# *Determinants of Farmer Preference to Coffee Market Outlet:*

# *The Case of South West Ethiopia, Jimma Zone.*

*A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment for the Requirements for the Award of the Degree of Master of Science (MSc) in Economics (Economic Policy Analysis)*

***By:***

***Solomon Assefa***

***JIMMA UNIVERSITY***

***COLLEGE OF BUSSINESS & ECONOMICS***

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***JUNE , 2015***

***JIMMA, ETHIPIA***

# *Determinants of Farmers Preference to Coffee Market Outlet*

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# DECLARATION

I undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university and that all source of material used for the thesis have been duly acknowledged.

Declared by:

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **ARDO** | Agricultural and Rural Development Office |
| **CFC** | Common Fund for Commodities |
| **CMC** | Coffee Marketing Cooperatives |
| **CSA** | Central Statistics Agency |
| **DAs** | Development Agents |
| **ECX** | Ethiopia Commodity Exchanges |
| **ETB** | Ethiopian Birr |
| **FAO** | Food and Agricultural Organization |
| **FDRE** | Federal Democratic Republic of Ethiopia |
| **ICO** | International Coffee Organization |
| **IFAD** | International Fund for Agricultural Development |
| **IPMS** | Improving Productivity and Marketing Success |
| **IRLS** | Iteratively Reweighted Least Square |
| **JARC** | Jimma Agricultural Research Center |
| **Kgs** | Kilograms |
| **Kms** | Kilometers |
| **MAP** | Maximum Posteriori |
| **NGOs** | Non-Governmental Organizations |
| **OLS** | Ordinal Least Square |

| | |
|---|---|
| **ORG** | Oromia Regional Government |
| **PAs** | Peasant Associations |
| **SPSS** | Statistical Package for Social Science |
| **US** | United States |
| **USAID** | United States Agency for International Development |
| **USDA** | United State Department of Agriculture |
| **VAT** | Value Added Tax |
| **WFP** | World Food Program |

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## ***Abstract***

*Access to market in the form of different channels for coffee farmer is crucial for exploiting the potential of coffee production to contribute to increased cash income of rural households. Identifying factors affecting market channel decision is therefore important.*

*The study was conducted on three woredas of Jimma zones namely Manna woreda, Gomma woreda, and Limmu kossa woreda where coffee is the main means of livelihood of the society. Cross-sectional data was collected from the survey of rural households living in the randomly selected three potential woredas of the zones. A total of 156 respondents were included in the survey. Statistical package for social science SPSS-16 was used for data analysis. Both descriptive and econometric methods has employed for the quantitative data analysis. Determinants of farmers' preference of coffee market outlet analyzed using multinomial logistic regression model.*

*The result of the logistic regression model revealed that factors that determine farmers' preference of coffee market outlets are farming experience of farmers, age of head, price of coffee, distance to the nearest village market, distance to the nearest main market, and distance to cooperatives and transportation cost to the main market. The result shows that distance to main market and transportation cost positively and significantly related to preference to cooperatives. Since distance from the farm to market significantly determines farmer preference of coffee market outlet decisions, the study recommends government should ensure developing markets for coffee farmers' and establishment of cooperatives within reach. Poor infrastructure was noted to be a hindrance in marketing of coffee and this study recommend the improvement of the infrastructure to enhance coffee marketing.*

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# CHAPTER ONE

## Introduction

### 1.1 Background of the study

Strengthening agriculture is critical to overcome the challenges such as rural poverty, food insecurity, unemployment and sustainability of natural resources. World Bank (2007) points out that agriculture can work in conjunction with other sectors to have faster growth, reduce poverty and sustain the environment. However, there is a need for promoting market participation to increasingly recognize the efforts of bringing about agricultural transformation in developing countries (Alene et al, 2007). Coffee production is one of the components of agricultural sector.

More than 80 countries in the world produce and export coffee. It is exported to more than 165 countries worldwide by more than 121 countries; implies it is highly consumed in the world. More than 50 developing countries, 25 of them in Africa, depend on coffee as a major source of export earnings. Coffee production by its nature is more labor-intensive activity than alternative activities (ECX annual report, 2008).

Ethiopia is the origin of coffee Arabica, and it grows wide variety of exemplary coffee, highly differentiated, most of which are shade grown by small farmers without chemical inputs (Dempsey,2006) Ethiopia is the World's fifth largest coffee producer, the Africa's leading domestic consumer and oldest exporter of coffee (Coffee Arabica L.) in the world (Wintgens, 2004; B*ä*ckman, 2009). Its afromontane rainforests are the origin of the crop which contributes 35 % of export earnings and 10% of revenue source for Ethiopia. It is also an important source of genetic resources for the coffee industry. As a matter of fact, Ethiopia is the only center of origin and diversity of the crop (Endale et al, 2007). Because of its tremendous importance in the Ethiopian economy, 400,000 tons of clean coffee is produced annually in Ethiopia. Similarly about 22 million people of Ethiopia (25%) directly or indirectly depend on coffee.

The crop is thus considered as 'socio-political crop of the country' (Petit, 2007; Boot, 2007; Wrigley, 1988). Though Ethiopian coffee is prominent in world market for its quality; its production is mainly concentrated in Oromia (53.3%) and the Southern Nations,

Nationalities and People's Region States (SNNPRS) 42.6%. But all the rest Regional Coffee in Ethiopia is collected from two sources: Modern type plantations only constitute 6% of the total coffee production area in Ethiopia, while the majority of the production area consists of montane rainforest with wild coffee (Demel Teketay, 1999).

According to Stellmacher 2007, the relationship between Ethiopians and coffee is deep - rooted, and coffee production and consumption are closely intertwined with Ethiopian history, culture and economy. Coffee has been cultivated, traded and consumed over centuries and still play a significant role in the daily life of most Ethiopians and for the state of Ethiopia as a whole.

### 1.2 Statement of the problem

Small holder can be defined in terms of farmers' limited resource endowments relative to other farmers. However, the meaning differs between countries and between agro ecological zones. For instance, in favorable areas with high population densities small holders may be characterized as cultivating less than one ha of land, whereas in semi-arid areas small holders may be characterized cultivating 10 ha or more or managing 10 head of livestock. The distinction between small holders and larger farms based on their landholdings is not always possible. Another distinction bases labor use. Small holder farmers are usually uses family labor while large farms commonly employ hired labor (Bijman J. et al, 2007). Most small holders are vulnerable to economic and climatic shocks and spread their risk by diversifying their sources of livelihood including significant off-farm income. In this respect, small holders also form a diverse group in terms of their allocation of resources to food, cash crops, livestock and off-farm activities, their use of external inputs and hired labor, the proportion of food crops which are sold, and their household expenditure pattern. In addition, different types of small holders are differently integrated with outside markets, whether national or international, and this influences the way they are impacted by policy changes.

Complete subsistence or self-sufficiency does not really exist anymore and there is at least always some form of local market, in which small holders trade their surplus. But these markets are not very remunerative and offer limited opportunities for negotiation. Finding and entering markets that will provide them with better prospects can be extremely difficult, and small holders are often faced with a number of difficulties (Bijman J. et al, 2007).

Several studies have listed the constraints that small holders encounter when they want to link to new markets or become more competitive in existing markets. The World Bank, 2007 distinguished five issues such as: lack of access to these markets; weak technical capacity; difficulty in meeting quality standards; difficulty in meeting contract conditions; and exposure to additional risks. IFAD, 2003 discussed three dimensions of the issue of market access: physical access to markets; market structure; and lack of skills, organization and information. Finally, Bienabe et al., 2004 in their review of projects that aim to link small holder farmers to markets distinguished the following constraints for trade: barriers to entry; risks; transaction costs; asymmetry of information or lack of information on markets; lack of bargaining power and asymmetry of negotiation; lack of economy of scale; lack of human capital; and lack of social capital.

