ANALYSIS OF GENDER ROLE IN COFFEE VALUE CHAIN IN JIMMA ZONE, OROMIA NATIONAL REGIONAL STATE, ETHIOPIA

Msc Thesis

By

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Jimma, Ethiopia

ANALYSIS OF GENDER ROLE IN COFFEE VALUE CHAIN IN JIMMA ZONE, OROMIA NATIONAL REGIONAL STATE, ETHIOPIA

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DEDICATION

I dedicate this thesis manuscript to my families for their continuous contribution throughout my life.

STATEMENT OF AUTHOR

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ABBREVIATIONS AND ACRONYMS

ADLI	Agricultural Development Led Industrialization
CC	Contingency Coefficient
CEI	Composite Empowerment Index
CIDA	Canadian International Development Agency
CLU	Coffee Liquoring Unit
CSA	Central Statistical Agency
DA	Development Agent
ECX	Ethiopian Commodity Exchange
FAO	Food and Agriculture Organization of the UN
FDRE	Federal Democratic Republic of Ethiopia
FHH	Female Headed Household
GALS	Gender Action Learning System
GDP	Gross Domestic Product
GMM	Gross Market Margin
GTP	Growth and Transformation Plan
HDI	Human Development Index
HH	Household Head
HDMI	Household Decision Making Index
ILO	International Labor Organization
JZARDO	Jimma Zone Agricultural and Rural Development Office
KIT	Royal Tropical Institute
LDCs	List Developing Countries
MHH	Male Headed Household
NGO	Non-governmental Organization
OLS	Ordinary Least Square
DOA	District Office of Agriculture
TIO	Office of Trade and Industry Office
PI	Participation Index
PSNP	Productive Safety Net Program
UNDP	United Nation Development Program
VIF	Variance Inflating Factor
WB	World Bank

BIOGRAPHICAL SKETCH

The author was born on 21st August, 1988 in Erer District, Shinille Zone, Somali Regional State. He attended his elementary and junior education at Erer elementary and secondary school and Holly Qur'an public school found in Erer town and Adama respectively and Secondary School in Adama Comp. High School and Hawas Secondary (Preparatory) School in Adama town. After successful passing ESLCE, he joined Haramaya University in 2007/08 and graduated with B.Sc. in Rural Development and Agricultural Extension in 10th July, 2010. After graduation, he served at Wolaita Sodo University for two and half years. He joined Jimma University in March 2014 to pursue his M.Sc. degree in Agribusiness and Value Chain Management program.

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Abstract

This study aimed at analyzing gender role in coffee value chain in Jimma Zone with specific objectives of mapping gender sensitive coffee value chain and actor's role; assessing women's empowerment level and its determinants and analyzing determinants of women participation in coffee marketing. Multiple linear regression and Tobit models were used to analyze factors influencing women's empowerment and coffee supply by women, respectively. The value chain analysis revealed that men and women involved in coffee value chain either as a major actor or as daily laborer. Men's involvement was observed as major actor in each segment of the value chain where as women are concentrated in production part of the value chain. As a daily laborer in coffee business, women were mainly engaged in processing coffee in cooperatives and coffee milling houses. And also in ECX women were hired to separate different quality of coffee supplied by producers and traders. Margin analysis revealed that women sold 70% of their coffee through channel which contain producers, wholesalers and retailers relatively which was low earning channel (42.6%). During the production year of 2015, coffee producers and traders faced the following major challenges; coffee disease (coffee berry and wilt disease), poor road infrastructure, lack of facilities for coffee processing, limited financial support especially for women coffee producers. Therefore, farmers should have access to disease resistant coffee verities. Factors determining coffee supply by women were identified using Tobit model and; coffee area of the household, training and extension were the significant factors that positively affected the amount of coffee marketed by women. Thus, targeting women in training and extension provision is of paramount importance. Women empowerment was assessed by developing composite empowerment index and it shows that women in coffee producing household in Jimma Zone were categorized into low empowerment level (having mean score of 0.439 which is within the range of UNDP's categorization for low empowerment (0.1-0.5). OLS was used to identify determinants of women empowerment and accordingly education level and membership to women association positively affected women's empowerment level. Therefore, the ongoing support for women's education should be intensified and also supporting in forming association and/or groups becomes instrumental to empower women.

Key words: Empowerment, Gender, Multiple regression, Tobit, Value chain analysis,

1. INTRODUCTION

1.1. Background of the Study

Gender inequalities in society are recognized as one of the critical challenges impacting the attainment of sustainable development in the world. Despite several efforts by governments and non-governmental organizations (NGOs), gender inequalities still exist in almost all the countries in the world (World Bank, 2003). Power imbalances between men and women is said to the origin of gender inequalities in many countries; hence many people have used the concept of power to describe empowerment. Gender roles signify the roles of women and men play based on the socioeconomic and cultural environment or situation rather than based on biological factors (ICA-ILO, 2001).

In Ethiopia, as in many other African countries, there is a sharp contrast between men and women in terms of ownership of assets and decision-making power, access to information, training and markets. Although customary laws allow some access to productive resources by women in certain ethnic groups (Flintan *et al*., 2008), men are, by and large, relatively better positioned to take advantage of new market opportunities and to adopt new production methods.

There are various policy documents that support gender equality in Ethiopia, yet in practice, the 'equality' women have and exercise varies greatly across the country. In some (limited) areas, women can actively participate in the ownership and management of commercial operations. In others, problems with control of land and access to finance limit the participation of women in value chain activities. In some limited areas of Ethiopia, women are not even allowed to leave the house by themselves; thereby keeping them from almost all income generating activities and due to these women generally do not have good management or business skills and hinder them from full participation in the value chain (Dolan and Sorby, 2003).

According to USAID (2009), gender issues affect and shape the totality of production, distribution, and consumption within an economy. In the value chain, all activities from production, processing to disposal reflect gendered patterns of behavior that condition men's and women's jobs and tasks. The resulting gender roles and relations affect the distribution of resources and benefits derived from income generating activities especially in the activities that women engage in. In particular, the introduction of new technologies and practices, underpinned

by improved service provision, often disregards the gendered-consequences of market-oriented growth and as a result many benefits bypass women (Lemlem *et al*., 2007).

Gender relations at the household level play a key role in determining the extent to which men and women interact within a value chain. Degrees of participation and gains are shaped at the household level by gendered divisions of labour/time budgets and decision-making/control; and at the value chain level by differential access to services and resources, and by gender related power disparities in chain management. Distribution of the outcomes of the value chain is gendered and varies from place to place (Coles and Mitchell 2011).

Men tend to dominate functions with relatively high barriers to entry and correspondingly greater returns, and to control chain management functions while women occupy the lower nodes (Coles and Mitchell 2011) due to lack of adequate income, limited skills, limited access to education and training, limited access to markets and market information (World Bank, 2007). Disproportionate representation of women in low-value value chains and the lower nodes within these chains is an established reality of value chains.

Women tend to execute their productive and reproductive roles simultaneously (Bhattarai and Leduc, 2009) causing women to engage mainly in value chain activities/nodes that allow them to be closer to the homestead, whereas men may freely engage in activities that require them to be away from home such as value chain nodes away from home, which are often more profitable.

In coffee sector more than 100 million people are engaged in production and processing. Eighty percent of the world's coffee is produced by 25 million smallholder coffee producers. Women comprise half the productive workforce and play crucial roles in productive and reproductive activities that often go unnoticed (Panhuysen and Pierrot, 2014). About quarter of the Ethiopian population directly or indirectly belongs to the coffee value chain (Bastin and Matteucci, 2007). In coffee production systems, women are typically responsible for key activities that affect coffee quality (Mayoux, 2012).

Therefore making women visible, and making sure that they are served in agricultural value chains have massive benefits. This is especially so in value chains for major commodities such as coffee, where women do most of the work.

1.2. Statement of the Problem

Gender relations affect and are affected by the ways in which value chains function. Value chains offer tremendous opportunities to men and women through better market linkages and employment opportunities. At the same time, the way these value chains operate can affect some groups negatively. For example, transnational corporations can take advantage of existing gender inequalities in bargaining power to cut production costs by employing large numbers of women at low levels of value chains paying minimum or lower wages as witnessed in Export Processing Zones in Kenya, Mexico and Nicaragua (Gammage *et al.,* 2009).

Dolan and Sorby (2003) note that when women are employed in the modern value chains, they predominate in the high value industries for export or domestic supermarkets. However, they tend to be employed as casual laborers to do labour intensive and manually unskilled tasks and occupy unstable and flexible jobs that lack social security and other benefits.

In coffee value chain, female coffee farmers are typically limited to less influential roles. Coffee production begins with a long season of fieldwork, followed by harvest, cherry processing, transporting, and sales. Women tend to play major roles at the initial segments of the value chain, laboring in the field, harvesting, and processing, whereas men typically transport and market the product (Twin, 2013). Tasks are increasingly male-dominated as coffee transitions from raw commodity into a value-added product ready for sales and marketing.

It is women who, on average, carry out more than 70% of the field work, harvest and sorting of coffee beans but only 20% of the land used for coffee production is owned by women and only 10% of companies in the coffee sector are owned by women (International Trade Forum, 2008). Despite the work that women contribute to the coffee value chain, they receive minimal compensation and are often excluded from decision-making processes. Social biases in favor of men, rooted in culture and tradition, reduce women's access to resources including land, credit, training, leadership opportunities, and information.

ODI (2009) identified that Ethiopian women rarely have direct control over coffee-related income despite their participation on production and marketing of coffee. But the document didn't touch their extent of participation and reason behind limited control over the income. Control over the benefits of production varies between women and men. Therefore, the problem

associated with women's role along coffee value chain and empowerments are source of motivation for this study.

In Jimma zone, coffee is produced in the 8 districts namely, Gomma, Manna, limu-Kossa, limu-Seka, Seka-Chekorsa, Kersa, Shebe and Dedo, which serve as a major means of livelihood for coffee farming families (JZARDO, 2008). According to same source, 30-45% of people in Jimma zone directly or indirectly get benefit from the coffee industry.

Berhanu and Zewdi (2011) in their study on Women's Collective Action stated that in Jimma zone, coffee is assumed as men's crop and coffee farms are owned by the HH head (tantamount to saying men, except in the case of widows and divorcees). The involvement of women is mainly in seedling preparation, transplanting of seedling to farm plots, hoeing, weeding, picking/collection and transporting ripened coffee berries but the study didn't explore their extent of participation.

The study conducted in Gomma district indicates that, women sell smaller quantity of coffee (50 kg/ season) than what men sell (100 to 300 kg/ season). The study also demonstrated site-specific commodity-based gender analysis is essential for understanding the different roles of women and men in the production of specific commodities, marketing and decision making, and their sharing in the benefits (Lemlem *et al*., 2007)

Different scholars (Tiruneh *et al*., 2001; Yisehak, 2008; G. Ogato *et al*., 2009; Katie *et al*., 2013) conducted analysis of gender role in the production of different agricultural crops. But none of them gave emphasis to role of gender in coffee value chains or women's empowerment level in the study area. Therefore, this study focused on analyzing gender role in coffee value chains and women empowerment in Jimma zone.

1.3. Research Question

1. Who are the actors involved and their role in coffee value chain in the study area?
2. What are the determining factors of women's participation in coffee marketing?
3. What is the level and determinants of women's empowerment in coffee producing households?

1.4. Objectives of the Study

The general objective of the study is to analyze the role of gender in coffee value chains and women empowerment in the study area.

Specific objectives of the study are

a) To map gendered coffee value chain and describe actors function.
b) To analyze determinants of women's participation level in coffee marketing at farm household level.
c) To assess the level and determinants of women empowerment in coffee producing households.

1.5. Significance of the Study

The study generates valuable information on the role of gender in coffee value chain and identifies different constraints and opportunities of the system in reaching out women and men that would assist policy-makers in designing gender sensitive policies for intervention in the study area. Governmental and non-governmental organizations that are engaged in the development of gender sensitive projects would benefit from these results. Moreover, the study provides bases for researchers, who may be interested to undertake further research, analyze and develop appropriate extension systems to empower women.

1.6. Scope and Limitations of the Study

Analyzing gender role in potential coffee producing zone of Jimma is very important to realize the constraints and formulate appropriate correction measures as well as to make sure men and women get recognition for their contribution, as the Zone is well known to be the leading

supplier of coffee in the country. But the availability of time, financial resources have narrowed the research coverage to only the two districts areas of the Zone namely, Mana and Seka-Chekorsa districts.

1.7. Organization of the Thesis

The remaining part of this thesis is organized into four sections. Section two will briefly discusses concepts used in the present study along with a review of the past studies. Section three describes the study area with socio-economic conditions and development activities together with methodology applied to collect and analyze the data. Section four discusses the results of the study. Summary of the findings, conclusions and recommendation are presented in section five.

2. LITERATURE REVIEW

In this part of the study the basic concepts of value chain, women empowerment, factors affecting market supply, the approaches and methods to evaluate the value chain and women empowerment have been discussed.

2.1. Basic Concepts

2.1.1. The basics of value chains

The term value chain describes 'all activities that are requisite for bringing a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use' (Kaplinsky and Morris, 2000). A value chain, thus, encompasses the entire network of actors involved in input supply, production, processing, marketing and consumption. These value chain actors operate within an institutional environment, which can either facilitate or hinder its performance (Gereffi, 1995).

A useful methodology for understanding how markets operate, for a particular good, is value chain analysis. A value chain is a set of value-adding activities through which a product passes from the initial production or design stage to final delivery to the consumer (Kanji *et al.,* 2005) and can be local, national, regional or international in scope. ILO (2007) also defined value chain as a sequence of target-oriented combinations of production factors that create a marketable product or service from its conception to the final consumption.

Mapping value chains: Kaplinsky and Morris (2001) suggest procedures for mapping value chain. Their concept consists of two steps in order to map the value chain of interest. The first step includes drawing an 'initial map', which shows the chain boundaries including the main actors, activities, connections and some initial indicators of size and importance. The second step 'adjusted mapping', consists of elaborating the refined map by quantifying key variables such as value-added, and by identifying strategic and non-strategic activities. Mapping the interactions between men and women at each stage of a value chain provides an understanding of the tasks undertaken by each gender and the division of labour between them (Shillington, 2002).

Upgrading and market relationships: Upgrading denotes a development path of a firm, a group of firms or an entire value chain in response to efforts to improve their/its position and level of value addition compared to competitors. Though usually achieved through the application of innovations in the form of new knowledge and technologies, upgrading can also result in organizational improvements and marketing strategies. In its broadest sense, upgrading can be viewed as synonymous with positive value chain development. Upgrading can be distinguished as: Process upgrading, that is transforming inputs into outputs more efficiently by reorganizing the production system or introducing superior technology and product upgrading: moving into more sophisticated product lines (which can be defined in terms of increased unit values). However, functional upgrading acquiring new functions in the chain (or abandoning existing functions) to increase the overall skill content of activities. Chain upgrading is moving to a new value chain (UNIDO, 2009).

Governance: Governance within value chains reflects the distribution of power and information among various actors. Alternative types of vertical coordination emerge depending on the distribution of market power (the ability to set prices, quality standards and minimum delivery quantities), political power and information (on standards and alternate market prices). As a result, adjustments in vertical coordination mechanisms generally require investments in literacy, information and organization that modify the underlying power structure within the value chain. At the same time, these public investments increase prospects for successful horizontal coordination among value chain members, for example, in farmer organizations (Gereffi *et al.*, 2005).

2.1.1.1. Developing value chain systems towards the benefits of the poor

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

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

2.1.1.2. Measuring value chain

A fundamental aspect of global value chain research is how 'value' itself, is conceptualized and measured. According to Gereffi (1999) profit, value addition and price markups are indications of income shares across value chain actors. Value-added shares can be calculated for different links in the chain. A second way to calculate value added is to look its distribution by each value chain actors of vegetable market and decomposing for each actor to get approximations of each value-added share. Marketing margin is the difference between the value of a product or a group of products at one stage in the marketing process and the value of an equivalent product or group of products at another stage. Measuring this margin indicates how much has been paid for the processing and marketing services applied to the product(s) at that particular stage in the marketing process (Smith, 1992).

2.1.1.3. Gender and value chains

Value chain development is a key concept in strategies to reduce rural poverty in developing countries. The basic idea is that value chains offer the farmer (and indeed all chain actors) the possibility to acquire new knowledge from actors elsewhere in the value chain (e.g., buyers, importers, certification bodies) (Humphrey and Schmitz, 2000). That makes it important to know who is participating in a value chain and who is not: men or women, different castes, people in different socio-economic positions, and so on. Further, we must understand the impact on these different categories of rural entrepreneurs in a value chain.

Involving the marginalized chain actors-"the poor", women, and certain ethnic groups is referred to as inclusive upgrading. But an important issue that is sometimes missing is that people not only participate in and benefit from upgrading, but also have (or lack) control over these benefits and the process. Inclusive upgrading is not only about creating but also about controlling added value (Laven, 2010). So the question is how could weaker chain actors both create and control

the value of their products? Women-owned businesses face many more constraints than those run by men, and have more limited access to financial and other services (Mayoux, 2009). And when a business where women are traditionally involved becomes more profitable, men often take it over.

Gender analysis: Gender analysis refers to a variety of methods and techniques used to understand the differences between men and women in terms of roles, behaviors, activities, needs, opportunities, access to and control over resources, and constraints in relation to one another. Gender analysis also refers to the gender-based disaggregation and appraisal of available data to pinpoint the difference between men and women on account of gender. It is a broad and complex activity that involves careful examination of gender relations in different socio-economic and cultural settings. To do so, various tools (frameworks) have been developed by researchers, among which Harvard Analytical Framework is presented below.

Harvard Analytical Framework: This framework was developed at the Harvard Institute for International Development in the USA in 1985. Three main components can generally be identified in this framework (March *et al*., 1999). The first is the activity profile which deals with the identification of the productive and reproductive activities of men and women. The second component is the access and control profile. It indicates the gender based access to resources, control over the use of resources and the benefits of the use of resources. The third component includes influencing factors which enable the assessment of factors that determine different opportunities and constraints for men and women, and shape gender relations.

2.1.2. The basics of women empowerment

Empowerment and women empowerment in particular, is one of the momentous issues of contemporary development policies in developing countries (Chaudhry and Nosheen, 2009). Empowerment is a complex concept, which may vary between cultures, persons, sexes, occupations and positions in life. Furthermore, men and women may have different views on empowerment in general and women's empowerment in particular (World Bank, 2002).

Aslope and Heinsohn (2005) defined empowerment as a person's capacity to make effective choices and to transform choices in to desired actions and outcomes. The extent to which a person is empowered is influenced by personal agency (the capacity to make a purposive choice)

and opportunity structure (the institutional context in which choice is made). To determine degree of empowerment, various indicators are suggested: for agency, asset endowments - psychological, informational, organizational, material, social, financial or human; for opportunities structure, the presence and operation of formal and informal institutions, including the laws, regulatory frameworks, and norms governing behavior.

Keller and Mbwewe (1991), describe empowerment as "a process whereby women become able to organize themselves to increase their own self-reliance, to assert their independent right to make choices and to control resources which will assist in challenging and eliminating their own subordination".

The empowerment of women is also called an important precondition for the mitigation of poverty and the maintenance of human rights and basic needs, in particular at the individual level, as it helps to construct a base for social mobility (DFID, 2006). According to Malhotra *et al.* (2002), bringing women in to the market economy positively affects their influence in resource allocation and domestic decision-making. Women can gain knowledge and empowerment through market access. According to CARE definition cited by Kejela (2006) an empowered woman is a woman who enjoys bodily integrity (is free from coercion over her physical being), has positive images of her own worth and dignity, has equitable control and influence over strategic household and public resources, and live in an enabling environment in which women can and do engage in collective effort.

2.2. Review of Empirical Studies

2.2.1. Value chain analysis

Fitter and Kaplinsky (2001) used a value chain analysis to examine inter country distributional outcomes of the global coffee sector by mapping input -output relations and identifying power asymmetries along the coffee value chain. Their study showed that returns to product differentiation taking place in the face of globalization do not accrue to the coffee producers. They also found that power in the coffee value chain was asymmetrical. At the importing end of the chain, importers, roasters and retailers compete with each other for a share of value chain rents but combine to ensure that few of the rents return to the farmer or the producer country.

Ponte (2002) also used a value chain analysis to examine the impact of deregulation, new consumption patterns and evolving corporate strategies in the global coffee chain on the coffee exporting countries in the developing world. The study concluded that the coffee chain was increasingly becoming buyer-driven and the coffee farmers and the producing countries were facing a crisis relating to changes in the governance structure and the institutional framework of the coffee value chain.

Dereje (2007) used value chain approach to study the competitiveness of Ethiopian coffee in the international market. The study indicates that Ethiopian farmers have low level of education, large family size with small farmland and get only 3% of the retail price in the German market.

