the standing senate committee on agriculture and forestry 2004, Agriculture and Agri-Food, Canada

Ahmed, A.U., B. Minten, A. R. Quisumbing, and D. Roy with M. Khondkar, and A.M. Muzareba, and Data Analysis and Technical Assistance Limited. 2009. Evaluating. The Dairy Value Chain Project in Bangladesh: Baseline Report. Washington, D.C.: International Food Policy Research Institute

Angelica Senders, Anna Lentink, Mieke V, and Jacqueline T.(2013) Gender in value chains Practical toolkit to integrate a gender perspective in agricultural value chain development

Ann lemo Woreda Agricultural development office report, (20/1314)

Area and Production of Crops. Country Level, Part II, Addis Ababa.

Assefa. A, 2009, Market Chain Analysis of Honey Production in Atsbi wemerta district, Eastern zone of Tigray National State. MSc Thesis presented to School of Graduate Studies of Haramaya University.

Awol Z, 2010 Analysis of poultry market chain: the case of Dale and Alaba 'special' woredas of SNNPRS, Haramaya University

Ayelech. T, 2011. Market chain analysis of fruits: for Gomma woreda, Jimma zone, Orom ia national regional state, Haramaya University.

Backman, T. and R. Davidson, 1992. Marketing principle. The Ronal Presses Co., New York.

Balasubramaniyan P. and Palaniappan S. 2007, Principle and practice of Agronomy. 2nd edition, Wishwa Prahashan, New Delhi.

Bardasi, E., K. Beegle, A. Dillon, and P. Serneels. 2011. "Do Labor Statistics Depend on How and to Whom the Questions Are Asked? Results from a Survey Experiment in Tanzania." World Bank Economic Review

Bezabih E. and Mengistu N., 2011 Potato Value Chain Analysis and Development in Ethiopia Case of Tigray and SNNP Regions.

BIRHANU B. 2010 Assessment of Bread Wheat Production, Marketing and Selection of N-Efficient Bread Wheat (Tritium aestivum L.) Varieties for Higher Grain Yield and Quality in North Western Ethiopia. Msc School of Graduate Studies .BAHIR DAR UNIVERSITY

Bosena Tegegne, 2008. Analysis of Cotton Marketing Chains: The Case of Metema Woreda, North Gonder Zone, Amhara National Regional State. An MSc Thesis Presented to the School of Graduate Studies of Haramaya University.

Bureau of Agriculture and Rural Development annual and third quarter report, 2010

Bureau of finance and economics development of snnp, Ethiopia annual report, 2009

Cheryl Doss, 2013 Data Needs for Gender Analysis in Agriculture Yale University

Coles, C. and J. Mitchell 2011 "Gender and agricultural value chains: A review of current knowledge and practice and their policy implications."

Csa, 2003. Area and production of crops. Country level, part ii, Addis Ababa.

D.T. Bosena F. Bekabil, G. Berhanu and H. DirkFactors (2011). Affecting Cotton Supply at the Farm Level in Metema District of Ethiopia Department of Agricultural Economics, Haramaya University,

Dawit Gebregzihabher, 2010 Market Chain Analysis of Poultry. The case of Alamata and Atsbi-Wemberta woredas of Tigray Region. An MSc Thesis Presented to School of Graduate Studies of Haramaya University.

Deborah R. and Cristina M, 2012 Cultural Practice LLC and MEAS Project. Applying Gender-Responsive Value-chain Analysis in Agricultural Extension and Advisory Services

Deborah Rubin and Cristina Manfre, 2012, Cultural Practice LLC and MEAS Project. Licensed Creative Commons Attribution 3.0 Un ported, creativecommons.org/ licenses/

Dereje Gorfu and Eshetu Ahmed, 20110 Crops and Agro-ecological Zones of Ethiopia Ethiopian Institute of Agricultural Research

Diao X., Belay F., Steven H., Alemayehu S., Kassu W., Bingxin Y. 2007, Agricultural Growth Linkages in Ethiopia: Estimating using Fixed and Flexible Price Models. IFPRI discussions paper no 00695, Addis Ababa.

Diriba G, Mekonnen H, Ashenafi M. and Adugna T. 2014, Analysis of Fluid Milk Value Chains at Two Pre-Urban Sites in Western Oromia,

Dolan, C. 2001 "The good 'wife': Struggles over resources in the Kenyan horticulture sector." Journal of Development Studies

Dolan, C. and K. Sorby 2003 "Gender and employment in high-value agriculture industries." Agriculture and Rural Development Working Paper 7. Washington, D.C.: The World Bank.