In this regard, Kaddar (1975) cited in Barker(1989) claims that only a few farmers understand the necessity of producing to meet the market and of finding a market for their produce. This suggests that most farmers are basically, production oriented, and may experience very little application of marketing principles in their bussiness management. Intervention to reduce uncertainty and other marketing problem and to bring the peasant household into profit maximizing category may be realized through establishment of rural institution such as, cooperative, ECX,…. so on.

### 1.3 Rationale of the study

Studies on determinants of market outlet preference of the smallholder coffee farmers not only for the study area even for the country is limited. Thus, conducting research on the specific area is expected to fill gaps:

- Even though ,Coffee subsector accounts over 35% of agricultural foreign exchange earnings and provides income to over 15 million people in the country (Ministry of Trade, 2012) through provision of jobs for farmers, local traders, processors, transporters, exporters and bankers (ICO/CFC, 2000), determinants of farmers coffee market outlet preference among small holders has not been studied well. This study fills the **research gap that exists in the zone specifically and as a country level as a whole.**

## 1.4 Significance of the study

The study is confined to South West Ethiopia, Jimma zone coffee producing areas: Mana woreda, Gomma woreda, and Limmu Kossa woreda. Markets have been recognized for their potential to unlock economic growth and development. According to Barret (2009), market access has been identified as one of the critical factors influencing the performance of smallholders agriculture in developing countries, and in particular, least developed countries. Enhancing returns from agricultural production through improved access to market can therefore be a vital element of poverty alleviation strategies and livelihood improvement. It has been argued that market-oriented production can achieve the welfare gain through specialization and comparative advantage, economies of scale and regular interaction and exchange of ideas.

The results of the study are likely to be used by policy analysts, JARC, other organizations and agencies such as zonal, district and regional departments of rural development, NGOs and coffee exporters, ECX, cooperatives and other organizations working in the areas of rural household poverty reduction and agribusiness. In the long run, this research will be helpful for different researchers as an input for further studies on the area and input for studies on different coffee producing areas.

## 1.5 Objectives

### 1.5.1 General Objective

The general objective of this study is to show the determinants of coffee farmers' preference of market outlet in South West Ethiopia, Jimma zone.

### 1.5.2 Specific Objectives

The specific objectives of the study are to:

✓ Analyze the determinants of coffee market outlet preference among the small holder farmers in the study area.

✓ Identifying market outlet of the study area,

✓ Identifying farmers' preference of those market outlets and a proportion of coffee farmers sold to each of these channels and finally make recommendation based on finding.

### 1.6 Research Questions

The study will try to answer the following key questions:

- What are the findings of already conducted studies by different authors, on different agricultural products for different specific research areas?
- Which market outlet is preferable by smallholders coffee producers
- What is proportion of market share and why they favor the outlet?
- What policy measures should be taken to support household level coffee marketing to make the producers' beneficiary and energetic for sustainable production?

### 1.7 Scope and limitation of the study

The study was confined to South West Ethiopia Jimma zone, specifically in woredas of Gomma, Manna and Limmu kossa, focusing only on 156 coffee farmers that live in the woredas. Information on socio-economic, institutional and marketing factors was collected by using a structured questionnaire. Due to lack of farm records among farmers, this study mainly relied on the farmers' memory in the collection of the data and since there is limited research worked on the title and there is no fund that provided by the faculty it makes it a little harder to accomplish it quickly.

### 1.8 Organization of the study

The research project consists of five chapters. The first chapter is introduction highlights on the background of the study, the problem statement and objectives. Chapter two focuses on literature review in which the key terms in the study are defined and several aspects of marketing which include the coffee marketing in Ethiopia, importance of farmer participation in markets, and determinants of marketing channel choice are reviewed. In addition, the underlying conceptual framework of the study is discussed. Chapter three looks at the methods and procedures that were used for the study. It encompasses description of study area, sampling procedure and sample size, data collection and analytical methods which include theoretical framework and explanation of variables in the model. Chapter four highlights the results and discussion of both objectives. Chapter five gives conclusions and recommendations based on the findings of the study.

# CHAPTER TWO

## Literature review

### 2.1 Coffee in Ethiopia

#### 2.1.1 Coffee production

Coffee is one of the highest valued commodities in international trade, with annual export revenues worth around $10 billion on average, and annual retail sales of approximately $50billion. It is a highly labor-intensive industry employing an estimated 100 million people in over 60 developing countries, where it is often a vital source of export revenues and income to producers, many of whom are smallholders. The dependence in coffee is greatest in Africa, where there are some 25 coffee exporting countries. There are two major varieties of coffee, namely arabica coffee (*Coffee arabica* L.) and robusta coffee. Ethiopia produces only arabica coffee, which is believed to have originated in the rain forests of south western Ethiopia – hence Ethiopia is known as "the home of coffee". Annual coffee production fluctuates between 6 to 7 million tones, with production in the 2004/05 crop year totaling 113million bags (of 60 kg). Three countries, Brazil, Colombia and Vietnam, account for almost60% of world coffee production. Global production of coffee has shown a fluctuating trend in the last few years. Latin American producers, especially Brazil and Colombia, account for over 60% of global output; Asia (where Indonesia and Vietnam dominate) accounts for around a quarter of total production, while Africa, whose share has been falling, produces between15% and 18%. Ethiopia is now Africa's largest producer but still only accounts for about 2% of global output. Smallholder farmer produce 95 percent of Ethiopias coffee (Tefera and Tefera, 2013). It is produced under several types of production system, including forest, semi forest, garden and plantation coffee (Tulu, 2008).

Forest coffee is grown in the wild natural forest cover and is gathered by farmers from trees with minor tree farmers, mostly. This type of coffee has clearly delineated boundaries of ownership, although the trees usually are located all by from agricultural plots. Garden coffee is defined as coffee from trees planted by farmers in the vicinity of their residences. It is often intercropped with other crops or trees. Plantation coffee is grown on large commercial farms, private as well as state farms. Modern production practices- such as, irrigation, modern input use, mulching, stumping, pruning are often applied in this case. While reliable recent statistics

are lacking, it is estimated that these different production system make up about 10, 35, 50 and 5 percent, respectively, of total coffee production in the country (Kufa, 2012).

The number of coffee growers has been estimated in about one million smallholder farmers. Most of them hold less than half a hectare of land, and grow 95 per cent of the coffee output (Oxfam 2008). Total annual coffee production is of approximately 280,000 metric tons (Dempsey 2006). According to Kidane (1999), the average yield per hectare is between 340 and 490 kg. Less than 40% of total national production of coffee is directed to official export markets (Worako 2008).The same study (Worako 2008) indicated that, annual domestic coffee consumption per household in the country is 24.5 kg and the per capita consumption is 4.5 kg. About 15% of coffee produced in the South-Western and Western Zones is smuggled via Sudan. In Ethiopia, the livelihoods of approximately one quarter of the population depend on the coffee sub-sector (Petit 2007). However, small holder coffee growers in Ethiopia face high transaction cost, lack of market information, poor infrastructure, and weak capital markets.

Two factors may negatively affect coffee production over the long term. In parts of Oromia, a root rot disease is gradually affecting trees, and even affects new seedlings if planted where a diseased tree has been uprooted. The second main factor is rain fall distribution. Production in market year 2011/12 is slightly higher than the year before, because of good rainfall distribution in most of the coffee growing areas, except for the southern part of Oromia (USDA, 2012).

The quality standards of Ethiopian coffee are classified according to their origin of production. Among the best-known coffee varieties in Ethiopian, Harar, Wollega, Limu, Sidama and Yirgacheffee take the priority. The first type, Harar is the highest premium coffee in Ethiopia as well in the world. Harar coffee has medium size bean, with a greenish-yellowish color with medium level of acidity and a distinctive mocha flavor. The second well-known variety of Ethiopian coffee is Wollega. The third type, Limu is known for its spicy and wine flavor, and good acidity. It is most preferred and popular in Europe and the U.S. Washed Limu is one of Ethiopia's premium coffees. The fourth type of Ethiopian coffee is Sidamo, which has greenish-grayish color and medium-sized beans(ECX, 2008).