2.2.2. Gender role in value chain

The existing gender inequality in agricultural production affects economic development and benefits especially for women (WB and IFAD, 2008; KIT *et al*., 2012). And, while in recent years, value chain development has been adopted as a key approach in increasing the income of small and medium producers and the economically active poor because modern chains require smooth product flows, high standards and error free production. Consequently, lead firms are willing to invest in knowledge transfer to the benefit of local industries, institutions and service providers. But they didn't establish whether women's changing role in the chain was appreciated and valued at the HH level.

According to KIT *et al.* (2012) the resistance for change in gender roles is rooted in power relations, and the fear that by giving some women more power, men will lose out. However, it has also been reported that value chain intervention resulted into changes in gender roles and relations. The cases from Ghana and Guinea show how women can benefit more from collecting and processing Shea nuts by formalizing their activities in the chain. The change began with professionalizing the value chain; the biggest change was in governance: setting up a high-quality chain and professionalizing the management. While improving women's capabilities (agency) was a necessity for upgrading, the change in structure came more as a result. Showing the women's success and benefits to the community both reduced resistance and created a supportive environment. Attitudes towards women changed, and women now enjoy more freedoms (KIT *et al*., 2012). Value chain intervention or upgrading strategies that do not consider gender relations are more likely to have negative impacts on women. Therefore, there is

a need to understand gender relations in value chain development activities and how changes in gender relations impact on men and women.

In the article "Gender and agricultural value chains" Coles and Mitchell (2011), presented the role division by men and women regards to coffee activities. It is stressed that women usually take over the value addition activities such as harvesting, picking, drying, hulling and sorting the beans. However, men take over the management roles including the trading and selling of the coffee which also brings them the benefits of collecting the proceeds. Also, it is stated by Baluku (2012) that men plant the coffee trees on their owned land resulting in the fact that coffee is considered as a "men's crop". In regards to the role division, it should be considered that only the productive work has been considered so far, meaning the work which is executed for money (Laven *et al*., 2012). Women additionally have to execute reproductive work within the HH such as cooking, collecting fire wood etc. which is often simply forgotten. In the book of "Gender, Land and Livelihoods in East Africa", Verma (2001) emphasizes that this particular role division arises partly from the extensive outmigration of men which created an impact on gender relations in the HHs.

A case study by Farnworth *et al*. (2011) on GALS approach in the Ugandan coffee value chain reveals that domestic violence, lack of property rights, and the inability to control income from the sales of coffee are some of the most critical issues that have been addressed by women producers. Women are heavily involved in coffee cultivation and processing (around 90% of coffee farmers); along with food crop production and HH related tasks. Whilst many men own the land and take the main decisions regarding production, they provide little labour input. Many men were retaining the profits for personal use, including for alcohol consumption which is a recognized problem in the area.

A study by Hill and Vigneri (2009) in Uganda stated that the majority of smallholders sold their coffee in the form of dry cherries, which are then milled by the traders who buy the coffee. Some farmers transported their coffee to market, which allowed them to sell it at a higher price. Members of MHHs were more likely than those of FHHs to travel to market to sell their coffee.

The study conducted by Dereje (2002) in Sidama Zone, indicated the only crops which women have complete control over (*enset* and cabbages) are primarily kept for home consumption. It is only after the HH food needs have been met, that women are able to sell them and use the

money. Men have complete control over *teff*, maize, coffee and livestock. In some HHs, husbands may set aside a few coffee trees for their wives if they have a large area under coffee.

G. Ogato *et al*. (2009) conducted research on gender roles in crop production and management practices in Ambo district. They employed descriptive analysis to identify the constraints facing both male and female farmers and they reported land shortage and high price of agricultural inputs as a major constraint for crop production and management practices. But a significant statistical difference exists between the constraints of female farmers and those of male farmers in crop production and management practices in the surveyed communities.

Judith and Mithofer (2014) employed descriptive analysis to analyze constraints to and opportunities for women's participation in High Value Agricultural Commodity Value Chains in Kenya. The result shows that where the chain is well developed and the returns are high, women dominate the production stage while men tend to own the fields, make decisions on sales premium quality and control revenues. Nevertheless, women in FHHs appear to be fully integrated in most of the stages of the export value chain, although they face greater challenges than men in performing tasks that are physically demanding like harvesting and those that require specialized skills such as grading and spraying.

Ethiopian Society of Population Studies (2008) explicitly analyzes gender inequality in the country using both bivariate and multivariate techniques. The main explanatory variables included were HH characteristics (place of residence, region and wealth quintile) and individual characteristics (age, marital status, age at first marriage and religion). Binary logistic regression model is employed for the multivariate analysis. The analysis identified determinants of poor educational attainment of women are early marriage and rural and HH poverty, i.e. belonging to HHs with lower and lowest wealth quintile groups. factors that contribute to women's work for earning are having some education, living in urban areas, being in a HH with better economic status and older age at first marriage (age at first marriage >18).

Shively *et al.* (2010) identified gender participation along Uganda's charcoal value chain and stated that men dominate the charcoal business at all but the retail level. There are very low levels of female participation in the producer and transporter categories. In their study, they employed linear regression models to study the overall profits and per unit marketing margins

along the value chain and to test several hypotheses regarding the importance of location, human and social capital, and asset ownership on observed economic returns and scale of activity.

Kabeer (2012) outlines that power inequalities are reflected in market transactions in a way that those with power are better able to frame 'the rules of the game' to protect their own privilege or to ignore the rules they themselves have framed. Women often face many gender-specific barriers to accessing markets not only because of weak skills, such as less literacy levels, but also because of cultural norms. These may include inappropriate modes of transportation for women, such as trucks or motorcycles, physical harassment, overloaded reproductive tasks, marital conflict and others (Quisumbing and Pandolfelli 2009).

Extension services are decisive to furthering knowledge, skills, information and technology adoption along value chains. Many studies show that extension systems do not yet pay adequate attention to gender and that extension services are lower for women as compared to men (Ragasa *et al*., 2012; Quisumbing and Pandolfelli 2009). For example, a study carried out in Ethiopia (Ragasa *et al*., 2012) concludes that female farmers are less likely to get extension services and less likely to access quality service than their male counterparts.

The above empirical evidence reveals the importance of analyzing role played by both men and women in different commodities of value chain so that in this study role of gender in the commodity (coffee) that can benefit 30% - 45% of the population is analyzed.

2.2.3. Empowerment analysis

The empirical literature concerned with women empowerment can be divided into two main groups. The first group examined determinants of empowerment, i.e. empowerment in itself was the outcome of interest, while the second group considered empowerment as an intermediary factor to examine effects of empowering women on other developmental outcomes of interest.

Concerning empowerment as the outcome of interest, which is the interest of this paper, most of the empirical analyses interested in the determinants of women's empowerment are heavily concentrated at the individual and HH level. This concentration at the individual /HH level could be due to the importance of the HH to gender relations and hence empowerment. In addition operationalizing different components of women's empowerment in a concrete manner is more feasible at the HH level rather than at larger levels of aggregation (Malhotra *et al.,* 2002).

Hashemi *et al.* (1996) determined the following 8 variables to measure the power of rural women through microcredit activities in Bangladesh: mobility, economic security, ability to make small purchases, ability to make large purchases, involvement in major HH decisions, relative freedom from domination within the family, political and legal awareness and involvement in political campaigning and protest.

Parveen and Leonhauser (2004) conceptualised women empowerment in the following three dimensions: socio-economic, familial and psychological; they measured six indicators covering a wide range of attributes to determine the level of women empowerment. They recorded qualitative data in quantitative terms, assigning suitable scores and obtaining ranks from focus group discussion to develop the composite empowerment index (CEI). The effect of the independent variables, namely, formal and non-formal education, sex of children, spousal relationship, media exposure, spatial mobility and socio-cultural norms, on the CEI was shown in this study.

Varghese *et al.* (2011) studied on Bangladeshi women in three dimensions of domestic empowerment like role of economic decision making power, role of HH decision making power and physical freedom of movement. The study aims to construct the women empowerment index and defines the relation between the empowerment and social aspects like age, age at marriage and age difference between spouses etc. The study found that urban women are more empowered than rural women and older women have more independence and empowerment than younger women because of their life experiences. The study found out an increase in the awareness about women rights and fundamental needs.

Haque *et al.* (2011) analyzed women empowerment and autonomy by establishing an index similar to the Human Development Index (HDI) and central tendency measure. The index was built with the following 3 dimensions: economic decision making, HH decision making and physical movement. Certain socio-demographic independent variables, such as age of respondent, educational attainment of the respondent, educational attainment of husband, rural and urban residence and religion and media exposure, were used in the Multiple regression model to demonstrate the effect of these variables on the empowerment index.

Jeckoniah *et al.* (2012) also adopted UNDP's classification of human development index, where empowerment was classified into 4 levels. Respondents scoring (0) on the CEI were categorized

as “No empowerment”, scores of (0.1 - 0.5) “low empowerment”, (0.6 - 0.7) “medium/moderate empowerment” and a score higher than (0.8) was classified as “high empowerment”.

They construct CEI by averaging 4 index scales (personal autonomy, HH decision making, economic domestic consultation and freedom of movement) to measure women empowerment. Ordinal logistic regression analysis revealed that there was a significant relationship between women empowerment and marital status, education level, age at first marriage, land ownership, access to credits and participation in onion value chain. Other scholars (Varghese, 2011:43; Tayde and Chole, 2010:34) also used similar methods to estimate women empowerment using index scales. Therefore, based on these review, this study constructed CEI to measure empowerment level of women at coffee producing HH.

Shahidul Islam *et al.* (2014) examined the impact of micro-credit on the empowerment of rural women in Bangladesh. The study measured women empowerment by five dimensions. These dimensions were economic decision making, HH decision making, freedom of physical movement, and ownership of property, political and social awareness. OLS (Ordinary Least Squares) regression was applied to understand the effects of microcredit program on each dimension of women empowerment and aggregate women empowerment.

2.3. Conceptual Framework for Study

A value chain can be viewed as a network of different actors both men and women and their function, including input supply, production, assembly, transport, storage, processing and marketing with exportation as a major stage for the product coffee destined for international market. Identification of actors and their function follows mapping of the value chain with aim of illustrating representation of men and women actors and their relationship at each stage of the value chain. In addition to the major actors, roles of enablers are taken in to consideration in the structure of the coffee value chain.

The value chain approach is helpful in analyzing sectors like coffee where global buyers play the leading role in establishing the parameters of the chain, defining what, how, and under what conditions a product is produced, as well as who gets included and excluded from the chain. In value chain analysis, vertical and horizontal integration are the two basic strategies that groups of farmers can use to improve their incomes. Vertical integration means taking on additional activities in the value chain: processing or grading produce, for example. Horizontal integration

on the other hand means becoming more involved in managing the value chain itself by farmers' improving their access to and management of information, their knowledge of the market, their control over contracts, or their cooperation with other actors in the chain (KIT *et al.,* 2006).

The analysis of a value chain stresses that the market is increasingly organized through networks linking spatially dispersed market agents. The outputs in the chain are determined by the requirements of the market agents including quality, consistency, cost, variety, value-added, food safety, and ethical credential; which are, in turn, responding to the demands of their customers (Dolan and Humphrey 2000). Value chain analysis is also useful as an analytical tool in understanding the policy environment, which provides for the efficient allocation of resources within the domestic economy, notwithstanding its primary use thus far as an analytic tool for understanding the way in which firms and countries participate in the global economy.

There are several frameworks for evaluating and measuring empowerment including those developed by Laven and Verhart (2011) and Jeckoniah *et al.* (2012). At their core, the frameworks essentially evaluate 3 factors: agency, structure and relations (Fig. 1). Agency is the capacity of individual human to act independently and to make their own free choices; agency can be predicted by asset endowment. Structures are factors such as social class, religion, gender, ethnicity, custom etc. which limit or influence the opportunities that individuals have.

The agency and structure concepts are interrelated. Changes in agency can result into empowerment; this assumes that if business and financial services are provided, a woman can freely choose to use these services without facing any constraints posed by her family, community or class to market her products. Improvement in structure that enhances participation or market access can result into empowerment if equal opportunities in participation will always lead to equal outcomes. Therefore, human agency shapes and is in turn shaped by formal and informal rules and institutions which account for a certain positioning in the value chain.

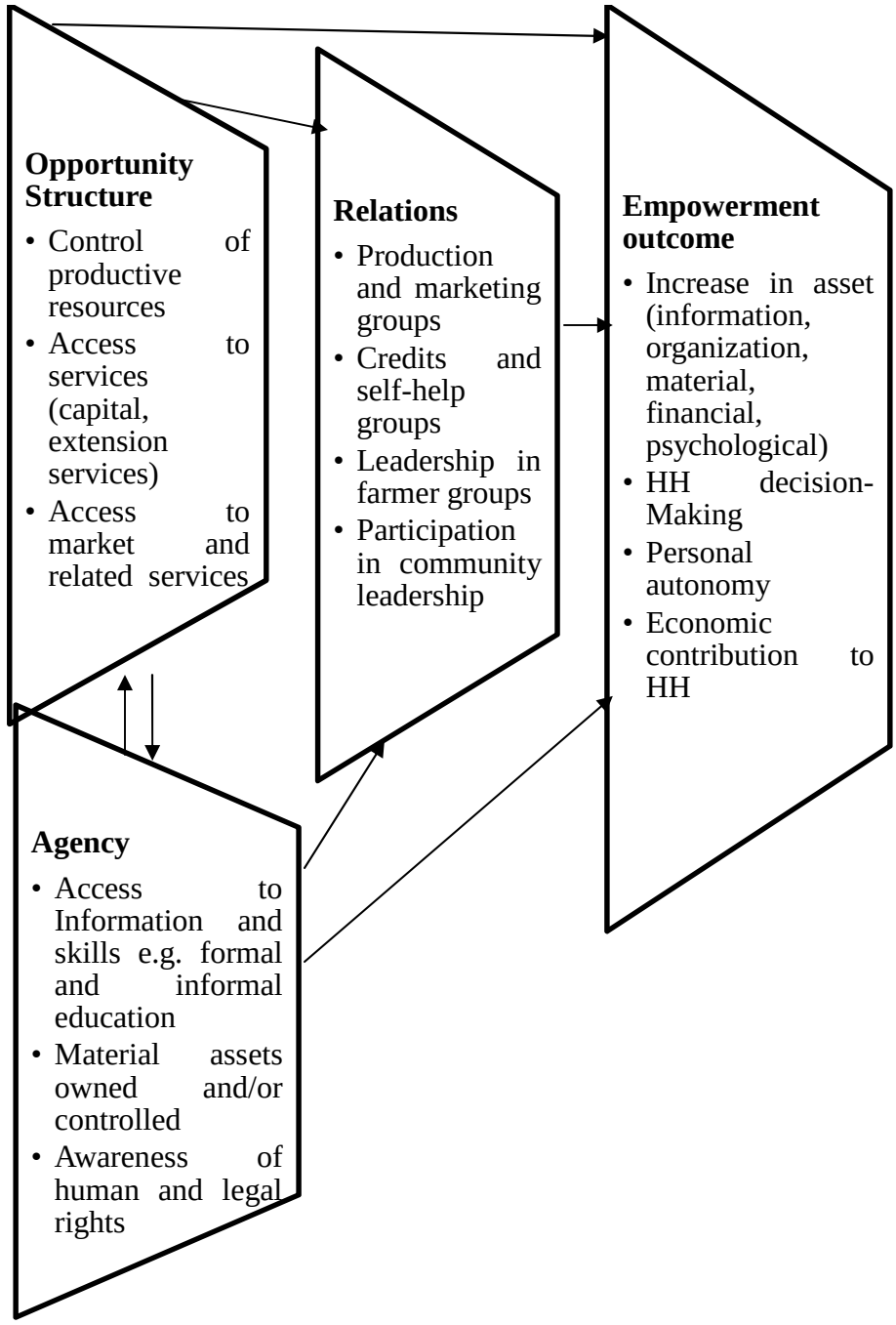


Figure 1: Conceptual framework used for women empowerment

Source: Adopted from the works of Jeckoniah *et al*. (2012)

3. RESEARCH METHODOLOGY

This chapter summarizes description of the study areas, source and data requirement, sample size and methods of sampling and method of data collection. It also contains method of data analysis (descriptive and Econometrics).

3.1. Description of the Study Area

The study was conducted in two districts of Jimma zone of Oromia National Regional State, namely, Mana and Seka-Chekorsa located at about 22 km and 20 km North-East and East of the capital of Jimma, respectively.

Mana

Mana is bordered on the south by Seka-Chekorsa, on the west by Gomma, on the north by Limu-Kosa, and on the east by Kersa. The total area of the district is 478.9 km square (JZARDO, 2012). The district is divided into 24 kebeles and 2 urban centers i.e. Yebu town district capital and Bilida town. It lies between 1,470 and 2,610 masl. It is classified in to dega (12%), woinadega (63%) and kolla (25%) agro-climatic zones. About 89% of the district area is arable (with 86% under cultivation), 2.7% is grazing and 2.8% forest lands. Average rainfall is 1,467 mm. The mean minimum and maximum temperatures are 13.0 ^{0}C and 24.8 ^{0}C, respectively (JZARDO, 2012).

According to the data obtained from the district administrative office, the total population of the district was 173,161 with51% female and 49% male. The urban-rural population distribution of the district shows that 8785 (5%) live in urban and the rest 164,367 (95%) live in rural areas during 2010. It is the most densely populated district in the zone with, at 308 people per km square. The annual population growth rate is estimated to be 2.6% making the projected population of the district to be 177,658 during 2012. Maize, *teff*, sorghum, barley, wheat, coffee and horse bean are the most widely cultivated crops in the district. Khat is also cultivated. Stalk borer, lady bird beetle, ape, warthog, porcupine and pig are major crop pests. Coffee production of the area contributes significantly to the economic and social development including job opportunities for the people of the area and neighbor region.

Seka-Chekorsa

Seka-Chekorsa district is located 20 km Eastern of the capital city of Jimma zone. It is bordered in Northern part with Gomma woreda, North East with Manna and Kersa woreda, North West

with Gera, Eastern part with Jimma town, Southern part with Dedo woreda and South Eastern part with Shabe-Sombo. The geographical location is near to the largest market centers like Jimma, Agaro and Shabe towns. The total surface area of Seka-Chekorsa district was 85,825 km square. The administrative area of Seka-Chekorsa district is divided in to 34 peasant association and one urban kebeles. The climatic classification of the district is Dega (21%), Woina Dega 72 % and Kolla 7% (Report of Natural Resources Assessment in Jimma zone, 2013).

The total population of Seka-Chekorsa was 240,071 in 2012 out of which male accounts for49.7% and female 50.3%. Most of the populations (96.6%) live in rural area, showing low urbanization in the area. Age classification category of the district's population shows 49% of the population falling 15-64 age group while 31% and 20% were in the age group of o 0-14 and above 65. The livelihood of Mana and Seka-Chekorsa district is based on mixed farming and the main economic activities are crop production and livestock production. It has dominantly midland (Woinadega) agro ecology characteristics.

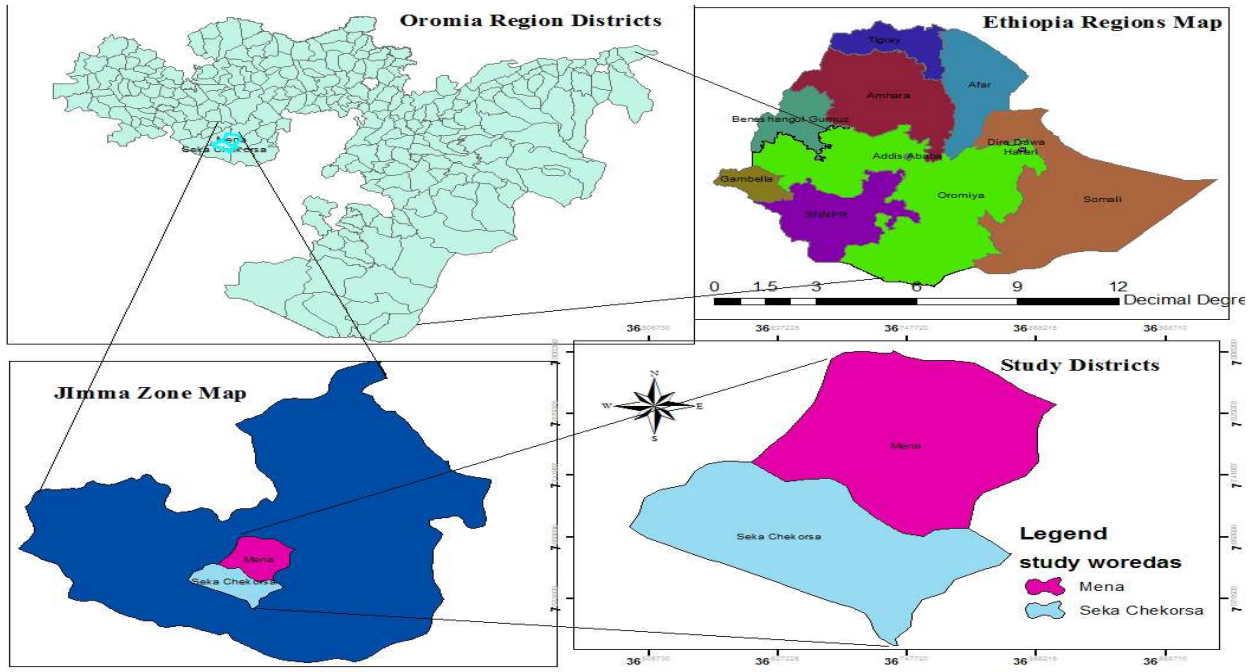


Figure 2Geographical location of the study area

Source: Own manipulation, 2015

3.2. Sample Size and Methods of Sampling

The sample respondents were coffee input suppliers, coffee growing farmers (men and women), coffee collectors (men and women), coffee traders (men and women), coffee processors (cooperatives) and consumers. Multi-stage sampling techniques were used to select districts,

kebeles and farm HHs. In the first stage, the districts were selected purposively based on potential in coffee production. In the second stage, a total of 6 *kebeles* were selected randomly from the two districts (3 from each). Finally, a total of 215 coffee growing farmers were selected from the selected *kebeles* using random sampling techniques. Total sample size was determined using probability proportional to sample size. The HH sample size of the study areas indicated in Table 1 below.