Doss, 2001 for a discussion of how the categorization into men's and women's crops varies depending on whether the definitions are based on the sex of the head, landholder, decision maker, or person who keeps the revenue

Doss, C.R. 1999. Twenty-Five Years of Research on Women Farmers in Africa: Lessons and Implications for Agricultural Research Institutions; with an Annotated Bibliography. CIMMYT Economics Program Paper No. 99-02. Mexico D.F.: CIMMYT

Douglas R. White © 2006 Regression and Autocorrelation. EIAR (Ethiopian Institute of Agricultural Research). Crops and Agro ecological Zones of Ethiopia EIAR, Addis Ababa.

Elizabeth Waithanji and Alam et al. 2011. "A Report on the Qualitative Gendered Assessment of GAAP/Land O'Lakes-Mozambique Smallholder Dairy Development Project (MSDDP)"

Emana, B. 2008, Participatory Value Chain Analysis of Horticultural Crops in Kombolcha District of Eastern Oromia, Ethiopia, Research Report, Action Aid Ethiopia, Addis Ababa.

Ethiopia Commodity Exchange Authority: A Review of Supply and Marketing issues 2008 Addis Ababa

Ethiopia: Building on Progress: A Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Annual Progress Report 2006/07, MoFED, 2007, Addis Ababa, Ethiopia. Ethiopia: Current Status and Suggestions on How They Might Evolve

Ethiopian Agriculture Portal: http:www.eap.gov.et

FAO (Food and Agriculture Organization), 2006. Value Chain Analysis: A Case Study on FAOSTAT (Food and Agricultural Organization Statistical Division),

FAO (Food and Agriculture Organization). 2000. Agriculture and food marketing management. Rome, Italy.

FAO 2011 The State of Food and Agriculture: Women in Agriculture, Closing the Gender Gap for Development. Rome:

FAO, 1999 Agricultural censuses and Gender considerations concepts and methodology

FAO, IFAD, ILO. 2010. Gender dimensions of agricultural and rural employment: Differentiated pathways out of

Fisher, M., J. Reimer, and E. Carr. 2010. "Who Should Be Interviewed in Surveys of Household Income?" World Development

Fleming, K. 2005. Value added strategies: Taking agricultural products to the next level. Honolulu (HI): University of Hawaii.

Food value chain wheat to bread, 2004 report part 4 chapter 3

Fromm, I and Jaun.A.D. 2006: Upgrading and Value Chain Analysis: The case of small-scale coffee farmers in Honduras, Conference on International Agricultural Research for Development, Tropentrag 2006, University of Bonn

Fromm, Ingrid. 2008. Upgrading in Agricultural Value Chains: The Case of Small and Medium- Sized Producers in Honduras; Ph.D. thesis, Leipzig.

Gate Workshop Materials: Integrating Gender In Agricultural Value Chains (Ingia-Vc) In Tanzania GENDER AND PRO-POOR VALUE CHAIN ANALYSIS:

Gender and Value Chain Training for LIVES Project Team Adama, Nazareth Ethiopia August 19 – 22, 2013

Gender Empowerment as a Pathway to Poverty Reduction and Economic Development via Value Chains Gender introduction tool kit freely available on line

Gereffi, G. 1999. A commodity chains framework for analyzing global industries. Workshop on spreading the gains from globalization, University of Sussex, Institute of Development Studies

Gereffi, Gary; Humphrey, John; Sturgeon, Timothy. (2003)The Governance of Global Value Chains; in: Review of International Political Economy

Getachew Legese, 2012 ICARDA-ILRI Training on Tools for Rapid Assessment of Sheep and Goat Value Chains in Ethiopia Addis Ababa

Gibbon, P, and Ponte, S. 2005: Trading Down: Africa, Value, Chains and the Global Economy, Temple University Press.

Gibbon, P. 2001. Agro-Commodity chains: An introduction. IDS Bulletin, 32(3), 60-67.

Gibson, Alan. 2008 GTZ`s experience in value chain development in Asia: an external perspective, Discussion Paper (Springfield Centre), GTZ Publication

Global Strategy to Improve Agricultural and Rural Statistics". Report #56719 GLB. World Bank, FAO, United Nations. September, 2010

Guajarati, Domodar, 2003. Basic of Econometrics, 4th edition. McGraw hill Company, IN

Gunasekarana, C. Patelb, Ronald E. McCaughey, (2004) A framework for supply chain performance measurement.