### 2.1.2 Coffee consumption

Ethiopians consume about half of all coffee produced in the country. Ethiopian households normally prepare and consume coffee two or three times a day, and the Ethiopian coffee-

ceremony is a traditional way to welcome guests to one's house. In marketing year 2012/13 the expected higher production, coupled with high ending stocks, may depress local prices somewhat and lead to increased domestic consumption. Because of the current high prices, some coffee shops are known to mix coffee with barley, as a way to extend the coffee and maintain profits. The high prices have led to a trend in urban areas for small roadside coffee stalls, not subject to VAT tax and therefore cheaper than normal coffee shops. Because they deal in such small quantities of coffee, they do not use barley and are therefore popular with Ethiopians (USDA/2012).

### 2.1.3 Coffee Marketing

The term marketing has been defined differently by different authors. Marketing is the task of finding' developing and profiting from business opportunities by fulfilling customers' needs (Gregory et al., 2002). According to Kotler et-al (2004) marketing is the process of planning production, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goals. Agricultural marketing in particular is the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumer (Kohls and Uhl, 1985 as cited in Demeke 2007).

A marketing channel is a set of practices or activities necessary to transfer the ownership of goods, and to move goods, from the point of production to the point of consumption and, as such, which consists of all the institutions and all the marketing activities in the marketing process. A marketing channel can be as short as being direct from the vendor to the consumer or may include several inter-connected (usually independent but mutually dependent) intermediaries such as wholesalers, distributors, agents, retailers. Each intermediary receives the item at one pricing point and moves it to the next higher pricing point until it reaches the final buyer (Kotler et-al; 2004)

The coffee value chain in Ethiopia is composed of a large number of actors. It includes coffee farmers, collectors, different buyers, processors, primary cooperatives, cooperative unions, exporters and various government institutions (Gemechis and Struthers, 2007). Ethiopian coffee is sold both at local level and at the international market, the latter mainly through the newly established commodity exchange market and directly to international buyers through specialty market channels by coffee cooperative unions. Normally, all Ethiopian coffee should pass

through Commodity Exchange Market. Since 2001, however, cooperatives have been granted permission to by-pass coffee auction opening the way for direct export sales (Dempsey 2006).

The Ethiopian Commodity Exchange (ECX), a public-private enterprise, was established in April 2008 with the help of USAID to reduce transaction costs and risk to growers, as well as to control foreign exchange. It started with export items like coffee and sesame, and is now extending to haricot beans and grains, including for the local market. Over the past four years, it has become a well-organized market institution where local buyers and sellers come together to trade, assuring quality, quantity, payment and delivery. It now handles about 90 percent of all coffee exports, and has its own laboratories and warehouses. Unwashed coffee accounts for over 60 percent of all ECX transactions. Many farmers have benefited from the ease in marketing and better prices afforded by trading through ECX (USDA, 2012).

In order to overcome market failures and to cope with changes in the market environment many developing countries, including Ethiopia, are returning to agricultural cooperatives (Nicola, 2009). This is due to the fact that cooperatives can reduce transaction costs and improve the bargaining power of smallholder farmers' vis-a-vis increasingly integrated markets (as sited by Nicola, 2009). In line with this, agricultural cooperatives particularly marketing cooperatives are advocated by the Government of Ethiopia as the main pillars of development and key market institutions in its Agricultural Development Led Industrialization Strategy. This plan aims to unlock Ethiopia's agricultural growth potential by providing a better institutional environment for integrating smallholder farmers into international market (FDRE, 2001).

### 2.2 Coffee market outlets in rural Ethiopia

Anteneh et al, 2011 on his research to identify market outlets and factors determine market outlets for Sidama zone found that farmers might sell either to coffee marketing cooperatives in the same location, private traders with license, neighboring cooperatives, and informal traders without license. Farmers can choose to use a single or a combination of outlets to sell their coffee. However, the amount of coffee sold through these different channels differs significantly (Anteneh et al, 2011). The result also indicated that from the existing market channels in the study area, delivering to the local coffee cooperative is still the most patronized outlet. Private traders constitute the second most common outlet, followed by informal traders and neighboring cooperatives. Farmers often use combinations of outlets to sell their coffee. The result also revealed that membership does not had a straight forward relationship with

market outlet choice. Normally coffee marketing cooperatives offer various advantages such as better price, economies of scale, long-term relationships with foreign buyers, bargaining power, and provision of certification premium, training and other services to its member. Furthermore they also provide market information and facilitate the entrance to niche markets by their members. They generally guarantee a market for their members' coffee. Due to this coffee marketing cooperative member farmers are expected to sell their produce to their own coffee marketing cooperative in the study. However, this was not the case in research result. Rather significant number of member coffee growers sell their coffee to private traders and a number of non-member coffee growers sell their coffee to coffee marketing coops through their relatives or friends. They do not become members in order to avoid paying the entrance fee and the commitments associated with membership.

Despite the negative experience of farmers with cooperatives during the socialist regime in the country, recently a new generation of cooperatives is emerging. With the aim of securing better price in coffee market and entering into export marketing, Ethiopian government promulgated proclamation no 147/1998. The proclamation outlines the layered organizational structure of the cooperatives, which was not permitted by the previous regimes. According to this proclamation an organization can have four layers, i.e., primary cooperatives, unions, federations, and cooperative leagues, although only primary and union levels have been formed to date in the country (Dorsey & Tesfaye, 2005). Cooperative union is defined as an organization composed of more than one primary cooperative society that has similar objective.

Since primary coffee cooperatives lack required human resources and logistical capacity the Ethiopian government took the initiative to establish Coffee Farmers Cooperative Unions to manage coffee export business on behalf of primary coffee marketing cooperatives. Coffee Marketing Cooperatives (CMC) is among the most known and largest cooperatives in the country (FAC 2008).

### 2.3 Factors influencing market participation

Market participation of smallholder farmers is affected by numerous factors, including socioeconomic factors, institutional factors, market factors and external factors such as political stability of the nation, natural disaster and calamities. These factors could have negative and positive effects, which could either improve or cause a decline in the welfare of the actors. Social-economic factors include: age, gender, education, experience, household size and land

size. Age of the household head may have a negative or positive impact on market participation. The positive impact resulting from the fact that older farmers may take their decision more easily than the young farmers, because the older people might have accumulated capital or a long term relationship with their clients or might have preferential access to credit due to their age, availability of land, or family size (Sall *et al*., 2000; Adegbola and Gardebroek, 2007). The age impact negatively in that young people might have a longer planning horizon and might be willing to take risks (Zegeye *et al*., 2001). The older households tend to have more dependents causing more consumption, hence lowering marketable surplus (Ehui *et al*., 2009).

The gender of the head of the household has a significant impact in the market participation decision. Male headed household are expected to have positive impact on market participation because they are of resource endowed than their counterpart female. (Jagwe *et al*.,2010) found that, female headed households are more negatively affected by the transaction costs of searching for buyers, contracting and enforcing a sale transaction as opposed to the male headed households. Likewise, female headed household is more likely to be resource constrained hence affecting production of marketable surplus (Guiterrez, 2003).

Education has a positive effect on market participation because it enhances the skill and ability to utilize better on market information, which may in turn reduces marketing costs and make it more profitable to participate in the market. The household size explains the family labor supply for production and household consumption levels (Alene *et al*., 2008).Positive sign insinuates that a larger household provides cheaper labor and produce more output in absolute terms such that the proportion sold remains higher than the proportion consumed. A negative sign on the other hand means that a larger household is likely to consume more output, leaving smaller and decreasing proportion for sale. Key *et al*. (2000) postulated that land holding is directly linked to the ability to produce a marketable surplus. This can be explained by the fact that a farmer produces more output when the land is larger than when it is small.