Table 1: Distribution of sample HHs across district and sampled kebeles HHs

District	***Kebeles***	**Number of households**			**Sample households**		
		MHHs	FHHs	Total	MHHs	FHHs	Total
Mana	Bilida	690	62	752	32	3	35
	KellaGuda	1003	73	1076	46	3	49
	GubeBosseqa	1135	80	1215	52	3	55
Seka-Chekorsa	EndadeAllaga	500	45	545	22	2	24
	SakebaGenefo	597	45	642	28	2	30
	Gibe Bosso	433	38	471	20	2	22
Total		**4358**	**343**	**4701**	**200**	**15**	**215**

Source: Own computation, 2014/15

Similarly, other market actors were identified and selected from target markets accordingly; **Input suppliers:** DOA, primary cooperatives and private input suppliers were the major source input; a total of 5 private coffee input suppliers and 2 representative from DOA and 4 DAs (2 women and 2 men) and 2 cooperative managers were randomly selected for the study.

Collectors: Now a day collectors are banned from buying coffee unless they are representatives of suppliers. But still are there and play a prominent role in bringing coffee from very remote areas to the market. As their number is unknown one collector from each kebele was randomly selected.

Suppliers: From among 48 operating suppliers, 11 suppliers were selected randomly.

Exporters: From 121 coffee exporters, 4 of them were selected because of their accessibility.

Domestic Wholesalers: From secondary data found at district level there are around 28 actively participating wholesalers and 14 of them were contacted.

Domestic retailers: There are a number of retailers who participated in selling coffee and 20 of them were interviewed randomly and 22 **Consumers** were selected out of selected markets which are found at Yebu and Seka town in addition to ECX Jimma in which these markets are recipient of the product from the selected producing areas.

Table 2: Distribution of sample size for actors different than producers

	Total numbers		**Sample**	
Value chain actors	Male	Female	Male	Female
Input suppliers	-	-	4	1
Collectors	-	-	6	0
Suppliers	44	4	7	4
Exporters	121	0	4	0
Wholesalers	24	4	10	4
Retailers	-	-	7	13
Consumers	-	-	8	14
Total			46	36

Source: Own computation, 2014/15

3.3. Sources and Methods of Data Collection

Both primary and secondary data were used for the study. The primary data were collected from major value chain actors using structured and semi structured questionnaires. Separate questionnaires were designed for each actor. The questionnaires were pretested before the actual data collection. This led to further revision of the questionnaires to make sure that important issues had not been left out.

In addition to the major coffee value chain actors service providers like Ethiopian commodity exchange (Jimma branch), Woreda level administration bodies, development agents, credit and other financial service providers (Harbu saving and credit) was included in this study.

In addition to the questionnaire, checklists were employed to acquire additional supporting information through focus group discussion. The discussion was made with farmers, coffee traders, gender expert and coffee experts at the respective district. Key informant interviews were also held with DAs, elders and peasant association representatives of the kebeles.

Enumerators who are fluent in the local language were employed and trained on the contents of the questionnaires and techniques of interviewing. Soon after training, they collected primary data under close supervision.

The primary data collected from sample coffee growing farmers include, size of coffee farm land, problem in coffee value chain, work division at household, women participation in coffee marketing, influencing factors of decision making power of men and women, annual income from coffee production as well as costs of production, access to services such as market places, extension, farm credit, market information, the demographic characteristics and the general information related to coffee marketing.

Similarly, primary data collected from sample traders includes; traders characteristics, trading activities and marketing costs, annual volume of purchase and sales, sources of purchase, marketing channels, existing marketing facilities, access to market information, and credit services to their business. In addition to primary data, secondary data were also collected from Jimma zone Agriculture and Rural Development and from agricultural office of the two districts, Jimma zone Trade and Industry office, Cooperative Union, and ECX, published and unpublished documents.

Harvard analytical framework (HAF) was used for collecting gender disaggregated data at the community and household level. The three main components of HAF were employed (Activity Profile, Access and Control Profile and Influencing factors).

3.4. Method of Data Analysis

Descriptive statistics and econometric analysis were used to analyze the data collected from coffee producers, traders and consumers.

3.4.1. Descriptive analysis

This method of data analysis refers to the use of percentages, means, variances t-test, chi square test, standard deviations and ranking. It is employed in the process of examining and describing farm household characteristics, role of intermediaries and value chain actors.

3.4.1.1. Value chain analysis

A) Mapping gender sensitive value chain

To illustrate the value chain map of gender sensitive coffee value chain, various procedures of value chain mapping were adopted as an analytical tool. To understand the value chain, we can

use models, tables, figures, diagrams and the likes to capture and visualize the essence. Drawing the value chain map goes through the following steps: In the first step the core processes in the value chain were identified. After identification of value chain process, identifying and mapping the main actors (men and women) involved in their respective activities were conducted.

In the third step mapping flows of products, information and knowledge were made followed by mapping of the processes, actors and specific activities along the chain. At this stage the support services for the value chain actors at different stage were mapped including service that can alleviate women's reproductive workload, if any. Mapping the volume of products, numbers of actors and jobs were made in the fourth step because of the fact that some dimensions in value chain mapping can be quantified. In the fifth step mapping the geographical flow of the product or service was made. A very straightforward way of mapping is to actually make a geographical map, following the trail of the product or service researcher want to map. Mapping relationships and linkages between value chain actors were done. Finally, factors in the value chain environment which disable/enable women empowerment were mapped.

B) Identifying distribution of benefits among chain actors

The benefits of the value chain actors were determined through the analysis of margins and profits within the chain.

C) Defining upgrading needed within the chain

An analysis of the upgrading process includes an assessment of the profitability of actors within the chain as well as information on constraints that are currently present then upgrading solutions will follow. These may include interventions to: (I) Improve product design and quality and move into more sophisticated product lines to gain higher value and/or diversify production and (II) Adapt the knowledge gained in particular chain functions in order to redeploy it.

D) Emphasizing the role of governance

Governance in a value-chain refers the structure of relationships and coordination mechanisms that exist between actors in the value-chain. The analysis identified actors that may require support to improve capabilities in the value chain, increase value added in the sector and correct distributional distortions.

3.4.2. Econometric analysis

3.4.2.1. Empowerment analysis

This study focuses on the HH level, only indicators that reflect women power practice at this level were considered. The HH decision-making and participation in different institution and income generating activities were chosen to facilitate the household-level analysis of the condition of women power. These dimensions reflect the domestic life extent better and consequently expedite the achievement of the desired outcome of measuring the women power. The significant positive performances of these two dimensions determine the success of women power practice to flourish in the empowerment of women groups.

Description of Dimensions

Women empowerment was measured by developing Women Empowerment Index (WEI). Two women empowerment indices were developed for this study namely; HH decision-making index (HDMI) and participation index (PI) and are used to construct a CEI. Since all indices are related to different aspects of empowerment they were combined into a single index. The dimension index was generated using Equation 1 & 2, which is the same formula used in HDI construction (Anand and Sen, 1994).

Household Decision-Making Index (HDMI)

HDMI sought to know who makes decisions over: Number of daily laborer required, when/how much cherries to harvest, where to sell, when to sell, credit taking, how much credit to take (if decided to take), children's education, family planning, day to day expenditure, purchase of permanent items, use of family income, selection of crops to plant in the field.

Using UNDP (2005) scoring mechanism, 0, 0.5 and 1 were respectively assigned to making decisions by Men, jointly and Women alone (by the respondent alone) the minimum score is 0 and the maximum 12 for all twelve indicators. The minimum empowerment score is 5 out of 12 from the expected participation in decision making. i.e. Minimum score = 5 and Maximum score = 12

$$HDMI_{ij} = \frac{X_{ik} - min_k\ (X_{ik})}{max_k(X_{ik}) - \min_k\ (X_{ik})} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .. 1$$

Where $HDMI_{ij}$= Household Decision-Making Index:

Xik = Actual score of the dimensions

Min (Xik) = Minimum score of the dimension

Max (Xik) = Maximum score of the dimension

Participation Index

PI includes items regarding whether women are participating in local institutions, training, meetings, social functions, coffee marketing and non farm income generating activities.

A score of 0, 0.5 and 1 were assigned to 'Never', 'occasionally' and 'Always'. Thus, the maximum total score is 6 and the minimum is 0 for the five indicators. A respondent is considered empowered if her total score for the dimension is at least 1.5.

$$PI_{ij} = \frac{X_{ik-}min_k\ (X_{ik})}{max_k(X_{ik}) - \min_k\ (X_{ik})} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where PI_{ij}= Participation Index:

Xik = Actual score of the dimensions
min (Xik) = Minimum score of the dimension
max (Xik) = Maximum score of the dimension

Since the above two indices are related to different aspects of empowerment, they were combined into a single index. In accordance with the construction methods of the Human Development Index (UNDP, 2005) the CEI was computed by averaging these two indices.

$$CEI = \frac{PI+HDMI}{2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Where CEI = Composite empowerment index
PI = Participation index
HDMI = Household decision making index

The study adopts the UNDP classification of human development index, where empowerment was classified into four levels. Respondents scoring (0) on the composite empowerment index were categorized as "No empowerment", scores of (0.1 - 0.5) "low empowerment", (0.6 - 0.7) "medium/moderate empowerment" and a score higher than (0.8) was classified as "high empowerment".

3.4.2.2. Multiple linear regression model

Multiple linear regression models were used to analyze factors affecting level of women empowerment in coffee producing HH. The multiple linear regression analysis; according to Tabachnick and Fidell (1996) is defined as a set of statistical techniques that allows the evaluation of the relationship among a dependent variable, and several independent variables. The major objective of this analysis is to identify the equation that describes the relationship between these variables so that we can predict the value of dependent variable attributing values for the independent variables.

According to Anderson et al. (2002), the model can be described as:

$Y_k = B_0 + B_1X_1 + B_2X_2 + \cdots + B_kX_k + ei$…… 4

Where; Y_k- is the composite empowerment index (Empowerment level)

B_0 - Intercept

B_k- coefficient of the k^{th} explanatory variable

Xk- explanatory variables

e_i - is the error term

Very often data we use in regression analysis cannot give decisive answers to the questions we pose. This is because the standard errors are very high or the t-ratios are very low. This sort of situation occurs when the explanatory variables display little variation and/or high intercorrelations. The situation where the explanatory variables are highly intercorrelated is referred to as Multicollinarity (Gujarati, 2003). There are two measures that are often suggested to test the existence of Multicollinarity. These are: Variance Inflation Factor (VIF) for association among the continuous explanatory variables and contingency coefficients for dummy variables. According to Gujarati (2003), VIF can be defined as:

$\mathrm{VIF}(X_i) = \frac{1}{1-R_i^2}$ ----------9

Where: R_i^2 is the squared multiple correlation coefficient between X_i and the other explanatory variables. The larger the value of VIF, the more troublesome; as a rule of thumb, if the VIF of a variable exceeds 10 the variable said to be collinear. Similarly, contingency coefficient is used to check Multicollinarity for discrete variables. It measures the relationship between the raw and column variables of a cross tabulation. The value ranges between 0 and 1, with 0 indicating no

association between the row and column variables and the value close to 1 indicating a high degree of association between variables. It is computed as follows:

$$CC = \sqrt{\frac{\chi^2}{N+\chi^2}} \text{ ----------10}$$

Where, CC is contingency coefficient, χ^2 is chi-square test and N is the total sample size. The decision criterion used is that if the value of CC is greater than 0.75, the variables are said to be collinear.

Definitions of Variables and Working Hypothesis

Once the analytical procedures and their requirements were known, it is necessary to define the dependent variables for the econometric models and identify the potential explanatory variables that have effect on the dependent variables and describe their measurements.

The dependent variable

Composite Empowerment Index (CEI): It is a continuous variable which represents outcome (dependent) variable; the actual level of women empowerment.

Independent variables

Sex of the household head (GNDR): This is a dummy variable equals 1 if the household head is female and 0 otherwise. Generally, it is hypothesized that if female are heading the HHs they are entitled more power than in MHHs. Thus, it is hypothesized to have a positive impact.

Age of Women in the Household (WAGE): It refers to the chronological age of respondent in years at the time of survey. The expected influence of age was assumed positive taking the presumption that as women farmers get older they would have voice in HH decision making and also acquire more power than young women. The study conducted by Mostofa *et al.* (2008) found that women empowerment increased with women age thus, it is hypothesized to have a positive impact.

Age difference between spouses: It is a continuous variable and refers to chronological age differences between husband and wife in years at the time of survey. This variable is exclusively target MHH that mean for FHH it is assumed as a missing variable. Carmichael *et al.* (2011) founds that the lower the spousal age gap, the stronger the position of women in the HH. The expected influence of age difference was assumed negative taking the presumption that as age

difference between the spouses gets larger, women's participation and decision making will get lower and hence their empowerment.

Education level of the Household Head (EDLV): This variable is further divided into two variables; the educational level of the head (EDLVH) and educational level of women in the HH (EDLVW). It is a continuous variable measured by the highest number of years of schooling completed by the head and women in the HH. Jeckoniah *et al.* (2012) indicated that education positively influence women's empowerment by enhancing women's value on the labour market and hence their income. The educational attainment of both the respondent and her spouse was expected to favorably affect women empowerment positively.

Number of Livestock owned (TLU): This variable is defined in terms of Tropical Livestock Unit (TLU); which are thought to be managed by women especially small ruminant animal and are source of income for the households. It is expected that this variable would have positive influence on empowerment of women.

Non-farm Income (NONF_INC): It is a dummy variable, taking the value one if women participate in non-farming activities and zero otherwise. Getting income from non farming activity is assumed to have direct relation with women empowerment. Islam *et al.* (2012) indicated that women empowerment improved through her earnings as a share of the HH Income. It is expected that this variable would have positive influence on women empowerment.

Land Size (Land): This refers to the total area of land that a farm HH owned in hectares. The availability of land enables head of the HH and women to get more power as limitation of resources are the sources of disempowerment for low-income women in many cases. Therefore, land size and women empowerment are expected to have direct relationship.

Coffee Area Owned by Women (CofTrW): It continuous variable and it represents coffee area owned by women in ha. Women can own coffee area when their husband dies/divorces or acquire from their husbands during marriage, called *Maahrii*. It is expected that this variable would have positive influence on empowerment level of women.

Credit (CR): This is a dummy variable, taking the value one if the woman takes loan and zero otherwise. Access to credit would enhance the financial capacity of the farmer to purchase the

necessary inputs. Loro (2013) stated in his study about the gender discrimination in the third world countries that micro finance loans have increased self-esteem and self-respect of women and thereby empowered them. Therefore, it was hypothesized that access to credit would have positive influence on level of women empowerment.

Number of Extension Contact (EXTNC): This variable is measured by the average number of contacts the development agents make with women in the HHs in a year. It is believed that the more the farmer has contact with extension agents the better she has information about their right. Extension contact is expected to have positive influence on women empowerment.

3.4.2.3. The Tobit model

To analyze determinants of women's participation level in coffee marketing at farm HH level Tobit model was used, which has both discrete and continuous part. Women in some household participate in coffee marketing, while in other household did not. The data collected tend to be censored at the lower limit of zero. The data have a censored sample as dependent variable; out of 17.7% of 250 samples, women didn't sell coffee even if the household produce coffee. If zero values of dependent variables were the result of rational choice of farmers, a Tobit model would be more appropriate (Abrar, 2004).Thus, maximum likelihood Tobit estimation (Tobin, 1958) was used in the analysis or as well as the marginal effects. A Tobit model answers both the factors that influence the probability of market participation and intensity of participation by women. The Tobit model for the continuous variable amount of marketed coffee by women can be defined as:

$$Y_i^* = B_0 + B_i X_i + e_i \text{----------} 5$$

$$Y_i = \begin{cases} Y_i^*, & B_0 + B_i X_i + e_i > 0 \\ 0, & B_0 + B_i X_i + e_i \leq 0 \end{cases}$$

Where: Y_i= is amount of coffee sold by women

X_i=vector of factors affecting amount of marketed surplus B_i=vector of unknown parameters and e_i=is the error term which is normally distributed with mean zero and varianceσ^2.

McDonald and Moffit (1980) proposed the following techniques to decompose the effects of explanatory variables into participation and intensity effects. Thus, a change in X_i (explanatory

variables) has two effects. It affects the conditional mean of Y_i^* in the positive part of the distribution, and it affects the probability that the observation will fall in that part of the distribution. Similar approach is used in this study.

- The marginal effect of an explanatory variable on the expected value of the dependent variable is given by:

$$\frac{\partial \mathrm{E}(Y_i)}{\partial X_i} = F(z)\beta_i \text{ ----------6}$$

Where: $z = \frac{\beta_i X_i}{\sigma}$

- The change in the probability of adopting a technology as independent variable X_i changes is given by:

$$\frac{\partial F(Z)}{\partial X_i} = f(z)\frac{\beta_i}{\sigma} \text{ ----------7}$$

- The change in intensity of adoption with respect to a change in an explanatory variable among adopters here continued users is given by:

$$\frac{\partial E(Y_i / Y_i^* > 0)}{\partial X_i} = \beta_i \left[1 - Z\frac{f(z)}{F(z)} - \left(\frac{f(z)}{F(z)} \right)^2 \right] \text{ ----------8}$$

Where; F(z) is the cumulative normal distribution of Z, $f(z)$ is the value of the derivative of the normal curve at a given point (i.e., unit normal density), Z is the z-score for the area under normal curve, β is a vector of Tobit maximum likelihood estimates and σ is the standard error of the error term.

3.4.3. Definitions of Variables and Working Hypothesis

In the course of identifying factors influencing coffee supply by women, the main task is to analyze which factor influences and how? Therefore, potential variables, which are supposed to influence coffee market participation and quantity of coffee marketed by women, need to be explained. Accordingly, the major variables expected to have influence on both the farmers' participation decision and quantity supply are explained as follows:

Dependent Variables

Quantity of marketed coffee by women (QM_S): It is a continuous variable which represents outcome (dependent) variable; the actual amount of coffee marketed by women and which is measured in quintal.

Independent variables

Sex of head of the household (GNDR): This is a dummy variable equals 1 if the HH head is female and 0 otherwise. Generally, it is hypothesized that if female are heading the HHs they have an opportunity than the women in the MHHs to participate in selling coffee. Thus, it is hypothesized to have a positive impact on participation and intensity of women participation in coffee marketing. A study by Lewis *et al.* (2008) on gender difference and the marketing styles at Oklahoma wheat producers showed that men tend to sell grain more frequently than women (men trade more than women).

Age of women in the household (AGE): It refers to the chronological age of women respondent in the HH in years at the time of the survey. The expected influence of age was assumed positive taking the presumption that as women farmers get older, they would have voice in HH decision making and family business and also acquire skills hence it was expected to have positive impact on women participation and intensity of women participation in coffee marketing**.**

Age difference between spouses: It is a continuous variable and refers to chronological age differences between husband and wife in years at the time of the survey. For FHH it is assumed as a missing variable. The expected influence of age difference was assumed to be negative taking the presumption that as age difference between the spouses gets high women participation and intensity of participation in coffee marketing will get low.

