MARKET CHAIN ANALYSIS OF COFFEE IN KERCHA DISTRICT, GUJI ZONE OF OROMIA, ETHIOPIA

M.Sc. THESIS

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OCTOBER, 2016

JIMMA UNIVERSITY

MARKET CHAIN ANALYSIS OF COFFEE IN KERCHA DISTRICT, GUJI ZONE OF OROMIA, ETHIOPIA

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A Thesis

Submitted to the School of Graduate Studies of Jimma University, College of Agriculture and Veterinary Medicines
Department of Agricultural Economics and Extension

In Partial Fulfillment of the Requirements for the Degree of
Masters of Science In
Agribusiness and Value Chain Management

December, 2016

Jimma University

DEDICATION

I dedicate this thesis to my family for nursing me with affections and love and their dedicated partnership for success in my life.

STATEMENT OF THE AUTHOR

First, I declare that this thesis is my own work and that all sources of materials used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for M.Sc. degree at Jimma University and is deposited at the University Library to be made available to borrowers under rules of the Library. I solemnly declare that this thesis is not submitted to any other institution anywhere for the award of any academic degree, diploma, or certificate.

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Cheru Koru Zerga was born at Limmu Shay, Gomma woreda; Jimma zone on September 20 in 1986. He attended his Elementary and High School education at Limmu Shay Elementary School and Agaro High School, respectively. He joined the then Mizan College of Agriculture in 2002and graduated on 2004 with a diploma in Plant Science.

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ACKNOWLEDGEMENTS

I am deeply grateful and indebted to Zekariyas Shumeta (Assistant professor of agricultural economics) my major advisor, who devoted his precious time to comment on the research proposal write up from the very commencement. Without him, this thesis might not have developed the way it did. From the early design of the questionnaire to the final write-up of the thesis by adding valuable, constructive and ever teaching comments and thus I am indebted to him for his kind and tireless efforts that enabled me to finalize this thesis.

Equal appreciation goes to my co-advisor Wendimu Legese for his advice, critical comments and for his fast response for all my requests starting from the proposal preparation up to the completion of the research.

I would like to express my deepest gratitude to Limmu seka office of agricultural development for provided me a study leave to complete course work and other different support during the research work.

I would like to extend my thank also to Kercha woreda office of agricultural development,kercha woreda trade and market development office and Ethiopian commodity exchange(ECX)Hawassa branch for their cooperation during data collection.

I am deeply grateful to all Techno serves Ethiopia Bule hora staff specially TNS kercha team, Emana Gutema, Teshale Asefa, Girma Keneni, who were the source of starting towards the successful completion of the study. Moreover, I am thankful to every member of my family for their support and encouragement.

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ACRONYMS AND ABBREVIATIONS

CBD	Coffee Berry Disease
CLR	Classical Linear Regression
CR4	a four firms concentration ratio
CSA	Central statistics Agency
DOA	District office of Agriculture
EAFCA	East African Fine Coffee Association
ECEA	Ethiopian Coffee Exporters association
ECMC	Marketing Corporation
ECX	Ethiopian Commodity Exchange
FAO	Food and agricultural organization
GDP	Gross Domestic Product
GMMP	Gross Marketing Margin of Producers
ICO	International Coffee Organization
ITC	International Trade Center
KDOA	Kercha District office of agriculture
KDORLA	Kercha District office of Rural Land administration
MoARD	Ministry of Agriculture and Rural Development
MT	Metric ton
NMM	Net Marketing Margin
OLS	Ordinary Least Square
PAs	Peasant associations
PLCTC	Primary Level Coffee Transaction Center
PPS	Probability Proportional to Size
S-C-P	Structure Conduct Performance
SNNPR	Southern Nations Nationalities Peoples Region
TGMM	Total Gross Marketing Margin
USA	United States of America
VIF	Variance inflation factor

MARKET CHAIN ANALYSIS OF COFFEE IN KERCHA DISTRICT, GUJI ZONE OF OROMIA, ETHIOPIA

ABSTRACT

This study has analyzed the coffee marketing chain particularly the case of kercha woreda, West Guji Zone, Oromia Region. Coffee is a major cash crop which is mainly produced as an export crop. The basic objectives of the study were to identify coffee marketing channels, to analyze structure, conduct and performance of coffee market and identify the determinants of household coffee supply in kercha district. Data were generated by individual interview using structured questionnaires. Multiple linear regression econometric model was used to analyze the determinants of coffee market supply. The market channel analysis of the commodity identified six marketing routes. The main market participants for coffee marketing of the district were coffee producers, collectors, wholesalers, cooperatives, union, retailers, ECX and consumers. Result from analysis of degree of market concentration in kercha, guracho and bedessa markets indicates that the coffee markets were characterized as strongly oligopolistic markets with the buyers' concentration values 73.2%, 78.28% and 78.86%, respectively. The coffee marketing performance result reveals that 41.4% and 35.66% of total gross marketing margin were added to coffee price in channel I and channel II respectively. Out of the total gross marketing margin, 6.2% was captured by coffee collectors, while 35.2% goes to wholesalers in channel I and out of the total gross marketing margin in channel II, 35.66% goes to wholesalers. The results of econometric analysis using OLS model shows that among the 12 hypothesized variables only five variables (size of coffee land , lagged coffee price of 2014/15, coffee farming experience, Extension contact and family size) were found to be the significant variables influencing coffee marketed supply of the district positively. Major problems of production and marketing in the study area were poor market infrastructure, coffee disease, poor market information, traders market power, lack of draying bed, land scarcity, lack of credit service and presence of informal traders. Based on the study results, policy interventions required to raise marketed supply of coffee in the study area are recommended.

Key words: - *Coffee, coffee marketing channel, margins, Market conduct, Marketed surplus, market performance, market structure, Multiple linear regression, producers, traders*

1. INTRODUCTION

1.1. Back Ground

Coffee is an important commercial crop of the tropics and is the native of tropical rainforests of Ethiopia and Central Africa. It is of great significance in the world economy as the largest single commodity entering the international trade, after petroleum and petroleum products and it is being grown in more than 80 countries. The reports of International Coffee organization details that coffee is supporting millions of small farmers and creates enormous employment opportunities in rural areas(ICO,2014).

Two important economic species of coffee grown across the world are Arabica (*Coffeaarabica*) and Robusta (*Coffearobusta*) which accounts for more than 70 percent of world production. Major Coffee growing countries have been distinguished under four regions: Africa, North and Central America, South America, Asia and Oceania regions. Across these regions, Brazil, Columbia, Indonesia, Vietnam, Mexico, Ethiopia, India, Guatemala, Cote de Ivory and Uganda are being recognized as top 10 coffee growing countries (COFFEE FAIR, 2009).

The production of coffee is of an enormous relevance for Ethiopia, playing a dominant role in economy, ecology, socio-cultural and spiritual terms. The agriculture based Ethiopian economy is highly dependent on coffee since it accounts for more than 25% of the GNP and 65% foreign currency of all export earnings. Coffee production in Ethiopia is the driving force since over a million coffee farming households and about 25% of the total population of the country is dependent on production, processing, distribution & export of coffee [World Bank, 2009].

Like many other developing nations, Ethiopia relies greatly on the trade of primary agricultural goods where coffee is the most important and strategic crop. Ethiopia is the world's 5th largest and Africa's top coffee producer, with 273400 metric tons in 2010 (FAOSTAT, 2011). In the same year, the country exported 179283 tons of coffee with a value of about USD 562 million, and this accounted for 24% of the total quantity and 50% of the

total value of agricultural products exported, and 26% of the total value of country's export (ECEA, 2012). The coffee production and export figures obtained from FAOSTAT (2011) indicate that 34% of the Coffee produced in Ethiopia in 2010 was consumed locally, while the remaining 66% of the total production was exported to the world market.

As the East African Fine Coffee Association (EAFCA), one-third of Ethiopia's coffee exports for the most recent year were washed. Historically, washed coffees receive higher prices and quality than unwashed, hence expanding washed coffee processing has been a sector development objective for Ethiopian coffee for many years [EAFCA, 2008]. Small scale farmers which account for 90–95% of the total production produce most coffee with 1-2 hectares of land [Petit, 2007].

The varieties of distinctively flavored coffee beans produced in Ethiopia, based on their contribution to the country's export, are Jimma, Gimbi, Lekempti, Sidama, Yirgacheffe and Harar. These coffee types are internationally recognized and marketed either in blend or as 100% Ethiopian products and they command better prices [FDRE, 2009]. Ethiopia produces around 4% of world production and more than 30% of the total production in Sub-Sahara Africa and the government favors the export of high grade coffee and restricts its sale on the domestic market (MoARD, 2009).

Kercha district is found in Guji zone, Oromia national regional State. In the District, most farmers (83 %) are growing coffee as the main source of income. Maize and enset are also cultivated mainly as alternative food source and market sale. Kercha Agriculture Development office, in 2015 reported that about 20,240 tons of coffee was produced in the district in the year 2015. This represents about 11.7% of Oromia's regional output and 7.4% of Ethiopia's total output. Given the economic and social importance of coffee to the country in general and specifically to the study area, an efficient marketing system may contribute to an increase in the marketable surplus by scaling-down the losses arising out of the inefficient processing, storage, and transportation. It guarantees the farmers better prices for their products and induces them to invest their surplus in the purchase of modern inputs so that productivity may

increase (Kohls and Uhl, 1998). Therefore the current study aims for analyzing coffee market channel and performance of coffee market.

1.2. Statement of the Problem

Ethiopia is endowed with environment suitable for producing high quality coffee beans. Despite this, Ethiopian coffee industry has been suffering from a number of multifaceted limitations. The problems relate to production, processing and marketing. In terms of production, Ethiopian coffee remains to be low yield due to, among others, lack of advanced technology, lack or shortage of cultivars suitable for different localities. In relation to processing, the main interest at stake is the quality of the coffee. Coffee quality plays irreplaceable role in the increasingly competitive international coffee market (Berhe, 2010).

The major constraint to increasing the welfare of smallholders is their inability to access markets. Enhancing the ability of poor smallholder farmers to reach markets and actively engage in them is one of the most pressing development challenges. Remoteness results in reduced farm-gate prices, returns to labor and capital, and increased input and transaction costs. This, in turn, reduces incentives to participate in economic transactions and results in subsistence rather than market-oriented production systems. Sparsely populated rural areas, and high transport costs are physical barriers to accessing markets; lack of negotiating skills, lack of collective organizations and lack of market information are other impediments to market access (Jones, 1972).

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 and negotiate on a more even footing 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. Thus, the market information is critical to the law of one price and to the price discovery process (Khols and Uhl, 1985).

Without having convenient marketing conditions, the possible increment in output, rural incomes and foreign exchange resulting from the introduction of improved production

technologies could not be effective. An improvement in marketing efficiency, thus, attracts the attention of many countries and viewed as an important national development strategy (Assefa, 2009).Market chain analysis is supposed to be the current approach working in studies of such type of production and marketing problems. Analysis of the system in terms of coffee market structure, conduct and performance taking in to consideration the product and location specificity will, therefore, be used to identify the bottlenecks and come up with precise possible solution. Even though coffee is economical and socially important, Coffee market chain and their characteristics have not been yet studied and analyzed for the district. Since the district is one of the major coffee producing area in the region, this study attempts to fill the information gap by investigating the coffee market chain and factors affecting coffee supply in kercha district Guji zone of Oromia region.

1.3. Research Questions

This study attempted to answer the following research questions:

1. What are the existing coffee marketing channels in the study area?
2. How the structure, conduct and performance of the coffee market organized and working?
3. Who gets the major share of the marketing margins in coffee marketing Channels at the study area?
4. What are the determinants of market supply of coffee in kercha district?

1.4. General objectives

The general objective of this study was to analyze coffee marketing chains in the case of kercha district.

1.4.1. Specific Objectives

1. To identify and describe the existing market chain of coffee in the study area;

2. To assess the structure, conduct and performance of coffee market chain in the study area;
3. To identify the determinants of coffee supply by farm house hold in the study area;

1.5. Scope and Limitations of the Study

This study was conducted in kercha Woredas and important information were collected from sample households and marketing actors involved in the subsector organization in the study areas. Hence, the study was limited spatially as well as temporally to make the study more representative in terms of wider range of area, and time horizon. Furthermore, since there are A number of known Districts in coffee production in the region. However, the study focused only in Kerch District due to budgetary and time limitations. The result of the study may have limitations to make generalizations and make them applicable to the country as a whole. However, it may be useful for areas with similar context with the study areas.

1.6. Significance of the Study

This study provides information on the determinants of coffee supply to the market, market structure conduct and performance in the study areas. Therefore, it could shed light on required efforts to enhance the production and utilization of coffee at larger scale to bring about economic development in the area. The information generated could also help a number of organizations including: research and development organizations, traders, producers, policy makers, extension service providers, government and non-governmental organizations to assess their activities and redesign their mode of operations and ultimately influence the design and implementation of policies and strategies. It could also help different actors to identify and analyze new ways of stimulating innovation.

1.7. Organization of the Thesis

The remaining parts of this thesis are organized in to the following chapters. The second chapter consists of the review of the literature. Methodology is outlined and described in the third chapter. The fourth chapter deals with the results and discussion. Summery, conclusions and recommendations are presented in the fifth chapter.

2. LITERATURE REVIEW

In this chapter, definition of basic concepts, approaches to study marketing, and structure-conduct-performance analysis are discussed. In relation to these issues, the chapter highlights about the production and marketing of coffee in the World, Africa and Ethiopia. Review of empirical literature on market chain analysis in Ethiopia and other parts of the world were also included.

2.1. Theoretical Literature Review

2.1.1. Basic Concepts and Definitions

Marketable surplus: It is the quantity of the produce left out after meeting the farmer's consumption and utilization requirements for kind payment and other obligations such as gifts, donations, charity, etc. Thus, marketable surplus shows the quantity left out for sale in the market.

Marketed surplus: It is the quantity actually sold after accounting for losses and retention by the farmers, if any and adding the previous stock left out for sale (Thakur *et al*., 1997). Thus, marketed surplus may be equal to marketable surplus, it may be less if the entire marketable surplus is not sold out and the farmers retain some stock and if losses are incurred at the farm or during transit.

2.1.2. Market Structure, Conduct and Performance Analysis(S-C-P)

Structure of the market

Market structure shows trends in the number and size of firms relative each other and to the number of consumers and producers in particular time and place (Malhotra, 1996). It explains about Presence /absence, the levels and nature of entry barriers distribution of market information and its adequacy in sharpness of prices and quantity compositions and individual risk (Kohls and Uhl, 1985; abbot; 1958).

Conduct of the market

Market conduct refers to the patterns of behavior that enterprises follow in adopting or adjusting to the markets in which they sell or buy (Bain, 1968). Such a definition shows the analysis of human behavioral patterns that are not readily identifiable, obtainable, or quantifiable. Thus, in the absence of theoretical frame work for market analysis, there is a tendency to treat conduct variables in descriptive manner. The specified structure features of homogeneous product, and free entry and exit require a form of conduct such that each firm must operate as if in isolation. Market conduct is exceedingly complex, encompassing as it does virtually all human decision masking within business organizations and, by extension, household, on top of the market structure, the legal environment and the internal organization of the business enterprise influence the market conduct (Wolday, 1994).