Institutional factors like membership in the group, extension service, and infrastructure have an influence on market participation. Poor infrastructure has a negative effect on market participation because the majority of smallholder farmers in developing countries is located in remote areas with poor infrastructure and often fail to participate in the market due to the high transaction cost involved (Goetz, 1992; Makhura *et al*., 2001; Key *etal*., 2002). Membership to the group has both positive and negative impact on market participants. It positively impacts on

market participation because it increases households access to information vital to production and marketing decisions (Olwande and Mathenge, 2012). On the other hand, it can negatively impact market participation in case disagreement emerges among group members, distorting marketing decision. Extension service is expected to impact positively on market participation because it is through extension services that farmers are able to acquire better skill and knowledge on marketing.

Physical resource endowments like ownership of transport and communication equipment's have an impact on market participants. Ownership of communication equipment's such as mobiles, radios and televisions have a positive impact on the market participation by facilitating marketing information to the farmers. Ownership of transport equipment such as bicycles, motorcycles and truck have a positive impact on market participation by reducing the cost of transporting output from the farm to the market (Key *et al*., 2000).

Market factors have been found to positively and negatively influence market participation. Jari (2009) stated that availability of market information boosts confidence of household who are willing to participate in the market. Poor access to market information result in information-related problem, namely moral hazard and adverse selection which in turn increase transaction costs and hence discourages participation in the market by some farmers (Fatchamp and Hill, 2005; Shiferaw *et al*., 2009). Distance from the farm to point of sale, and market information were found in a couple of studies to be a major constraint to intensity of market participation (Goetz, 1992; Montshwe, 2006; Bahta and Bauer, 2007; Omiti *et al*., 2009). Price factor positively influences market participation. Alene *et al*. (2008) argue that output price is an incentive for sellers to supply more in the market. (As cited in, Geoffrey Sigei, Hillary Bett and Lawerance Kibett, 2004)

### 2.4 Factors affecting market outlet choice

Marketing channel decisions are among the most complex and challenging decisions facing farmers and chosen channels intimately affect all other marketing decisions. Each channel system creates a different level of revenues and costs, and reaches a different segment of target customers (Berry, 2010). Marketing channels perform many key functions: information gathering and dissemination, promotion, contact work, matching offers to buyers' needs, negotiation, physical distribution, financing, and risk taking (Kotler, 2004). Farmers need to

identify alternative ways to reach their markets. The available means vary from direct marketing channels and using one, two, three or more intermediary channel levels.

Access to remunerative markets is a critical determinant of farm incomes and livelihoods among farmers. It is therefore necessary for farmers to be rational in their decision making regarding the choice of input and/or output market to utilize, and marketing channel to use. Type of marketing channel employed has implications not only to the producer, but also to the processor and the final consumer.

Limited empirical studies exist regarding factors affecting farmers channel choice decision. Agarwal and Ram swami 1992; Williamson, 2002 and Brewer 2001 have identified factors related to price, production scale and size, farm household characteristic, behavioral aspects such as (trust, risk, and experience), and market context (distance and purchase condition) affect producer market outlet choice.

Furthermore, Zuniga-Arias (2007) found out that factors such as price attributes, production system, farm household characteristic, and market context could affect market outlet decision of farmers in mango supply chain in Costarica. Hobbs (1997) found out that age, education, farm profit and transaction cost are some factors that influence farmers channel choice decision in livestock marketing. The same study also indicated that the mode of payment, long standing relationship with the buyer, and the price received as the most important reasons for selling to a particular buyer in the livestock sector. A study conducted by Sourgiannis (2008) found out that farm and farm characteristics, volume of milk production, farm income, debt, sales price, speed of payment and loyalty have a significant effect on market channel choice of sheep and goat farmers in the region of east Macedonia in Greece. According to Gong (2007) there are significant relationships between economic and social variables and marketing channel selection for cattle distribution in China. They argued that transaction cost has a significant impact on marketing channel selection.

Choice for the marketing outlet is the farmers‟ decision on where to or not to sell their farm produces. The choice of market outlet is determined by the price the farmers receive from the sale of producers. The farmer is likely to choose the one which gives higher benefits. In addition, the investigation of determinants of market outlet for mango producers in Costa Rica (Zuniga-Aria and Ruben, 2007), showed four major factors in their analytical framework. The first factor was related to the farm household (including farmer's experience, an outlet which is

profitable. Attitude toward risk positively and negatively influences the choice attitude toward risk); the second factor dealt with production system (farm size and production scale); the third determinant was price attributes; and the last was market context (having or not a written contract, geographical location and distance to urban market).

Farmer's experience, especially for marketing has influenced the farmer to choose the market of marketing outlet. Those who are risk taker are willing to transport their farm produces to distant places while risk averse, always resort to sell at farm-gate. Montshwe (2006) stated that the farm gate sale tends to reduce farmers‟ revenue since the prices are relatively low. Farm size is a proxy to production scale. When the land size is large the production scale is also large and vice versa. Large production scale positively influences the farmer to sell their produce at market place mainly because of economies of scale which lower transaction cost.

Gani and Adeoti (2011) analyzed market participation and rural poverty among farmers in northern part of Taraba State, Nigeria, using a logit model. Their results revealed that with the exception of training and farming experience all other explanatory variables in the model (market information, training, distance, size of output in kilograms, extension visit, and co-operative membership, farming experience, family size, education, age and gender) had positive influences on market participation of farmers as expected. The explanatory variable for distance carried a negative sign in consonance with the a priori expectation. The decision by households to participate in market in the study area was significantly influenced by the following household socio-economic variables: market information, distance, size of output, extension visit, co-operative membership, family size, and education. Conversely, training and farming experience had no significant influence on farmers' market participation. The result showed a negative sign for the explanatory variable on farming experience, which is in dissonance with a priori expectation. It might be that more mouths were being fed. More so, this variable reflected insignificance.

Ogunleye and Oladeji in their study "Choice of Cocoa Market Channels among Cocoa Farmers in ILA Local Government Area of Osun State, Nigeria" in 2007 found that the cocoa farmers in the study area made their choice of market channels for their produce based on time of payment, mode of payment, price of product, distance from farm, transportation cost and grading of product. Majority of the farmers involved in the study patronized itinerant buyers, cocoa merchant, other farmers and cooperative society store in that decreasing order. They conclude that the delay between when produce are sold and when payment are made is an important negotiation cost that influences the choice of an outlet for cocoa farmers. Delay in

payment discouraged farmers from the choice of an outlet. Transportation cost increases with increased distance from farm and also related to the condition of road. Bad road tends to increase the transportation cost and so farmers will prefer a very low transportation cost if they cannot completely avoid it. Uncertainties are attached to grading of produce because farmers stand the chance of their produce being rejected or the price being brought down and so farmers will tend to prefer a situation of not facing either of the two consequences attached to grading of produce.

Anteneh et al (2011) also found factors determine choice of market channel specifically for coffee in Sidama zone. Accordingly, six factors such as level of education, proportion off farm income to total income, proportion of land allocated to coffee cultivation, index of cooperative performance, amount of the second payment (dividend) and satisfaction on cooperatives performance had significantly influenced the market out-let choice of member coffee farmers in the study area. Except land allocated to coffee production, all other variables do have a negative relationship with the proportion of coffee sold to private traders by members.

Symmetrically they also identified age of the respondent and proportion of off-farm income to total income have a negative relationship with the proportion of coffee sold to cooperatives by non-members, while access to training has a positive relationship. Thirdly they indicated that only four variables i.e., age of the household head, education, proportion of off-farm income to total income, and coffee productivity positively influence the proportion of coffee sold to private trader by members. Lastly, respondents' age and proportion of off-farm income to total income influence negatively the proportion of coffee sold to cooperatives by members. Furthermore, the index of cooperative performance, member satisfaction about cooperative performance and the dividends paid to members do have a positive relationship with the proportion of coffee sold to cooperatives by members.

# CHAPTER THREE

# Methodology

## 3.1 Description of the study area

The study was conducted in Jimma zone which is located at about 335 km to the South west of Addis Ababa is lying between latitudes 7°15´ N and 8°45´ N, and longitudes 36° 00´ E and 37°40´E. The zone is characterized by a tropical highland climate with heavy rainfall, warm temperatures and a long wet period. The mean annual rainfall ranges between 1,200mm and 2,500mm, with mean annual temperature of 20 to $25^0$C. The number of perennial rivers makes the zone a potential area for irrigation and hydroelectric power generation.