Education level of the Household Head (EDLV): This variable is further divided into two variables; the educational level of the head (EDLVH) and educational level of women in the HH

(EDLVWM). It is a continuous variable measured by the highest number of years of schooling completed by the head and women in the HH. Formal education enhances the information acquisition and adjustment abilities of the farmer, thereby improving the quality of decision making (Fakoya *et al*., 2007). The study conducted by Gizachew (2005) showed that formal education was positively related to HH market participation and marketed volume. Therefore, in this specific study, formal education is hypothesized to affect women coffee market participation decision and sale volume positively.

Number of livestock owned (TLU): This is a continuous variable defined in terms of tropical livestock unit (TLU). It is expected that this variable would have positive influence due to expecting women would get experience of marketing through selling livestock products or inverse influence due to time constraints by focusing on livestock, on participation and quantity of coffee supply by women. Study by Rehima (2006) showed that TLU showed a negative sign on market participation and quantity of pepper sales as farmers who have low production specialized in livestock production. But in contrast a study by Musa (2010) shows TLU has positive relation and influenced the quantity of organic coffee supply.

Coffee area (COFARE): It is a continuous variable and it represents the land allotted to coffee production in hectare. A study conducted by Elias (2005) shows that one of the variables with positive effect on coffee supply was coffee area of the farmers land. It is expected that as household's coffee area increases, women coffee market participation decision and sale volume of coffee also increase.

Coffee Area Owned by Women (CofTrW): This is a dummy variable equals 1 if women own coffee area and 0 otherwise. Women can own coffee area when their husband dies/divorces or acquire from their husbands during marriage, called *Maahrii*. It is expected to influence women participate and intensity of women participation in coffee marketing positively.

Credit (CR): This is a dummy variable equals 1 if women access to credit and 0 otherwise. Access to credit would enhance the financial capacity of farmers to purchase the necessary inputs. Stephens and Barrett (2011) said that households access to credit have more capable of financing inputs such as hired labor, which could have a positive effect on maize productivity and therefore sales. Therefore, it is hypothesized that access to credit would have positive influence on market participation and volume of sale.

Number of Extension Contact (EXTNC): This variable is measured by the number of contacts the development agents made with women farmers in a year. It is believed that the more the farmer has contact with extension agents, the better she has information to participate in marketing coffee. Study by Rehima (2006) showed that contact with extension agent increased pepper market participation and volume of marketable surplus. Therefore, extension contact is expected to have positive influence on participation in coffee marketing and volume of sale.

Training (TRNG): This is a dummy variable, which takes a value of 1 if women have participated in any training during the period of 2014 up to the time of survey, and 0 otherwise. This variable is hypothesized to determine participation of women and sell volume of coffee positively.

Distance to market centers (MKTD): It is a continuous variable measured in walking time (minute) which farmers spend to sell their product to the market. If the farmer is located in a village or distant from the market, he/she is poorly accessible to the market. The closer to the market the lesser would be the transportation cost and time spent. Therefore, it is hypothesized that this variable is negatively related to market participation and marketable surplus. A similar study was conducted by Holloway *et al* (1999) milk-market development in the Ethiopian highlands. His result indicates that distance-to market causes market surplus to decline.

Distance to development centers (DISDEV): This is a continuous variable measured in kilometers from the HH's residence. As farmers become far from the development center, the extension agent may not serve them frequently and the service provision by institutions in more remote areas might be of lower quality (e.g., late delivery of information, equipment, and poor supervision of extension workers). Therefore, it is hypothesized that this variable is negatively related to market participation and marketable surplus.

Non-farm income (NONF_INC): It is a dummy variable whether women are participating on non-farming activities or not. This income may strength farming activity or reluctant to produce coffee to generate money from coffee rather than getting income from non farming activities. A study by Iddo *et al.* (2006) confirmed that non-farm income has affected the decision of farmers to sell their farm output (market participation) negatively. Mussa (2010) also found that non-farming income of the HH heads influenced the quantity of organic coffee marketed supply negatively. Similarly, getting income from non farming activity is assumed to have inverse relation with women market participation and intensity of participation.

4. RESULTS AND DISCUSSION

This chapter deals with the results of descriptive statistics and econometric models, gender role in coffee value chain and level of women empowerment. It deals also with the analysis of quantifying costs and margins for key marketing channels and identifies factors affecting coffee marketed by women.

4.1.Household Characterization by Women Empowerment and Market Participation

For empowerment analysis two empowerment indices were developed to highlight women empowerment level namely; HDMI and PI (Equation 1 and 2). The findings show that the HDMI was 0.424 while the PI was 0.454. Using the HDMI and PI, CEI of the women was computed using equation 3. The findings show that women have low level of empowerment as shown by mean score of CEI is 0.439. These results imply that, generally, women in Jimma zone are categorized under the low level of empowerment. Out of 215 sampled HH, only 4.2% of them had attained a higher level of empowerment, and about 16.3% of the sample was categorized in to medium empowerment level; the majority of the study sample (79.5%) was categorized into low level of empowerment and presented in Figure 3.

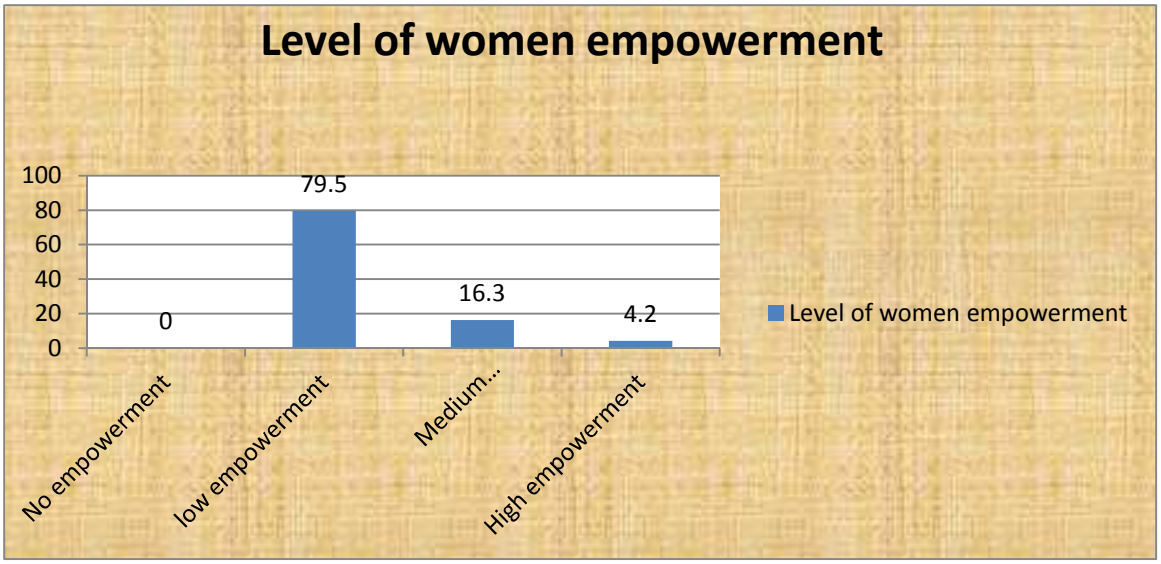


Figure 3: level of women empowerment in the study area

Source: Own computation, 2014/15

For analysis purpose empowerment categories are compressed in to two general categories namely less empowered and empowered. Less empowered refers to the category of low empowerment whereas empowered cover the medium and high empowerment levels. The study

also highlighted the difference between women in MHH and FHH in terms of empowerment level and depicted in table 3. The mean CEI of MHH and FHH was 0.42 and 0.73, respectively. This implies FHH are empowered while women in MHH were less empowered with statistically significant difference at 1% level.

Table 3: Difference in empowerment level between women in MHH and FHH

Women Empowerment index	Sex of HH		t-value
	MHH	FHH	
Composite Empowerment Index	0.42	0.73	-12.05***
Decision Making Index	0.39	0.87	-8.78***
Participation Index	0.45	0.59	-1.89*

*** are statistically significant at 1% * is statistically significant at 10%

Source: Own computation, 2014/15

In characterizing the HH in terms of market participation out of 215 coffee producing sampled HHs, 82% of women were market participants as they were sold coffee at the time of the survey, while the rest (18%) did not sell coffee at the time of survey. In 2014/15 on average participant women sold 1.1qt of coffee.

4.1.1. Demographic characteristics of HH with respect to women empowerment and market participation

The demographic characteristics of The HH were defined in terms of education level, age, and family size and dependent HH members and are presented on the following table.

Table 4: Demographic characteristics of empowered and less empowered women and participant and non-participant women

Variables		Empowered (N= 73)	Less empowered (N= 142)	χ^2 /t-value	Participant (N= 177)	Non-participant (N= 38)	χ^2 /t-value
Women's Education level (%)	Illitrate	1	55	117***	40	63.2	9.032**
	Primary Edu	24	38		47	23.7	
	Junior	56	7		10.2	13.1	
	10^{th} grade complete	19	0		2.8	0	
Age of women in the household (Mean)		42	34	-13.1***	36.66	34.05	-1.981**
Family size (Mean)		6.3	6.76	0.99	_	_	_
Dependent HH members (#)					2	3.2	7.43***

Source: Own computation, 2014/15

Women's education level is one of the major factors that can improve their awareness towards their right as well as enrolment in decision making process of the HH and community affair. More than half of less empowered women were illiterate (55%) but only 1% of empowered women were illiterate. More than half of empowered women (56%) attained junior level of education in contrast to 7% of the less empowered women. The chi-square test result indicated that there was a statistical significant difference in education level between HH with empowered and less empowered women at 1% significance level. Similarly about 40% and 63% of participant and non participant women were illiterate, respectively.

Age can provide life experience for women to have better enrolment in HH and community affairs without harming her situation with husband. Mean age of empowered women (42 year) was higher than that of the less empowered women (34 year). The t-test result indicated that there was a statistical significant difference between mean ages of empowered and less empowered women at 1% significance level. This implies that relatively older women are more empowered than younger women. The same scenario was observed between participant and non-participant women as their mean age was 36.7 and 34 year, respectively. The independent sample t-test revealed that there is difference between the two categories at 5% significance level in terms of mean age.

4.1.2. Socio-economic characteristics of HH with respect to women empowerment and market participation

Socio-economic characteristics the HH was defined in terms of livestock holding (TLU), land size, coffee area of the HH, coffee tree owned by women, amount of coffee sold women and participation in nonfarm income generating.

Table 5: Socio-economic characteristics empowered and less empowered women and participant and non-participant women

Variables	Empowered (N= 73)	Less empowered (N= 142)	χ^2 /t-value	Participant (N= 177)	Non-participant (N= 38)	χ^2 /t-value
TLU (average per HH)	5	3	-12.2***	3.0	3.67	-1.796*
Land size (ha/HH)	3.5	2.2	-6.34***	-	-	-
Coffee area (ha/HH)	0.73	0.77	0.39	0.78	0.66	-1.085
Coffee tree owned by women (% yes)	70	19	54***	44	0	26.28***
Nonfarm income HH (% yes)	75	57	7.98***	67.8	36.8	12.77***

Source: Own computation, 2014/15

Livestock is kept for generating income, traction power and other purposes. To assess the livestock holding of each HH, the Tropical Livestock Unit (TLU) per HH was calculated (Appendix Table 1). HH with empowered women possesses 5 TLU, where as HH with less empowered women owned 3 TLU. Women who are in the HH with more TLU are relatively empowered than women in HH with less TLU. The t-test result indicated that there was a statistical significant difference in TLU between HH with empowered and less empowered women at 1% significance level. Livestock rearing and production require participation of all family members especially woman for feeding and caring for cows, newly borne animals and poultry. As a result women's participation in coffee marketing may be affected. The mean TLU between participant and non-participant was 3 and 3.67 respectively and the independent sample t-test revealed that there is different at 10% significance level in terms of TLU.

Land size was thought to be a good proxy indicator of wealth. The average land size of HH with empowered and less empowered women was 3.5 ha and 2.2 ha, respectively and the t-test result indicated that there was difference in terms of land size between HH with empowered and less empowered women at 1% significance level.

A woman in the study area owns coffee trees during marriage as a gift from her husband. This can improve her empowerment level economically and enhance their participation in coffee marketing. Out of the 73 empowered women, 70% of them owned coffee tree by their name whereas only 15.5% of the less empowered women owned it. The chi-square test revealed that there was a statistically significant difference between empowered and less empowered women

at 1% significance level in terms of coffee tree ownership. For market participation owning coffee tree was the major factor and there were no women who own coffee tree among the non-participant women. The chi-square test revealed that there is difference between participant and non-participant women in terms of coffee tree ownership, at 1% significance level.

In participation on non-farm income generating; participant women have more access to non-farm activities (67.8%) than non-participant (36.8%) and there was difference between participants and non-participants in terms of participation in non-farm income generating activities at 1% significance level. This implies that women who have more access to non-farm income generating activities also can participate in coffee marketing. This may be due to experience obtained from trading activities (marketing).

4.1.3. Access to services by empowered and less empowered and participant and non-participant women

Table 6 depicts participation on training, access to credit and frequency of extension contacts which are the most important factors that promote women empowerment by improving their awareness and enhance their participation in coffee marketing.

Table 6: Access to services by empowered and less empowered women and participant and non-participant women

Variables		Empowered (N= 73)	Less empowered (N= 142)	χ^2-test	Participant (N= 177)	Non-participant (N= 38)	χ^2/ t-test
Training participation (% yes)		96	62	28.47***	55.4	6	38.66***
Access to market information (% yes)		-	-	-	74.6	8	73.41***
Access to credit (% yes)		75	45	17.88***	67.8	5.3	49.84***
Frequency of extension contact (% yes)	0	14	47	33.8***	23.7	89.5	59.6***
	1	44	41		48.6	10.5	
	2	35	11		23.7	0	
	3	7	1		4	0	
Distance to development center (minute)		-	-	-	33	56	5.078***
Distance to nearest market center (minute)		-	-	-	45	82	5.075***

Source: Own computation, 2014/15

The chi-square test for participation or access to services indicated that there is difference at 1% significant level between empowered and less empowered women in terms of participation on training, access to credit and frequency of extension contact.

Participation on training may improve women's empowerment by exposing them to different people with different background. Out of 215 HH, 73% of women get the opportunity to participate on training which was provided by DOA and cooperatives. The distribution between empowered and less empowered women was 96% and 62%, respectively. The study also reveals that 55.4% of participant women were trained while only 6% of the non-participants accessed training. The chi-square test result indicated that there is difference between the participants and non-participants in terms of training participation, at 1% significance level.

Frequency of contacts or visits of extension agent to women is very important to improve their perception about their right and participation in decision making process. The result of this study reveals that nearly half of less empowered women (47%) had not have any contact with development agents where as only 14% of empowered women didn't make extension contact. Almost similar figure of women from the two categories visited once a month by extension agent. The distribution between empowered and less empowered women was 44% and 41%, respectively. Accessing to extension contact between participant and non–participants were also presented in table 8; 23.7% of participant and 89.5% of the non–participants had not had any contact with agricultural extension agents in 2014/15. Among participants, 48.6% of them contacted the agent once but only 10.5% of non-participants accessed extension agent once. The chi-square test result indicated that there is difference between participant and non–participants at 1% significance level in terms of extension contact.

It is assumed that women who have market information (nearby market or at Jimma) can decide how to participate in the market. From the table one can see that more of participant women (74.6%) had market information than non-participant (8%) and chi-square test indicates that there is difference between participant and non–participants at 1% significance level in terms of access to market information.

In 2014/15; 68% of participant and 5% of non-participant women received credit from different sources and chi-square test revealed that there is difference in credit access between participant and non-participant at 1% significance level.

When we look at an average distance from the HH residence and to nearest development center, on average participants were found to be closest to the center compared to the non-participant. As indicated in the table 8, the average distance was 33 minute and 56 minute for the participants and non-participants, respectively and independent sample t-test revealed that there is difference at 1% significance level between participants and non-participants. There was also a significant difference between participants and non-participants in terms of distance from market center at 1% significance level.

4.2. Gender Analysis

Under this section household participation in different triple role (productive, reproductive and community role) and access and control over resources within HH are discussed. Table 7 indicated that men dominate activities which are considered as productive whereas women are concentrated at reproductive activities that can earn no cash. But in community role almost similar figure were observed.

Table 7: Proportion of respondents stating who in the HH participates in triple roles (%)

Activities	Men	Women	Boys	Girls
Productive role				
Ploughing	80	1	19	-
Sawing	83	10	6	1
Fertilize application	47	38	7	8
Weeding	38	32	8	22
Harvesting	68	19	8	5
Threshing	70	18	5	7
Transporting to homestead	80	7	10	3
Livestock production	17	48	15	19
Reproductive role				
Food preparation	5	60	7	28
Fuel wood collecting	6	50	10	34
Water fetching	3	53	6	38
Rearing children	4	60	6	30
Community role				
Soil and water conservation	39	42	11	8
Cooperation during wedding, sorrow	36	49	7	8
Maintenance of water, health and other societies resources	48	40	5	7

Source: Survey result, 2014/15

The result shows that HH members participated in productive role with different extent, except in ploughing were men and boys dominated. Sawing seed and applying fertilizers were mainly undertaken by men and women. In weeding, women and girls constitute 32% and 22% respectively which cover 54% of household's contribution. In harvesting the produce men (68%) take the leading role followed by women (19%). To thresh the product all family member were participated in different extent; 70% men, 18% women, 5% boys and 7% girls. Finally the product was transported to homestead by different household members using different transportation means. Table 7 depicted the distribution of HH member's participation in transporting the produce and was 80% of men, 7% of women, 10% of boys and 3% of girls.

The result of survey revealed that women's contributions in reproductive activities are much higher than that of their counter parts, male. It was because women were generally expected to fulfill the reproductive responsibilities of rearing children, household management tasks and home based production.

In community role, men (39%) and women (42%) participated in conserving the area by participating in soil and water conservation program. In social coming together like weeding and sorrow women takes the front line in representing the family. These activities are undertaken as an extension of their reproductive role and are normally unpaid.

Access and control over resources and benefits within the HH

Sampled HH possess different resources which belong to the HH so that member can access to and control over. Though the resources are belongs to HH, the magnitude of accessing and controlling differ between men and women and presented in the following table.

Table 8: Gender disaggregated access to and control over resources/benefit within HH (%).

Resources and benefits	Access		Control	
	Women	Men	Women	Men
Land	50	50	28	72
Farming equipment	48	52	33	67
Home equipment	55	45	64	36
Labor	45	55	30	70
Farming income	33	67	30	75
Non-farming income	38	62	27	73
Training	25	75	25	75
Education	20	80	20	80
Credit	40	60	38	62
Cooperatives	2	98	2	98
Idir	50	50	50	50
Political and community leadership	20	80	20	80

Source: Survey result, 2014/15

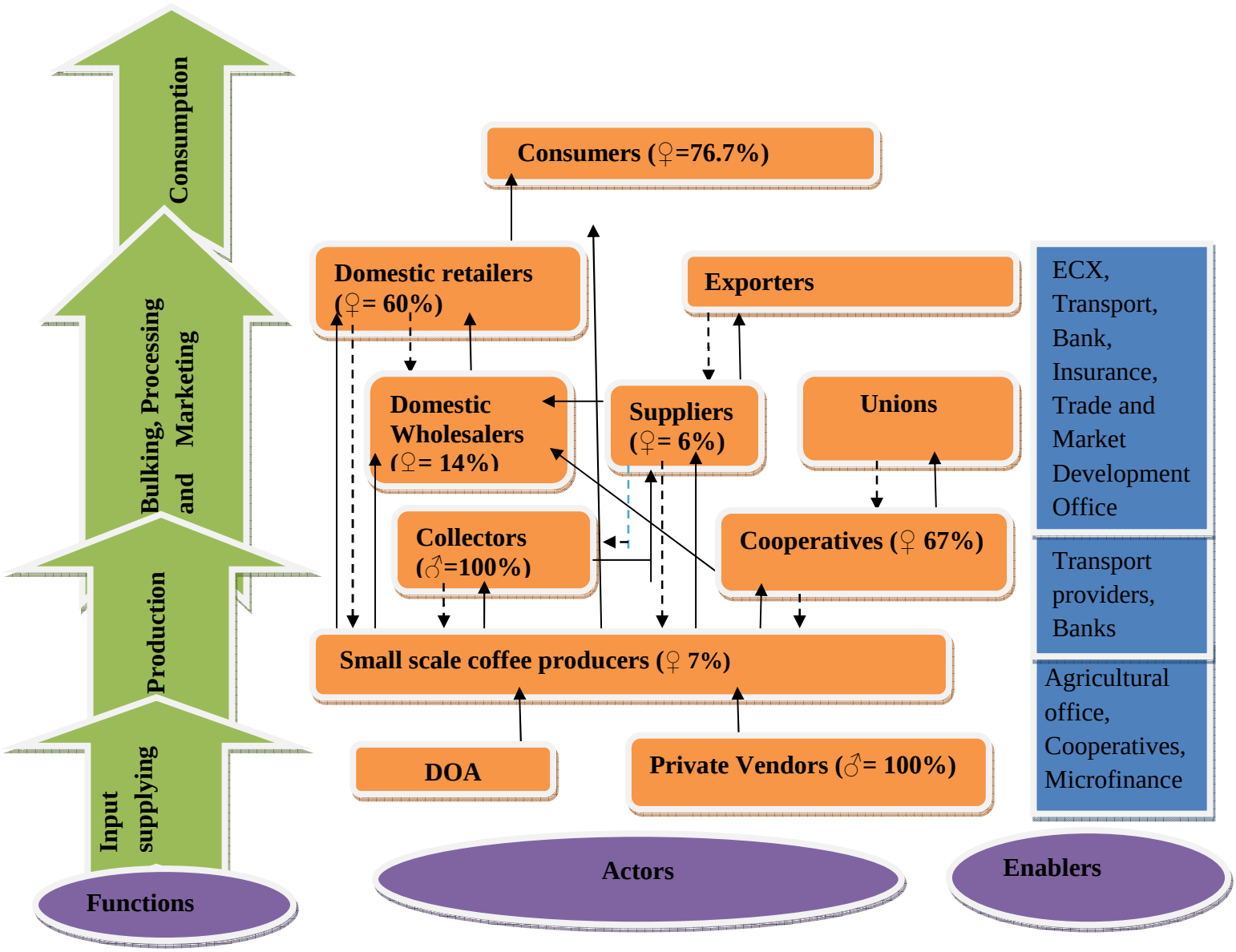
Land is one of the major resources that HH depends on for their livelihood. Men and women had equal access to HH's land title which was guaranteed by low, but it was observed that men have more controlling power over the land. Similarly, on farming and home equipment and labor men and women had relatively equal access but men dominate controlling except home equipment.
Although both men and women have had access/participated on generating income for the HH, but men tend to control over income obtained from both farming and non-farming activities more than their access/contribution on generating the income. The result indicated that men had relatively more power on controlling farming income (75%) and non-farming income (73%).