Bain (1968) names two closely interrelated aspects of market conduct: the manner in which, the devices and mechanisms by which, the different sellers coordinate their decision and action, to each other, or succeed in marketing them mutually consistent as they react to demand for their products in a common market, and the character of pricing policies and related market policies that the sellers in the industry adopt; assessed in terms of individual or collective aims or goals that they pursue as they determine their selling prices, their sales promotion outlays, the designs and qualities of their products and so forth. By examining the relationship between the factors of the market structure and their setting practice; it may be possible to make some predictions about the consequences of these behavioral patterns for performance.

There are no agreed upon procedures for analyzing the elements of market conduct. Rather, previous researchers' point to some guide lines in the form of questions. These questions provide a systematic way to detect indications of unfair price setting practice and the condition under which such practice are likely to prevail. More specifically, they cover the following topics: the existence of formal and informal marketing groups that perpetuate such practice; formal and informal producer groups that affect bargaining power; the availability of price information and its impact on prevailing price; the distance from the major market and its impact on price; and the feasibility of utilizing alternative market outlets. The questions

also provide an indication of the type of data needed and data collection procedures (Scott, 1995).

Market performance

Market performance according to Bain refers to the composite of results that firms in the market arrive at by pursuing whatever line of conduct them espouse-end results in the dimensions of price, output, production and selling cost, product design, and so forth. For firms acting as sellers, these results measure the character of the firm's adjustment to the effective demands for their outputs; for firms buying goods, they measure the quantity of adjustments made by firms to the supply conditions of the goods, they purchase. There are two main indicators of market performance: Net return and marketing margin (Wolday, 1994).

Estimation of net returns and market margins provide indications of an exploitative nature when returns of buyers are much higher than the fair amount, that is including all marketing costs and return to management and risk, and when market margins increase not because of higher real marketing costs but because prices paid to producers are lower. The analysis of market performance using the industrial organization framework is as follows: Collusive pricing (market conduct) becomes possible if (i) market concentration is high (market structure); (ii) entry barriers are high (market structure); and (iii) market information is not available to all participants (market conduct) (Cramer and Jenson, 1982).

Market performance can be evaluated by analysis of costs and margins of marketing agents in different channels, and market integration. A commonly used measure of system performance is the marketing margin or price spread. Margin or spreads can be useful descriptive statistics if used to show how the consumer's price is divided among participants at different levels of the marketing system (Getachew, 2002).

Marketing costs and margin

Marketing costs: Marketing costs refers to those costs, which are incurred to perform various marketing activities in the shipment of goods from producers to consumers. Marketing cost includes: Handling cost (packing and unpacking, loading and unloading putting inshore and

taken out again), transport cost, product loss (particularly for perishable fruits and vegetable), storage costs, processing cost, and capital cost (interest on loan), market fees, commission and unofficial payments (Heltberg and Tarp, 2001).

Marketing margin: A marketing margin is the percentage of the final weighted average selling price taken by each stage of the marketing chain. The total marketing margin is the difference between what the consumer pays and what the producer/farmer receives for his product. In other words it is the difference between retail price and farm price (Cramers and Jensen, 1982). A wide margin means usually high prices to consumers and low prices to producers. The total marketing margin may be subdivided into different components: all the costs of marketing services and the profit margins or net returns. The marketing margin in an imperfect market is likely to be higher than that in a competitive market because of the expected abnormal profit. But marketing margins can also be high, even in competitive market due to high real market cost (Wolday, 1994).

There are three methods used in estimating marketing margin (Abbot, 1958): (a) following specific lots of consignments through the marketing system and assessing the cost involved at each of the different stages (time lag); (b) submission of average gross purchase by the number of units transacted for each type of marketing agency; and (c) comparison of prices at different levels of marketing over the same period of time (concurrent method). Because the first two methods are time consuming, in this study the third method was used.

Among these different marketing study approaches Structure, conduct and performance (S-C-P) approach was used in this study because its popular approach used to study marketing and most related studies used this approach.

2.1.3. Coffee Production, Processing and Marketing

Production

Coffee is produced in more than 50 developing countries providing income for approximately 25 million smallholder producers (DFID 2004; Oxfam 2002b), and employing an estimated 100 million people (NRI 2006). World coffee production in2006/2007 is forecasted at 7416000metric tons and world coffee export is forecasted at 5568000 metric tons (USDA 2006). In 2005/2006, 52 percent of world production was accounted by the three main coffee

producers (Brazil, Colombia and Vietnam), Brazil currently supplying about a third of total production (ICO statistical database).

Currently, Ethiopia is the leading Arabica coffee producer in Africa, the fifth largest worldwide and the tenth in coffee exports worldwide. The average annual production amounts to about 350,000 tons. The average yield is about 0.71ton/ha. Ethiopian coffee is intrinsically organic and renowned for its superior quality (FAO, 2014).

One of the strategic directions for the agricultural sector development during GTP period is focusing on the production of high value crops, including coffee. The GTP outlines an increase in coffee production from a 2009/10 level of 341,000 ton in to 831,000 ton in 2014/15 - an over 240% increase. During the same period, the area under production coffee is planned to increase from 462,000 ha to 815,000 ha a170%geographic expansion. Similarly, over this period coffee exports are estimated to increase from 172,210 tons to 600,970 tons and similar to increase export earnings of coffee from $528 million to $2.037 billion, which represents a 380 % growth (FAO, 2014).

Agrisystems (2001) estimates the number of coffee farmers at 1.3 million. With an assumed family size of six to seven people, the numbers of Ethiopians associated with coffee growing can be as large as 7–8 million. Moreover, coffee is labor intensive during harvesting and processing, and provides an important source of income from casual labor for many poor rural people. Adding those employed in transporting coffee and ancillary activities, LMC (2000, 2003) estimates that 15 million people are dependent on coffee for at least a significant part of their livelihoods.

Two coffee species are currently used for commercial purposes: Coffea Arabica and Coffea canephora (also known as Robusta). Ethiopia produces only Arabica coffee, which is widely believed to have originated there. Arabica coffee still grows wild in the forests of the south-western part of the country, which remains an important source of genetic resources for the world coffee industry (Gole 2003).

The land area under coffee cultivation is difficult to determine because plots are fragmented and interspersed with other crops. It is estimated, however, that Ethiopia has over 320,000 hectares of coffee trees. Annual production ranges from 200,000 to 250,000 metric tons,

depending on weather and prices. About 35% of total production has consumed locally (fao.com).Coffee farming systems in Ethiopia are conventionally divided into four categories: forest coffee, semi-forest coffee, garden coffee and semi-modern plantation. Yields are considered to be very low compared to other countries, with estimates of less than 200kg per ha for forest coffee and around 450–750 kg per ha for semi-modern coffee plantations (FDRE 2003a).Most coffee farmers do not use fertilizers, pesticides or herbicides (LMC 2013).

An accurate estimate of production is difficult because part of the harvest is gathered from semi-wild and wild forests, and a good proportion of the crop is consumed on farmor locally (Agrisystems, 2001). Most recent ICO estimates suggest that over the past five years annual production has fluctuated between 2.8 and 5 million (60 kg)bags (ICO statistical database), while the United States Department of agriculture forecasts a harvest of 5.5 million bags in 2006/7 (USDA 2006).

Each woreda (district) is classified as a major, medium and minor coffee grower based on the area covered by coffee trees (FDRE 2003). Coffee production is concentrated mainly in the Oromia and the Southern Nations, Nationalities and People's Region (SNNPR). Major and medium growing woredas contain an estimated 800, 000 coffee farmers with approximately 520,000 ha under coffee, of which 63.3 percent is in Oromia, 35.9 per cent in SNPP and 0.8 per cent in Gambela.

Smallholder producers are responsible for about 95 per cent of production, while state-owned plantations account for 4.4 per cent and private investor plantations 0.6 percent (FDRE 2003a). Finally, coffee from each significant Ethiopian producing region has a particular taste characteristic and a number of these coffee types are internationally well known. According to the International Trade Centre, 'Ethiopia produces some of the world's finest "original" coffees such as Yirgacheffe, Limu and Harar' (ITC 2002, 2009).

Table 1. Coffee Producing World Leading Countries (in 000 bags)

(Volume in 000 bags - % change of world producti**on)**				
No	Countries	2010/11	2011/12	PercentageChange
1	Brazil	47200	43484	-7.87
2	Vietnam	18725	18500	-1.2
3	Indonesia	10750	8750	-18.60
4	Colombia	9000	8500	-5.56
5	Ethiopia	4200	8313	97.93
6	India	5133	5370	4.62
7	Mexico	4600	4500	-2.17
8	Honduras	3800	4300	13.16
9	Guatemala	4010	3450	13.97
10	Uganda	3200	3300	3.13

Source: Source: Ministry of Trade, 2012

Coffee processing

After harvesting, coffee cherries are processed by two widely applied methods, namely dry and wet processing. For unwashed Arabica (or sun-dried coffee), the cherries are dried on mats, concrete, or cement floors immediately after they have been picked. After drying to a moisture content of about 11.5 per cent, the outer layer of the cherries are removed by hulling and the green bean obtained is ready for marketing. For washed coffee (wet processed coffee), once the cherries are harvested they are pulped, fermented in tanks and then finally washed in clean water. The wet parchment coffee so obtained is then dried in the sun on raised tables and sorted at11.5 per cent moisture content (IFPRI 2003).

Currently, there are more than 1000 coffee cherry processing plants in the country, with approximately 492 hulleries and 601 washing stations. The coffee washing stations are owned by private individuals, farmers' cooperatives or state enterprises, and have an estimated total processing capacity of around 80,000 tons of washed coffee per annum (FDRE 2003a).

Historically, over 90 percent of Ethiopian coffee was sun-dried. However, since washed coffee sells at significant premiums over sundried coffee, the government has encouraged cooperatives and traders to invest in machinery to raise the output of washed coffee (LMC 2003). In 1980/1, washed coffee was only 9.1 per cent of total coffee exports; by 2004/5, it increased to 32.7 percent (FDRE 2006).different regions separate in order to maintain the distinctive flavor of the different regions (LMC 2003)

Coffee marketing

In the current domestic coffee marketing chain, the coffee bean passes through the hands of several market players before reaching the auction market for export. Small amounts of coffee are produced by an estimated 1.3 million farming households (Agrisystems Ltd, 2001) dispersed over a wide geographical area. It is then collected at dispersed primary market centers by thousands of licensed or unlicensed collectors (sebsabys) or village traders and delivered to private or cooperative wholesalers (akrabys) or to their agents.

These small lots are bulked and transported to processing centers, from where they are delivered to the central auction markets in Addis Ababa and Dire Dawa. Eventually exporters purchase the coffee from the auction center, process it to export standard and then export it to overseas markets. The deregulation of the marketing system opened up opportunities for the private sector to participate in all tiers of the marketing chain. As a result, the primary coffee marketing chain is characterized by a large number of buyers and sellers with relatively better levels of competition compared to the pre-reform period. In 2005/06 about 1,080 active wholesalers and over 89 active exporters were participating in coffee marketing (AMPD, 2006).

This increase in private sector participation raised the coffee supply to the auction market from 60,000 tons in 1991 to 221,000 tons in 2005/06. However, as some anecdotal information on the post-reform coffee marketing system in Ethiopia shows, this has resulted in the concentration of power at the export market, mounting illegal trade across borders, unhealthy competition in the primary and auction markets, and high transaction costs (AMPD, 2006; Petit, 2007).

Historically coffee accounted for over 60 per cent of Ethiopia's total export revenues (LMC 2000). While this proportion has dipped significantly in recent years with a revival in the prices of major Ethiopian exports in the international market, total coffee export earnings registered substantial growth in 2003/4 and 2004/5 due to increased export volumes. Coffee has also long been an important source of tax revenue to the government.

The bulk of current Ethiopian exports go to Japan, Germany and Saudi Arabia. There is a high degree of dependence on these three markets, which absorbed 63.3per cent of Ethiopia's

coffee exports in 2003/2004 (FDRE 2006). Moreover, exports to Japan, Germany and Saudi Arabia have risen in the last 20 years, while exports to the USA have declined (FDRE 2006). The bulk of coffee is exported as green bean for roasting in consuming countries. Although the total share of its coffee exports in world trade is small, Ethiopia plays an important role in the 'global value chain' because of the fine quality of its coffees (Daviron and Ponte 2005).

Table 2. Ethiopian contribution to world coffee market (1000, 60kg bags)

Description	2010/11	2011/12	2012/13	2013/14
Ethiopia coffee production	6113	6320	6325	6345
World coffee production	140,447	144,040	153,268	150,465
Ethiopia contribution to world market	4.35%	4.39%	4.13%	4.16%

Source: Ethiopian Customs Authority, 2014

Table 3. Coffee Trade performance of Ethiopia

Year	Volume in Tone	Value in Million USD	Percentage growth	
	Volume	Value	Volume	Value
2005	159,845	334.5	0	0
2006	153,155	365.8	-4.2	9.4
2007	176,390	424.1	15.2	15.9
2008	133,993	375.8	-21.6	-28.5
2009	133,993	375.8	-21.6	-28.5
2010	172,211	528.3	28.5	40.6
2011	196,118	841.6	13.9	59.3
2012	169,392	833	-13.6	-1
Average	169.883.1	528.6	-	-

Source: Ministry of Trade, 2012

Table 4. Kercha district contribution to Ethiopian Coffee Market (1000, 60kg bags) (2011/12-2015/16)

Description	**2010/11**	**2011/12**	**2012/13**	**2013/14**
Total production of kercha	199.36	201.25	223.56	228.56
Total production of Ethiopia	6113	6320	6325	6345
Contribution of kercha to Ethiopia coffee market	3.26%	3.18%	3.53%	3.6%

Source: Ethiopian commodity exchange and own computation, 2015

2.2. Empirical Literatures on Market Chain Analysis

A number of studies pointed out factors that centrally affect marketable supply of agricultural Commodities. For example, Mohammed (2012) identified the major factors that affect the supply of coffee in Nensebo district of Oromia region using multiple regression econometric model. The results of his econometric analysis shows that output, access to market information, family size and distance to market as the main factors affecting coffee supply to the market. Family size and market distance affect the quantity supply negatively.Hence, difference in the marketing system of these commodities, type of commodities, and location of the study area can result in differences in factors affecting marketable supply of the commodities.

According to the study by Ruth *et al.* (2002), in the private marketing chain, coffee farmers from Jimma get approximately 27% of the export price. The authors indicated that the small share is attributable to the rather long marketing chain, the number of people involved in it, and the inefficiency of the marketing infrastructure (such as transport, storage, and local authority taxes). In their comparison, farmers in the other regions of Ethiopia receive a higher share of the producer price (approximately 54%), partly because the quality of their coffee is higher, and this still compares poorly with Ugandan farmers, who receive 70% of the producer price, and those in Kenya, who receive 80% of the producer price.

Dessalegn (2009) studied the performance of coffee marketing in south west Ethiopia, Bench Maji zone using Engle and Granger Co-integration and error correction model. The study indicated that there is no efficient use of available information by the participants and thus markets are not fully integrated. Land scarcity, coffee disease, presence of informal traders', poor quality coffee, poor market information, lack of drying and packing materials are among the major problems identified in the study area.