Hassen R.2006, The climate change and African agriculture: measuring the economic impact of climate change on the Ethiopian agriculture. Discussion papers no 21, CEEPA, University of Pretoria

Hill, Catherine and Khan, Maliha.2008 A Place to Grow: Bringing Women to the Centre of CARE's Agricultural Programs. Conceptual Underpinnings and Assessment Framework.

Hillenbrand, E. 2010. "Transforming gender in homestead food production," Gender and Development,

Hobbs, J.E., A. Cooney and M. Fulton, 2000. Value Chains in the Agric-food Sector: What Are They? How Do They Work? Are They for Me? Department of Agricultural Economics, University of Saskatchewan. Canada. 31p.

Holloway, G.and S.Ehui, 2002. Expanding market participation among smallholder livestock producers: A collection of studies employing Gibbs sampling and data from the Ethiopian highlands. Socio-economic and Policy Research Working Paper 48. ILRI, Nairobi, Kenya.

http:// genderinvaluechains.ning.com, engaged practitioners worldwide in sharing cases experiences and tools

http://dx.doi.org/10.1111/j.1759-5436.2001.mp32003007.x

http://livestockfish.cgiar.org

http://www.diis.dk/graphics/Publications/WP2008/WP0816_Integrating_Poverty%2C_Gender_and_Environmental_Concerns_into_Value_Chain_Analysis.pdf

http://www.fao.org/docrep/013/am310e/am310e00.pdf

Humphrey, J. and H. Schmitz, 2002. How does insertion in global value chains affect upgrading in industrial clusters? Institute of Development Studies, Brighton.

Humphrey, J. and O. Memedovic, 2006. Global value chains in the agri-food Sector UNIDO Working Paper, Brighton

Humphrey, J., 2003. Opportunities for SMEs in developing countries to upgrade in a global economy. ILO SEED Working Paper No. 43, Geneva.

Hussen, N., Kumsa, S., Haile, A., Hikuepi, K. and Legese, G. 2013. Analysis of goat value chains in Yabello district, Borana zone, Ethiopia. Addis Ababa: ICARDA

IFPRI Discussion Paper 01261 April 2013 Data Needs for Gender Analysis in Agriculture

IHSN. 2009. Principles and good practice for preserving data. International Household Survey Network, IHSN Working Paper No 003, December.

ILO: Value Chain Development: www.ilo.org/valuechains

International Fund for Agricultural Development (IFAD). 2001. Rural Poverty Report 2001: International Journal of Asian Social Science.

Israel, Glenn D. 1992. Sampling the Evidence of Extension Program Impact. Program Evaluation and Organizational Development, IFAS, University of Florida.

J. Peter Neary, 2010. MULTI-PRODUCT FIRMS AT HOME AND AWAY: COST- VERSUS QUALITY-BASED COMPETENCE. University of Oxford and CEPR

Jacqueline Mutambara and Augustine Zvinavashe, 2010 Wheat value chain and business environmental factors in Zimbabwe university of Zimbabwe

Jacques H. Trienekens, 2012 Agricultural Value Chains in Developing Countries A Framework for Analysis..Wageningen, The Netherlands

Jelaludin Ahmed, Aurora Angeli, Alemtsehay Biru, Silvana Salvini, 2001 gender issues, population and development in Ethiopia Addis Ababa roma

Joel Johnson, 2012 Mmasa Mapping of the Sweet Potato Value Chain Linkages between Actors, Processes and Activities in the Value Chain: A Case of "Michembe" and "Matobolwa" Products, Dodoma, Tanzania.

John Jeckoniah, Ntengua Mdoe and Carolyne Nombo, 2013 mapping of gender roles and relations along onion value chain in northern Tanzania.

Jon Hellin and Madelon Meijer, 2006 Guidelines for value chain analysis Value chains for a better Christine Schipmann, integration of smallholders to trade – the case of chilli in Ghana Master T

Jon Hellin, Jupiter and Pippa Ch. 2010 using qualitative market mapping to explore Aflatoxin contamination along the Maize and Groundnut Value Chains working paper

Jonathan M, Jodie K and Christopher C.2009 Trading Up: How a Value Chain Approach Can Benefit the Rural Poor/ www.odi.org.uk

Kaminski, J., A. Elbehri, and J-P. Zoma 2013, Analysis of Maize value chain and competitiveness in Burkina Faso: Implications for smallholder-inclusive policies and initiatives, In: Rebuilding West Africa's Food Potential, A. Elbehri (ed.), and FAO/IFAD

Kaplinsky, R. and M. Morris, 2000. A handbook for value chain research, IDRC. Ottawa, Canada.