Table 8 shows that women's access to or participation in institution were minimal except in 'Idir' in which they have equal access and controlling over. Training participation, leadership role in community and political affairs and educational attainment of women is by far lower than that of men according to the data. Only 25%, 20% and 20% of women get the opportunity to participate in training, leadership role and attained education respectively. Cooperative is one of the institutions that men solely dominated. This is due the fact they unlike their husbands who are members of the cooperatives, women in a family cannot be direct members.

4.3.Value Chain Analysis

4.3.1. Mapping gendered coffee value chain

The coffee value chain illustrated in Figure 4 shows actors participating in value chain and performing value adding activities in production, processing and marketing stages of the coffee value chain. The direct actors identified in the coffee value chain were input suppliers, smallholder producers, cooperatives, unions, suppliers, exporters, domestic wholesalers, domestic retailers and local consumers. These are firms and individuals who assume different function in the value chain, engaging directly in production, processing, trading and marketing. They become the owner of the product and/or take active market position. Each of these actors adds value in the process of changing product title. Some functions are performed by more than one actor, and some actors perform more than one function. Other indirect enabling institutions identified as supporting coffee value chain are banks, cooperatives, unions, Oromia credit and saving institute, DOA, microfinance institutions and ECX.



Represents physical flow of inputs and products

Represent flow of information and cash

♂= Male and ♀= Female

Figure 4: Coffee value chain map, 2014/15
Source: Own computation, 2014/15

4.3.2. Actors and their functions in coffee value chain

The value chain map highlighted the involvement of diverse actors who are participated directly or indirectly in the value chain. According to KIT *et al.* (2006), the direct actors are those involved in commercial activities in the chain and indirect actors are those that provide financial or non -financial support services, such as credit agencies, business service providers, government, NGOs, cooperatives, researchers and extension agents.

Input supplier

District level agricultural offices (DOA), primary cooperatives and private input suppliers were participated in supplying inputs for the farmers. Coffee seedling, manure, compost, fertilizers, and pesticides are the major inputs used for coffee production in the study area. The above major inputs are also prepared and used by some farmer. Extension officers also help in supplying the inputs or link the farmers to DOA. Traders in input supply in the villages surveyed is dominated (100%) by men who can easily travel long distances to purchase them from whole sellers located in Jimma town.

Out of 155 input users, 24.7% of them used compost made at home and the one obtained from other farmers and 19.5% manure prepared at their backyard for coffee production. To fulfill their seedling need 14% of farmers obtained from DOA and private vendors. Around 28% (25% men and 3% women) responded that they had not applying any yield improving inputs for their coffee plantation. The reason indicated were knowledge gap on how to prepare the above organic fertilizers, shortage of supply and its high price.

Table 9: Input used and their sources in 2014/15

Inputs used	Frequency	%	Source of inputs	Responsible person (%)		
				Men	Women	Jointly
Compost	53	24.7	Own & other farmers	45.2	40	14.8
Manure	42	19.5	Own	33	67	11
Seedling	30	14	DOA and Private Vendors	100	0	
Compost and Manure	30	14	Own	32	48	20

Source: survey result, 2014/15.

Small scale coffee producers of the area used organic fertilizer for coffee production especially those who are a member of cooperatives and women play a critical role in preparing these inputs. From the total 155 HH of input users, 67% of them responded that women prepare livestock manure and made ready for its application which then applied by men. HH (48%) who applied compost and manure in combination reveled that women were responsible on preparing compost using coffee pulp and husk and manure using livestock wastes. Around 14% of the household bought seedling from DOA and private vendors to substitute their old coffee trees and men were responsible to undertake this activity.

Producers

There was around 42,278 smallholder coffee producers in the study area and 215 were sampled for this study. They are the major actors who perform most of the value chain functions right from farm inputs preparation to post harvest handling and marketing. The major value chain functions that coffee producers perform include land preparations, plowing, seeding preparation, weeding, and pest/disease controlling, harvesting, processing and marketing.

Out of 215 sampled coffee producers, FHH account 7% and the rest 93% are headed by male with an average land holding of 0.89 ha and 1.75 ha respectively. Men are involved in all the activities done by women and so are the women in the so called "men's activities": gender differences are observed in their extent of involvement in different tasks. An average of 5.6 qt of coffee was sold in 2014/15 by the household both by men and women. Out of the 5.6 qt coffee sold, around 1.1 qt of coffee was sold by women.

Gender participation on coffee production

Under this section participation of HH members in coffee production and marketing was discussed in detail. It underlines the participation by each HH members on each activity undertaken at HH level in which coffee passes through from seedling preparation to marketing.

Table 10: Proportion of respondents stating who in the HH participates in coffee production and marketing (%)

	Participants (%)				
Activities	Men	Women	Boys	Girls	Hired labor
Seedling preparation	17	42	8	33	-
Transplanting seedling	18	50	12	20	-
Hoeing	49	11	38	2	-
Weeding	17	44	14	25	-
Coffee cherry collecting	26	24	23	22	5
Cleaning	21	39	14	26	-
Drying	20	35	15	30	-
Hulling	16	32	8	24	20
Grading/sorting	23	28	8	7	
Transporting to the market	48	18	29	5	-
Selling coffee	60	14	20	6	-

Source: Survey result, 20104/15

Table 10 indicates that participation of HH members in coffee production varies across activities. Seedling preparation was the responsibility of women and girls as they represent 42% and 33%

of the HHs respectively in handling this activity. Moreover 50% and 20% of the HH stated that women and girls are responsible for transplanting of seedling to farm plots respectively. This implies that in the study area women and girls are playing a major role in both seedling preparation as well as transplanting it.

Hoeing the land is fallen on men's (49%) and boys' (38%) shoulders due to its demand for physical strength. Women and girls participated in weeding the coffee field intensively where 44% and 25% of them involved in such activities, respectively.

As coffee production is a family business, all family members participated in each activity and the extent of participation was almost similar in coffee cherry collecting. The proportion of men, women, boys and girls who involved in coffee cherry collection was 26%, 24%, 23% and 22%, respectively. The reason indicated for polling family members' force were labor intensiveness of the activity, those with large family size benefited by using the available resources (labor) and those with small family size cover their labor need by hiring laborers (5%).

In cleaning and drying activities women and girls take the major share. For cleaning coffee; 39% of women and 26% of girls were involved and after primary cleaning, women (35%) and girls (30%) continue their significant contribution by drying the coffee. They dried coffee cherries on bamboo bed, mesh wired bed and cement floors after conducting primary sorting and grading. Here drying coffee was considered as women's task.

Out of 215 coffee producers, about 20% of them hired labor to hull the coffee in which all of these casual laborers were women. Coffee hulling is dominated by female counterparts. Those sample coffee producers who perform the activity using family labor, pointed that around 16% of men, 32% of women, 8% of boys and 24% of girls were participated in hulling coffee.

Before the collected red cherry is transported to the market, farmers undertake farm level sorting and grading activities. The result showed that men (23%) and women (28%) are the major participants of sorting and grading. High participation of men and women in the sorting and grading activity is attributed to experience or better know how of grading or sorting the coffee. At this level, good quality coffee was separated from the poor one.

Transportation was also another function performed by the producers. Coffee producers used different mode of transportation to move their produce from farm to home and/or to market. They predominantly used pack animals, animal-cart and vehicles to transport coffee.

Transporting coffee to market place was mainly undertaken by male. The labour division shows that men (48) were dominant actors in coffee transporting followed by boys (29%) and women (18%). Only few girls (5%) were involved in coffee transporting.

Despite the fact that women conduct a substantial part of the work on a coffee farm, it is the men who market the coffee and control the income from the coffee sales. The result showed that 60% of men and 20% of boys were participated in marketing coffee, leaving the other members to insignificant level of participation.

Local collectors

These are traders who collect coffee from farmers in village markets and farmer's farm for the purpose of reselling to suppliers. In 2014/15 they bought around 247.30 qt of coffee from farmers and resoled to suppliers. Collectors and farmers present their coffee at collection stations which are around a total of 213 coffee marketing centers in the study area. Representatives of coffee merchants (wholesalers) and primary cooperatives buy/collect coffee at each station. There are many collectors who were all male, directly bought the coffee with its pulp (Jenfel coffee) and/or without pulp and sold it to suppliers for further processing activities and preparation for marketing. Collectors add value by bulking and transporting coffee by using animal pack to their respective suppliers. Some collectors, who do not have sufficient capital to purchase coffee, operate with advance they receive from suppliers.

Cooperatives

Primary cooperatives are the major actors which purchase coffee directly from smallholder farmers which account 29% of coffee marketed by sampled producers and after purchasing coffee would transported to ECX warehouse for grading and certification of their coffee and sell to unions. There were more than 16 primary coffee cooperatives in the study area with an average of 144 (100 male and 44 female) members. They also have 11 employees (only men).

Cooperatives undertake coffee processing (wet and dry) and marketing function. In wet processing, immersion of coffee in the water to be sorted, pulping, soaking and drying are the major activities. To accomplish the process 25 men and 50 women were hired. Women's role was concentrated on drying coffee rather than washing. The reason behind was all activities except drying were performed at night time and also laborious task which is not preferable by

women. Women are under-represented in the cooperative and because of their limited networks; female producers have difficulty of successfully marketing and optimizing their income from coffee.

Unions

The unions' functions are varied, and include exporting its members` produces, providing a warehouse service, promoting coffee processing, ensuring supply of organic coffee, supplying its members with modern inputs, providing transport for produce, educating its members with basic consumer goods at wholesale prices and representing its members.

After buying the coffee, the Union performs some processing activities like hulling, polishing and blending for the parchment and polishing and blending for sun dried coffee. Finally further processed were packed, transported to their warehouse and make ready for export market. The good quality coffee (first grade) is exported to Alternative Trade Organizations (ATOs), such as Twin Trading, Equal Exchange and Tradecraft while lower grade coffee is sold to domestic wholesalers that supply to domestic retailers and consumers. The coffee unions contact to ECX for grading systems and to follow the rules and regulation of the government of Ethiopia. In addition to buying coffee from cooperatives, the union provides technical training for cooperative leaders and market information. The participation of women in managerial roles of the Unions was quite low where only 1 to 2 were women in a committee of 13 persons.

Suppliers

Suppliers are mainly involved in buying coffee from collectors and producers in larger volume than any other actors and supplying them to exporters and domestic wholesalers. The survey result indicates that suppliers bought 41% of coffee produced in their respective surrounding areas in 2014/15.

There were 48 registered suppliers who actively worked in 2014/15 and only 6% of them were women. They bought 247.30 qt and 954.23 qt of coffee from collectors and producers respectively either at primary market center and/or at farm gates. They processed the coffee at coffee milling house which was dominated by women before they supplied to ECX auction market. After sorting and grading functions was performed by ECX, they receive a receipt which

contains information about the grade and amount of coffee from ECX warehouse system for selling coffee at an auction., the first grade coffee was sold to exporters and the remaining lower grades to local merchants. At ECX, primary grading was undertaken by women to separate different grade of coffee presented by suppliers.

Exporters

They are private firms that purchase coffee from suppliers through ECX to sell in the export market. Currently, there are 121 registered coffee exporters participating in buying coffee from suppliers. They play a significant role by searching foreign market through the linkage they have with the importers outside the country. They add a place utility to the commodity coffee. Once exporters purchase coffee from suppliers, they sort it by color and polish the coffee before exporting to international market. Coffee that does not meet export standard is sold in the domestic market to wholesalers through ECX auction for rejected coffee.

Domestic wholesalers

Domestic wholesalers are value chain actors who directly buy coffee from producers and low standard coffee from suppliers and cooperatives and sell it to retailers. There are a total of 28 wholesalers (only 4 of them were women) at both districts. They bought around 280 qt of coffee which was 170 qt, 34 qt and 76 qt from producers, cooperatives and suppliers respectively in 2014/15. They sold the coffee to the retailers found at Jimma town and to other region of the country, where coffee is not grown at larger quantity.

Local retailers

There are many merchants retailing coffee side by side with other commodities but only 25 (10 men and 15 women) retailers were contacted both at district and zonal level. They handled 7% of the coffee produced by producers (163 qt) and 100% of wholesaler's coffee. The retailer's function in the chain includes buying of coffee, transport to retail shops, grading, displaying and selling to consumers. Retailers are key actors in coffee value chain in both districts. They are the last link between producers and consumers. They mostly buy from wholesalers and sell to urban consumers. Sometimes they could also directly buy from producers. Consumers usually buy the coffee from retailers as they offer according to requirement and purchasing power of the buyers.

Local consumers

They are the final actors who participate in coffee value chain. It was difficult to identify their numbers and 20 (17 women and 3 men) cup coffee makers and 10 (6 women and 4 men) household consumers were contacted as key informants. They bought coffee from retailers and directly from producers but most of the consumers especially cup coffee makers prefer to buy coffee directly from farmers because of its quality and price and women coffee producers were their main suppliers.

Support Service Providers

Support service providers are those who provide supportive services including training and extension, information, financial and research services. According to Martin et al. (2007), access to information or knowledge, technology and finance determines the state of success of value chain actors. DOA, primary cooperatives, Unions, micro finance, ECX and Banks are main supporting actors who play a central role in the provision of such services.

Training and Extension Services

Cooperatives and DOA were the main sources of training and extension provided to coffee producers in both Woredas. There are 6 DAs (2 female) who actively participate in training and extension services to farmers. Men and women farmers didn't get training as well as extension service proportionally and also on specific commodity (coffee). The survey result revealed that a total of 183 respondents (121 men and 62 women) had contact with extension agents (i.e. 85% of total respondents). In 2014/15, 70% of respondents (93 men and 57 women) participated in training provided on management, marketing, harvesting of different agricultural commodities.

Table 11: Proportion of coffee producers who accessed training and extension services (%)

Variables		Sex		χ^2 – test
		Men	Women	
Training participation		61.9	38.1	20.821***
Extension contact		66	34	31.366***
Frequency of extension contact (in a year)	Once	19	27	
	Twice	33	9	
	Thrice	10	2	

*** Significant at less than1%

Source: Survey result, 2014/15

Table 11 reveals that women constitute 38.1% of 150 respondents who participated in training in 2014/15 and the chi-square test revealed that there is a statistically significant difference on training participation between men and women at 1% level of significance. Out of 185 respondents who obtained extension provision, women made 34% of it. The result shows that the extension provision was in favor of men. Accordingly, the chi-square test revealed that there is a statistical significant difference in extension provision between men and women at 1% level of significance. The extension contact made by farmers was further analysed using frequency of contact made per month because of its importance in enhancing farmers' attitude and knowledge.

Financial services provision: Credit and saving institute, cooperatives, friends and private lenders were identified as the potential and available credit sources for smallholder farmers. Farmers in the study area used both cash and in-kind credit from formal and informal credit sources. From total sampled households, only 122 (56.7%) individuals (96 men and 26 women) took credit because of religious and other personal reasons like the interest rate, disinterest to take. They got credit from different sources, 50% from relatives/friend, 27% from local money lenders, 12.3% from credit and saving institute and 10.7% from cooperatives. Source of credit for suppliers, wholesalers, exporters, cooperatives and Unions during the study period were banks.

Ethiopian Coffee Exporters' Association (ECEA): ECEA represents over 80% of Ethiopia's coffee exporters who have over 96% market share of the Ethiopian coffee export. The association provides different services to its members and serves as focal institution for the working and business relationship between government and its members; and its members and Ethiopian coffee importers.

Ethiopian Commodity Exchange (ECX): The basic function of ECX is to provide a centralized and standardized trading platform for coffee traders besides dealing with several commodities. The major services provided in ECX are grading services, warehousing and trading services. These activities are performed by fulltime technical experts and casual laborer. Women are the major labor sources in separating coffee when presented with different grades by coffee been owners. In liquoring, classifying by taste and appearance, washed and unwashed coffee as it arrives at auction and also giving clearance to exporters prior to export.

Coffee value chain governance

The interaction between firms along the coffee value chain exhibited some reflection of organization rather than being simply random. The study revealed that coffee value chain is governed when parameters require product quality, demand and price setting which have downward consequences to smallholder coffee farmers. International importers have had high governing power on Ethiopian exporters and then suppliers by determining product specification, price and volume. This in turn has downward effect on smallholder farmers. So women in the HH are responsible in selling the coffee left over because of its quality for retailer and local consumers. While setting the price of the product, power asymmetry between smallholder farmers and suppliers was visible in that the issue of price determination at the farm level is governed by suppliers. On the other hand, the governing power that importers have on Unions then Cooperatives was identified as having a positive effect on farmers mainly on improving quality and product differentiations like producing organic coffee and specialty coffee demanded by international market. Regarding women farmers especially those in MHH are not direct beneficiaries. This is due to the fact that unlike the men who are members of the cooperatives, women in a family cannot be direct members. Hence, any dividend that would be gained from coffee marketing by cooperatives again goes to men registered as members. In this regard, the problem goes back to membership criteria and land ownership. Cooperative members are expected to be those registered as household heads and tax payers in their names in the village.

4.4.Marketing Channels and Performance Analysis

4.4.1. Marketing channels

A marketing channel is a business structure of interdependent organizations that reach from the point of product to the consumer with the purpose of moving products to their final consumption destination (Kotler and Armstrong, 2003). The analysis of marketing channels is intended to provide a systematic knowledge of the flow of the goods and services from their origin (producer) to the final destination (consumer).

Nine principal marketing channels were identified for coffee in the study area.