According to the population projection of the Central Statistical Agency the total population of the Jimma zone is estimated to be 2,732,791; of which 1,358,475 are female and 1,374,316 are male. Its major ethnic groups are Oromo (81.6 %), Yem (5.3 %), Amhara (4.9 %), Dawro (2.9 %) Kaffa(1.8 %) and others (3.5 %). Oromiffa and Amharic are the most widely spoken languages. The crude population density is 175 persons per km2. About 38.3 percent of the total population is economically active. The main farm activity of Jimma Zone is the production of cereals (barley, wheat, teff, maize, and sorghum), pulses (beans, peas and lentils), cash crops (coffee and chat), oil seeds, fruits, vegetables and livestock rearing. Out of the total households in the rural area, about 80 per cent has one or more farming oxen. Those households without oxen, but the land, are accustomed to use a sharecropping system. The average size of a landholding is around one hectare per household (Haile and Tolemariam, 2008).

The three woreda randomely selected for the studies are very important for the economy and livelihood of the smallholder farming population in Jimma Zone. Jimma is one of the major dominant coffee producing zones of the country. Coffee is produced in 13 out of 18 districts in Jimma zone. As such, coffee is the major contributor to the income of the zone as well as national exports for Ethiopia.

The research was conducted on three woredas of Jimma zones namely Limmu kossa woreda, Gomma woreda, and Mana woreda where coffee is the main means of livelihood of the society.

**Gomma woreda**

Gomma is one of the known coffee growing woreda, among 18 woredas of Jimma Zone. It is located 397 km Southwest of Addis Ababa and about 50 km west of Jimma town (ORG, 2003). Its area is 1,230.2 km2 (ARDO, 2008). The annual rainfall varies between 800-2000 mm, while the mean minimum and maximum annual temperatures of the woreda vary between $7^0$C-$12^0$C and $25^0$C-$30^0$C, respectively (ARDO, 2008). Based on 15 years weather data obtained from Gomma woreda, the average annual rainfall is 1524 mm. Altitudinal range of the woreda is between 1387-2870 m. a.s.l (IPMS, 2007). The three dominant soil types in the woreda are Eutric Vertisols, Humic Alfisolsand Humic Nitosols. Nitosols are the most abundant covering about 90% of the woreda, which is dark reddish brown in color, slightly acidic and suitable for coffee production (IPMS, 2007). Agro-ecologically, this woreda is divided into 8% high land (Dega), 88 %, intermediate high land (Weyina Dega) and 4% low land (Kolla) (IPMS, 2007).

**Manna woreda**

Manna is one of the major coffee producing woredas in Jimma zone, which is located at 368 km southwest of Addis Ababa and 20 km west of Jimma town. The total area of the woreda is 478.98 km2 (47,898 ha) of which 12% is highland, 65% intermediate highland and 23% lowland with altitudinal ranges between 1470–2610 m. a.s.l (ARDO, 2008). The mean minimum and maximum temperatures are $13.0^0$C and $24.8^0$C, respectively (ARDO, 2008). Based on long term (15 years) weather data obtained from the nearby JARC meteorological station, the average annual rainfall is 1523 mm. Distric Nitosols and Orthic Acrisols are the dominant soil types with slightly acidic PH, which is suitable for coffee production found in Manna woreda (ORG, 2003).

**Limmu kossa woreda**

Limmu kossa is one of the major coffee generating woredas in Jimma zone, which is located at 421 km from Addis Ababa and 74 km from north of Jimma town. Location of the district astronomical (absolute) location lies between $7^0$ 50'-$8^0$ 36'N latitude and $36^0$ 44'-$37^0$ 29'E longitudinal glides. The total area of the woreda is 1354 km2. The altitude ranges between 1450–1950 m. a.s.l (ARDO, 2008). The mean minimum and maximum temperatures are $10^0$C and $25^0$C, respectively (ARDO, 2008). Based on long term (15 years) weather data obtained from the nearby JARC meteorological station, the average annual rainfall is 1200 mm up to

2000 mm. The climates of the woreda are 65% woina dega, 25% dega and 10% kola. The district (woreda) fall on under the tertiary volcanic of mekdela trap a serious group that makes it conducive for farming activities. Chromic and Pellic vertisols, Orthic Acrisols and Distric Nitosols are the major soil types with found in the woreda, which have a good agricultural potential and is suitable for coffee production found in the woreda (ORG, 2003).

**Field Survey**

**Sample**

**Table 3.1: Demographical and geographical data of the three woredas of Jimma zone.**

| Variables | Administrative Zones | | |
|---|---|---|---|
| | Manna woreda | Gomma woreda | Limmu kossa woreda |
| Capital | Yebu town | Agaro town | Genet |
| Number of PAs | 24 | 36 | 40 |
| Altitude (m a.s.l) | 1470-2610 | 1500-2000 | 1200-3020 |
| Temperature (°C) | Min 13 Max 24.8 | Min 15 Max 22 | Min 18 Max 23 |
| Rainfall (mm) | 1467 | 1700-2100 | 1300-2300 |
| Latitude | $7^0$ 38' N- $7^0$ 54'N | $7^0$ 40' N- $8^0$ 04'N | $7^0$50' N- $8^0$36'N |
| Longitude | $36^0$ 38' E-$36^0$ 53'E | $36^0$ 17' E-$36^0$ 46'E | $36^0$44' E-$37^0$29' E |
| Area ($km^2$) | 478.91 | 936.58 | 1462.46 |
| population | Male=76218<br>Female=73443<br>Total=149661 | Male=162777<br>Female=158169<br>Total=320946 | Male=83808<br>Female=8236<br>Total=16614 |

Source: Oromia Economic Study Project Office; Water Resources Base Line Survey; July, 1999, Finfine

## Socio economic data

**Table 3.2: Farming system**

Agriculture is the main stay for the population of the woredas and hence it provides almost the largest share of livelihood of the population. Mixed farming is a common practice that prevails in the three woredas. Among the agricultural product that produced in the woredas coffee are the most dominant one and the major source of income.

| Farming | Gomma woreda | | Manna woreda | | Limmu kossa woreda | |
|---|---|---|---|---|---|---|
| | Area in hect. | Production (quin.) | Area in hect. | Production (quin.) | Area in hect. | Production (quin.) |
| Cereals | 21725.8 | 249389.5 | 11331 | 150337 | 46770 | 411070 |
| Pulses | 785.0 | 4530.0 | 204.74 | 959.45 | 860 | 3400 |
| Oilseeds | 163.5 | 490.5 | 36.67 | 146.68 | 5310 | 31580 |
| total | 22674.3 | 254410 | 11572.41 | 151443.13 | 52940 | 446050 |

Source: - woredas office of agriculture development, jan.1995 and dec.1996 E.C

Maize, teff and sorghum occupied the largest cultivated land areas in the woredas. Maize is the leading crop in terms of production and followed by teff. Rain fed agriculture is the dominant crops production system of the woredas during Meher season under the private peasant holdings. Belg season production is not practiced in the district. There is no state farm and large-scale private farming.

**Table 3.3**: **Number of livestock by type**

| Live stock | Manna woreda | Gomma woreda | Limmu kossa woreda |
|---|---|---|---|
| Cattle | 44817 | 104833 | 137343 |
| sheep | 14628 | 13895 | 17015 |
| goat | 8483 | 10374 | 14921 |
| horse | 1054 | 1728 | 1417 |
| donkeys | 1384 | 2882 | 4437 |
| mules | 769 | 2856 | 5291 |
| poultry | 207531 | 62574 | 43051 |
| beehives | -- | 41946 | 5023 |

Source:- woredas office of agriculture development, jan.1995 and dec.1996 E.C.

### 3.2 Data type and Methods of Data Collection

Cross-sectional data was collected from the survey of rural households living in the randomly selected woredas of Jimma zones. Accordingly, attitudinal, institutional as well as socioeconomic factors related to the farmers' coffee market outlet preference has collected through personal interviews. Structured Questionnaire prepared for household heads are filled by the help of selected and well trained enumerators. Secondary data also gathered from Zonal and district bureaus of rural development offices and ECX offices.