Kaplinsky, R. and M. Morris, 2001. A handbook of value chain analysis. Working paper prepared for the IDRC, Institute for Development Studies, Brighton, UK.

Kaplinsky, R., and Morris, M. 2001 A Handbook for Value Chain Research, International Development Research Centre, Ottowa

Kaplinsky, Raphael. "Spreading the Gains from Globalization: What can be learned from Value Chain Analysis?" IDS Working Paper 110. Sussex: Institute of Development Studies, 2000.

Kassa T. Alemu, 2014 Potato value chain in Ethiopia: Cases of Sinan and Bibugn Districts in East Gojjam Vol. 2(6):

KINDIE AYSHESHM, 2007. Sesame Market chain analysis: The case of Metema Woreda, north Gondar zone, Amhara national regional state m.sc. Thesis Haramaya University

KIT and IIRR 2010. Agri-ProFocus and IIRR. 2012. Challenging chains to change: Gender equity in agricultural value chain development. KIT Publishers, Royal Tropical Institute, Amsterdam.

KIT, Agri-ProFocus and IIRR, 2012. Challenging chains to change: Gender equity in agricultural value chain development. KIT Publishers, Royal Tropical Institute, Amsterdam

KIT, Agri-ProFocus and IIRR. 2012. Challenging chains to change: Gender equity in agricultural value chain development. KIT Publishers, Royal Tropical Institute, Amsterdam.

KIT, Faida Mali and IIRR, 2006. Chain empowerment: Supporting African farmers to develop market. Royal Tropical Institute, Amsterdam; Faida Market Link, Arusha; and International Institute of Rural Reconstruction, Nairobi

Kotler, P. and Armstrong, G., 2003. Principle of Marketing, 10th Edition. Hall of India Pvt. Ltd., New Delhi.

Kotler, P., 2003 marketing management. Eleven Editions. Pearson Education Inc, USA.

Lastarria, C.S., 2006. Feminization of agriculture: Trends and driving forces.

Laven, A., A. van Eerdewijk, A. Senders, C. van Wees and R. Snelder, 2009. Gender in value chains: Emerging lessons and questions. A Working Paper (KIT, CIDIN, HIVOS, Agri-ProFocus and ICCO):

Laven, Anna et al. Gender in Value Chains: Emerging Lessons and Questions. Agri-Pro Focus Research. April, 2009. Available online at: http://www.agriprofocus.nl

Lemlem Aregu, The role of gender in crop value chain in Ethiopia

Lone Riisgaard, , Escobar Fibla, , Stefano Ponte,(2010)Gender and Value Chain Development

Lone Riisgaard, Anna Maria and Escobar Fibla, Stefano Ponte, (2010) Evaluation Study Gender and Value Chain Development

Lundy, M., C. Felipe and R. Best, 2002. Value adding, agro enterprise and poverty reduction: a territorial approach for rural business development and rural agro enterprise development project, Colombia

M4P Linking Farmers to Markets through Contract Farming, Markets & Development Bulletin, Hanoi, 03-2005

Market orientation of smallholders in selected grains in Ethiopia: Implications for enhancing commercial transformation of subsistence agriculture. Workings paper no 11.

McCormick, D. and H. Schmitz, 2002. Manual for value chain research on home workers in the Garment Industry, IDS, Brighton.

Mendaoza, G.et al.1982. Canales de Comerrcializaciony precios delapalta. Ministerio de

Michael et al., 2010 Making Value Chains Work better For the Poor. A Tool book for Practitioners of Value Chain Analysis. The Asian Development Bank (ADB) Resource Centre (GF02, 23 Phan Chu Trinh, Hanoi).

Ministry of finance and economics development of Ethiopia annual report,2009

Mirutse Desta, Gebregiorgis Haddis, and Selam Ataklt (2006) Female-Headed Households and Livelihood Intervention in Woredas in Tigray, Ethiopia DCG Report No. 44

MoFED (Ministry of Finance and Economic Development), 2006, Ethiopia: Building on progress, A Plan for growth and transformation (PGT) 2005-2010. Volume I: Main Text, Addis Ababa.