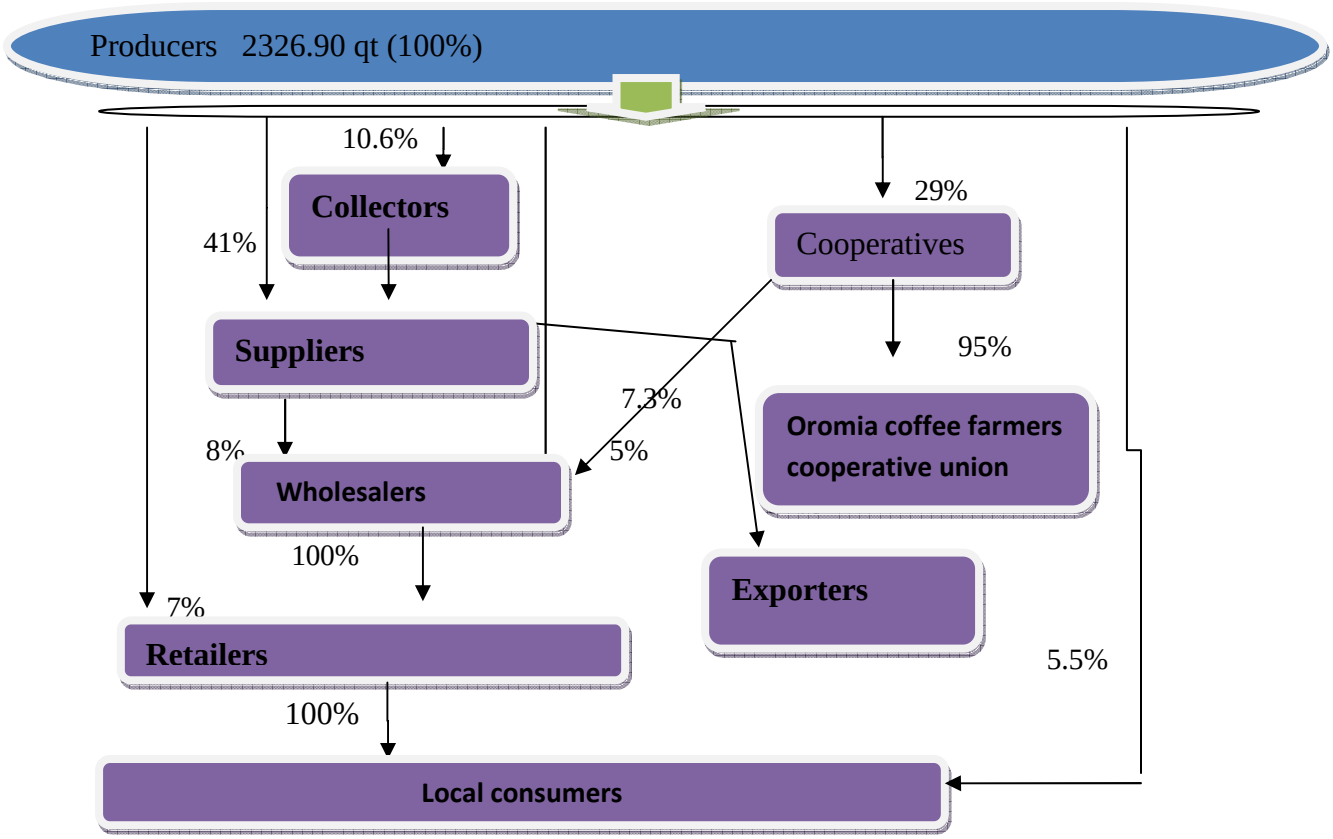


Figure 5: Coffee marketing channel, 2014/15

Source: Survey result, 2014/15

The identified market channels depicted in above figure are:

I. Producers → Suppliers → Exporters

II. Producers → Cooperatives → Unions

III. Producers → Wholesalers → Retailers → local consumers

IV. Producers → Retailers → local consumers

V. Producers → Suppliers → Wholesalers → Retailers → local consumers

VI. Producers → Collectors → Suppliers → Exporters

VII. Producers → Collectors → Suppliers → Wholesalers → Retailers → local consumers

VIII. Producers → Cooperatives → Wholesalers → Retailers → local consumers

IX. Producers → local consumers

The most prominent channels in the coffee marketing chain were channel I and II in which 41% and 29% of the product flows through, respectively. And also the channel in which women sold 70% of their coffee.

4.2.3. Performance of coffee market

The performance of coffee market was evaluated by considering associated costs, returns and marketing margins. The margin calculation is done to show the distribution throughout the various actors as coffee move from production to collectors, wholesalers, retail market, and finally to consumers. The relative size of various market participants' gross margins can indicate where in the marketing chain value is added and/or profits are made. In order to calculate the marketing margin of an agent, the average price of coffee for that particular agent was taken.

Cost and benefit share of actors in Channel I

The cost and benefit share of producers, suppliers and exporters was used to calculate their profitability by taking the average total income and expenses in 2014/15. The study result revealed diverse nature of cost structures. Farmers sell their coffee to suppliers at market place which is far from them or at farm gate. They sell their coffee in the form of red cherry during harvesting seasons and in sun-dried form.

Table 12: Cost and benefit share of channel I actors (ETB/qt)

Items	Producers	Suppliers	Exporters
Purchase prices	_	1050	1800
Production cost	180.30	_	_
Marketing cost/Processing costs			
Labor	65	30	_
Transport	20	39	30
Loading unloading	20	15	15
Packing material	25	40	35
Cleaning, washing and Packing	_	40	20
Liquoring cost	_	_	10
Insurance fee	_	_	15
Freight to port	_	_	50
Custom and transit	_	_	17
Container	_		28
Loss	35	15	15
Tax	25	32	35
Miscellaneous	30	35	35
Overhead cost	15	40	40
Total marketing cost/Processing cost	235	286	375
Total cost	415.30	1336	2145
Sale Prices	1050	1800	2450
Market margin	869.7	750	650
% share of margin	38	33	28

Items	Producers	Suppliers	Exporters
Profit margin	634.7	464	305
% share of profit	45	33	22

Source: Own computation, 2014/15

Table 12 indicates different types of marketing cost and margins related to the transaction of coffee by producers, suppliers and exporters in 2014/15. Producer's share of profit was 45%, followed by suppliers 33% and exporters in 22%. The cost distribution shows that after labor cost the highest cost of producers was post harvest loss which shows the requirement of special attention.

Cost and benefit share of actors in Channel II

The second most important channel in which 29% of coffee produced flows through required; involvement of coffee producers, cooperatives and unions. Here the producers sell their coffee to the cooperatives at market center and/or supply to cooperative where houses in the form of red cheery. Table 13 indicates different types of marketing cost related to the transaction of coffee by producers, cooperatives and unions and their benefit share.

Table 13: Cost and benefit share of channel II actors (ETB/qt)

Items	Producers	Cooperatives	Unions
Purchase prices	_	**1100**	1900
Production cost	180.30	_	_
Marketing cost/Processing costs			
Labor	52	60	40
Transport	20	20	25
Loading unloading	15	15	20
Packing material	35	40	30
Cleaning, washing and Packing	_	33	30
Liquoring cost	_	_	12
Freight to port	_	_	50
Custom and transit	_	_	15
Container	_	_	25
Loss	33	15	20
Tax	25	30	30
Overhead cost	_	25	40
Miscellaneous	30	25	30
Total marketing cost/Processing cost	210	263	367
Total cost	390.3	1363	2267
Sale Prices	1100	1900	2550
Market margin	919.7	800	650

% share of margin	39	34	27
Profit margin	709.7	537	283
% share of profit	46	35	19

Source: Own computation, 2014/15

Here in channel II producers' profit share (46%) was higher compared to channel I (45%) and (42.6%) channel III and the channel was preferable by producers because of its sustainability to sell through. Unions take the least share of the profit after dividend. Cost distribution shows that labor and freight are the highest cost for cooperatives and Union, respectively.

Cost and benefit share of actors in Channel III

The third most important channel in which women sold 70% of their coffee; involves coffee producers, wholesalers, retailers and local consumers. Table 14 indicates different types of marketing cost related to the transaction of coffee by producers, wholesalers and retailers; and the benefit share of each actor.

Table 14: Cost and benefit share of channel III actors (ETB/qt)

Items	**Producers**	**Wholesalers**	**Retailers**
Purchase prices	_	1000	1700
Production cost	180.30	_	_
Marketing cost/Processing costs			
Labor	60	20	30
Transport	25	30	20
Loading unloading	20	23	20
Packing material	30	30	35
Cleaning, washing and Packing	_	25	30
Milling	_	40	_
Loss	20	15	13
Tax	20	30	20
Total marketing cost/Processing cost	175	213	168
Total cost	355.30	1213	1868
Sale Prices	1000	1700	2250
Market margin	819.70	700	550
% share of margin	39.6	34	26.6
Profit margin	644.70	487	382
% share of profit	42.6	32	25.4

Source: Survey result, 2014/15

Table 14 revealed that the performance of the chain was good as the distribution of margin and profit share among actors doesn't show significant difference. Accordingly, profit distribution

per qt of coffee among producers, wholesalers and retailers were 42.6%, 32% and 25.4% respectively.

4.5.Opportunities and challenges of coffee producers

The opportunities and challenges in coffee sectors for both women and men coffee producers indicated in the group discussion and personal interviews.

Opportunities of coffee producers

Sample coffee producers highlighted some important opportunities and they are; recognition and high demand by international market, increasing roles of cooperatives/unions, availability of suitable land and weather condition for coffee farming, government concern for coffee business and the attention given to women, accessibility of development agent, interest of stakeholders, improvement in communication.

Table 15: Opportunities at coffee production level during 2014/15

Opportunities	Percentage
Recognition and high demand by international market	79
Increasing roles of cooperatives/unions	85
Availability of suitable land and weather condition for coffee farming	87
Government concern for coffee business and the attention given to women	80
Accessibility of development agent	75
Interest of stakeholders	76
Improvement in communication	82

Source: survey result, 2014/15

Table 15 shows that, weather condition and suitability of the area played a prominent role for area to be known by its coffee production, 87% of sample HHs indicated availability of suitable land and weather condition as the major opportunities for coffee farming. Increasing roles of cooperatives/unions were also mentioned (85%) as an opportunity but not by women farmers. Women participation in cooperative was limited due to membership criteria because cooperative members are expected to be those registered as household heads and tax payers in their names in the village. But in general the supportive nature of market oriented cooperatives and unions have a positive effect in increasing farmers' bargaining power.

Improvement in communication was also another opportunity mentioned by 82% of sample HH as it enhances their market information. Now a day farmers are accessing price information on daily basis about international coffee market easily through their phone. Despite these opportunities, men and women face different challenges which affect them from efficiently participating and benefiting from the coffee value chains.

Challenges of coffee producers

Given the current coffee production levels and international market as a driving force, there appears that the farmers have challenges which can affect them from efficiently participating and benefiting from the value chains. These are; poor road infrastructure, distance of the market place, seasonality of market demand and price, lack of facilities for coffee processing, coffee disease and limited technical support during pre and post harvest.

Table 16: Challenges at coffee producer's level during 2014/15

Challenges	Percentage
Poor road infrastructure	90
Distance of the market place	84
Seasonality of market demand and price	80
Lack of facilities for coffee processing	85
Coffee disease	87
Limited technical support during pre and post harvest	83

Source: Survey result, 2014/15

Out of sample HH, 90% respondents put poor road infrastructure as their major challenges in reaching their product to the market. Accordingly because of poor road infrastructure respondents were forced to sell their product at farm gate or in a near distance with low price.

Results from Table 16 also indicate that, 87% of respondents face coffee disease as challenges for coffee production. Coffee berry disease (CBD) and coffee wilt disease (CWD) are the known coffee disease in the country as a whole as well as in the study area and it reduces the quality and the quantity of coffee production.

In addition to the above challenges women farmers also mentioned the following challenges which hinder them from active participation in the value chain

- Limited financial support.

- Due to cultural influences and the workload at home, women have low mobility to get information and to use alternative markets.
- Low representation in cooperatives, leadership and administration areas.
- Lack of startup capital.

The challenges for women coffee producers may be emanated from cultural influences, low economic capacity and information gap of women and lack of willingness from men to send out their wife to empowerment exposure.

4.6. Opportunities and challenges of coffee traders

There are a number of opportunities and challenges that enhanced and hampered further development of the coffee marketing in the coffee value chain. The following opportunities and challenges were reported by various coffee traders and presented in table 17 and 18 respectively.

Table 17: Opportunities of coffee traders

Opportunities	Percentage
Advancement in information exchange	70
Coffee market opportunities at national and international level	80
Availability of coffee been in ample amount	75

Source: Survey result, 2014/15

Out of sample traders, 80% of them mentioned coffee market opportunities at national as well as international level as the major opportunities for their business. Recognition and high demand by international market for coffee originated from study area gave motives in the process of the coffee business. The study area has high potential for coffee production and this reality became the driving force for some of the traders to participate in coffee business.

Table 17 shows that 75% of traders pointed availability of coffee been in ample amount as an opportunity to trade coffee. The third important opportunity highlighted by sample traders (70%) were advancement of the information exchange which plays an important role in meeting customers need by providing quality coffee.

Table 18 summarizes challenges faced by sample coffee traders and they are; storage problem, computation with illegal traders, shortage of capital and inadequate credit service and poor road infrastructure in accordance to their importance.

Table 18: Challenges of coffee traders

Challenges	Percentage
Poor road infrastructure	70
Shortage of capital and inadequate credit service	75
Storage problem	82
Lower price offering and price fluctuation	68
Computation with illegal traders	80

Source: Survey result, 2014/15

Traders are not always selling their coffee immediately after they bought rather they tend to wait the right time to sell and during this process they suffer from storage problem. The result shows that about 82% of the total sample traders pointed storage problem as there major problem. Another challenges identified by sample traders were computation with illegal traders as existence of unlicensed traders in the rural and urban areas discouraged licensed traders.

4.7.Econometric Result

4.7.1. Tobit model results of level of women participation in coffee marketing

Tobit model specified in Equation 5 in chapter 3 was used to identify factors affecting intensity (amount of coffee) of women participation in coffee market in the study area. The overall significance and fitness of the model was checked with the value of chi-square; Pro>chi^2 = 0.000 which shows that the result is significant at less than 1% level of significance. The log pseudo likelihood value of -322.209 indicates that the assumption of null hypothesis that all predictors in regression model are jointly equal to zero is rejected at less than 1% level of significance.

Parameter estimates of the Tobit model for measuring the intensity of women participation in coffee market are presented in Table 19. From the total hypothesized independent variables, 8 explanatory variables were significantly influencing the intensity of women participation in coffee market. These significant variables were dependent household members, Sex of the household (Sex), Coffee area of the household, Women Participation in training (TrW), Women contact with extension agent, Distance from nearest market center, Distance from development center and Participation on non-farm income generating activities.

Table 19: Tobit model results of level of women participation in coffee marketing

Variables	Coef.	Std. Err.	t-value	Change among coffee sellers $\frac{\partial E(Y_i / Y_i^* > 0}{\partial X_i}$	Change in Probability $\frac{\partial F(z)}{\partial X_i} = f(z)\frac{\beta_i}{\sigma}$	Marginal effect of E(y/y>0)
Dependent household members	-0.146***	0.052	-2.67	-0.137	-0.014	-0.114
Credit	0.270	0.182	1.38	0.253	0.026	0.209
Sex	2.643***	0.654	3.95	2.592	0.083	2.422
Women age	0.002	0.013	0.16	0.002	0.000	0.002
Age difference	-0.018	0.011	-1.54	-0.017	-0.002	-0.014
Head's education	0.120	0.141	0.79	0.113	0.011	0.094
Women education	0.293	0.209	1.32	0.274	0.028	0.228
Coffee area	1.562**	0.551	2.48	1.462	0.147	1.216
Coffee area by women	0.303	0.301	0.96	0.284	0.027	0.238
Training	0.440*	0.213	1.92	0.413	0.041	0.344
TLU	-0.089	0.084	-0.98	-0.084	-0.008	-0.069
Extension	1.074***	0.209	4.29	1.005	0.101	0.836
Women association	0.044	0.291	-0.14	0.041	0.004	-0.034
Market distance	-0.858***	0.279	-2.78	-0.803	-0.081	-0.668
Distance to development center	-1.327***	0.456	-2.70	-1.242	-0.125	-1.033
NONF_INC	0.521**	0.222	2.06	0.483	0.053	0.398

Obs. summary:	38 left-censored observations at QCofSW<=0
	177 uncensored observations
	0 right-censored observations

*** Significant at 1% level of significance, ** Significant at 5% level of significance,
* Significant at 10 % level of significance
Source: Own computation, 2014/15

Dependent household members: Presence of dependent HH members is negatively correlated with the intensity of women participation in coffee market at 1% level of significance. One unit increase of dependent HH members decreased the amount of coffee sold by women by 0.14 qt, keeping other variables constant. As the number of dependent HH members increase by one person the probability of participation decreases by 1.4%. This implies that household with large number of dependent HH members reduce amount of coffee marketed by women because of the fact that women in study area are supposed to be in the HH to nurture children and caring old age HH members in addition to other HH activities.

Sex of head of the household (Sex): Sex of the HH is positively related with amount of coffee marketed by women at less than 1% level of significance. When women are head of the HH quantity of coffee marketed by women was increased by 2.6 qt, keeping other variables constant. Being head of the HH increases the probability of participation by 8.3%.This implies that being head of the HH boost level of women participation in coffee market due to the case that when women are in the position of heading the HH they undertake most activities including selling coffee but not in the case of MHH as they are offered the low quality or left out coffee during harvesting which were insignificant. Mamo and Deginet (2012) found that sex of head of the HH has significant effect on whether or not a farmer participates in livestock market.

Coffee area of the household: Coffee area of the HH is positively correlated with the amount of coffee marketed by women at less than 5% level of significance. A 1 ha increase of area covered by coffee increased the amount of coffee marketed by women by 1.5 qt, keeping other variables constant. Increment of coffee area of the HH by 1 ha, increases the probability of participation by 14.7%. This shows that being in the HH that has large area of coffee increases the amount of coffee marketed by women because of the fact that HH with large coffee area have plenty of coffee to be marketed by HH members including women. This in line with Elias (2005) who stated that one of the variables with positive effect on coffee supply was coffee area of the farmers land and also Poulton *et al*. (2001) suggests that land is an important factor in influencing farmer's decision to produce any cash crop**.**

Women Participation in training: Training participation is also another factor, which positively affects marketed surplus at 10% significance level. Participation in training increased

quantity of coffee marketed by women by 0.41 qt, keeping other variables constant. Women participation in training increases the probability of participation by 4%. This implies that participation in training like marketing increases women's intensity of participation in coffee market because training enhanced women's awareness towards marketing. Gani and Adeoti (2011) found that training participation has positively influence farmers' level of market participation.

Women contact with extension agent: As hypothesized, contact with extension agents positively influenced the quantity supplied by women at 1% significance level. Frequency of women contact with extension agent increased quantity of coffee marketed by women by 1 qt, keeping other variables constant. Extension contact of women increased the probability of participation by 10%. This implies that contacting extension agent increases quantity of coffee supplied by women due to the fact that women who have higher number of contact with extension agent have obtained more advisory service and acquired better marketing skills. This is in line with Gani and Adeoti (2011) who found that frequency of extension visit positively influence farmers' market participation and level of market participation. Rehima (2006) and Holloway *et al.* (2000) also found that contact with extension agent improve participation and volume of marketable surplus of pepper and dairy, respectively.

Distance from nearest market center: As hypothesized, distance from nearest market center negatively influenced the quantity of coffee marketed by women at 1% significance level. Distance from nearest market center decreased quantity of coffee marketed by women by 0.8 qt, keeping other variables constant. Remoteness of market center decreases the probability of participation by 8%. This implies that distance from nearest market center decreases quantity of coffee marketed by women due to the fact that women who are far apart from nearest market center, in addition to incurring high transportation, limitations on how far women are permitted to travel to get to the market discourage women. This is in line with Ayelech (2011) who indicated that distance to market caused marketable surplus of avocado to decline. Similarly study by Marcel *et al.* (2005), on coffee producers indicate that selling to the market is more likely when the market is nearer.

Distance from development center: Distance from development center is negatively influenced the quantity supplied by women at 1% significance level. Distance from development center decreased quantity of coffee marketed by women by 1.2 qt, keeping other variables constant. Remoteness of development center decreases the probability of participation by 12.4%. This implies that distance from development center decreases quantity of coffee supplied by women because of women who are far from development center may have limited contact with extension agent to acquire advisory. This is in line with Geremew (2012) who stated that actual distance of households' home from extension service centre negatively influences the probability decision to produce sesame.

Participation on non-farm income: In dissonance with a *priori* expectation; participation on non-farm income is positively related with quantity of coffee supplied by women at 5% significance level. Women participation in non-farm income generating activities increased the amount of coffee marketed by 0.5 qt, keeping other variables constant. Earning income from non-farm activities increased the probability of participation by 5.3%. This implies that earning better income from non-farm activities like trading encourages women's intensity of participation in coffee market because of the HH evidenced women's capability in trading. It agrees with the results of Siziba *et al.* (2011) and Buzalem (2015) who revealed that off-farm income was positively related to the level of cereal sale and marketed surplus of coffee, respectively.

4.7.2. Determinants of women empowerment level

Multiple linear regressions model was fitted using (OLS) to analyze the effects of selected variables on women empowerment level. 13 variables were selected to test their effect on women's decision making power, their participation level and their composite empowerment level and results are reported in Table 20.

Before running the OLS regression model, all the hypothesized explanatory variables were checked for the existence of Multicollinarity and Hetroscedasticity problems. The study used Variance inflation factor to investigate the degree of Multicollinarity among continuous explanatory variables and contingency coefficient among discrete (dummy) variables.

Multicollinarity and Hetroscedasticity detection test were performed using appropriate test statistics for each as follows.

Test for Multicollinarity: all VIF values are less than 10. This indicates absence of serious Multicollinarity problem among independent continuous variables (Appendix Table 2). Contingency coefficient results indicated absence of serious Multicollinarity problem among the independent dummy variables (Appendix Table 3).