Tadesse *et al.* (2008) attempted to analyze the impact of coffee market liberalization on producer prices and price transmission signals from world markets by employing Co-integration and Error-Correction Model (ECM). The findings indicate that the reforms induced stronger long-run relationships among grower, wholesaler and exporter prices. Their estimation of the ECM showed that the short-run transmission of price signals from world to

domestic markets has improved, but has remained weak in both auction-to-world and producer-to-auction markets, which might be explained by the weak institutional arrangement coordinating the domestic coffee system and contract enforcement. In their conclusion, the authors indicated that domestic price adjusts more rapidly to world price changes today than it did prior to the reforms.

Wolelaw (2005) identified the major factors that affect the supply of rice at Fogera *Woreda* using multiple linear regressions as a model to study the relationship between the determining factors of supply and the marketable supply of rice. His study revealed that the current price, lagged price, total amount of rice production in the farm, consumption in the household and weather had affected marketable supply of rice.

Kindie (2007) identified major factors that affect marketable supply of sesame in Metema *woreda* using cross-sectional data. His study revealed that the amount of productivity of sesame, number of oxen owned, number of languages spoken by the head of the household, modern inputs used, sesame area, and time of selling of sesame influenced marketable supply positively.

In related studies, Rehima (2007) identified that the major factors that affect marketable supply of pepper at Alaba and Siltie of SNNPRS using cross-sectional data with both dummy and continuous independent variables. To identify the variables, Rehima (2007) study revealed that market distance, quantity of pepper produced, frequency of contacts with extension agents and access to market information influenced marketable supply of red pepper.

Moti (2007) also found out interesting research findings in his study of econometric analysis of horticulture production in central and eastern Ethiopia. In his wide research report, he documented findings of the role of horticulture for export earnings stability, farm resource allocation between food crops and cash crops, household decision making in crop choice-land allocation and market out let choice, and the influence of asymmetric price information on bargaining power of horticulture farmers.

Bosena (2008) adopted multiple regression model to identify major factors affecting farm level market supply of cotton at Metema district of Amhara region. The results obtained from

this analysis indicated that number of oxen owned by household, land allocated for cotton in hectare, the productivity of cotton per hectare, and access to credit for cotton significant factors affecting farm level cotton market supply.

3. RESEARCH METHODOLOGY

3.1. Description of the Study Area

Kercha district is located between**5^0**58'24"-**6^0**22'48"N latitude and **38^0**57'22"-**41^0**34'55"E longitude, it is boarded by Borena zone of Dugda dewa in south nation of Gedeb district in west Oddo shakiso and uraga district in East and Aembela wamena in North. Kercha district is one of the 15 woredas in the Guji zone of Oromia regional state. It is located at 475 kms south East of Addis Ababa and 356km far away from center of Zonal administration center Negele town. The district includes 38 peasant associations (PAs) with a total population of 274,362. Among 38 kebeles, 92% of them are the measure coffee producing kebeles of the district and out of the total land coverage of the woreda 31857 hectares covered by coffee production (KWOA, 2008). Therefore, this study particular will focus on undertaking in this measure coffee producing area of the district.

There are 30 peasant associations and 8 urban peasant associations. The number of agricultural households in the Woreda was 32,384 (27,386 male headed (78%)) and 4998 female headed (22%)) while the total population of the Woreda was 274,362 from which 145,411 are males and128,951 females (CSA, 2009).The average annual rainfall of the district is 1537 mm with low variability. It is bimodality distributed in which the small rains are from March to April and the main rainy season from June to October. Hence, crop and livestock production is not constrained by the amount and distribution of rainfall. Altitude in kercha ranges from 1600 to 2850 meters above sea level(masl). Most parts of the Woreda lay between 1700 - 1850masl.However, few of the areas in the Woreda have altitudes ranging from 2000 to 2850 masl.

Nitosols is the most abundant covering about 90% of the Woreda. These soils are young soils and are generally acidic soils. However, farmers grow crops that are acid tolerant. The pH of the soils in Kercha ranges between 4.5 and 5.5.

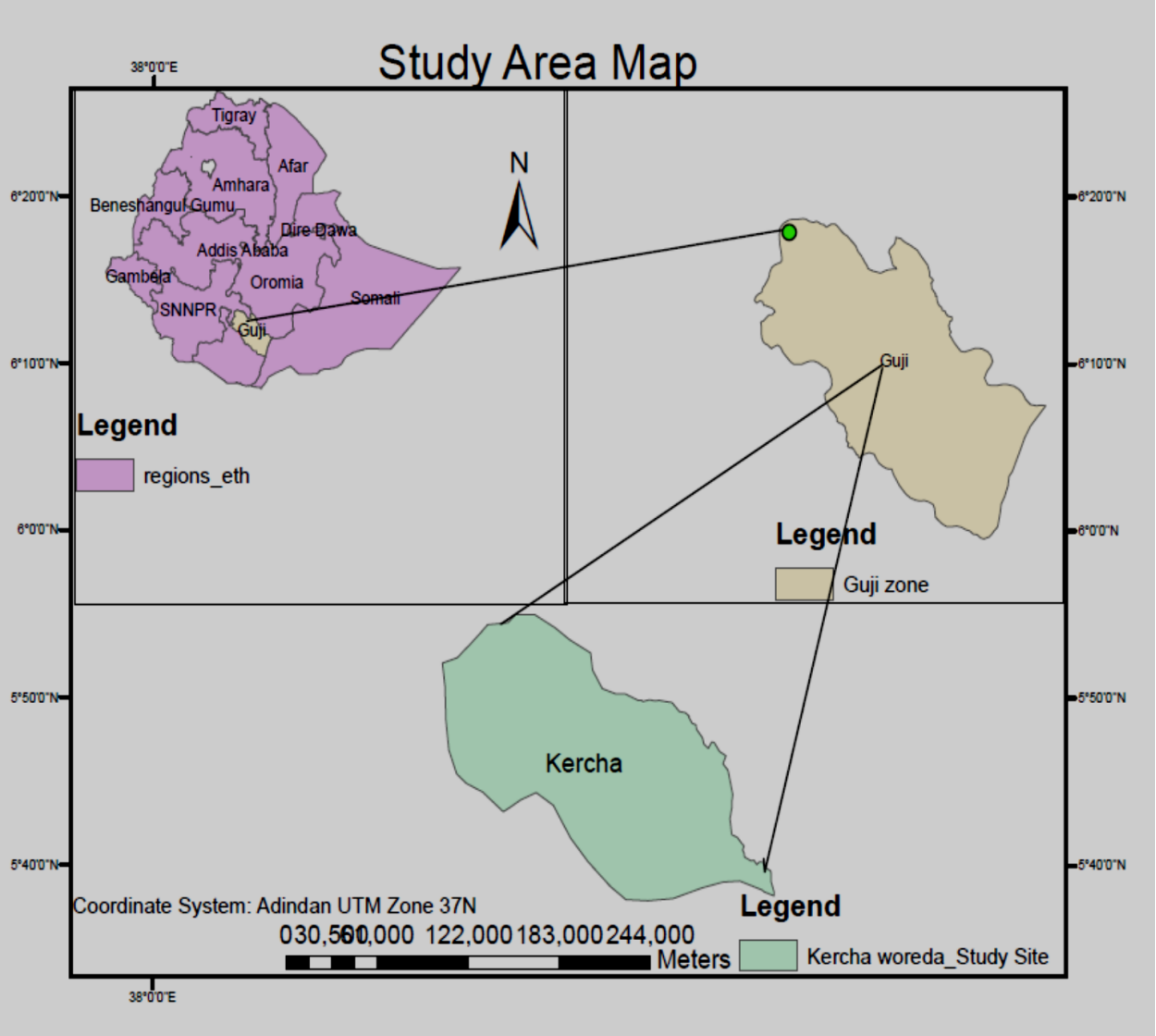

Figure 1.Location of the study area

3.2. Types and Sources of Data

In order to address the objectives of the study, both primary and secondary data were used. The primary data were collected using two types of interview schedule, one for farmer's and the other for traders. The primary data from farmers were focus on, coffee productivity, land owned, credit access, access to market information, extension service, and demographic characteristics of the household. Moreover, the interview schedule for traders includes: types of traders (wholesalers, local collectors, retailers etc.), buying and selling strategies, source of market information and demographic characteristics.

Secondary data are collected from different sources, such as , the District Agricultural Office, Ethiopian commodity exchange (ECX), district trade& marketing development office, reports, bulletins and websites. Published and unpublished documents were extensively reviewed to secure relevant secondary information.

3.3. Data collection and Sampling Methods

Two independent questionnaires were designed for farmers and coffee traders. The structured formal interview guidelines were prepared and piloted before data collection in order to include all the necessary information. The formal survey were made with randomly selected farmers and traders using the pre-tested structured questionnaires., data collection tools like, key informant (3 key informants were used from Districts agriculture office and trade and market development office) interview were utilized for data collection process. Enumerators, who know the local language and have acquaintance with the culture of the local people were selected, trained and employed for the data collection

General overview about the study area was obtained from District Office of Agriculture (DOA), woreda office of trade and market development and district rural land administration office (DRLAO) to organize important information to develop a questionnaire for the formal survey and to select sample PAs. The surveyed PAs were Guracho, Dibsa, Egu abay and Bedessa coffee producing PAs.

Producers survey

Multi-stage random sampling procedure is employed to select specific coffee producer households. In the first stage Kercha Woreda is selected purposively. In the second stage, by using Simple Random Sampling technique four PAs are selected from the available 38coffee producing PAs. Finally based on the sampling frame collected from each PAs, Systematic Random Sampling is used at the third stage to select the sample coffee producing farmers (Table5).

For populations that are large, Cochran (1963:75) developed the following Equation to yield a representative sample for prop$= \frac{\boldsymbol{Z^2 Pq}}{\boldsymbol{e^2}}$ (1)

Where, $\boldsymbol{n_o}$ is the sample size, **Z** is the standard normal distribution (1.96) at **α**= 0.05, p is the estimated proportion of an attribute that is present in the coffee growing population (in this case 11% of population is considered) and **q** is **1-p**, **e** is the desired level of precision, (in this case 0.05). Therefore,

$$\boldsymbol{n_{o=}} \frac{(\mathbf{1.96})^2(\mathbf{0.11})(\mathbf{0.89})}{(\mathbf{0.05})^2} = \mathbf{150}$$

For the finite number of population known (in these case 28,452 coffee growing farmers) are available in coffee growing kebeles of the district. Finite population correction for proportions will be needed. If the population is small then the sample size can be reduced slightly. This is because a given sample size provides proportionately more information for a small population than for a large population. Hence, the sample size ($\boldsymbol{n_o}$) in equation 1 can be adjusted using the following Equation (Cochran, 1963).

$$\boldsymbol{n} = \frac{\boldsymbol{n_o}}{\mathbf{1}+\frac{(\boldsymbol{n_o}-\mathbf{1})}{\boldsymbol{N}}} (2)$$

Where n_o is sample size calculated in equation (1) assuming infinite number of population, **n** is the adjusted sample size for population known, and **N** is the population size. Therefore, out of 28,452 total coffee producing farmers, **150** sample coffee farmers were selected. Many researchers commonly add 10% to the sample size to compensate for persons that the researcher is unable to contact (Israel 1992). Similarly the same method was applied for this research. So, the sample size in this studywas**150** plus 10% which is (**15**) thus the total numbers of respondents were (**165**).

Table 5. Sample distribution of coffee Producers

NO	**Kebele**	Producers	
		Population	**Sample**
	Bedessa	316	40
	Dibsa	260	38
	Egu abay	226	45
	Guracho	210	42
Total		**1012**	**165**

Own computation, 2015

Traders' survey

The trader surveys were conducted at center of district town, &primary market level (for Wholesalers and collectors) and Ethiopian commodity exchange Hawasa branch in which appropriate coffee market data existed. On the basis of flow of coffee, three markets (Guracho, Bedessa and kercha) were selected purposely, which has different potential in coffee supply in the study area. Then, 41 coffee traders werepurposively selected based on volume of purchased coffee for the purpose of the study.

Table 6.Sample distribution of Coffee Traders

NO	Market area	Market actors				Total	
		Suppliers		Collectors			
		Pop.	Sample	Pop.	Sample	Pop.	Sample
1	*Bedessa*	15	4	18	5	33	9
2	*Guracho*	16	5	32	8	48	13
3	*Kercha*	36	10	36	9	72	19
	Total	67	19	86		153	41

Own computation, 2015

3.4. Method of Data Analysis

3.4.1. Descriptive Statistics

Descriptive data analysis methods such as ratios, percentages, means and standard deviations were used in order to examine socioeconomic and institutional characteristics of coffee producers and traders in the marketing channels, and the structure, conduct and performance of coffee markets in the study area.

3.4.1.1. Structure conduct and performance (S-C-P) model

The model examines the fundamental relationships between market structure, conduct and performance, and is usually referred to as the Structure, Conduct, and Performance (S-C-P model. Wolday (1994), Rehima (2006) and Bosena (2008) also used this model to evaluate food grain, pepper and cotton market respectively. Therefore the study used S-C-P model to evaluate coffee market.

Market Structure

Structural characteristics like market concentration, industry maturity, product differentiation, government participation, barriers to entry and exit, were the basis to be considered. In this regard, one can categorize markets as perfectly competitive, monopolistic, or oligopolistic (Bain, 1968; cited in Pomeroy and Trinidad, 1995). Among the major structural characteristics of a market is the degree of concentration, that is, the number of market participants and their size distribution and the relative ease or difficulty for market participants to secure an entry into the market (Gebremeskel *et al.*, 1998). Market concentration and Barriers to entry were used for evaluating the market structure in the study area.

Market concentration: Market concentration is defined as a number and size distribution of sellers and buyers in the market. Other factors, such as the firm's objectives, barriers to entry, economics of scale, and assumptions about rival firm's behavior, were relevant in determining the degree of concentration, the relationship between concentration and behavior and performance (Scherer, 1980).

$$\mathrm{MS}_i = \frac{Vi}{\sum vi} \qquad (3)$$

Where,M_i=market share of buyer i.

V_i=amount of product handled buyer i.

$\sum Vi$=Total amount of product

$C = \sum_{i=1}^{r} si$(4)

Where,$C =$ concentration ratio hadled

S_i= the percentage market share of i^{th} firm and

r = the number of largest firms for which the ratio is going to be calculated. Kohls and Uhl (1985) suggested that as a rule of thumb, a four largest enterprises concentration ratio of 50 percent or more is an indication of the existence of a strongly oligopolistic industry, 33 to 50 percent is a weak oligopoly, and less than that is an unconcentrated industry.

Barriers to entry: Bain (1968) contends that a barrier to entry is simply any advantage held by existing firms over those firms that might potentially produce for the given market. Potential entry barriers were investigated based on: legal and institutional factors; scale economies; capital requirement; and informal traders'.