Muhammed.U, 2011 market chain analysis of teff and wheat production in Halaba special woreda, southern Ethiopia, Haramaya University United States Military Academy, West point

Ndunguru, G. T. 2001. Influence of Quality Attributes on the Market Value of Flesh Sweet Potato Tubers and Processed in Cassava Mwanza and Morogoro, Dissertation for the Awards of PhD Degree at Sokoine University of Agriculture, Morogoro, Tanzania and Natural Resource Institute of Greenwich.

Oxfam GB 1999. A Guide to Gender Analysis Frameworks Candida March, Ines Smyth, and Maitrayee Mukhopadhy

Plan for Accelerated and Sustained Development to End Poverty (PASDEP), 2005/06 to 2009/10. poverty status, trends and gaps. Rome, Italy.

Purcell, T. and K. M. Rich, 2002. Rice Value Chain Study: Viet Nam. Ha Noi, Viet Nam, A Report Prepared for the World Bank by Agrifood Consulting International.

Ranjit Kumar, Khurshid Alam,Vijesh V. Krishnab and K. Srinivas, 2012 Value Chain Analysis of Maize Seed Delivery System in Public and Private Sectors in Bihar

Rehima Mussema, 2006. Analysis of Red Pepper Marketing: The Case of Alaba and Siltie in SNNPRS of Ethiopia. M. Sc. Thesis, Haramaya University

Rehima Mussema, 2006. Analysis of red pepper marketing: The case of Alaba and Siltie in SNNPRS of Ethiopia. M.Sc thesis presented to the School of Graduate Studies, Haramaya University. 105p.

Rehima Mussema, Belay Kassa, Dawit Alemu and Rashid, S. 2013 Analysis of Determinants of Small Scale Farmers' Grain Market Participations in Ethiopia: The Contribution of Transaction Costs. Ethiopian Institute of Agricultural Research, P75-94.

Roxana Dulón G. 2009 GENDER IN VALUE CHAINS Manual for Gender Mainstreaming

Sarah Gammage, 2009 gender and pro-poor value chain insights from the gate project methodology and case studies.

Schmitz, H., 2005. Value chain analysis for policy makers and practitioners. International Labour Office and Rockefeller Foundation, Geneva, Switzerland.

Schmitz, Hubert. 2005 Value Chain Analysis for Policy-Makers and Practitioners, ILO Publication.

Statistical Support, a division of Research Consulting at ITS, UT Austin 13 September 2001.

Tewodros Tefera , 2014 Analysis of Chickpea Value Chain and Determinants of Market Options Choice in Selected Districts of Southern Ethiopia Journal of Agricultural Science

The Challenge of Ending Rural Poverty. New York: Oxford University Press.

The publication Agricultural Censuses and Gender: Lessons Learned in Africa (FAO 2005b) raised many issues about collecting agricultural census data that can be used for gender analysis. Some of those concerns have been incorporated into the FAO recommendations

The State of Food and Agriculture 2010–2011. Women in Agriculture: Closing the Gender Gap for Development. Rome

Tiago Sequeira W, Ngo Thi Kim Yen, Shaun Ferris, and Tran V, 2011. A Guide to Rapid Market Appraisal (RMA) for Agricultural Products.

Time Journals of Agriculture and Veterinary Sciences Vol. 2(6):114-124.July 2014

Tiransia Arthur Shoo ,2011.GENDER DIVISION OF LABOUR IN FOOD PRODUCTION AND DECISION MAKING POWER AND IMPACT ON HOUSEHOLD FOOD SECURITY AND CHILD NUTRITION IN RURAL RUKWA, TANZANIA, Sokoine University of Agriculture, Tanzania

Truong thi ngoc chi1 and ryuichi yamada2, 2003 gender division of labor in farming system: a case study in Omon district, can tho province, mekong delta.

Tshiunza, M., Lemchi, J., and Tenkouano, A. 2001. Determinants of Market Production of Cooking Banana in Nigeria. African Crop Science Journal 9. (3), pp. 537-547.

USAID Horticulture Project CIP/ AVRDC, Bangladesh Value Chain Assessment Study of Potato, Sweet potato and Vegetables (Tomato and Pumpkin).