Contingency coefficient (equation 10) is used to check Multicollinarity between discrete variables. The value ranges between 0 and 1, with 0 indicating no association between the variables and value close to 1(greater than 0.75) indicating a high degree of association between variables. In the analysis after the model corrected for Hetroscedasticity, R^2 value is 0.8177. The F-value for the model from this analysis, after correcting for Hetroscedasticity, is 59.51 and it is significant at 1% significance level. This indicates that the model fit is good.

Table 20: Determinants of women empowerment level

Variables	Empowerment Level		
	Coef	Std. er	t-value
Sex	0.082***	0.026	3.15
Extension	0.024**	0.012	2.05
Coffee sold	0.004	0.004	1.04
Women age	0.004**	0.002	2.26
Age difference	-0.001	0.0008	-0.37
Education	0.064***	0.011	5.66
Land size	0.008*	0.005	1.88
Coffee area by women	0.014	0.021	0.70
Credit	0.013	0.014	0.89
Women Association	0.057***	0.017	3.32
Training	0.067***	0.016	4.19
Family Size	0.000	0.003	-0.12
TLU	0.017**	0.008	2.11
Non/off-farm income	0.037***	0.013	2.73
Constant	-0.075	0.064	-1.16

Source: Own computation, 2014/15

*** Significant at 1% level of significance, ** Significant at 5% level of significance, *Significant at 10 % level of significance

F (15, 199) = 59.51 R-squared = 0.8177 Adj R-squared = 0.8040

Sex of the household head (Sex): The finding revels that sex of head of the HH is significant at 1%. When women are heading the HH the CEI increases by 0.0823. This may be due to women are sharing the major responsibilities in HH activities. Women in MHH are less empowered than FHH. This is in line with the findings of Ali Sheikh and Begum Sadaqat (2015) who found out that HH headship by husband showed a negative and statistically significant influence on women's economic empowerment in Pakistan.

Frequency of extension contact by women: The number of time women contacted extension agent has positive and significant relationship with level of women empowerment at 5% significant level. When the number of extension contact increases by one unit, the CEI increases by 0.0235. Women who have higher number of contact with extension agent have the opportunity to get more advisory service and exposed to information about women right and other related issues.

Age of the women in the household: The finding showed that there is a positive and significant relationship between women's age and women empowerment level at 5% significant level. Increment on the age of women by one year increases the CEI by 0.0041. Older women as opposed to young ones have more autonomy over themselves and closer relationship with their spouses; their experiences enable them to have better ways to do what they want without causing conflict with their spouses. This is in line with the findings of Mostofa *et al.* (2008) who found out that woman empowerment increased with women age.

Education level of women in the household: The educational attainment of women in the HH shows positive relation with women empowerment level which is significant at 1% level. Increase in educational attainment of women by one unit increases their empowerment level by 0.064. This might be due to the fact that educated women are more aware about their rights to participate and consulted in every decision making process of the HH as well as different issue. The more educated a woman is, the more likely is she going to venture into spheres traditionally considered men's role. These factors have important implications for women's empowerment and their ability to contribute to the overall development of not only the HH, but also the nation. This finding is in line with that of Jeckoniah *et al.* (2012) who indicated that education is a key variables that positively influence women's empowerment by increasing women's self confidence, decreasing dependence from other family members as a result of new skills acquired and to enhance women's value on the labour market and hence their income.

Land size of the household (Land Size): Land size of the HH is positively associated with women empowerment level at 10% significant level. When land size of the HH increase by one hectar, women empowerment level increases by 0.0085. Land in rural areas does not only play a central role in producing crops and livestock but also it is a source of privilege. This is in line with Wiig *et al* (2011) who analyzed effect of land ownership and inheritance by men and women separately and concluded land ownership and size by men is significantly positive on women empowerment, although weaker but Female inheritance of land increases the value of empowerment.

Membership to women association: Membership to women's association significantly determines level of women empowerment at 1% significance level. Being in women association, increases women empowerment level by 0.0566. This is in line with Quisumbing (2003) who indicated that membership in organizations can improve bargaining positions by, for example, influencing a person's power to affect household decisions. Thus, women associations strengthen the relationship among the members, improve women leadership, information exchange, and improve understanding of members about their right.

Training participation by women: participation in training positively associated with women empowerment level at 1% significant level. Getting training increases women empowerment level by 0.0672. In addition to experience sharing, training improves women's attitude and enhanced their knowledge. Hussein *et al.* (2010) found that training rose women's confidence steeply which enabled them to rather stand up and demand their rights and also training in most cases proved to be a successful start up for their own income generating activity.

Total livestock unit (TLU): the number of livestock unit in the HH significantly determines level of women empowerment at less than 5% significance level. This is due to the fact that women are major actors in rearing livestock especially small ruminant and cow which can contribute to livelihood of the HH. Similar finding has also been observed by Islam *et al.* (2012) who found women empowerment increases through her earnings as a share of the HH income.

Non/off-farm income: participation in non-farm income generating activity positively influences women empowerment level at 1% significance level. Having access to non-farm income generating activity increases women empowerment level by 0.023.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1.Summary and Conclusion

This study has focused on analysing gender role in coffee value chain and determining factors of market participation and intensity of coffee supplied by women. The level and main determinants of women empowerment level were also analyzed. The data were generated by individual interview and group discussions using pre tested structured questionnaires and checklist. This was supplemented by secondary data collected from Districts and Zonal, Regional Offices. The main findings of this research are summarized as follows.

The coffee value chain analysis revealed that the main value chain actors were input suppliers, coffee producing farmers, collectors, Suppliers, cooperatives/unions, exporters, domestic wholesalers and retailers and local consumers. There are also governmental offices as supportive actors who support coffee value chain directly or indirectly. Value chain supporters or enablers provide facilitation tasks like creating awareness, facilitating joint strategy building and action and, the coordination of support. The main supporters of the coffee value chain in the study areas are office of agricultural and rural development (DOA), Woreda administrations, EXC, ECEA, Oromia saving and credit institution, informal credit suppliers and banks.

The study concluded that men and women involved in coffee value chain either as a major actor or as daily laborer. Men's involvement was observed as major actor in each segment of the value chain where as women are concentrated in production part of the value chain by producing on their own field which was obtained as marriage gift by husband or family coffee. As a daily laborer in coffee business, women were mainly engaged in processing coffee in cooperatives and coffee milling houses. And also in ECX women were hired to separate different quality of coffee supplied by producers and traders.

The result of the marketing margin and profit analysis indicates that the channel that participated producers, cooperatives and cooperative unions provides the highest profit for producers which was 46%. Contrary, channel III in which 70% of women coffee sold through is with low share of profit by 42.6%.

Jimma Zone has a natural advantage and potential in coffee production. Therefore; this study identified and concluded that, the major opportunities at coffee sector are high demand by

international market, Increasing roles of cooperatives/unions, availability of suitable land and weather condition for coffee farming, Government concern for coffee business and the attention given to women, advancement in information exchange and Availability of coffee been in ample amount in the area were the major opportunities for coffee producers and traders. Though there are opportunities for coffee producers and traders, the sector was constrained with various challenges. Some of the major producers' and traders' challenges were: coffee disease, poor road infrastructure, lack of facilities for coffee processing, limited financial support especially for women coffee producers, storage problem, lower price offering and price fluctuation, computation with illegal traders.

The gender analysis at household level reveals that there ware gender differences both in triple role and in access to and control over resources/assets. In triple role men dominate activities which are considered as productive whereas women are concentrated at reproductive activities that can earn no cash whereas at community affair almost similar figure were observed. And also women tend to confined to less access to and control over household's resources.

Women empowerment levels were analyzed by developing women empowerment index and obtained result were 0.439. The distribution of CEI shows that 73.5% of the total sample HH falls under low empowerment category, 18.1% medium level and 8.3% high level. And also significant differences were observed between women found in MHH and FHH. The result concluded that women in the study area are with low empowerment level and relatively women's participation in different institution is better than their involvement in HH decision making process. The study also remarked that when women are heading the HH they are entitled with more power than headed by men.

After identifying their empowerment level, determining factors were also analyzed using multiple regression model and out of hypothesized 13 variable 9 explanatory variables affected women empowerment significantly. These variables are; sex of head of the household, extension contact, women's age, education level of women in the HH, land size of the HH, membership to women association, training participation by women, total livestock unit and non-farming income. Targeting women in extension provision enhanced their empowerment level by enhancing their attitude towards their right. The study also found that education level of women affected their empowerment level positively. As women get more education they became active

participant in HH decision making as well as participation in different activities which in turn increased their empowerment level. Similarly being a member to women association significantly affected their empowerment level by increasing their awareness toward their right to participate in decision making and other household and community matters. Livestock unit of the HH and participation in non-farming income also affected their empowerment level by increasing their income and increasing their contribution to HH economies.

Based on the Tobit model, the study identified determining factors of quantity of coffee marketed by women. The result indicated that Sex of the HH, HH coffee land, training participation, frequency of extension contact and non/off farm income was the most important and significant variable influencing quantity of coffee marketed by women positively. However, dependent HH members, distance from market center and distance from development center affected quantity of coffee marketed by women negatively. The study concluded that these were due to burden in the HH and women are not allowed to go far distance without husband permission and most of the time husband did not give permission.

5.2.Recommendation

Based on the findings of this study, the following recommendations and policy measures could be made.

1. Men's and women's contribution in value chain should be recognized and special attention should be given for women to participate in value chain segment that can provide better payment and it is necessary to strengthen the channel in which producers supply coffee to cooperatives so that producers continue benefiting from it. Cooperatives enable larger value addition. But at the same time the criteria of being cooperative members should be revised to accommodate women counterpart.
2. It is also recommended that gender sensitive intervention strategies should be used in forming and strengthening producer and marketing groups (Cooperatives) to competitively participate in coffee value chain and increase women participation and benefits from coffee marketing.
3. Women should have equal control over resources especially land. Although Ethiopia's constitution offers joint land ownership right for husband and wife, women still face discrimination in owning land; therefore, the government should ensure enforcement of the act so that women also have equal benefits to own land as men and use it to be a member of coffee cooperatives, as owning land is a precondition to be member of coffee cooperatives.
4. Any attempt aimed at increasing market participation of women should focus on working on significant variables which play a prominent role in extent of women participation in coffee marketing either positively or negatively. Frequency of extension contacts and distance from development center were the positive and negative determinant improving extension system, and technical supervision and follow up must be strong. Strengthening of market extension (linking farmers with markets, building marketing capacity of farmers, etc.) is necessary. And it is necessary to take into account accessibility of the development center during its establishment.
5. Producers and traders have mentioned different challenges they faced in coffee sectors like coffee diseases and infrastructure problem so that concerned body should work towards reaching disease resistance variety in advance and also the government should

have to deal with improving infrastructure by constructing and repairing road specially the feeder road to *kebeles*.

6. Empowerment level of women were identified as low so that government and nongovernmental organization should focus on uplifting women by focusing on keeping doing on extension provision to women, improving education level of women in the household and membership to women association. Training were also the other variable which affected women empowerment positively so that government and nongovernmental organization should continue by targeting women in training provision which is one of the way to build women's capacity so that their empowerment.
7. Practitioners, government and NGOs involved in value chain development should strengthen farmers' organizations (cooperatives) to facilitate equitable access by rural producers to agricultural inputs and markets for their produce. It is also recommended that gender sensitive intervention strategies should be used in forming and strengthening producer and marketing groups to competitively participate in coffee value chain and increase women participation and benefits from coffee marketing.

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7. APPENDIX

Appendix Table 1: Conversion factors used to compute tropical livestock units

Animal category	TLU
Calf	0.25
Weaned calf	0.34
Heifer	0.75
Cow or ox	1.00
Horse/mule	1.10
Donkey adult)	0.70
Donkey young)	0.35
Camel	1.25
Sheep or goat adult)	0.13
Sheep or goat young)	0.06
Chicken	0.013
Bull	0.75

Source: Storck*et al*., 1991

Appendix Table 2:Variance inflation factor for continuous independent explanatory variables

Variable	VIF	1/VIF
Women age	3.81	0.262784
TLU	3.52	0.284213
Education level of women	3.37	0.296373
Age difference	2.47	0.405270
Coffee sold by women	2.27	0.440707
Extension contact made by women	2.18	0.458720
Land size	1.43	0.701659
Family size	1.12	0.891380
Mean VIF	2.52	

Source: Own computation

Appendix Table 3: Contingency coefficients for dummy variables

	SEX	Training participation by women	Credit	Membership to women association	Access to non-farm income	Owning coffee tree
SEX	1					
Training	0.157	1				
Credit	0.087	0.294	1			
Membership to women association		0.314	0.149	1		
Access to non-farm income	0.011	0.162	0.202	0.115	1	
Owning coffee tree	0.226	0.379	0.527	0.265	0.184	1

Source: Own computation

Appendix Table 4: Activity profile

Activities	Men	Women	Boys	Girls
Productive role				
Ploughing				
Sawing				
Fertilize application				
Weeding				
Harvesting				
Threshing				
Transporting to homestead				
Livestock production				
Reproductive role				
Food preparation				
Fuel wood collecting				
Water fetching				
Rearing children				
Community role				
Soil and water conservation				
Cooperation during wedding, sorrow				
Maintenance of water, health and other societies resources				

Appendix Table 5: Access and control profile

Resources and benefits	Access		Control	
	Women	Men	Women	Men
Land				
Farming equipment				
Home equipment				
Labor				
Farming income				
Non-farming income				
Training				
Education				
Credit				
Cooperatives				
Idir				
Political and community leadership				

Appendix Table 6: Determinants of participation index

Variables	Participation index			
	Coef.	Std.er	t	P>t
Sex	-.0749476	.0573819	-1.31	0.193
Extension	0.0209	0.0253	0.82	0.410
Coffee sold	0.0066	0.0083	0.80	0.426
Women age	0.0058	0.0039	1.47	0.143
Age difference	.0041422	.0029425	1.41	0.161
Education	0.0654**	0.0277	2.36	0.019
Land size	0.0299***	0.0101	2.97	0.003
Coffee area by women	0.0527	0.0445	1.18	0.238
Credit	0.0396	0.0318	1.25	0.214
Women association	0.0823**	0.0375	2.20	0.029
Training	0.1752***	0.0356	4.92	0.000
Family Size	0.0046	0.0059	0.77	0.440
TLU	-0.0002	0.0176	-0.01	0.993
Non/off-farm income	0.86	0.0275	3.13	0.002
Constant	-0.3163**	0.1427	-2.22	0.028

Appendix Table 7: Determinants of household decision making index

Variables	Household Decision making index			
	Coef.	Std.er	t	P>t
Sex	0.2394***	0.0434	5.52	0.000
Extension	0.0259	0.0191	1.36	0.176
Coffee sold	0.0012	0.0063	0.20	0.843
Women age	0.0023	0.0029	0.78	0.438
Age difference	-0.0019	0.0021	-2.32	0.021
Education	0.0618***	0.0209	2.94	0.004
Land size	-0.0129*	0.0076	-1.70	0.091
Coffee area by women	-0.0243	0.0337	-0.72	0.472
Credit	-0.0136	0.0240	-0.56	0.573
Women association	.0306104	.028324	1.08	0.281
Training	-0.0409	0.0269	-1.52	0.131
Family Size	-0.0053	0.0045	-1.17	0.245
TLU	0.0339**	0.0133	1.55	0.124
Non/off-farm income	0.0177	0.0206	2.55	0.011
Constant	0.1668	0.1079	-0.86	0.390

8. Questionnaires

Analysis of gender role in coffee value chain in Jimma zone

Producers' questionnaire: by Fuad Kemal

Questionnaire number: _____ Name of enumerator: _____

District and Kebele_____/_____ Date: /____/_____/_____

I. Area information

1. Districts 1. Mana 2. Seka
2. Name of rural kebele? ----------
   1. Bilida 2. KellaGuda 3. GubeBosseqa 4. EndadeAllaga 5. SakebaGenefo 6. Gibe Bosso
3. Sex of household head 0. Male 1. Female
4. Distance of your residence from the nearest market center _____walking time (Hrs)
5. Distance of your residence to the nearest development center _____walking time (Hrs)
6. Distance to all weather road_____Hrs walk

II. Demographics

Sex of the respondent	**Code I**	
Age of household head		
Women's Age (wife's age)		
Religion of household head	**Code II**	
Marital status of household head	**Code III**	
Educational level of household head	**Code IV**	
Educational level of women in the household		

Code I. 0. Male 1. Female

Code II. 1 Muslim 2 Orthodox Christian 3 Protestant 4 Catholic 5 Other (specify) _____

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

Code IV. 1=Illiterate 2= Primary education (1-6) 3=Junior (7-10) 4= 10thgrade complete
5= other (specify)

Family size of household			
* Number of working age HH members (V)		* Number of dependents in the household (VI)	
Female (1)	Male (0)	Female (1)	Male (0)

*Note: -working age means between 14 and 64 years of age inclusive.
-Dependent means below the age of 14 and above the age of 64.
- If a question is not applicable for the respondent say note applicable (N.A)

Code V working age: 1= Female 0= Male
Code VI dependents: 1= Female 0= Male

III. Land use and crop production

1. What is the total size of your cultivable land in ha? _____
2. Area under coffee tree (ha)_____
3. coffee tree owned by women (ha)_____
4. Major crops you grown in 2014/15

Type of crop	Area owned by (ha)			Quantity produced (qt) By			Quantity sold (qt) by			Decision on income (x)	
	Men	Women	Children	Men	Women	Children	Men	Women	Children	Men	Women
1.Annual crop											
Teff											
Maize											
Wheat											
Sorghum											
Barley											
Chick Pea											
Other annual crop											
2.perennial crops											
Coffee											
Khat											
Enset											
Friuts											
Other perennial crops											

5. household member's participation level in crop other than coffee in 2014/15 Use (X) in the space provided

Activity	Participation				
	Men	Women	Boys	Girls	Remark
Land Clearing					
Ploughing					
Sowing					
Weeding					
Cultivation					
Watering					
Product collecting/Harvesting					
Threshing					
Inset production					
Inset Processing					
Transporting					
Storing					
Marketing					
Spraying chemical					

5.1. Labour participation in coffee production and marketing in 2014/15, Use (X) in the space provided

Activities	Participants/time spent				
	Men	Women	Boys	Girls	Hired Labour
Seedling preparation					
transplanting of seedling to farm plots					
Hoeing					
Weeding					
Coffee cherry collecting					
Cleaning					
Drying					
Hulling					
Grading/sorting					
Transporting to the market					
Selling coffee					

Activities	Always (1.0)	occasionally (0.5)	never (0)	Remark
Participating in local institution				
Rural cooperative				
Participating in training				
Participating in meetings				
Participating in social functions				
participating in nonfarm income generating activities				
Participation in coffee marketing				

5.2.Who decide on the following in your family? Use (X) in the space provided.

Activities	Wife alone (1.0)	joint decision (0.5)	husband alone (0)
Crop calendar/when to sow			
selection of crops to plant in the field			
Use of improved inputs			
Sale of food crops			
Sale of cash crops (other than coffee)			
Sale of livestock			
Number of daily laborer required for coffee			
when/how much Cherries to harvest			
where to sell the coffee			
when to sell the coffee			
credit taking			
how much credit to take (if decided to take)			
children's education			
family planning			
day to day expenditure			
use of family income			
Buying fixed assets			
Sale of fixed assets			

IV. Livestock ownership in 2014/15

Type of livestock and livestock products	Number owned in 2014/15	Participation in rearing/ production (Tick X under your choice)				Ownership(Tick X under your choice)		No sold in the last year	Income from sale (ETB) by		Decision on income(Tick X your choice	
		Husband	Wife	Girls	Boys	Men	Women		Men	Women	Men	Women
Cows												
Oxen												
Calves												
Sheep												
Goat												
Horses												
Poultry												
Bee colony												
Milk	Litter											
Butter	Kg											
Eggs												
Other (specify)												

V. Information flow and service provision

1. Did you have an extension contact in 2014/15? 1=yes 0=no
2. If yes who get contacted with the development agent?
   1. Husband 2. Wife 3. Both
3. Is there any female development agent in your area? 1= yes 0= no
4. If yes how many times did you contact the extension agents in 2014/15?

	FDA	MDA	FDA	MDA	FDA	MDA	
	Once a month		Twice a month		Three times a month		Specify
Men farmers							
Women farmers							

5. Did you get training in 2014/15? 1= yes 0= no
6. If yes who get the training?
   1. Husband 2. Wife 3. Both
7. If your answer for Q.5 is yes which type of training did you get in 2014/15? (Multiple responses is possible)
   1= on management of coffee 4= gender issue
   2= on marketing of coffee 5= women's capacity building
   3= on harvesting of coffee 6= others (specify) _____
8. If you get training /visit demonstration site or other farmers' fields of coffee what was its contribution to your production and marketing process of coffee? _____
9. If you did not get training/visit demonstration site or other farmers' fields in 2014/15 what is the reason? (Multiple responses is possible)
   1=Cultural restriction 3= lack of time 5= since I am poor 6= others _____

2=Undermining women's participation 4=to look after my children and my house

10. Are you a member of any local co-operative society?
11. If so, in whose name is the membership?
    1. Husband 2. Wife 3. Jointly
12. What is your position in the cooperatives? _____
13. Are you a member of any women association? 1= yes 0= no
14. If yes what kind of benefit have enjoyed?_____
15. If no, why_____
16. Is there any organization working on gender/women issue in your area? 1= yes 0= no
17. If your answer is yes, can you list them?_____
    _____
18. If your answer for Q. 17 is yes, what are their area of concern?_____
    _____
19. Cost of coffee production?