Market conduct

Market conduct refers to the behavior of firms or the strategies used by the firms in their pricing, buying and selling activities. There are no agreed up on procedures for analyzing the element of market conduct. Market conduct defines the conditions which make possible exploitative relationships between sellers and buyers. This is done via unfair price setting practices which Smith (1985) classified as collusive, predatory, or exclusionary. A systematic way to detect indications of unfair price setting practices and the condition under which practices are likely prevail. Moreover, they cover the following topics: (i) the existence of formal and informal marketing groups that perpetuate such practice, (ii) formal and informal producer groups that affect bargaining power, (iii) the distance from the major market and its impact on prices, and (iv) The feasibility of utilizing alternative market outlets. The following indicators were taken into consideration for this study; traders' price setting, purchasing and selling strategies, formal and informal marketing group that affect the bargaining power.

Market performance

Analysis of the level of marketing margins and their cost components were made to meet the second objective. Estimates of the marketing margins are the best tools to analyze performance of market. Marketing margin was calculated taking the difference between retail and producers prices.

Marketing margin: Calculating the total marketing margin was done by using Equation (6), below. Computing the total gross marketing margin (TGMM) is always related to the final price paid by the end buyer (in the ECX market) and is expressed as a percentage as cited in Mendoza (1991). The cost and price information used to construct marketing cost and margin were gathered from coffee market chain actors such as, collectors, service cooperatives, retailors, union and exporters and the total gross margin was determined using:

Gross marketing margin (GMM)=$P_1 - P_2$(5)

P_1= price received by a middleman,

P_2= price paid by the same middleman,

Or simply it is expressed in percent as:

TGMM=End buyer price-first seller price (6)

End buyer price

Where, TGMM = Total gross marketing margin It is useful to introduce the idea of 'farmer's portion', or 'producer's gross margin' (GMMp) which is the portion of the price paid by the consumer that goes to the producer. In this study, producers' share of the coffee wholesalers' price will be computed for the two marketing channels. The producer's margin is calculated as:

GMMp = End buyer price - marketing gross margin X100 (7)

End buyer price

Where, GMM_p = the producer's share in consumer price. The net marketing margin (NMM) is the percentage of the final price earned by the intermediaries as their net income after their marketing costs are deducted. The percentages of net income that can be classified as pure profit (i.e. return on capital), depends on the extension to such factors as the middlemen's own (working capital) costs.

NMM = Gross margin – Marketing costs X100…… (8)

End buyer price

Where, NMM = Net marketing margin

Another parameter related to marketing margin is the producer's share. The producer's share is the ratio of producer price (ex-vessel) to consumer price (retail). The producer's share can be expressed as

$P_{S=}\frac{P_X}{P_r} = 1 - \frac{MM}{P_r}$(9)

Where, P_S = the producer's share.

P_x = Producer price of coffee.

P_r =Consumer price of coffee.

MM = Marketing margin.

The above 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.

3.4.2. Econometric analysis

Following Green (2003), the multiple linear regression model is specified as Y=f(lagged price, coffee productivity, size of coffee land, distance to the nearest market, access to market information, access to extension services, education level, sex, access to credit, age, family size etc.). The multiple linear regression can be specified in a matrix form as:

$$Y_{i=} = \beta_X + U_i \quad (10)$$

Where,Y_i = Coffee supplied to the market

β = a vector of estimated coefficient of the explanatory variables

X= a vector of explanatory variables

U_i= disturbance term

3.4.3. Specification Tests

When the assumptions of the Classical Linear Regression (CLR) model are despoiled, the parameter estimates of the OLS model may not be Best Linear Unbiased Estimator (BLUE). Hence, it is important to check the presence of multicollinearity and heteroscedasticity among the variables that affect the supply of coffee in the study area. Therefore, before fitting significant variables into the model for analysis, it was necessary to test multicollinearity problem among continuous variables and check associations among discrete variables, which seriously affects the parameter estimates. As Gujarati (2003) pointed out multicollinearity refers to a situation where it becomes difficult to identify the separate effect of independent variables on the dependent variable because there exists strong relationship

among them. In other words, multicollinearity is a situation where explanatory variables are highly correlated.

In this study variance inflation factor (VIF) was used to check multicollinearity of variables. The larger the value of VIF, the more troublesome or collinear is the variable$X_j$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. A popular measure of multicollinearity associated with the VIF is defined as:

VIF (X_j)= $(1 - R_j^2)-1$

Where,R_j^2 is the multiple correlation coefficients between explanatory variables, the larger the value of R_j^2 is the higher the value of VIF (X_j) causing higher collinearity in the variable (X_j) Test for omitted variable and heteroscedasticity were also conducted using Ramsey RESET test and Breusch-Pagan test respectively.

3.5. Definition of Variables and Hypothesis

In order to identify factors influencing coffee marketable supply both continuous and discrete variables were 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 were constructed.

3.5.1. Dependent Variable

Quantity of coffee Supplied (2015/16): It is a continuous variable that represents the dependent variable; the actual supply of coffee by individual households to the market, which is measured in quintal (100kg).

3.5.2. Independent Variables

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

Coffee yield (COF-YL): It is a continuous variable that can affect the household farm level marketed supply of coffee and since it was taken as a proxy for quantity production it is

measured in quintals per hectare. The variable is expected to have positive effect in smallholder marketed supply of coffee. As Kinde (2007) and Rehima (2006) productivity affects the farm level market supply as high productivity increases market supply and low productivity reduces market supply.

Distance to the nearest market (DS-MKT): It is a continuous variable measured in hours which the farmer spends to reach the nearest coffee market. If the farmer is located in a village that is further distant from the market place, he/she is poorly accessible to the market. The closer the market place the lesser will be the transportation cost and time spent. Therefore, it is hypothesized that this variable to be negatively related to the volume of coffee supplied. Different studies (Rehima, 2006 Abay**,** 2007 Adugna, 2009 and Mohammed, 2012) indicated particularly, rural communities in remote areas suffer from lack of transportation facilities.

Size of coffee land (SCL): This is a continuous variable that is measured by hectares. It is expected to affect the household level coffee marketed supply positively Bellemare and Barret (2006) indicated that the more land owned the more will be the chance to allocate and more to supply.

Lagged coffee price (2014/15): The variable lagged market price of the coffee is measured as the price of coffee received by the farmer in Birr per kilogram a year before. Tomek and Robinson (1990) argued that the product lagged price has direct relations with marketable supply and hence it is expected to affect the household marketed supply of coffee positively in such a way that prices of 2014/15 can stimulate production of coffee, and thus marketed supply for 2015/16.

Age of household head (AGE): It is a continuous variable and measured in years. This maybe the fact that age is a proxy measure of coffee farming experience of household. Aged households are believed to be wise in resource use, and it is expected to have a positive effect on marketable surplus.

Sex of the household head (SEX): According to Abay (2007), sex of the household head dictated that it is dummy variable that takes a value of one if the household head is male and zero otherwise. Both men and women participate in coffee production. It could take positive or negative signs of coefficients. The same as the above researcher this study hypothesized

that this variable is positive or negative signs in relation to marketable surplus of coffee production.

Cost of Transportation (COTR): It is a continuous variable measured in birr per quintal.This variable was hypothesizedto have a negative and significant impact on the supply ofcoffee to the market.The availability of transportation facilities helps to reduce long market distance constraint, offering greater depth in marketing choices (Jagwe, 2007).

Access to market information (MKT-INFO): It is a dummy variable taking a value of 1 if the farmer has access to market information and 0 otherwise. Here, market information is expected to affect coffee marketed supply of farm households positively. A study conducted by Mohammed (2012) identified that access to market information having significant positive effect on the quantity of coffee marketed.

Extension Contact related to coffee production (EXC-RCP): It is a continuous variable measured in number of visit by the farmer to Development Agent (DA). It is expected to have positive effect on volume of marketed supply of coffee through its stimulation of production and productivity. According to Adugna (2009), the aim of the extension service is to introduce farmers with new and improved agricultural inputs for better methods of increasing production and productivity in turn that increase marketable supply. So, this variable is assumed to have positive relation with farm marketable supply of coffee.

Education level of the household (EDLHH): It is a dummy variable considering farmers' education from illiterate up to the higher level of education. It takes 0 for illiterate and 1 for literate household. Households who have better knowledge are assumed to adopt better production and marketing practices which in turn increase the supply of produce to the market. Grover *et al.* (2012) found that level of education was found to affect marketed surplus of wheat and rice positively and significantly.

Access to credit (CRED-ACC): It is a dummy variable taking value of 1 if the coffee producing farmer has access to credit and 0 otherwise. This variable is expected to influence the marketed supply of coffee positively on the assumption that access to credit improves the

financial capacity of farmers to buy modern inputs, thereby increase production and the marketed supply of coffee.

Family size (FAM-SIZE): It is a continuous variable measured in adult equivalent. Since production is the function of labor, availability of labor assumed to have positive relation with volume of supply. However, family size is expected to have positive impact on volume of sales, but larger family requires larger amount for consumption which reduces marketed surplus. A study conducted by Wolday (1994) as cited by Rehima (2006) identified that family size having significant positive effect on quantity of teff marketed and negative effect on quantity of maize marketed because farm level consumption of maize is high. From this context, family size is expected to have positive or negative impact on volume of coffee supplied.

Table 7.Summery of dependent and independent Variables in the Model

Variable	Explanation	Variable type	Measurement	Hypothesis
Dependent variable				
QT-SUPP	Quantity supplied	Continuous	Quintal	
Independent variables				
COF-YL	Coffee Yield	Continuous	Quintal	+
DS-MKT	Distance to the Nearest market	Continuous	Kilometer	-
SCOFL	Size of coffee land	Continuous	Hector	+
LG-PR	Lagged price	Continuous	Birr	+
AGE	Age of HH	Continuous	Number of years	+
SEX	Sex of HH	Dummy	1=male,0=female	+/-
COTR	Cost of transportation	Continuous	Birr per quintal	-
MK-IFO	Market information	Dummy	1=yes,0=No	+
EXC-RCP	Extension contact related to coffee production	Continuous	Number of contacts to Das	+
EDLHH	Education level of house hold	Dummy	1=litrate,0=illiterate	+
CRED-ACC	Credit access	Dummy	1=yes,0=No	+
FMSZ	Family size	Continuous	man equivalent	+/-

4. RESULTS AND DISCUSSION

This chapter summarizes the major findings of the study. Both descriptive statistics and econometric analysis were used to analyze the primary data. Descriptive statistics were employed to describe the demographic characteristics of sample coffee farmers and traders. Moreover, the structure, conduct and performance of coffee market were studied to measure efficiency. Econometric analysis was used to identify supply determinants of coffee to the market in the study area.

4.1. Demographic and Socioeconomic Characteristics of Sample Farmers

In this sub-section socio-economic and demographic characteristics of coffee producers like demographic Characteristics, land holding and production experience, access to services, major production and marketing problems are discussed one after the other.

Farmer's demographic characteristics

Regarding age of the respondents it ranges from 18 to 64 years. The overall mean age of the respondents was 43.2 years. The average family size of the sampled respondents was 7.1 persons and the standard deviation is 3.5, with maximum and minimum of 21 and (1) persons respectively (Table 8).

Out of the total sampled households in the study area, 86 percent were male-headed while the remaining 14 percent were female headed households. This may conforms to the common perception that coffee production and marketing is men's job due to intensive labor requirements.

Regarding religion of the respondents, 83, and 17 percent were Protestant and Orthodox respectively. This indicates that the dominant religion in the study area is Protestant. Respect to educational level of the sample households Among the sampled respondents, about 51.5 percent were illiterate and(48.5%) of them attended different level of formal education.

Table 8.demographic and socioeconomic Characteristics of Sample Farmers

Variables	N	Mean
Age of household head	165	43.2
Family size		7.1
Size of coffee land		1.8
Experience		14
Extension contact		3
	N	**%**
Sex of household head	165	
Male		97.36
Female		2.74
Religion	165	
Orthodox		17
Protestant		83
Educational status	165	
Illiterate		51.5
Literate		48.5
Credit need(yes)	165	91
Credit accessed(yes)	150	18.7
Credit amount taken(birr)	104,000	-
Access to primary market(yes)	165	38.7
Access to central market		14.5
Information (yes)		
Information from cooperative source(yes)		19.3
Information on market(yes)		83.6

Source: Own survey result 2015

As indicated in Table (8), in the study area, the average land holding size of coffee farmers was 1.8 ha.

Experience in coffee farming

The level of coffee farming experience is taken to be the number of years that an individual was continuously engaged in coffee production activity. The average years of experience for the entire sample was about 14 years, the minimum and maximum years of experience being 3 and 30years, respectively. This shows that coffee production activity was introduce or started

in the area about many years ago. Having cumulative knowledge of how to produce, process and use information related to the practice.

Access to services

Access to different services could be essential to improve production and productivity ofsmallholder's farmers. More specifically, access to credit, access to extension contact and market information, are the most important factors that promote production and marketing of coffee and thereby increase income of the producer are indicated above (table 8).

Farmers with access to credit may minimize the effect of financial constraints and able to buy the necessary inputs which improves their coffee productivity more readily than those with no access to credit. Therefore, it is expected that access to credit can increases the production of agricultural crops in general and coffee in particular.

However, from the total sample households who were asked to know whether they need credit or not, about 91 percent of the sample households pointed out that they needed credit forcoffee production but only 18.7 percent of them had received some amount of Birr (1500-7500 Birr). The reason for the low percentages of respondents who had access to credit service was because of the high interest rate charged by private lenders (OCSA).

Even though farmers in the study area need credit to purchase different inputs to enhance the quantity and quality of coffee production, the short repayment period as well as the high interest rate of the service was not suitable to the individual respondents. Moreover, at the time of survey it was understood that, the only private institution that deliver credit in the district is OCSA.

Access to coffee farming extension services is also expected to have direct influence on the production and marketing behavior of the farmers. The more contact a farmer has access to the extension service, the more likely that farmers adopt new farm technologies and innovations which leads to better product quality.

The service is provided by the district Agricultural Development Office. Each sampled kebeles has three Development Agents (DAs). As a result, farmers in the study area in average

they had 3 contacts per month with development agents to promote the coffee sub sector and thereby increase the quantity and quality of the coffee at farm level (Table 8)

Access to market information: The amount of marketed surplus is believed to be dependent on access to market information and the willingness and ability of farmers to use the information available. The role of market information in decision making process is to reduce risks and uncertainties related to market and enables coffee producing farmer households to make the right decision in sales and price of the products produced and inputs used in the production process. At the producer level, farmers have limited information on price prevailing even in the nearby markets (Wolday, 1994). It is assumed that producers and traders with access to market information can make better decision on how much to produce and supply to the market. However, there was no organized market information system to support farmers in the study area.

As indicated above (table 8), 38.7% and 14.5% of the sampled respondents had access to the primary market information and central market information of coffee, respectively. Similarly coffee producers were limited to some source of market information. Accordingly, 19.3% and 83.6% of the total sampled households respond that, they obtain price information fromagricultural cooperatives and personal observation on market, respectively.

4.2. Demographic and Socio-economic Characteristics of Coffee Traders

Demographic characteristics of coffee traders

Demographic characteristics of traders are summarized in terms of age, sex, marital status, education level, religion and average experience in coffee trading (Table 15). The age of traders ranged from 24 to 45 with an average age of 34 years. The survey result indicates that, all the sampled coffee traders being males. About 83 percent of them were married, 7.3 percent divorced and 9.7 percent were single. With regards to religion of sampled coffee traders, 63.4 percent were protestant, 22 percent were Orthodox Christian and 14.6 percent of the sampled traders were Muslim. Concerning educational status of coffee traders in the study area, about 63.6% % of the sampled traders were completed primary school whereas 33.4% of traders completed secondary and high school level education.