### 3.3 Sampling Procedure

A two stage sampling procedure has been followed to select sample households. In the first stage, coffee potential kebeles in the woredas has been identified in collaboration with woredas coffee experts. In second stage, a random of households growing coffee identified with Development Agents (Das) of the respective peasant association.

The total number of households (n) surveyed determined by using the simple formula:

$$n = \frac{N}{1 + N[e]^2} \quad (1)$$

Where: n = Sample size to be taken for the study

N = Total number of households living in three woredas

e = Desired margin of error

Accordingly, three woredas of Jimma zone namely Manna woreda, Gomma woreda, and Limmu kossa woreda has randomely selected based on production and marketing potential. According to May 2007 Population & Housing Census Result (CSA, 2007), aggregate house hold of these three woredas (Limmukossa 32,280, Mana 28,726, and Gomma 42,228) is **103,234**. With a desired margin of error of 0.08, a total of **156** respondents included in the survey. Then, this number proportionately distributed in each of the woredas, using the total number of households per zone as the basis of distribution. Finally respondents for a survey selected by using Simple Random sampling method from the lists of woredas or PAs in collaboration with DAs.

### 3.4 Data analysis

Two types of data analysis, namely descriptive statistics and econometric models were used to analyze the data collected from households. Descriptive method of data analysis included the use of ratios, percentages, means and standard deviations in the process of comparing socioeconomic, demographic and institutional characteristics of households. To determine farmers' coffee market outlet preference, multinomial logistic regression model was used.

### 3.4.1 Econometric approaches to modeling market outlet choice

To analyze the determinants of farmers' preference of coffee market outlets, the multinomial logistic regression model is suitable. Multinomial logistic regression is useful in analyzing data where the researcher is interested in finding the likelihood of a certain event occurring. In other words, using data from relevant independent variables, multinomial logistic regression is used to predict the probability (p) of occurrence, not necessarily getting a numerical value for a dependent variable (Gujarati, 1992).

Dougherty (1992) explained that the procedure for formulating a multinomial logistic regression is the same as for a binary logistic regression. Whereas in binary logistic regression, the dependent variable has two categories, in multinomial logistic regression, it has more than two categories. Thus, multinomial logistic regression is an extension of binary logistic regression. OLS cannot be used because it violates the fact that the probability has to lie between 0 and 1, if there are no restriction on the values of the independent variables hence the multinomial logistic regression guarantees that probabilities estimated from the logit model will always lie within the logical bounds of 0 and 1 (Gujarati,1992).

The multinomial Logit model is therefore used to model choices in this study because it relies on the assumption of independent of irrelevant alternative which is not always desirable. Thus assumption state that the odds of preferring one class over another do not depend on the presence or absence of other "irrelevant" alternatives. It also assumes that data are case specific that is each independent variable has as a single value for each case. The advantage of the Multinomial Logit model is that it permits the analysis of decisions across more than two categories, allowing the determination of choice probabilities for different categories (Woodridge, 2002). On the contrary, the binary Logit models are limited to the maximum of two choice categories (Maddala, 1983).

### 3.4.2 Theoretical and empirical framework of multinomial logistic regression model

Multinomial logistic regression is a classification method that generalizes logistic regression to multiclass problems, i.e. with more than two possible discrete outcomes. That is, it is a model that is used to predict the probabilities of the different possible outcomes of a categorically distributed dependent variable, given a set of independent variables (which may be real-valued, binary-valued, categorical-valued, etc.).

Multinomial logistic regression is used when the dependent variable in question is nominal (equivalently *categorical*, meaning that it falls into any one of a set of categories which cannot be ordered in any meaningful way) and for which there are more than two categories. Multinomial logit regression is a particular solution to the classification problem that assumes that a linear combination of the observed features and some problem-specific parameters can be used to determine the probability of each particular outcome of the dependent variable. The best values of the parameters for a given problem are usually determined from some training data.

The difference between the multinomial logit model and numerous other methods, models, algorithms, etc. with the same basic setup (the perceptron algorithm, support vector machines, linear discriminant analysis, etc.) is the procedure for determining (training) the optimal weights/coefficients and the way that the score is interpreted. In particular, in the multinomial logit model, the score can directly be converted to a probability value, indicating the probability of observation *i* choosing outcome *k* given the measured characteristics of the observation. This provides a principled way of incorporating the prediction of a particular multinomial logit model into a larger procedure that may involve multiple such predictions, each with a possibility of error. Without such means of combining predictions, errors tend to multiply.

Specifically, it is assumed that we have a series of *N* observed data points. Each data point *i* (ranging from *1* to *N*) consists of a set of *M* explanatory variables $x_{1,i}$ ... $x_{M,i}$ (aka independent variables, predictor variables, features, etc.), and an associated categorical outcome $Y_i$ (aka dependent variable, response variable), which can take on one of *K* possible values. These possible values represent logically separate categories (e.g. different political parties, blood types, etc.), and are often described mathematically by arbitrarily assigning each a number from 1 to *K*. The explanatory variables and outcome represent observed properties of the data points, and are often thought of as originating in the observations of *N* "experiments" — although an "experiment" may consist in nothing more than gathering data. The goal of multinomial logistic regression is to construct a model that explains the relationship between the explanatory variables and the outcome, so that the outcome of a new "experiment" can be correctly predicted for a new data point for which the explanatory variables, but not the outcome, are available. In the process, the model attempts to explain the relative effect of differing explanatory variables on the outcome, (Greene, 1993).

**Linear predictor**

As in other forms of linear regression, multinomial logistic regression uses a linear predictor function f(k, i) to predict the probability that observation *i* has outcome *k*, of the following form:

$$f(k,i) = \beta_{0,k} + \beta_{1,k}\, x_{1,i} + \beta_{2,k} x_{2,i} + \ldots + \beta_{M,k} x_{M,i} \qquad (2)$$

Where $\beta_{m,k}$ is a regression coefficient associated with the *m*th explanatory variable and the *k*th outcome. As explained in the logistic regression article, the regression coefficients and explanatory variables are normally grouped into vectors of size *M+1*, so that the predictor function can be written more compactly:

$$f(k,i) = \beta_k \,.\, x_i \qquad (3)$$

Where $\beta_K$ is the set of regression coefficients associated with outcome *k*, and $x_i$ (a row vector) is the set of explanatory variables associated with observation *i*.

**As a set of independent binary regressions**

One fairly simple way to arrive at the multinomial logit model is to imagine, for *K* possible outcomes, running *K*-1 independent binary logistic regression models, in which one outcome is chosen as a "pivot" and then the other *K*-1 outcomes are separately regressed against the pivot outcome. This would proceed as follows, if outcome *K* (the last outcome) is chosen as the pivot:

$$ln\ \frac{\Pr\ (Y_i = 1)}{\Pr\ (Y_i = K)} = \beta_1 . X_i$$

$$ln\ \frac{\Pr\ (Y_i = 2)}{\Pr\ (Y_i = K)} = \beta_2 . X_i$$

……

$$ln\ \frac{\Pr\ (Y_i = K-1)}{\Pr\ (Y_i = K)} = \beta_{K-1} . X_i \qquad (4)$$

Note that we have introduced separate sets of regression coefficients, one for each possible outcome.