Vientiane, Lao PDR, 2014 Strengthening the collection and analysis of sex disaggregated data on land ownership in agricultural censuses, Twenty-fifth Session Asia and Pacific Commission on Agricultural Statistics

Wolday A. 1994. Food Grain Marketing Development in Ethiopia after Reform 1990, A Case Study of Alaba Siraro, The PhD Dissertation Presented to Verlag Koster University. Berlin

World Bank, 2007. Explaining Sources of Food Price Inflation in Ethiopia: " A Just in Time Policy Note", world Bank (Draft) pp. 14-28

World Bank, F. and IFAD, 2008. Gender in agriculture: A sourcebook. Washington: World Bank.

World Bank, IFAD, and FAO 2009 Gender and agriculture sourcebook. Washington, D.C.: World Bank.

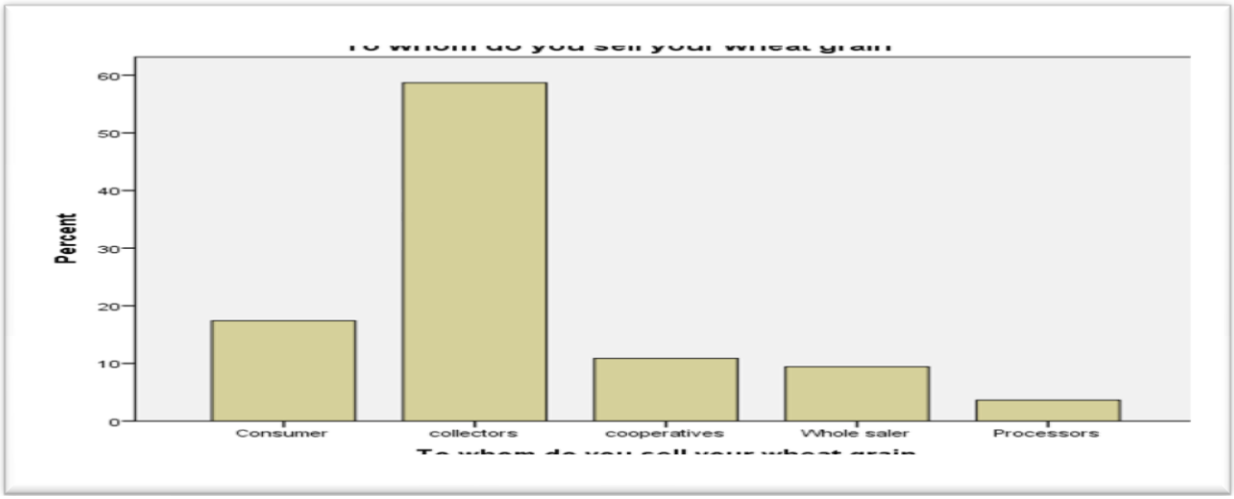
World Wheat Market Supply Demand Trends Daniel O'Brien – Extension Agricultural Economist State Research and Extension March 4, 2011 (Updated & expanded from April 27, 2010 Agmanager.info article).

Zekarias Shumeta, Kaba Urgessa and 2Zerihun Kebebew (2012) Analysis of Market Chains of Forest Coffee in Southwest Ethiopia. Academic Journal of Plant Science.

7. APPENDIX

Appendix Figure 1wheat grain price takers and maker

Figure 2buyer of wheat from producers



Appendix Table 27 Multi-Collinearity test with VIF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-5.418	11.500		-.471	.638		
	GENDER	1.311	1.236	.053	1.061	.291	.796	1.256
	AGE	-.067	.058	-.061	-1.157	.250	.702	1.424
	DST-MRKT	.634	.340	.109	1.863	.065	.576	1.737
	EDUCN	1.300	.291	.282	4.466	.000	.493	2.029
	EXP-PRO	.134	.062	.114	2.174	.032	.720	1.389
	LAND-SIZE	6.178	1.351	.253	4.573	.000	.642	1.557
	MRKT-INFO	-9.323	1.887	-.282	-4.941	.000	.605	1.654
	PRICE/QL	3.925	.903	.227	4.346	.000	.721	1.386
	ACC-CRDT	-3.848	1.867	-.100	-2.061	.042	.837	1.194
	NO_OXEN	2.735	.682	.204	4.008	.000	.763	1.311
	ACC-EXTE	-3.520	4.647	-.036	-.758	.450	.860	1.163
	COOPMR	-2.810	1.208	-.114	-2.326	.022	.824	1.213
	FAMLY-SIZE	.542	.305	.090	1.776	.078	.774	1.292

a. Dependent Variable: Amount supply

Appendix Table 3Multi regression Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867[a]	.752	.725	6.213

a. Predictors: (Constant), FAMLYSIZE, AGE, PRICE, ACC-EXT, EXPR, ACC-CRDT, GENDER, COOPMMR, MRKT-INFO, NO_OXEN, DSTNT, LANDSIZE, EDUCN