Table 9.Demographic characteristics of sampled coffee traders

Variable		Number of traders	%
Sex	Male	41	100
	Female	-	-
Religion	Orthodox	9	22
	Protestant	26	63.4
	Muslim	6	14.6
Marital Status	married	34	83
	Single	4	9.7
	Divorced	3	7.3
Educational Status	Primary school(1-6)	26	63.57
	Secondary school(7-12)	15	36.43

Source: Own survey result, 2015

Financial capital of sample coffee traders: The initial and current working capital could be one of the indicators of the financial position of a given firm though it may not necessarily show the financial progress of the firm.(Table 18) shows that average initial and current working capital of coffee traders during the survey period.

The average initial working capital of whole sellers and collectors was estimated to be Birr 206574 and birr 6217 respectively. Moreover, as it was indicated in (Table 18), the current working capital of coffeetraderswas greater than their initial working capital. It was birr 3,149,342 forwholesalers and birr 28,319 for collectors on averages. With regard to the sources of current working capital, 79 % and 21%of coffee wholesalers reported that their source of working capital was own saving and Bank loan respectively. Similarly 82% and 18% of collectors reported that their source of working capital was from relatives and other informal source respectively.

Table 10.Distribution of sampled traders by financial asset ownership and source

Descriptive statistics	Whole sellers	Collectors
Initial working capital		
Mean	206574	6217
Minimum	24000	3500
Maximum	900,000	16000
Current working capital	3,149,342	28319
Mean		
Minimum	88,500	12300
Maximum	13,000,000	63400
Source of current working capital		
Own source	4(21%)	-
Bank loan	15(79%)	-
Relatives	-	18(82%)
Others	-	4(18%)

Source: Own survey result, 2015

4.3. Coffee Marketing Channels

4.3.1. Coffee Marketing Participants, Roles and Linkages

In this study, different coffee marketing participants were identified. Coffee marketing participants in the study area includes producers, coffee collectors, retailers, wholesalers, processors, coffee producing farmer's cooperatives and final consumers of the product.

Producers: farmers sell their coffee to different buyers involved in the market at village or district market center levels. The market place that is closest to the residence of the farmers is the first chosen due to minimization of transportation costs. The producers sold their sun dried coffee five days per week, except Saturday and Sunday. according to the respondents 2015/16 41percent, 36.5 percent,12 percent, 4.9 percent, 3 percent,2.6percentof sundried coffee sold to wholesalers, coffee collectors, informal traders, primary cooperatives, retailers and local consumers respectively similarly red cherry is sold throughout the week to different level of traders, about 31.2 percent, 25.63 percent, 21.87 percent and 21.3 percent of their annual sale was sold to private pulpuries, coffee collectors, wholesalers, and informal traders respectively (table 11).

Table 11.Amount of red cherry supplied to different market participants by farmers

Market participant	Quantity sold(kg)	%
Wholesalers	38150	21.87
Coffee collectors	44700	25.63
Privet pulpuries	74400	42.66
Informal traders	17150	9.83
Total	174,400	

Source: Own survey result, 2015

Table 12. Amount of sun dried coffee supplied to different market participants by farmers

Market participant	Quantity sold (kg)	%
Wholesalers	85300	41
Coffee collectors	76000	36.6
Cooperatives	25200	12.12
Informal traders	10100	4.86
Retailers	6250	3
Consumers	5050	2.43
Total	207,900	

Source: Own survey result, 2015

Table 13.The total amount of coffee supplied to different Market participant by farmers

Market participant	Amount sold (kg)	%
Wholesalers	123450	32.29
Coffee collectors	120700	31.6
Informal traders	27250	7.1
Private pulpuries	74400	19.46
Cooperatives	25200	6.6
Retailers	6250	1.63
Consumers	5050	1.32
Total	382,300	

Source: Own survey result, 2015

Wholesalers: There are private enterprises participating in coffee marketing in the study area. They process purchased coffee from different areas of the region including kercha and Bule hora area from the farmers directly or from rural collectors and supply to auction market, in Hawassa or Addis.

Coffee collectors: The coffee collectors found in the study area purchased coffee produce directly from farmers at small village markets for resell to the wholesalers, retailers, and cooperatives that come from different areas of the region to the district market center.

Cooperatives: There are ten primary coffee marketing cooperatives in the study area established by the farmers producing coffee. All coffee producers' cooperatives together formed secondary cooperative (Oromia coffee producers union). Cooperatives purchase coffee directly from member coffee producers and collectors of coffee in kercha district.

Retailers: There are mini markets and other retailers who distribute small amount of produce and sell it to consumers in small units. These are the final link in the channel that delivers coffee to end users. The coffee retailers found at the kebele as well as district centers and have their own stores and retail shops.

Union: There is one union named Oromia coffee producer's union in the district which is formed by the primary coffee marketing cooperatives in different zone of the region. The union has its own head office in Addis Ababa to facilitate export of coffee. The union gets coffee from the member cooperatives.

ECX: Ethiopian government is trying its best towards having an efficient, transparent, faire and competent commodity marketing system in Ethiopia. One aspect of these efforts is the establishment of Ethiopia Commodity Exchange and Ethiopian Commodity Exchange Authority. ECX is expected to create market integrity through: introduction of viable products with certified grade and standards; membership based trading; enforcement of standardized terms and conditions for enforcement of contracts in accordance with trading rules.

Consumers: From the consumers' point of view, the shorter the marketing channel, the more likely is the retail price going to be affordable. Consumers for this particular study mean those households who bought coffee for consumption purpose. They are individual households; they bought the commodity for their own consumption only.

4.3.2. Market Channels

As stated in Mendoza (1995), Coffee marketing channels is the sequence of intermediaries through which coffee passes from farmers to ultimate consumers. The analysis of marketing channels is intended to provide a systematic knowledge of the flow of goods and services from their origin (producers) to the final destination (consumers).

The study revealed that coffee passes through several stages before it reaches the ultimate consumers. These stages were local collection centers, processing, storage and transporting, grading, exporting and domestic distribution. Generally, in the study area six major marketing channels of coffee were identified.

1. Producers' → Collectors → Wholesalers → Auction market → coffee Export market
2. Producers' → Wholesalers →Auction market → coffee export market
3. Producers → Primary Coffee Cooperatives → Union → Auction market → coffee export market
4. Producers' → Collectors → Retailers → Domestic Consumers
5. Producers → Retailers → Domestic Consumers
6. Producers → Domestic Consumers

As mentioned above, channel I is the principal coffee marketing channel through which sun-dried coffee passes from producers to collectors and then processed coffee beans pass from wholesalers to auction market for export. Channel II is also well practiced and both forms of coffee (red-cherry and sun-dried coffee) pass from the producers to wholesalers and processed coffee then passes from wholesalers to the auction market and then to exporters. Channel III is a coffee marketing channel in which sundried coffee is purchased and processed by primary coffee cooperatives and exported or delivered to coffee exporters at the auction market through the farmers' union (Oromia coffee producer's cooperatives union). Channel IV, V and VI targeted domestic consumers, channel IV participates collectors and retailers, similarly

channel V connect the producer with retailers and in channel VI coffee is directly supplied to the domestic consumers from producers.

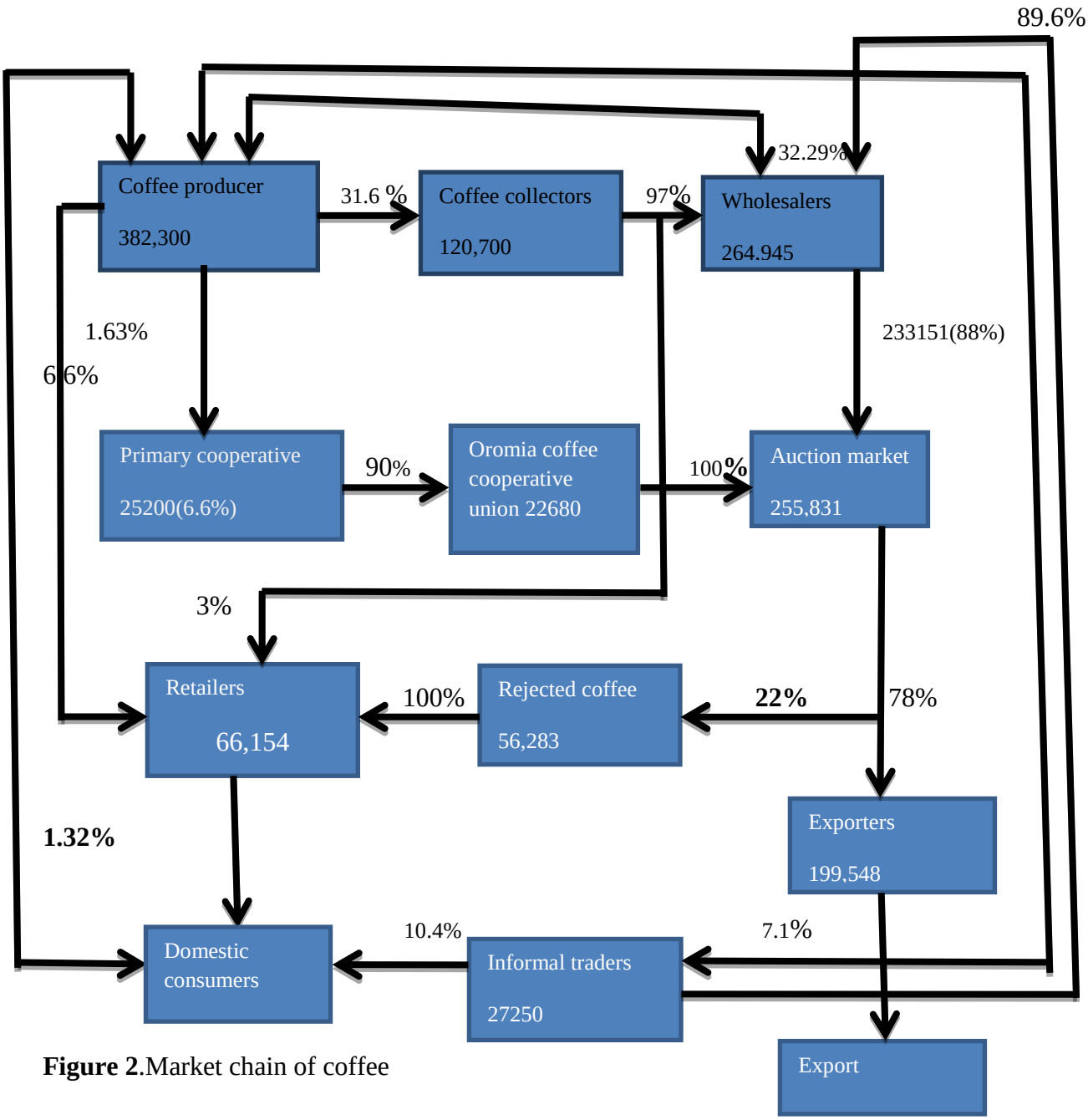

Figure 2.Market chain of coffee

4.4. Analysis of Structure, Conduct and Performance of Coffee Market

4.4.1. Structure of the coffee market

The structure of the coffee marketing system was evaluated in terms of the degree of market concentration, barrier to entry (licensing procedure, lack of capital and know how, and policy barriers), and the degree of transparency (Pender *et al.*, 2004). In this study the structure of the coffee market was calculated by the following indicators: market concentration, the degree of transparency (market information) and entry conditions (licensing procedure, lack of capital and know how).

4.4.1.1. Degree of market concentration

According to Kohls and Uhl (2002) Market concentration, the portion of the industry sales made by the largest firms, is another source of imperfect competition. Successful competitors frequently eliminate their rivals or discourage new firms entry, contributing to more concentrated markets. In general, the higher the level of market concentration, the less perfectly competitive the market is.The concentration ratio is expressed in terms of CRx, which stands for the percentage of the market sector controlled by the biggest X firms.

Four firms (CR_4) concentration ratio is the most typical concentration ratio for judging the market structure (Kohls and Uhl, 1985). ACR_4 of over 50% is generally considered as strong oligopoly; CR_4between 33% and 50% is generally considered a weak oligopoly and a $CR_4$of less than 33% is unconcentrated market. The analysis of the degree of market concentration ratio was carried out for the first four largest traders. It was measured by the percentage share of volume of coffee handled by the largest four traders. Here, concentration ratio for four traders was meant for all coffee traders across the study area with largest upper volume in general.

The primary coffee market is characterized by un-concentrated suppliers. Coffee is supplied to the market by a very large number of farmers, where no producer affects the functioning of other producers. Even though different types of coffee traders were available in the study area, due to their limited number in their respective locality, district level market concentration ratio has been calculated to analyze the type of markets prevailed. Coffee market shows very

concentrated buyers in the sampled coffee markets. The analysis of the degree of market concentration was carried in kercha, Guracho and Bedessa sample markets. Concentration was calculated by taking annual volume of purchased coffee in2015 from sample trader's survey in the above mentioned markets.

Table 14. Traders concentration in Kercha Market

Number of traders	Cumulative frequency of traders	%of traders	Cumulative % traders	Quantity purchased in kg	Total quantity purchased in kg	% share of purchase	% cumulative purchase
(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
1	1	5.263	5.263	821,433	821,433	32	32
1	2	5.263	10.526	403895	403895	15.73	47.73
1	3	5.263	15.789	374600	374600	14.59	62.32
1	4	5.263	21.052	279450	279450	10.88	73.2
					2,566,206		

Source: Own computation, 2015

Table 15.Traders concentration in Guracho Market

Number of traders	Cumulative frequency of traders	% of traders	Cumulative % traders	Quantity purchased in kg	Total quantity purchased in kg	% share of purchase	% cumulative purchase
(I)	**(II)**	**(III)**	**(IV)**	**(V)**	**(VI)**	**(VII)**	**(VIII)**
1	1	7.692	7.692	487900	487900	32	32
1	2	7.692	15.384	319600	319600	21	53
1	3	7.692	23.076	278900	278900	18.28	71.28
1	4	7.692	30.768	106550	106550	7	78.28
					1525400		

Source: Own computation, 2015

As indicated on (Table 15,16 and 17)coffee markets at Kercha, Guracho and Bedessa were strongly oligopolistic in the hands of few coffee traders respectively. The CR_4measures of market concentration ratio showed that the top four or 21.05% of the traders controlled 73.2% of the coffee market in Kercha, 30.76% of the coffee traders controlled 78.28% of the coffee market in guracho and 44 %of the coffee traders controlled 78.86 %of the coffee market in Bedessa in 2015.

Table 14. Traders' concentration in Bedessa Market

Number of traders	Cumulative frequency of traders	% of trader	Cumulative % traders	Quantity purchased in kg	Total quantity purchased in kg	% share of purchase	% cumulative purchase
(I)	**(II)**	**(III)**	**(IV)**	**(V)**	**(VI)**	**(VII)**	**(VIII)**
1	1	11.11	11.11	251750	251750	37.48	37.48
1	2	11.11	22.22	124300	124300	18.509	55.989
1	3	11.11	33.33	82500	82500	12.28	68.269
1	4	11.11	44.44	71200	71200	10.6	78.86
					671550		

Source: Own computation, 2015

Based on the rule thumb of market structure criteria suggested by Kohls and Uhl (1985) the coffee market in kercha district showed an oligopolistic market, indicating the existence of market imperfection.