If we exponentiate both sides, and solve for the probabilities, we get:

$$\Pr(Y_i = 1) = \Pr(Y_i = K)\, e^{\beta_1 \cdot X_i}$$

$$\Pr(Y_i = 1) = \Pr(Y_i = K)\, e^{\beta_1 \cdot X_i}$$

$$\cdots\cdots$$

$$\Pr(Y_i = K-1) = \Pr(Y_i = K)\, e^{\beta_{K-1} \cdot X_i} \quad (5)$$

Using the fact that all *K* of the probabilities must sum to one, we find:

$$\Pr(Y_i = K) = \frac{1}{1+\sum_{k=1}^{K-1} e^{\beta_k \cdot X_i}} \quad (6)$$

We can use this to find the other probabilities:

$$\Pr(Y_i = 1) = \frac{e^{\beta_1 X_i}}{1 + \sum_{k=1}^{K-1} e^{\beta_k \cdot X_i}}$$

$$\Pr(Y_i = 2) = \frac{e^{\beta_2 X_i}}{1 + \sum_{k=1}^{K-1} e^{\beta_k \cdot X_i}}$$

$$\cdots\cdots$$

$$\Pr(Y_i = K-1) = \frac{e^{\beta_{K-1} X_i}}{1+\sum_{k=1}^{K-1} e^{\beta_k \cdot X_i}} \quad (7)$$

The fact that we run multiple regressions reveals why the model relies on the assumption of independence of irrelevant alternatives described above, (Greene, 1993)

**Estimating the coefficients**

The unknown parameters in each vector $\beta_k$ are typically jointly estimated by maximum a posteriori (MAP) estimation, which is an extension of maximum likelihood using regularization of the weights to prevent pathological solutions (usually a squared regularizing function, which

is equivalent to placing a zero-mean Gaussian prior distribution on the weights, but other distributions are also possible). The solution is typically found using an iterative procedure such as generalized iterative scaling, iteratively reweighted least squares (IRLS), by means of gradient-based optimization algorithms such as  by specialized coordinate descent algorithms.

**As a log-linear model**

The formulation of binary logistic regression as a log-linear model can be directly extended to multi-way regression. That is, we model the logarithm of the probability of seeing a given output using the linear predictor as well as an additional normalization factor:

$$\ln \Pr(Y_i = 1) = \beta_1 . X_i - \ln Z$$

$$\ln \Pr(Y_i = 2) = \beta_2 . X_i - \ln Z$$

. . . . . .

$$\ln \Pr(Y_i = K) = \beta_1 . X_K - \ln Z \qquad (8)$$

As in the binary case, we need an extra term $-\ln Z$ to ensure that the whole set of probabilities forms a probability distribution, i.e. so that they all sum to one:

$$\sum_{k=1}^{K} \Pr(Y_i = k) = 1 \qquad (9)$$

The reason why we need to add a term to ensure normalization, rather than multiply as is usual, is because we have taken the logarithm of the probabilities. Exponentiating both sides' turns the additive term into a multiplicative factor and in the process shows why we wrote the term in the form $-\ln Z$ rather than simply$+Z$:

$$\Pr(Y_i = 1) = \frac{1}{Z}\, e^{\beta_1 . X_i}$$

$$\Pr(Y_i = 2) = \frac{1}{Z}\, e^{\beta_2 . X_i}$$

……..

$$\Pr(Y_i = k) = \tfrac{1}{Z}\, e^{\beta_k . X_i} \qquad (10)$$

We can compute the value of $Z$ by applying the above constraint that requires all probabilities to sum to 1:

$$1 = \sum_{k=1}^{K} \Pr(Y_i = k) = \sum_{k=1}^{K} \frac{1}{Z} e^{\beta_k \cdot X_i} \quad (12)$$

$$= \frac{1}{Z} \sum_{k=1}^{K} e^{\beta_k \cdot X_i} \quad (13)$$

Therefore:

$$Z = \sum_{k=1}^{K} e^{\beta_k \cdot X_i} \quad (14)$$

Note that this factor is "constant" in the sense that it is not a function of $Y_i$, which is the variable over which the probability distribution is defined. However, it is definitely not constant with respect to the explanatory variables, or crucially, with respect to the unknown regression coefficients $\boldsymbol{\beta}_k$, which we will need to determine through some sort of optimization procedure.

The resulting equations for the probabilities are

$$\Pr(Y_i = 1) = \frac{e^{\beta_1 \cdot X_i}}{\sum_{k=1}^{K} e^{\beta_k \cdot X_i}}$$

$$\Pr(Y_i = 2) = \frac{e^{\beta_2 \cdot X_i}}{\sum_{k=1}^{K} e^{\beta_k \cdot X_i}}$$

$$\Pr(Y_i = K) = \frac{e^{\beta_K \cdot X_i}}{\sum_{k=1}^{K} e^{\beta_k \cdot X_i}} \quad (15)$$

Or generally:

$$\Pr(Y_i = c) = \frac{e^{\beta_c \cdot X_i}}{\sum_{k=1}^{K} e^{\beta_k \cdot X_i}} \quad (16)$$

(Greene, 1993).

To determine the factors that influence farmers' choice of coffee market outlet in South West Ethiopia, Jimma zone, the multinomial Logit model was used. The choice of a given marketing outlet is discrete because it is chosen among other alternative outlet. Let $P_{ij}$represent the probability of choice of any given market outlet by coffee farmers, then equation representing this will be,

$$P_{ij} = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k + \text{e} \quad (17)$$

Where *i* takes values (1, 2, 3, 4, 5, 6, 7), each representing the choice of marketing outlet (cooperative =1, consumer =2, broker =3, rural coffee trader = 4, urban coffee trader = 5, rural and urban coffee trader = 6, coop + consumer + broker = 7). *X1* are factors affecting choice of a market outlet, $\beta$ are parameters to be estimated and *e* is randomized error. With *j* alternative choices, the probability of choosing outlet *j* is given by,

$$\text{Prob}\ (Y_i = \text{j}) = \frac{e_{z_j}}{\sum_{k=0}^{j} e_{z_k}} \quad (18)$$

Where $Z_j$ is a choice and $Z_k$ is alternative choice that could be chosen (Greene, 2000). The model estimates are used to determine the probability of choice of a market outlet given *j* factors that affect the choice *Xi*. With a number of alternative choices log odds ratio is computed as,

$$ln\ (\frac{P_{ij}}{P_{ij^*}}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_k X_k + e_i \quad (19)$$

$P_{ij}$ and $P_{ik}$ are probabilities that a farmer will choose a given outlet and alternative outlet respectively. ln $(\frac{P_{ij}}{P_{ik}})$ is a natural log of probability of choice j relative to probability choice k, $\alpha$ is a constant, β is a matrix of parameters that reflect the impact of changes in *X* on probability of choosing a given outlet, e is the error term that is independent and normally distributed with a mean zero. The parameter estimates of the Multinomial Logit model provide only the direction of the effect of the independent variable on the dependent (response) variable but do not represent either the actual magnitude of change nor probabilities. The marginal effects or marginal probabilities are functions of the probability itself and measure the expected change in the probability of a particular choice being made with respect to a unit change in an independent variable from the mean (Green, 2000).

Marginal effects of the attributes on choice are determined by getting the differential of probability of a choice and it is given by,

$$(\delta) = \frac{\partial P_i}{\partial X_i} = pi\,(\beta_j - \sum_{k=0}^{j} P_K\,\beta_k) = P_i(\beta_j - \beta) \quad (20)$$

The multinomial logit model is given below;

$$P_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + \varepsilon_i \quad (21)$$

Factors that determine coffee Farmers Choice of market outlet

$$(P_{ij}) = \beta_0 + \beta_1\, Frm\ Expr + \beta_2\ Dist\ Vge\ Mkt + \beta_3\, Dist\ Main\ Mkt + \beta_4\, Dist\ Coop + \beta_5\, Hage + \beta_6\, Coff\ Pric + \beta_7\, Transp\ Cost + \varepsilon_i \quad (22)$$

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.1 Introduction

This chapter presents descriptive results of socio-economic, institutional and market characteristics in relation to farmers' choice of factors that determine coffee marketing outlets. It also presents empirical results of multinomial Logistic regression model, providing an in-depth explanation of significant variables.