Appendix Table 28Dummy variables test of multicolinearity

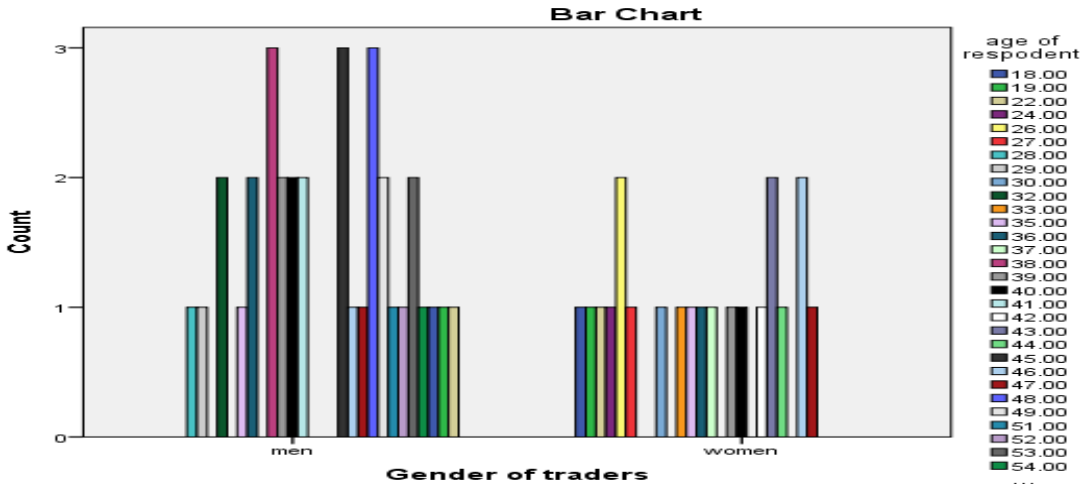
	Symmetric Measures
	Contingency Coefficient
EXTN	0.631
MRKT-INFO	0.638
GENDER	0.478
COOPMMR	577
ACC-CRDT	0.493

Appendix Figure 3examine residuals plots to check (heteroscedasticity)

Appendix Table 5 Educational level of traders respondents

Education level	Gender of traders			Total
		men	women	
10	0	2	0	2
10+3	0	1	0	1
12	0	1	0	1
12+2	0	1	1	2
12+3	0	2	0	2
2	0	1	0	1
3	0	2	1	3
4	0	5	2	7
5	0	5	0	5
6	0	1	2	3
7	0	1	1	2
8	0	3	2	5
9	0	1	0	1
Total	2	26	9	37

Appendix Figure 2 sample respondent age of traders



Appendix Table 29Allocation of time to productive and reproductive roles (FGD)

No	Tasks/roles	Men	Women
1	Productive		
	Land preparing		
	Ploughing		
	Feeding livestock		
	Sowing		
	Herbicide spraying		
	Protecting from livestock		
	Harvesting		
	Farm to harvest place		
	Threshing		
	Winnowing		
	Storing at home		
	Total/average		
2	Reproductive		
	Food preparation		
	Fuel collecting		
	Water fetching		
	Looking after Child		
	Health and clearing		

AppendixTable 7 Decision making power among men and women of actors (FGD)

1	**Activities in production and inputs**	**Men**	**women**
	What type to plant		
	What crop to grow		
	Allocation of land for each crop		
	Allocation to food and cash crop		
	Adoption of technologies		
	Distribution of labor		
	Purchase of inputs		
	Application of chemicals		
	Who decided storage time		
	Where to sell		
	Who to sell		
	Average score for this tasks		
2	Control and access decision making power		
	Who owns plot land		
	Who owns garden land		
	Who owns farm equipments		
	Who owns large and small livestocks		
	Who owns means of transport		
	Who decided the above assets sale		
	Who has access to cooperative me/ship		
	Who has access to Omo microfinance		
	Who has access to extension services		
	Who has access to farmers training		
	Who has access to field demonstration		
	Average score of access and control		