4.4.1.2. Degree of market transparency

It is widely accepted that, accurate and timely market information enhances market performance by improving the knowledge of buyers and sellers concerning supply and demand. Exclusive access to market information or the control or concentration of information asymmetry and concentration of capital at the disposal of very few traders is important sources of monopoly which affects the nature of horizontal and vertical relations.(Timmer *et al,* 1983).

Table 15. Producers Source of information

N	Producers Source of market information		
	primary market(yes) %	Cooperatives(yes) %	auction market (yes) %
165	38.7	19.3	14.5

Sources: survey results, 2015

Now there is a good trend that the government of Ethiopia (Ethiopian commodity exchange) broadcast auction market price of washed and unwashed coffee through TV, Radio, billboards and internet. However, (27.5%)of farmer respondents reported that they had not been

receiving information both from nearby market and auction market price due to their lack of access to these Medias. The remaining 38.7% ,19.3% and 14.5% of respondent farmers received information from primary market, cooperatives source and auction market respectively .The majority of coffee producing farmers obtain market price information from the primary market place itself, by asking other farmers and coffee collectors. The price level prevailed in the coffee market is set by traders. There is no mechanism to prove its consistency with the auction market coffee price.

4.4.1.3. Barriers to entry

Licensing: Licensing was mentioned by the traders as an entry barrier because it requires high minimum capital. Even though 46.4 % of the sampled traders reported that the procedure to get license is simple, the requirement of having appropriate facilities such as minimum capital requirement, weighting scale, store, sisal sack, drying fields etc. were the major binding factors for coffee traders as these requires large capital.

Table 16. Entry barriers of Coffee Market

Description	N	Barriers to entry		
		Licensing(yes) %	Capital(yes) %	Informal traders(Yes)
wholesalers	19	46.4	57.89	84.2
collectors	21	-	72.72	-

Sources: survey results, 2015

Capital: About 72.72% of sample coffee collectors and 57.89 % of the wholesalers have reported shortage of capital as an important problem. About 69.73 % of the sampled coffee collectors and 10.53 % of the sampled coffee wholesalers also reported that they did not have access to formal credit sources. The capital requirement discouraged traders from expanding their scale of operation, achieving greater efficiency and engaging in the long-run storage needed. This implies that capital requirement is a major entry barrier in the coffee trading in the study area.

Informal traders: The existing weak mechanism of controlling unlicensed traders and the quality of sun-dried coffee have led to the supply of coffee beans that is adulterated with

broken coffee beans. This resulted in loses to some wholesalers as a result of reduction in the amount of coffee exported as it was indicated by 84.2% of traders. The respective district office of agriculture and trade and market development, in fact, do have coffee marketing and quality inspection center. However the center is not performing with full capacity in that the licensed traders were not well protected. This is related with the problems in executing rules and regulations. Their presence resulted in both diversion of coffee away from legal channel and supply of poor quality coffee.

4.4.2. Coffee Market Conduct

Market conduct refers to the patterns of behavior of firms. This implies analysis of human behavioral patterns that are not readily identifiable, obtainable, or quantifiable (Pomeroy and Trinidad, 1995). There are no agreed upon procedures for analyzing the elements of market conduct. Rather, some points are put to detect unfair price setting practices and the conditions under which such practices to prevail.

4.4.2.1. Price setting practices

Coffee traders in the study area had a significant market power in setting price at the local market. About 78% of the sampled coffee farmers reported that traders set the coffee price. Furthermore, about 65.8% of sampled coffee traders also confirmed that they set purchase price based on the coffee quality and available quantity in the local market centers, while 24.3% of sampled coffee traders responded that price is determined by the existing market. The remaining 9.9% of traders disclosed that prices were sometimes discovered by negotiation with sellers. Traders adjust their purchase price by observing their competitors purchase price at the local market centers. Due to seasonal nature of production, large volume of coffee is supplied to the local market during harvesting seasons which decreases the bargaining power of producers.

4.4.2.2. Traders purchase and selling strategies

Both coffee collectors and wholesalers have their own purchasing strategies. Wholesalers distribute large amount of money to most coffee collectors and some brokers to control more volume of coffee supplied to the market. They also arrange transport to take the purchased coffee from market places to their stores. Wholesalers closely follow purchasing activity. Upon the delivery of purchased coffee, those agents are paid a commission, 0.5 to 0.65 cents per kg of coffee.

Collectors earn a price margin above the normal level either by cheating certain amount of kilograms of coffee during measurement or lowering the price of some coffee quality portions and then blended with better ones as reported by 76% of sampled wholesalers.

Table 19 . Traders purchase Strategies

	N	Traders purchasestrategies		
		From producers(yes) %	through brokers(yes) %	Combination of both(yes) %
wholesalers	19	65.9	14.6	19.5

Sources: survey results, 2015

Though brokers are very important for the wholesalers during the major transaction period to handle more volume of coffee and store for waiting more price in the near future, about 65.9% of sampled traders purchase coffee directly from the producers without using brokers, while 14.6% of them purchase through brokers and the remaining19.5% of traders purchase through combination ofboth.

Coffee collectors sell purchased coffee to the wholesalers and retailers and receive a commission of0.5 to 0.65 cents per kg of coffee. Almost all wholesalers had their own marketing sites in the primary market and agents at Addis Ababa and Hawassa who facilitate exchange process, money transfer and market information though telephone. These agents are paid according to the volume of coffee sold.

4.4.3. Performance of the Coffee Market

Coffee market performance was evaluated based on the level of marketing margins by taking into consideration associated marketing costs for key marketing channels. Therefore, based on the 2015/16 production year, costs and purchase prices of the main chain actors', margins at farmers', collectors' and wholesalers' level was analyzed.

4.4.3.1. Marketing cost and Margins analysis

Marketing margin is defined as the percentage of the final weighted average selling price taken by each of the marketing chain. The margin must cover the cost involved in transporting the produce from one stage to the next and provide a reasonable return to those doing the marketing. Labor cost which includes (weeding, pruning, harvesting, loading and unloading,etc.) was the principal cost of coffee growers constituting about 63.1% of the total cost. Cost of transportation (farm to home, home to market or sometimes market to home when the price is very low) was also the second major cost of producers followed by cost of land, materials and tax consisting 13.7%, 13.5%, 7.16%, and 2.54%respectively. Transport cost is the major cost component for both coffee collectors and wholesalers which accounted for 36% and 39.6%, respectively. The marketing margin analysis indicated that the total gross marketing margin was 184.64 birr per 17 kg of clean coffee in channel I and 159 birr per 17 kgof clean coffee in channel II.

Table 20.Marketing margin analysis (birr per 17kg of coffee) in channel I and II

Description	Channel I		Channel II	
Producer	Cost/17kg	%	Cost/17kg	%
Labour	66.48	63.1	66.48	63.1
Material	7.55	7.16	7.55	7.16
Transport	14.44	13.7	14.44	13.7
Tax	2.67	2.54	2.67	2.54
Land rent	14.21	13.5	14.21	13.5
Total production cost	**105.35**		**105.35**	
Average selling price(birr)	**261.36**		**287**	
Benefit/profit	**156.01**		**181.65**	
Collectors				
Purchase price	261.36			
Labour	1.73	18.2		
Material	0.59	6.2		
Transport cost	3.44	36		
Storage rent	0.58	6		
Personal travel	1.68	17.6		
Interest	1.52	16		
Total collectors cost	**9.54**			
Collectors selling price	**289**			
Collectors gross margin	**27.64**			
Collectors net benefit	**18.1**			
Whole sellers				
Purchasing price	289		287	
Labour	7.21	9.5	7.21	9.5
Materials	7.44	9.85	7.44	9.85
Commission	1.42	1.9	1.42	1.9
Transportation	29.94	39.6	29.94	39.6
License renewal	0.02	0.02	0.02	0.02
Tax	2.84	3.75	2.84	3.75
Wage	2.74	3.62	2.74	3.62
hulling charge	11.35	15	11.35	15
Electricity	0.46	0.6	0.46	0.6
Storage rent	1.41	1.9	1.41	1.9
Interest	7.5	9.9	7.5	9.9
Telephone expenses	0.51	0.67	0.51	0.67
personal travel	0.71	0.9	0.71	0.9
Depreciation	2.05	2.7	2.05	2.7
Total wholesalers cost	**75.56**		**75.56**	
Wholesalers price	**446**		**446**	
Wholesalers gross margin	**157**		**159**	
Wholesalers net benefit	**81.4**		**83.44**	

Source: Own computation, 2015

The producers share from the auction market was 58.6% in channel I, whereas it was 64.34% in channel II. The net marketing margin/benefits for coffee collectors and coffee wholesalers were birr 18.1 and birr 81.40 per *feresula* clean coffee bean in channel I respectively. However, the net benefit of wholesalers was 83.44 per *feresula* in channel II due to the direct transaction with farmers. This difference might support the theory that as the number of marketing agents increases the producers share decreases. The reason being, the higher number of middlemen in the commodity market, the more profit they retain for their services whether they add value to the item or not.

As indicated in (table 21) the average coffee wholesaler retained significant annual total net benefit than producers and coffee collectors. The estimated annual net benefits of a typical coffee producer, collectorand wholesaler were birr 1862, 979.21 and 646,713 respectively. This implies that coffee trading is highly profitable at the wholesale level. The producers' share as a percentage of wholesale prices islow as compared to farmers in other regions of the country. The reason for this low share is the fact that the producers price is affected by marketing costs (physical and transaction costs), concentration of market power in the hands of few, both locally and internationally, and lack of market supporting institution in the study areas.

Table 21.Summery of net benefit and annual average sales in 2015 for channel I

Marketing channel agent	Net benefit (Birr/17kg)	Annual Average sales(17 kg)	Total annual net benefit in birr
Producer	156.01	11.94	1862
Collectors	18.1	54.1	979.21
Wholesalers	81.4	7944.88	646,713

Source: Survey result, 2015.

(Table 20) shows that 41.4% and 22.25%of total gross marketing margin and net benefit was added to coffee price in channel I respectively.35.66% and 18.7% of total gross marketing margin and net benefit was added to channel II respectively. Out of the total gross marketing margin 6.2% was gross margin of coffee collectors, while 35.2% was that of wholesalers in channel I and out of the total gross marketing margin in channel II about 36.66% was gross margin of wholesalers.

Table 23.Summery of market share in 2015/16 for channel I and II

Marketing agent	SellingPrice (birr/17kg)		Gross Share from End buyer price (%)		Net marketing Share (%)	
	Channel I	Channel II	Channel I	Channel II	Channel I	Channel II
Producers	261.36	287	58.6	64.34	35	40.73
Collectors	289	0.00	6.2	0.00	4	0.00
Wholesalers	446	446	35.2	35.66	18.25	18.7

Sources: survey results, 2015

4.5. Determinants of Household Coffee Market Supply

Coffee is produced mainly for market and is one of the most important cash commodities for kercha district farmers. Data collected from sampled respondents indicated that 87 percent of the total coffee produced in 2015/16 production year was supplied to the market. Before running the OLS regression model, all the hypothesized explanatory variables were checked for the existence of multi-collinearity, heteroscedasticity and endogeneity problem. The degree of multicollinearity among the explanatory variables has been tested using VIF for continuous variables and CC for dummy variables. The results for all VIF were ranging between 1.02 and 2.79 with mean value of 1.75. The result of the contingency coefficient was also less than 0.75.Therefore, Since VIF is less than 10 and CC is less than 0.75 multicollinearity cannot be suspected and would not be a problem.(Appendix Table 1 and 2).

The problem of omitted variable was tested using Ramsey RESET test. Since the p-value for this test is 0.0001 there is no omitted variable problem in our model. In this study, heteroscedasticity was tested using Breusch-Pagan test for heteroscedasticity test. The result for p-value was 0.000 hence; there was no serious problem of heteroscedasticity in the model. Hence, all the explanatory variables hypothesized were included in the model for analyzing determinants of market supply of coffee. The overall goodness of fit of the regression model is measured by the coefficient of determination (R^2).R^2lies between 0 and 1, the closer it is to 1, and the better is the fit. Hence, the overall model goodness of fit represented by model count R-square is very good and adjusted R-square value is 0.8290 percent. This result indicates that about 82 percent of the variation in farm level marketed supply of coffee was attributed to the hypothesized variables.

4.5.1. Econometric results

The result of the econometric analysis indicates that among the 12hypothesized variables only six variables (Distance to the nearest market, size of coffee land, lagged price, access to market information, Extension contact, and family size) significantly affect the household marketed supply as indicated in (Table 24).

Table 23.OLS results of determinants of Coffee Market Supply

Variables	Coefficient	Standard error	t-ratio	p-value
Constant	-10.615	5.411	-1.96	0.052*
Coffee yield	0.003	.006	0.44	0.662
Distance to the market	-0.479	.258	-1.85	0.066*
Size of coffee land	0.034	.017	1.93	0.055*
Lagged price(2014)	0.804	.351	2.29	0.023**
Age of household head	0.021	.035	0.59	0.556
Sex of house hold head	-0.178	1.234	-0.14	0.885
Cost of transportation	-0.032	.249	-0.13	0.896
Access to market info	3.042	1.076	2.83	0.005***
Extension Contact	3.34	.545	6.24	0.000***
Education level of HH	1.193	1.053	1.13	0.259
Access to credit	0.532	0.941	0.57	0.572
Family size	1.33	0.145	9.13	0.000***

Number of observations = 152 Adjusted $R^2 =$ 82.9% Model specification (Ovtest: Prob>F = 0.0001	Multicollinearity (Mean VIF = 1.75) Prob> F = 0.0000

Dependent variable=quantity supplied, $N = 165$, $R^2 = 0.8415$, $\bar{R}^2 = 0.8290$,***, ** and * shows the values statistically significant at 1%, 5% and 10% respectively.

Distance to market: Distance to market was expected to adversely affect the volume of total sales. Ashypothesized, this variable is negatively related to marketed surplus of coffee. The result shows that distance tothe market significantly and negatively affected marketed surplus of coffee at 10% confidence level. This implies that, an increase in one kilometer indicates a decrease in the quantity supplied of coffee by0.479quintals.This

result also in line with Wolday (1994); Dawit (2010) and Aylech (2011) who indicated that distance to market caused marketsurplus of food grain, poultry and avocado to decline.

Size of coffee land: This variable was hypothesized that as it has appositive effect on the quantity of coffee produced and supplied to the market, similarly the result verifies it affected marketable supply of coffee positively and statically significant at 10% level. If a coffee producer household adds a 1hector increase in coffee land size owned leads to increase marketable supply of coffee by 0.034 qut. This result in line with the finding here, 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. Similarly, Larsen (2006) found size of landholdings positively affected the volume of cotton sales at the household level in Tanzania.