Head of the HH	Operational cost	management cost			Harvesting cost	Drying/ cleaning /hulling	taxes	Others Cost (specify it)	Total cost
		Cost of land Preparation for one time(ETB)	No of time land prepared	Other production cost					
Male	Price/ha								
Female									

20. What constraints do you face in producing coffee?_____
    _____
    _____
21. What kind of opportunities are there for women to participate in coffee value chain?
    _____
    _____
    _____

VI. Access to credit and inputs

1. Did you borrow money in 2014/15 for coffee production? 1= yes 0= no
2. If yes from where did you get credit? (Multiple responses is possible)
   1= Micro Finance Institutions 3=other banks 5= cooperatives
   2= Local money lenders 4= Relatives /Friends 6=other (specify)
3. What was the amount you got from credit services during last year? _____ ETB
4. Who received the credit in the household?
   1. Husband 2. Wife 3. Jointly
5. Who have control over the credit borrowed?
   1. Husband 2. Wife 3. Jointly
6. For what purposes you have obtained the credit?
   1= Purpose of seedling 2=Purpose of fertilizer/chemicals
   3= To fill up family requirement 4=To settle debts 5=Others (specify)_____
7. Did you get credit when you needed it? 1= yes 0= no
8. What inputs did you use to produce coffee? (Multiple responses is possible)

Type of inputs	Amount of inputs/year	Value of inputs (ETB)	Responsible person		Source of inputs	Input preference by	
			Man	Women		Man	Women

9. Did you face any problem in accessing these inputs? 1= yes 0= no
10. If your answer for Q.9 is yes what was the problem? (Multiple responses is possible)
    1=inputs are expensive 3= financial problem 5= others (specify)_____
    2=inputs are unavailable 4=remoteness of input selling site
11. How did you solve these problems? _____

VII. Marketing Aspects

1. How much coffee have you sold in 2014/15? (in Kg)_____
2. How do you sale your coffee produce? 1 Direct to the purchaser by myself, 2 Through broker 3 through Cooperatives/Union 4 Other (specify) _____
3. To whom do you sell your coffee produce? What quantity? And who sell from the household members? If you sell only to one customer just tick X in front of your choice.

List of possible customers	quantity sold (Kg or qt) specify	Who sold (Kg)		Who decide to whom to sell (Tick x)		Who makes decision on what amount of coffee to sell		Who makes decision on coffee income	
		Men	Women	Husband	Wife	Husband	Wife	Husband	Wife
To Cooperatives									
To processors									
To whole sellers									
To retailers									
To Collectors									
To individual consumers									

4. Linkage with commercial value chain actors: (Multiple response is possible)
    1. Other farmers 2. Retailers 3. Whole sellers 4.Consumers
    5. Local collectors 6. Brokers 7. Others (specify)
5. If your answer for Q2 is "Direct to the purchaser by myself" where did you sell? (Multiple responses is possible)
    1=farm gate 3= retailing yourself
    2= in the market to whole seller/retailers 4= others (specify)_____
6. Which one was more profitable or preferable for you? (Multiple responses is possible)
    1=farm gate 3= retailing yourself
    2= in the market to whole seller/retailers 4= others (specify)_____
7. Why? _____
8. How do you transport your produce to the market?
    1=using pack animals 3= cars
    2=carrying 5= others (specify)_____
9. Indicate costs for this transport

Who Paid _____ Cost ETB/Unit_____

10. Was there any problem you faced in coffee market? 1= yes 0= no
11. If yes what was the problem? _____
    1= Tax burden 2= Unwanted broker disorder and high commission fees
    3= Seasonality of market demand and prices 4= Lack of market road from my areas
    5= Lack of market and price information 6= Others (specify)_____
12. How did you solve these problems? _____
13. Did you get market information in 2014/15? 1= yes 0= no
14. If yes what kind of information have you obtained? _____
15. If yes, from where?
    1. Other coffee traders 2. Radio 3.TV 4. Personal observation 5.Broker 6.Others _____
16. **Cost of coffee marketing.**

Responsible person	Quantity of coffee (qt)	Sells price (ETB/qt)	Transportation Cost (ETB/qt)	Loading/ Unloading cost(ETB/qt)	taxes	Sacks cost (ETB)	Other costs specify	Total cost
Men								
Women								

17. Is there any cultural, traditional and religious taboo in the area that prohibits women to participate in marketing coffee? 1= yes 0= no
18. If yes, can you explain it?_____
19. Who sets selling and buying price in coffee marketing?
    1. Myself 2. Set by demand and supply 3. Buyers 4. Other (specify) _____
20. Involved agreement between buyers and you concerned with meeting basic cost parameters and guaranteeing supply. 1= yes 0= no
21. Is there any enforcement tools used to check compliance with the rules, and the system of sanctions used to promote observance of the rules? 1= yes 0= no
22. If your answer Q.20 No, why?_____
23. Did you get services to meet the quality standards need in coffee market? 1= yes 0= no
24. If your answer Q.23 is yes, who is/are providing and what type (s) of services?_____
25. **Off farm income generating activities**

No	List off-farm activities	participants		Income by (ETB)	
		Men	Women	Men	Women
1	Daily laborer				
2	Petty trading				
3	Food for work				
4	Small and medium enterprises				
5	Others (specify it)				

VIII. Loss Aspect

1. Is there any post harvest loss of coffeeduring post harvest activities? 1= yes 0= no
2. If “Yes "Is existence of post harvest loss affects your coffee *selling* behaviors? 1= yes 0= no
3. Do the following post harvest activities affect the amount of losses of coffee?

Factor	Weather condition (rain, wind, etc)	Storage materials	Transportation type	Threshing machine	Others(specify it)
1= yes 0= no					
If "yes" amount of loss (kg/qt)					

4. How did you store the coffee? _____
5. How long do you store coffee before selling? _____
6. If you stored, what was the motive behind store? 1 Expecting high price 2. Lack of market demand 3 Saving purpose 4 other (specify) _____
7. Was there any change in the quantity (weight) and quality of the stored coffee? 1= yes 0= no
8. If your answer for Q6 yes what happen to quality and quantity?_____
9. What was your packaging material when you sold? 1. Sisal sack ‘*jonia*’ 2. Plastic Sack (*Madaberya*) 3. Basket 4. other (specify) _____
10. Amount of coffeelost during each post harvest activities performed by farmer

Means of harvesting	Responsible persons		Duration of harvesting (Start – end) in days	Post harvest Activities practiced (tick if practiced)		Estimated amount of Loss (*if possible to estimate) (kg/qt)
	Men	Women				
1=Manual 2=Harvester 3= both 4=Other (specify it)				harvesting		
				Transporting		
				Sorting		
				Cleaning		
				Drying		
				Storing(field)		
				Storing(home)		

11. What are the reasons for loss of coffee during the following post harvest activities?
    I. Harvesting _____
    II. Transporting _____
    III. Threshing _____
    IV. Sorting _____
    V. Cleaning _____
    VI. Drying _____

Analysis of gender role in coffee value chain in Jimma zone

Wholesalers' questionnaire: byFuad Kemal

Questionnaire number: _____ Name of enumerator: _____

District and Kebele_____/_____ Date: /____/_____/_____

I. GENERAL INFORMATION

1. Name of traders _____ age _____sex_____
2. Address: Districts _____ town/kebele _____
3. Marital status: 1.single 2.married 3.divorced 4.widowed
4. Family size: male _____ female_____ Total_____
5. Education level: 1=Illiterate 2= Primary education (1-6) 3=Junior (7-10)
   4= 10th grade complete 5= other (specify)_____
6. How long have you been operating the business? _____ Years
7. Total number of peoples employed in your business if any.

	Male	Female	Total
Family member			
Non-family member			
Total			

8. What was the amount of your initial working capital when you start this coffee trade business? _____ ETB.
9. What is the amount of your current working capital? _____ ETB.
10. Did you borrow money in 2014/15 for coffee business? 1= yes 0= no
11. If yes what was the amount you got from credit services during last year? _____ ETB.
12. Who decide on amount of credit to take?
    1. Husband 2. Wife 3. Jointly
13. Who received the credit in the household?
    1. Husband 2. Wife 3. Jointly
14. Who have control over the credit borrowed?
    1. Husband 2. Wife 3. Jointly
15. Do you carry out any physical treatment to maintain product quality? 1= yes 0= no
16. If yes what are they? _____
17. Asset owned.

Asset	No
Mobile	
Car	
Store	Separate house
	Residence
Weighting scale	
Shop	
Bicycles	
Motorcycle	
Vehicle	
Others	

18. Linkage with commercial value chain actors: (Multiple response is possible)
    1. Farmers 2. Retailers 3. Other whole sellers 4.Consumers
    5. Local collectors 6. Brokers 7. Others (specify)

II. Purchasing practice of coffee

1. Is there any cultural, traditional and religious taboo in the area that prohibits women to participate in marketing coffee? 1= yes 0= no
2. If yes, can you explain it?_____
   _____
3. If your answer for **Q.1** is "no" what are the role of men and women in coffee marketing?
   Men's role_____
   Women's role_____
4. Sex of traders, list of suppliers, quantity purchased and average price ETB/ Kg of coffee

Sex of traders	Suppliers (tick X)	Quantity purchased	Average price ETB/ Kg
Male	1= Farmers		
	2= Collectors		
	3= Cooperatives		
	4= Own farm *(Number)*		
Female	1= Farmers		
	2= Collectors		
	3= Cooperatives		
	4= Own farm *(Number)*		

5. Who decide on the following activities?

Who decide on	Husband	Wife	Jointly
From whom to buy			
How much to purchase			
Where to sell			
To whom to sell			
How much to sell			
At what price to sell			

6. Are all your purchasing centers accessible to vehicles? 1= yes 0= no
7. If your answer to **Q.6** is No, what proportions are accessible?_____ % .
8. How do you transport your bought produce?
   1=using pack animals 3= cars
   2=carrying 5= others (specify)_____
9. Indicate costs for this transport
   Who Paid _____ Cost ETB/Unit_____
10. Who sets the purchase price? 1. Myself 2. Set by demand and supply 3. Sellers 4. Other (specify)
11. Who purchase coffee for you? 1. Husband 2. Children 3. Commission agent
    4. Wife 5. Friends 6.Others (specify)_____
12. How do you attract suppliers? 1. Giving better price 2. By visiting them
    3. Fair scaling /weighing 4. Extending credit 5. Using brokers
    6. Advertizing using influential peoples 7. Other (specify)

13. Do you consider quality requirement of your customers in purchasing activities? 1= yes 0= no
14. If your answer to **Q.13** is Yes, what quality requirement do you consider for coffee?_____
15. What was your source of information about quality requirement of your customers? _____
16. How many regular suppliers do you have? Producers _____, Collectors _____, Processors _____, Retailers _____, others

II. Selling Practice

1. To whom did you sell coffee? (Multiple answers are possible)

Sex of traders	Buyers	Quantity sold	Average price ETB/ Kg
Male	1= Processors		
	2= Retailers		
	3= Exporters		
	3= Consumers		
	4.Other(Specify)		
Female	1= Processors		
	2= Retailers		
	3= Exporters		
	3= Consumers		
	4.Other(Specify)		

2. How did you sale your produce? 1. Direct to the purchaser 2. Through broker 3. Other (specify)
3. When did you get the money after sale? 1. as soon as you sold 2. after some hours 3. On the other day after sale 4. Others (Specify) _____
4. When did you sell? (Give proportion in percentage) 1. Store and sale when price rise 2. Sell as soon the purchase 3.sell in pieces as buyers comes 4. Sell before purchase 5. Others_____
5. How did you attract your buyers? 1. By giving better price relative to others 2. By visiting them 3. By using brokers 4. By fair scaling 5. Advertizing 6. Others_____
6. How many regular buyers do you have? Consumers_____, Processors _____, Assembler _____, Retailers _____, exporters,_____ and Others_____
7. What is your packaging material? 1. Sisal sack 2. Plastic sack 3. Basket 4. Others _____
8. Do you know the market prices in different markets (on farm, village market and other areas) before you sold your coffee? 1= yes 0= no
9. What is your source of information? 1. Other traders 2. Radio 3. TV 4. Telephone 5. personal observation 6.news paper 7.others
10. Do you have other branch shops/ warehouse to sell your coffee? 1= yes 0= no
11. Who sets selling price? 1. Myself 2. Set by demand and supply 3. Buyers 4.Other (specify)
12. Are there taxes imposed by government or community officials at the market? 1= yes 0= no
13. If your answer to **Q.12** is yes, what are they and what is the basis of payment? _____
14. Indicate your average cost incurred per quintal in the trading process of coffee?

Cost component	Cost incurred in ETB/qt

Purchase price	
Labor for packing	
Loading/unloading	
Transportation fee	
Packaging cost	
Sorting	
Storage cost	
Processing cost	
Telephone cost	
Watching and warding	
Other personal expenses	
Licenses and taxes	
Other costs	
Total cost	
Selling price	
Revenue	

15. Are there problems on coffee marketing? 1= yes 0= no
16. If yes what are the problems on coffee marketing? Tick X in front of the problem, if exist.

Problems on coffee marketing	Sex of traders		What do you think are the causes of the problems?
	Male	Female	
Credit			
Price setting			
Supply shortage			
Storage problems			
Lack of demand			
Information flow			
Quality problem			
Government policy			
Others(specify)			

17. Is there any kind of opportunities in coffee marketing?
    Opportunities for male_____
    Opportunities for female_____

Analysis of gender role in coffee value chain in Jimma zone

Retailers' questionnaire: byFuad Kemal

Questionnaire number: _____ Name of enumerator: _____

District and Kebele_____/_____ Date: /____/_____/_____

III. GENERAL INFORMATION

19. Name of traders _____ age _____sex_____
20. Address: Districts _____ town/Kebele _____
21. Marital status: 1.single 2.married 3.divorced 4.widowed
22. Family size: male _____ female_____ Total_____
23. Education level: 1 Illiterate 2. First cycle (1-4) 3. Second cycle (5-8)
    4. Secondary School 5. Certificate 6.Diploma 7.Other (specify) _____
24. From whom do you buy coffee?
    1) Farmers 2) Collectors 3) wholesalers 4) others specify--------
25. To whom do you sell coffee? 1) Individual consumers 2) cafes 3) others (specify)_____
26. How long have you been operating the business? _____ Years
27. Please indicate your costs, transaction volume and price of coffee trading just last oneYear

Sex of traders	Source & destination Markets (from_to_)	Quantity of coffee purchase (kg/year)	#effective months of coffee trading/ year	Purchase Price (ETB/kg)	Sells Price (ETB/ kg)	Transportation cost (ETB/qt)	Loading/ Unloading cost(ETB /qt)	Sacks cost (ETB)	Other costs specify
Male									
Female									

28. Do you practice trading other than coffee? 1= yes 0= no
29. If your answer to **Q.10** is yes, what? _____
30. What was the amount of your initial working capital when you start this coffee trading? _____ ETB.
31. What is the amount of your current working capital? _____ ETB.
32. What is your source of working capital? 1. Own 2. Relative/family 2. Private money lenders 4.Friend 5.Other traders 6.Micro finance institution 7.Bank 8. Others
33. Did you take loan for the following purpose within last year? 1. To extend coffee trading. 2. To purchase coffee transporting vehicles/animals. 3. Others
34. Do you carry out any physical treatment to maintain product quality? 1= yes 0= no
35. Do you consider quality requirement of your customers in purchasing activities? 1= yes 0= no
36. If your answer to **Q.17** is Yes, what quality requirement do you consider for coffee?_____
37. What was your source of information about quality requirement of your customers? _____
38. Who sets selling price? 1. Myself 2. Set by demand and supply 3. Buyers 4.Other (specify)
39. Are there taxes imposed by government or community officials at the market? 1= yes 0= no
40. If your answer to **Q.21** is yes, what are they and what is the basis of payment?

Types of taxes	Amount (ETB)	Bases of payment	Rate of payment

		Per quintals	
		Simply on daily bases	
		Per track bases	
		Based on purchased value of products	
		Based on sales value of products	
		Others(specify)	

41. Is there any cultural, traditional and religious taboo in the area that prohibits women to participate in marketing coffee? 1= yes 0= no
42. If yes, can you explain it?_____
_____
_____
_____
43. Are there problems on coffee marketing? 1= yes 0= no
44. If yes what are the problems on coffee marketing? Tick X in front of the problem, if exist.

Problems on coffee marketing	X	What do you think are the causes of the problems?
Credit		
Price setting		
Supply shortage		
Storage problems		
Lack of demand		
Information flow		
Quality problem		
Government policy		
Telephone cost		
Lack of government support to improve coffee marketing		
Others(specify)		

Analysis of gender role in coffee value chain in Jimma zone

Cooperatives and Union' questionnaire: byFuad Kemal

Questionnaire number: _____ Name of enumerator: _____

District and Kebele_____/_____ Date: /____/_____/_____

I. GENERAL INFORMATION

1. Name of Processor/s _____ Age _____Sex_____
2. Address: District _____ Town/Kebele_____
3. Marital status: 1.single 2.married 3.divorced 4.widowed
4. Family size: male _____ female_____ Total_____
5. Education level: 1 Illiterate 2. First cycle (1-4) 3. Second cycle (5-8)
   4. Secondary School 5. Certificate 6.Diploma 7.Other (specify) _____
6. How long have you been operating the business? _____ Years
7. Total number of peoples employed in your business.

	Male	Female	Total
Family member			
Non-family member			
Total			

II. PROCESSING INFORMATION

1. What is a form of ownership of your processing company? 1. Individual 2. Partnership
   3. State/cooperative 4. Others
2. How did you obtain the start-up capital? 1. Own saving from other activities 2. Loan 3.other
3. If it is loan from where you get loan? 1. micro-finance 2.cooperative society 3.bank 4.private money lenders 5.relatives 6.others.
4. How much capital did you use to start this processing enterprise? _____ ETB.
5. What is the amount of your current capital in 2014/15? _____ETB.
6. From whom, to whom did you sell coffee in 2014/15 and at what price?

From whom did you buy coffee in 2014/15	X	Sex of the suppliers 0=Male 1=Female	quantity bought (qt)	ETB/qt	To whom did you sell coffee in 2014/15	X	quantity sold (qt)	ETB/qt	Total amount of coffee processed in 2014/15
Farmers					Wholesalers				
Wholesalers					Retailers				
Retailers					Exporters				
Others (specify)					International markets				

7. Have you registered your processing machine enterprise? 1. Yes 2. No
8. If "yes" to Q8 when _____years
9. What are the major constraints facing you? (List) _____
   _____
10. What opportunities are there to improve coffee processing industries?
    _____
11. Is there any cultural, traditional and religious taboo in the area that prohibits women to participate in coffee processing? 1=Yes 2=No
12. If yes, can you explain it?_____
    _____
13. Is there any of set of rules and regulations that value chain actors must abide? 1Yes 2.No
14. If your answer Q.14 is yes, who set rules? 1. Actors within value chain

2. outside the value chain

15. Explain the parameters largely included in rules and regulations._____
    _____
16. Who sets selling and buying price? 1. Myself 2. Set by demand and supply
    3. Buyers 4. Other (specify)
17. Involved agreement between buyers and you concerned with meeting basic cost parameters and guaranteeing supply. 1. Yes 2. No
18. If you answer Q.18 is No, why?_____
    _____
19. Is there any enforcement tools used to check compliance with the rules, and the system of sanctions used to promote observance of the rules? 1. Yes 2. No
20. If your answer Q.20 No, why?_____
    _____
21. Recall last 1 year coffee value chain problems, which method (s) important to promote observance of the rules? (Multiple responses are possible): 1. monitoring at different stages of the chain 2. Punishing defectors 3. incentives (to encourage observance of the rules)
22. Did you get services to meet the quality standards need in coffee market? 1. Yes 2. No
23. If your answer Q.23 is yes, who is/are providing and what type (s) of services?_____
    _____
    _____
24. Revenue and operational cost coffee processing

Particulars	Units	Price/unit	Average price/kgs
Storage cost			
Loading and unloading			
Electricity bills			
Processing fees			
Labor/wage cost			
Taxes			
Other			
Total costs			
Selling price			
Revenue			

Thank you!!!!