Lagged price (PRC-LAG): The price of coffee in 2014/15 was previously expected to have positive sign in determining the volume of coffee supplied to the market. The model result also revealed that the variable coefficient was positive and statistically significant at 5% significance level. The positive and significant relationship indicates a unit increase in the last year price of coffee at the market, leads to increase the quantity of coffee supplied to the market by 0.804qut next year. Tomek and Robinson (1985) argued that the product price has direct relations with marketable supply.

Access to market information: Market information has shown positive effect on coffee quantity supplied with significance level at 1%. On average, if coffee producer gets market information, the amount of coffee supplied to the market increases by 3.042Quintal. This is similar with the finding of Adugna (2009) who illustrate if papayaand tomato producer gets information, the amount of papaya and tomato supplied to the market increases.

Extension contact related to coffee production: It was hypothesized that extension service has a positive effect on market supply of coffee. Result of the study indicated that extension service was positively and significantly related to the volume of coffee product supplied to the

market at 1% significance level. If coffee producer household's number of contact to the extension agent increased by one the amount of coffee supplied to the market increases by 3.34quint. This suggests that extension service avails information regarding technologies which improves production of coffee that affects the volume coffee supplied by the household to the market positively. Rehima (2006) and Rahmeto (2007) found that access to extension service on red pepper and haricot bean respectively affected marketed supply of each of the commodities significantly and positively.

.**Family size (FAMSIZ):** Family size has statically and positively significant effect on marketed supply of coffee at 1%. This implies that as the number of active family members increased by one the quantity of coffee supplied to the market also increases by 1.33qut. This indicate a similar finding withGezahagn (2010) who found that family size have positive effect on the households' gross income from groundnut production.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary and Conclusion

This thesis has analyzed coffee market chain in kercha *Woreda*, Guji zone of Oromia national regional state. with specific objectives of identifying the existing coffee marketing channels, the role and linkages of marketing agents; analysis of structure conduct and performance of the coffee market and determinants of marketed supply of coffee in the study area.

For this study, a total of 206 respondents (165 producers and 41 traders) were interviewed using structured questionnaires. Rapid market appraisal with focus group discussion and key informant interview was also conducted. Secondary data on basic production and marketing activities and population was also collected from different stakeholders. Descriptive and econometric methods of data analysis were used to analyze the data by deploying STATA-12 software.

The analysis of market structure shows that the volume of coffee traded in the area was concentrated in the hand of few traders who controlled the bigger share of the market. The four firm's concentration ratios for coffee traders were 73.2%, 78.28% and 78.86% in kercha, guracho and bedessa respectively. This clearly implies that the coffee market in the area is non-competitive.

Analysis of coffee marketing entry barriers indicated that shortage of capital, licensing only for specific business activities and presence of informal traders were the major entry barriers into the coffee market for most traders. In the study area, large amount of capital was a pre requisite for higher operation and a number of traders faced shortage of capital. About 72.72 % of coffee collectors and 57.89% of coffee wholesalers reported as they faced shortage of capital. Although the current lending policy is better than the previous one, it is still considered as an entry barrier into the coffee trade. As a result, about 69.73% of coffee collectors and 10.53% of wholesalers reported as they are in need of credit service to expand their business operations.

The existence of informal traders in both rural and urban areas discouraged the legal/licensed traders. These informal traders do not pay taxes and can affect price in the market. The informal traders are also making the price margin at the expense of producers by reducing the farm gate price or by cheating weighting scales.

The degree of market transparency analysis revealed that the majority of coffee producers have poor access for timely and reliable market price information. About 27% of sampled coffee producers reported that they had no any reliable information about auction market and primary market prices. This implies that farmers have less access to market information which negatively affects their power in negotiating selling price for their produces.

Regarding the conduct of the coffee market, pricing strategy of traders indicated that 65.8% of the traders set the purchase price for coffee. Purchasing strategy of the traders shows that 65.9% of the traders purchase coffee by themselves, 14.6% purchase using brokers and the rest 19.5% uses both ways to purchase coffee from different coffee markets. Regarding the selling strategy, almost all coffee traders wholesalers reported that they sell coffee to the auction market through their agents at Hawasa and Addis Ababa. The coffee collectors sell purchased coffee by themselves to the wholesalers and retailers.

The result of marketing margin analysis imply that About 41.4 percent of total gross marketing margin and 22.25 percent of net benefit was added to coffee price in channel I. Similarly 36.66 percent of total gross marketing margin and 18.7 percent of net benefit was added to coffee price in channel II. Out of the total gross marketing margin about 6.2% was gross margin of coffee collectors, while 35.2% was that of the wholesalers. Hence, the study pointed out that all marketing participants of the commodity operated at profit. This indicated that all the marketing agents were advantageous through the channel.

The average coffee wholesalers retained significant annual total net benefit than producers and coffee collectors. The estimated annual net benefits of a typical coffee producer, coffee collectors and coffee wholesalers in kercha district were birr 1862, birr 979.21 and birr

646,713 respectively. This implies that coffee trading is relatively highly profitable at the wholesale level.

Estimation of determinants of marketed supply of coffee with the help of multiple linear regression model analysis was employed with (12) hypothesized variables. The result of OLS regression model analysis pointed out that out of these (12) variables only six variables namely distance to the nearest market, size of coffee land, lagged price of coffee 2014/15, access to market information, coffee related extension contact, and family size were found to be significantly affecting the marketed supply of coffee at household level with the expected sings.

5.2. Recommendations

The major factors identified as a problem in coffee market chain analysis were related to both coffee production and marketing. Thus, appropriate interventions are required to alleviate these problems. To solve the production and marketing problems and increase production and marked supply of coffee, the following recommendations are forwarded:

The result of determinant analysis of marketable supply of coffee indicates that access to extension contact were important factors to improve marketable supply of coffee. And also it is good to enlightening farmers to produce based on market signals, consumer preferences but in the study area there is nowell-organized extension service as raised by majority of the respondents. Hence, it is recommended to assign efficient extension system, updating the extension agents' knowledge and skills with improved coffee production and marketing system.

Access to market information is also another variable which affected the quantity of coffee supplied to the market positively and significantly. Farmers in the study area do not get timely marketinformation up on which to base their marketing decision. They depend on local traders and otherfarmer friends for price information. Therefore, there has to be an institution that can locally conveyreliable and timely market information required by all stakeholders simultaneously. Thiswould make the marketing system to operate efficiently and harmoniously.

The availabilityof timely and precise market information increases producers' bargaining capacity tonegotiate with buyers of their produce.

Lagged price of coffee found to be positively related to marketed surplus. There should be a system for which suppliers couldn't fix price below some threshold limit. As farmers are the pro-poor groups who need tobe prioritized in any intervention, legal tactics and conditions (for instance prevailing price ceiling and price floor) under which such practices of offering unfair price would not likely to prevail should be implemented. Government and other NGOs must stand besides farmers to safeguard them by offering fair price.

The area of land allocated for coffee at the farm level affected marketable supply of coffee positively and significantly. However, increasing landholding size cannot be an option to increase coffee marketed supply since supply of land is limited by natural as well as socio-economic factors. Hence, increasing productivity of coffee per unit area of land is better alternative to increase marketed supply of coffee. This is relying on intensive cultivation rather than on extensive one.

Marketed supply of coffee is significantly and negatively affected by distance to nearest market. Therefore, strengthening and improving rural and urban road networks, improving the transportation facilities and other market infrastructures are the critical points to increase marketed supply of coffee in the study area.

Since the coffee market in the study area was oligopolized, government should attract other traders to enter into coffee trade by improving the existing credit system and giving different incentives in order to make the market more competitive.

Existence of informal traders in the coffee market highly discouraged the legal traders to expand their business or enter into the market (for new traders). Hence the government should take action to protect the legal traders from unfair competition with informal traders either by preventing informal traders not to participate or convincing them to become legal.

Improving the market infrastructures is another area of intervention as indicated by 92% of interviewed farmers. So the concerned body should give critical attention to improve the coffee marketing system in the study area. As indicated by 91% of the surveyed coffee producers reliable market information is basic constraint of the sector, thus due attention should be given to the improvement of communication networks in different coffee production sites and marketing centers of the study area. Creating institutions that can disseminate reliable and timely market information required by all stakeholders simultaneously. This would contribute for the marketing system to operate efficiently and harmoniously.

Encouragement of financial institutions in supporting coffee production and marketing by minimizing the unnecessary impediments such as high collateral and long procedures in getting credit are essential.

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7. APPENDICES

Appendix table 1: Test for Multicollinearity for continuous variables

Variable |	**VIF**	**1/VIF**
Distance to the market	2.79	0.358
Extension contact	2.46	0.406
Cost of transportation	2.27	0.440
Access to market information	2.27	0.440
Education level HH	2.19	0.457
Family size	2.05	0.487
Sex of HH	1.34	0.744
Price 08	1.23	0.813
Age of HH	1.15	0.869
Size of coffee land	1.13	0.887
Access to Credit	1.13	0.888
Coffee yield	1.02	0.976
Mean VIF	1.75	

Source: Own computation, 2015

Appendix table 2.Contingency coefficient for dummy variables

Description	Sex of household head	Access to market information	Education level of house hold head	Access to credit
Sex of household head	1	0.4287	0.2799	0.091
Access to market information		1	0.6273	0.2013
Education level of house hold head			1	0.2371
Access to credit				1

Source: Own computation, 2015

Appendix table 3.Coffee exports in value and volume from 2008/09-2012/13

No	Year	Volume(Tone)	Value(USD)
1	2008/9	126,313	344,442,394
2	2009/10	189,501	575,561,823
3	2010/11	179,256	878,919,927
4	2011/12	177,831	818,654,520
5	2012/13	193,459	694,617,826

Source: Ethiopian revenue and customs authority, 2014

Appendix table 4: Coffee export value and in volume by destination for 2012/13

No	Country	Volume (1000 60-kg bags)	Value (USD) (1000)	%share in volume
1	Germany	853	167,935.2	26.5
2	Saudi Arabia	462	104,113.9	14.3
3	Japan	392	78,514.4	12.2
4	Belgium	256	56,014	7.9
5	USA	231	64,079.1	7.2
6	France	162	30,061.1	5
7	Sudan	147	21,230.6	4.6
8	Italy	146	32,246.1	4.5
9	Korea Republic of	80	19,392.3	2.5
10	Sweden	75	16,652	2.3
11	United Kingdom	67	19,369.7	2
12	Australia	51	12,933.8	1.6
13	Russia	35	6675.4	1.1
14	Canada	27	6901	0.8
15	Spain	27	6762	0.8
16	Other countries	215	51,737	6.7
	Total	3224	694,618	99.5

Source: Ethiopian revenue and customs authority, 2014

Appendix5. Survey questionnaire

Market chain analysis of coffee production in Kercha district, Guji Zone of Oromia National Regional State, Ethiopia.Farmers' questionnaire.

Questionnaire number: _____

Name of enumerator: _____

Date: _____/_____/_____

Producers' Interview Schedule

Instructions to Enumerators

- Make brief introduction before starting any question, introduce yourself to the farmers, greet them in local ways and make clear the objective of the study.
- Please fill the interview schedule according to the farmers reply (do not put your own feeling).

Instructions to Enumerators

- Make brief introduction before starting any question, introduce yourself to the farmers, greet them in local ways and make clear the objective of the study.
- Please fill the interview schedule according to the farmers reply (do not put your own feeling).
- Please ask each question clearly and patiently until the farmer gets your points.
- Please do not use technical terms and do not forget local unit

Objectives of the study

1. To identify and describe the existing market chain of coffee in the study area;
2. To assess the structure, conduct and performance of coffee market chain in the study area;
3. To identify the determinants of coffee supply by farm house hold in the study area;

I. Demographics

1. Name of household head_____ Sex _____ Age _____ years.

2. Marital status of household head _____.

1. Single 2. Married 3.Divorced 4.Widows

3. Religion of the household _____.

1. Orthodox 2. Protestant 3.Catholic 4. Muslim

4. Total number of family members' _____.

1. Below 15 years _____ 3. 30-50 years _____

2. 15-64 years _____ 4. Above 64 years _____

5. Education level of household head _____

0. Illiterate 1. Literate

II. Area Information

6. Woreda ---------- Name of Rural Peasant Administration ----------

7. Distance of your residence from the nearest primary coffee market center. Km_____ or walking time (minutes/hrs).

8. Distance of your residence to the nearest development center _____walking time (minutes).

9. Distance to all weather road _____ Km or _____hours walk.

10. Major means of income (in rank)

Means of income	**Rank**
Coffee production	
Grain production	
Enset production	
Livestock production	
Petty trading	
Other sources	

11. Total area of coffee farm under production, in 2015

Type of crop	Production system in practice 1= Sole 2=Intercropping 3=Backyard garden 4=Plantation	Land covered by Coffee In hector		Months of harvesting ----- to---	Average Production per hector (K.gs/quts)
		Productive	Unproductive		
Coffee					

III. Production

Crop	Type of material 1= Local 2=Improved 3= Both	Sources of material 1=Agri. Development Office 2 =Market 3=NGOs 4= JARC 5= Own stock 6=From other Farmers	Name of improved varieties in use	Problem on use of improved materials 1=Availability 2= Low quality 3=High price 4=Unknown origin 5=Others (Specify)	Future plan 1=to increase 2=to decrease 3= remain the same
Coffee					

12. Type of planting material in use in 2015.

13. Experience on Coffee production _____ years.

14. Production of Coffee and food grains in 2015.

No	Type of Crop	Area in Timed	Quantity produced (qt)	Quantity consumed (qt)	For seed	Quantity sold (qt)	Average selling price/(qt)	Quantity purchased in 2015/qt
1	Cereals							
2	Coffees							
3	Vegetables							
4	Enset							
5	Fruits							
6	Others							

15**.** Trend of coffee production and cropping pattern during the past 5 years?

1. Increasing 3. Same
2. Decreasing

16. For Ques.number 15.If your answer is increasing/decreasing why?(Reason out)

---

17. Is supply of labor a problem during production? 1. Yes 2.No

18. What is the labor source for Coffee?

1. Family labor 3. Labor exchange
2. Hired labor 4. Cooperation

19. What are the constraints of coffee production? Rank horizontally.

Crop	**Insects**	**Diseases**	**Weeds**	**Seedling Shortage**	**Wild animals**	**Theft**
Coffee						

IV. Access to Services

20. Did you have extension contact in relation to coffee production in the year 2015 cropping season? 1= Yes 0=No

21. If yes, how often the extension agent contacted you specifically for coffee production and marketing purpose in the year 2015?

1. Weekly 2. Once in two week 3. Monthly

4. Twice a week

5. Three times per month 6. Any time I ask them

22. What was the extension advice specifically on coffee production?

1. Seed bed preparation 2. Transplanting 3. Fertilizer (compost) applications

4. Marketing of coffee 5. Harvesting 6. Post-harvest handling

7. Others (specify

23. Type of information/ services do you need in coffee production?

No	**extension service is required on;**	**Rank**
1	Seedling	
2	Weed control method	
3	Disease management	
4	Field management after plantation	
5	Post-harvest treatments and storage	
6	Marketing	

24. Did you need credit in the year 2015? 1=Yes 0=No

25. If yes, have you received credit in 2015 for coffee production purpose? 1= Yes 0 =No

26. If yes, how much did you take for coffee production purpose? ----------Birr

27. For what purpose did you take the credit in relation to coffee production?

1. To rent in land to extend coffee production
2. To purchase seed/seedlings of coffee
3. To purchase transporting animals
4. Others (specify

28. From whom did you get credit for coffee production?

1. Relative 3. Bank 5.Micro finance institution 7. Friends
2. Traders 4. NGO 6.Peasant association 8. Others (specify) ---

V. Marketing Aspect

29. Amount of Coffee supplied to the market and market agents in 2015?

Crop	**Place to sell** 1=Farm gate 2=primary market 3=Town	**Distance to Primary market center (km)**	**Means of Transport** *1= On donkey 2= Vehicle 3=On foot (Being carried)*	**To whom do you sell?** 1.suppliers 2. Collectors 3.Processors 4.Broker 5.coperatives	**Terms of sell** 1=cash 2=credit 3=advance payment
Red cherry					
Dray coffee(jenfel)					

30. Do you know the name of traders who buy your coffee?

---------- ----------

---------- ----------

---------- ----------

31. Are you a member of any of farmers' cooperative?

32. How do you get market price information of coffee? _____

33. Did you know the market prices before you sold your coffee in 2015? 1=Yes 0=No

34. Did you know the nearby market price before you sold your Coffee? 1=Yes 0=No

35. Did you know Hawasa market price before you sold your Coffee? 1=Yes 0=No

36. What is the trend of coffee supply and price for the last 5 years?

1. Increasing 2.Decreasing 3.same

Type of commodity	Trend of supply and price for the year 2010-2015									
	2010		2011		2012		2013		2015	
	Supply in kg	Price/kg	Supply in kg	Price/kg	Supply in kg	Price/kg	Supply in kg	Price/kg	Supply in kg	Price/kg
Red cherry										
Dray coffee(jenfel)										

37. For question number 37 if you answered increasing/decreasing why?

---

38. Does your produce have preferred quality by buyers in 2015? 1= Yes 0=No

39. If no, what interventions are needed to attract better price 2015?

_____

40. What are the problems of coffee marketing in 2015? Rank horizontally*

Crop	**Lack of market**	**Low price**	**Storage**	**Lack of transport**	**Lack of market information**	**Brokers hinder fair sales**
Coffee						

41. How do you make decision as to when to harvest the crop `in 2015?

1. Maturity 2. Market price 3. Fear of theft

4. Others (specify) _____

42. What determines to sell the products to your customers?

1. Price 2. Proximity 3.Fair Scaling 4. Others_____

43. How do you set price for your coffee?

1. Set by the benevolence of buyer 2. Set by the farmer 3. Set by the existing market.

44. How do you sell your coffee?

1. Advance sell 2. Sell in cash 3. Sell in credit

45. Average return of coffee at individual farmers

crop	Selling Price Br/17kg	Total cost (in birr/17kg)					
		Labour	Material	Transport	Land rent	Tax	Revenue

46. How did you sale your produce in 2015?

1. Direct to the supplier's 2.Through broker

3. Through commission man to the suppliers 4. Others (specify) -------

47. What was /were problem/s created by brokers in 2015 on Coffee trade?

1. Took to limited client 2. Cheating on scaling (weighing)

3. Charged high brokerage fee 4. Wrong price (market) information

5. Others (specify) --

48. On average how long did it take you to sale your coffee?

1. on the farm ----------hrs./ ---------- days.

2. Primary market ---------- hrs./ ---------- days.

3. woreda town market ---------- hrs./ ---------- days

49. Did you face difficulty in finding buyers when you wanted to sell coffee? 1= yes 0= No

50. If yes, in Q 46 is it due to:

1. Inaccessibility of market? 2. Low price offered?

3. Lack of information? 4. Others (specify) ----------

51. What do you do if you didn't get the expected price for your coffee supply?

1. Took back home 2. Took to another market on the same day

3. Sold at lower price 4. Sold on other market day

52. When did you get the money after you sell to local collectors in credit?

1. as soon as I sold 2. After some hours

3. On other- days 4. Others (specify) ----------

53. When did you get the money after you sell to suppliers in credit?

1. as soon as I sold 3. On other- days

2. After some hours 4. Others (specify) ----------

54. When did you get the money after you sell to brokers in credit?

1. as soon as I sold 2. After some hours

3. On other- days 4. Others (specify) ----------

55. What is the average cost incurred to harvest one hector of coffee farm?-------Birr/season.

56. What are the average costs incurred for transporting and handling 1 qt of coffee to the nearby market ---------- birr?

57. Specify if there are any other costs incurred --------- birr.

End of the interview

Thank you very much for responding to the questions.

Name of the Enumerator: _____ Date of Interview: _____

Market chain analysis of coffee production in Kercha district, Guji Zone of Oromia National Regional State, Ethiopia.Traders (suppliers, Processors and Collectors)' questionnaire.

Questionnaire number: _____

Name of enumerator: _____

Date: _____/_____/_____

Traders' Interview Schedule

Remark: The personal profile obtained from the respondents with regard to the theme will be kept confidential and will not have any consequence on the respondent in any ways.

Please give correct answers to the following questions.

Instructions to Enumerators

• Make brief introduction before starting any question, introduce yourself to the farmers, greet them in local ways, and make clear the objective of the study.

• Please fill the interview schedule according to the farmers reply (do not put your own feeling).

• Please ask each question clearly and patiently until the farmer gets your points.

• Please do not use technical terms and do not forget local units.

• Put the answer on the space provided.

Objectives of the study

1. To identify and describe the existing market chain of coffee in the study area;
2. To assess the structure, conduct and performance of coffee market chain in the region;
3. To identify the determinants of coffee supply by farm house hold in the region;

I. Socio-demographics

1. Name of trader---------- Sex---------- Age --------Years. Educational level -----
2. Marital status of trader? 1. Single 2.Married 3.Divorced 4. Widows
3. Total family size----------

II. Area information

4. Woreda ---------- ----------Name of Market----------

1. Kercha 2. Guracho 3.dibsa 4.bedessa 5.Egu abayi

5. Distance from residence to the market----------Km /walking time in minutes

6. Main occupation (Multiple answers is possible**)**

1. Supplier(whole salers) 2. Processor 3.Collectors 4.retailers

7. How do you undertake coffee trade activity in 2015?

1. Alone 2. With partner

8. How long have you been in coffee trading? ---------- years.

9. Do you participate in coffee trading year round? 1= Yes 0= No

10. If no, at what period of the year do you participate?

1. Year round 2. When purchase price becomes low

3. during high supply 4. Other (specify) ----------

11. Do you practice trading other than coffee? 1= Yes 0=No

12. Number of market days in a week? _____

13. What percent of the total produce is sold on local market in 2015____?

14. What percent of the produce will goes to ECX (Hawasa)) in 2015____?

15. What was the amount of your initial working capital when you start this coffee trade business? ----------Birr.

16. What is the amount of your current working capital 2015?_____ Birr.

17. What is your source of working capital? _____

1. Own 2.Loan 3.Gift 4.Share 5. Others (specify)

18. If it was loan, from whom did you borrow?

1. Relative/family 2. Other traders 3.Private money lenders.

4. Micro finance institution 5. NGO. 6. Bank 7.Friends. 8. Others (specify)

19. How much was the rate of interest? _____ Birr for formal,_____ for informal.

20. What was the reason behind the loan?

1. To extend coffee trading. 2. To purchase coffee transporting vehicles

3. To improve storage facilities 4. Others (specify) -------.

21. How was the repayment schedule? _

1. Monthly 2.Quarterly 3.Semi-annually

4.When you get money 5. Others (specify) -----

22. How do you evaluate accessing finance for coffee trade these days?

1. Improved 2 Deteriorated 3. No change

23. Who will buy coffee from you in 2015?

1. Suppliers 2 collectors 3. Exporter's 4. Brokers

24. From where did you purchase coffee in 2015?

1. From village, name of village (specify) ----------

2. From market, name of market (specify) ----------

25. For whom do you purchase coffee? 1. For own 2. For others

26. How did you sale your produce in 2015?

1. Direct to the purchaser 2.Throug broker 3. Other (specify) ----------

27. What is your term of trade with your buyers?

1. Advance sale 2. Immediate cash at delivery 3. Sale on credit

28. Who sets the price in 2015?

1. Myself 2. Set by demand and supply 3.world market 4.Other

29. How did you set price?

1. Set at time of advance given 2. Negotiated at delivery

3. At time of delivery 4. Others----------

30. If purchasing price was set at the time of advance given, how did you agree?

1. Orally 2. Written agreement 3. Other (specify)_____

31. When did you get the money after sale?

1. As soon as you sold 2. After some hours

3. On the other day after 4. Other (specify) _____

32. What do you do, if the product is not sold on time?

1. Took back home 2. Took to another market

3. Sold it at lower price 4. Sold on other market day

33. How do you attract suppliers?

1. Giving better price 2. By visiting them

3. Fair scaling /weighing 4. Other

34. Who purchase coffee for you in 2015?

1. Myself 2. Broker 3.Commission agent

4. Family members 5. Friends 6.Others____

35. What are the tricks that traders use when selling coffee to intermediaries?_____

36. Assets owned in 2015

NO	Asset	Quantity
1	Car	
2	Coffee washing station	
3	Store	
4	Shop	
5	Weighing scale	

III. Purchase practice

37. From which market and supplier did you buy coffee in 2015?

Purchased from Market (Location name)	Purchased From	Quantity purchased on market day (KG)	Average price per KG	%age share of coffee purchased from specific source	Term of payment 1= Cash 2= Credit 3= Advance payment
Where ---------- ---------- ---------- ----------	1. Farmers 2.Retailers 3.Wholesaler 4. Collector 5. You don'tknow				

38. How do you measure your purchase? 1. By sack 2 By basket 3. By weighing (kg)

4. By 'feresula 5. Others (specify)

39. Is obtaining sufficient volume is a problem in 2015? 1= Yes 0= No

40. From which market (s) do you prefer to buy most of the time in 2015? From_____ market

41. Why do you prefer this market?

1. Better quality 2.Shortest distance 3. High supply 4. Others _____

42. Is your purchasing price higher than your competitors? 1= Yes 0= No

43. If yes, what was the reason?

1. To attract suppliers 2. To buy more quantity 3. To kick competitors

4. To get better quality 5.Others (specify)

44. How many regular suppliers do you have 2015?

1. Producer _____ 3.collectors _____ 5. Processors _____

2. Suppliers _____ 4. Retailers' _____ 6. Others (specify)

45. The reasons for low prices in 2015 are due to:

NO	**Reasons for low prices**	**Yes**	**No**
1	Excess supply	⌗ =1	⌗ =0
2	Poor production	⌗ =1	⌗ =0
3	Trade regulations	⌗ =1	⌗ =0
4	Increase in supply of substitutes	⌗ =1	⌗ =0
5	Increase in supply of other countries	⌗ =1	⌗ =0
6	Others		

IV. Selling practices

46. To which market and to whom did you sell your coffee in 2015?

Sold to Market (Location name	Sold to buyer	Average price per KG	%age share of buyers	Term of payment 1= Cash 2= Credit 3=Advance payment
	1. Collectors 2. Suppliers 3. Retailers 4. Local consumers 5. Exporters			

47. How many sellers were there in this market in 2015? ----------sellers

48. How many buyers for you in this market in 2015? ----------buyers

49. How did you attract your buyers?

1. By giving better price relate to others 2. By fair scaling (weighing)

3. By visiting them 4. Others (specify)

50. How many regular buyers do you have 2015?

1. Wholesalers_____ 3.Consumers_____ 5. Processors _____

2. Assembler _____ 4. Retailers _____ 6.Exporters _____

51. What is your packaging material?

1. Sisal sack 2. Plastic sack 3.Basket 4. Others_____

52. Do you know the market prices in different markets (on farm, village, primary market, Hawasa Market) before you sold your coffee in 2015? 1=Yes 0= No

53. What is your source of information? _____

54. How do you qualify the reliability, timeliness and adequacy of the information you got? Regarding the nearby local and Hawasa market.

1. It was reliable 3. It was timely
2. It was adequate 4. Others (specify) ----------

55. Are you willing to pay for market information if it is available? 1= Yes 0= No

56. Accessibility to market roads in rainy seasons for vehicles is

1. Difficult 2. Easily accessible

57. If difficult, for how long? _____Months

58. What are the opportunities to expand coffee trading?_____

59. Are there problems on coffee marketing? If yes what are the problems, and your suggestion to overcome each Problem in 2015?

NO	Problem faced	1=yes 0=No	What do you think are the causes of this Problem?	What is your suggestion to Solve?
1	Credit			
2	Theft			
3	Price setting			
4	Scaling/ Weighing			
5	Shortage of supply			
6	Storage problem			
7	Lack of demand			
8	Information flow			
9	Natural quality problem			
10	Government policy			
11	No government support			

60. Are there restrictions imposed on unlicensed coffee traders? 1= Yes 0=No

61. Indicate your average cost incurred per17kg(*feresula*) in the trading process of coffee in 2015.

NO	Cost of Marketing	Birr/17kg.
1	Purchasing price	
2	Labour	
3	Materials	
4	Commission	
5	Transportation	
6	License renewal	
7	Tax	
8	Wage	
9	hulling charge	
10	Electricity	
11	Storage rent	
12	Interest	
13	Telephone expenses	
14	personal travel	
15	Depreciation	
16	Others (specify)	
17	**Total costs**	
18	**Selling price (per Kg)**	

V. Marketing Services

62. Did you pay tax for the coffee you purchased in 2015? 1=Yes 0=No

63. Did you pay tax for the coffee you sold in 2015? 1=Yes 0=No

64. What was the basis of tax for the coffee you purchase in 2015?

1. Per sack_____ birr 3. Per basket _____ birr 5. Per kg _____ birr

2. Per quintal _____ birr 4. Fixed payment _____ birr 6. Others (specify) _____

65. What was the basis of tax for the coffee you sell in 2015?

1. Per sack_____ birr 3. Per basket _____ birr 5. Per kg _____ birr

2. Per quintal ____ birr 4. Fixed payment _____ birr 6. Other (specify)_____

66. What is your opinion regarding the coffee marketing fee paid in this market as compared to your transaction?

1. Low 2. High 3.Average 4. You don't know

67. Is coffee trading in your locality needs a trading license? 1=Yes 0=No

68. If yes, how do you see the procedure to get the license? 1. Complicated 2. Easy

69. Did you have coffee trade license? 1=Yes 0= No

70. How much did you pay for coffee trade license for the beginning? _____Birr

71. How much is the yearly renewal payment? _____Birr

72. Did you store coffee before you sold in 2015? 1= Yes 0= No

73. If yes in Q 72 for how long did you store coffee in the store? Maximum for --------

days/months.

74. Are you organized in any of the following organization?

Organization	**1=Yes 0=No**	**Options set for benefits**
Marketing cooperative		⌗ Access to credit ⌗ Encourage to save ⌗ Facilitate joint marketing ⌗ No benefit ⌗ Got market information ⌗ Coordinate purchase and sale ⌗ Credibility ⌗ Other (specify
Trade association		
Marketing cooperative		

End of the interview

Thank you very much for responding to the questions.

Name of the Enumerator: _____ Date of Interview:_____