## 4.2 Descriptive results

### 4.2.1 Socio-economic and demographic characteristics

**Table 4.1: Socio demographic data of respondents**

| Variables | Manna | | Gomma | | Limu Kossa | | Mean | |
|---|---|---|---|---|---|---|---|---|
| | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D |
| Years lived in the area | 45.98 | 8.66 | 44.78 | 11.98 | 40.5 | 7.58 | 43.75 | 9.8 |
| Farming experience | 26.07 | 8.61 | 23.19 | 11.20 | 23.09 | 6.55 | 24.12 | 9.04 |
| Total family size | 4.98 | 1.64 | 4.61 | 1.90 | 3.98 | 1.71 | 4.52 | 1.79 |
| Head age | 47 | 9.31 | 45.42 | 12.45 | 41.59 | 7.02 | 44.67 | 10.05 |

Source: survey result

When we see the results of respondents average year lived in their area, Mana woreda has the highest average with 45.98 year while Limmu kossa woreda has the lowest average with 40.5 years. The overall average number of years that the respondent or household head of the three woredas lived in the areas is 43.75 years. Regarding the average farming experience of respondents, Mana woreda come first with 26.07 years followed by Gomma worreda and Limmu kossa woreda with insignificant difference to each other, which is 23.19 years for Gomma and 23.09 years for Limmu kossa woreda. The result on standard deviation of farming experience shows Gomma woreda has the highest standard deviation with 11.20 and limmu

kossa has the lowest with 6.55. The total average farming experience of respondents in the whole woreda is 24.12 years. The highest average family size among the three woredas recorded in Mana woreda with 5 person and the lowest in Llimmu kossa woreda with 4 person on average. The total average family size of the respondents in the whole woreda is 4.52. 47 yeras is the highest average household head or respondent's age which reecorded in Mana woreda while 41.59 years is the lowest household head or respondent age recorded in Limmu kossa woreda. The total average head age of the woredas is 44.67 years and the total average standard deviation is 10.05.

**Gender and marital status the household head**

Out of 156 respondents, about 92% of respondents are male respondents and the rest are female house hold heads approximately with equal distribution among the three woredas. When we see the marital status of the respondents 70% are married and 20% married with many spouse. Only 4% are widow.

**Educational status of the household head**

**Table 4.2: Education status of respondents by woredas**

| Status | Woreda | | | |
|---|---|---|---|---|
| | Manna | Gomma | Limmu Kosa | Total |
| Illiterate | 12 | 12 | 2 | 26 |
| Read and write | 12 | 13 | 43 | 68 |
| Primary | 18 | 18 | 7 | 43 |
| Secondary | 8 | 8 | 0 | 16 |
| TVET | 2 | 0 | 0 | 2 |
| College and above | 0 | 1 | 0 | 1 |
| Total | 52 | 52 | 52 | 156 |

Source: survey result

As we see from the table 4.2 above 83% of Llimmu kosa respondents can read and write while only 35% of respondents of both Manna and Gomma woreda respondents joined primary education. Limmu kossa woreda has the least number of illiteracy compared to the other woreda. Out of 156 respondents 44% can read and write, 28%able to achieve primary education

level, 17% are illiterate and 10% joined secondary education. This shows that 83% of the respondents can read and write.

**Occupational status of the household head**

Regarding occupation, 93% of respondent's livelihood is farming and only 3% of them are salaried employments. The rests combined farming with petty trade and others household chore jobs.

**Land holding and allocation status of the respondent**

**Table 4.3: Mean land holding status of respondents in hectare**

| Woreda | Own land | Rented in land | Total land |
|---|---|---|---|
| Manna | 2.17 | 0.46 | 2.20 |
| Gomma | 2.45 | 0.86 | 2.63 |
| Limu Kossa | 3.59 | 1.00 | 3.63 |
| Mean | 2.74 | 0.76 | 2.83 |

Source: survey data

Based on the average own land holding of the respondent in the woreads Limmu kossa woreda take the lead with 3.59 hectare, while Manna woreda take the lowest position with own land holding of 2.17 hectare. The average own land holding of the respondent in the three woredas are 2.74 hectare. Regarding the land rented in by the respondent limmu kossa woreda take the first position with 1 hectare and manna woreda take the last position with 0.46 hectare while the average land rented in by the household of the whole woreda is 0.76 hectare. As it is shown in the above table 4.3 the average total land holding of the respondent in the three woredas is 2.83 hectare.

**Table 4.4: Mean land allocation of respondents by woredas in hectare**

| Woredas | Cultivated land | Fallow land | Total coffee land |
|---|---|---|---|
| Manna | 1.50 | 0.63 | 1.81 |
| Gomma | 2.28 | 0.44 | 1.51 |
| Limu Kossa | 2.81 | 0.61 | 2.07 |
| Mean | 2.22 | 0.57 | 1.80 |

Source; survey data

Limmu kossa respondents has the highest land allocated to cultivation which is 2.81 hectare while Manna woreda respondents has the lowest land allocated to cultivation which is 1.5 hectare. 2.22 hectare is the average cultivated land holding of the respondents of the whole woreda. Based on the data shown in the above table 4.4 Gomma woreda respondents has the lowest uncultivated land holding which is 0.44 hectare and Manan woreda respondents has the highest fallow land with 0.63 hectrae. 2.07 hectare is the land allocated for coffee by respondents of Limmu kossa woreda which is the highest of all woredas and 1.51 hectare is the land allocated for coffee by respondents of Gomma woreda which is the lowest of the three woredas. The average land size allocated for coffee by the respondents of all the three woredas is 1.80 hectare.

### 4.2.2 Marketing and institutional characteristics

**Market infrastructure and accessibility of the area**

**Table 4.5: market infrastructures and accessibility**

| Infrastructures | Woredas | | | | | |
|---|---|---|---|---|---|---|
| | Manna | | Gomma | | Limu kossa | |
| | km | Minutes | km | Minutes | km | Minutes |
| Distance to the nearest village market | 1.66 | 22 | 5.27 | 34 | 2.73 | 38 |
| Distance to the nearest main market | 6.7 | 90 | 20.1 | 158 | 5.11 | 52 |
| Distance to the ECX | 32 | 421 | 34.15 | 262 | 77 | 1028 |
| Distance to farmers cooperatives | 3.3 | 33 | 9 | 76.15 | 4.35 | 40.11 |
| Distance to agricultural extension office | 5.6 | 72 | 10.7 | 122 | 4.28 | 79 |

Source; survey data

Result in the above table 4.5 shows that, Gomma woreda respondents went a longer distance to reach to the nearest village market which is 5.27 km, while Manna woreda respondents take the shorter distance with 1.66 km. Comparative to the three woredas, Gomma woreda respondent

have to take the longest distance to reach the nearest main market which is 20.1 km while Limmu kossa woreda respondents take the shortest distance, which is 5.11 km. Limmu kossa woreda are the leader in taking a longer journey to reach to the ECX with a distance of 77 km and Mana woreda respondents are the last with 32 km. To reach the nearest farmers cooperatives Gomma woreda respondent have to went a distance of 9 km which is the highest of all woredas while it takes only 3.3 km for the respondent of Mana woreda which makes it the lowest of all woredas. The highest distance to reach to the agricultural extension office is 10.7 km which is recorded in Gomma woreda while the lowest is 4.28 km which is recorded in Limmu kossa woreda. The single trip transport cost to the main market is ETB 12.5, 15.30 and 15 for Manna, Gomma and Limu kossa respectively.

**Coffee type, ratio and price provided in the area**

**Table 4.6: Coffee type and ratio provided to the market in percentage for woredas**

| Coffee type | Woredas | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Manna | | Gomma | | Limu Kossa | | | |
| | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D |
| Pulped | 56 | 19.5 | - | - | - | - | 56 | 19.5 |
| Jenfel | 72.2 | 16.8 | 79.0 | 14.8 | 74.5 | 14.1 | 75.2 | 15.4 |
| Red | 22.8 | 8.7 | 24.2 | 13.2 | 27.4 | 12.7 | 24.8 | 11.7 |

Source; survey data

The average ratio of Pulped coffee provided in the market by manna woreda is 56 while the standard deviation is 19.5. Since, Pulped coffee is not produced in other two woredas it can't be estimated hence the result can be taken as total. When we look at the type Jenfel the highest average ratio that provided in the market is recorded in Gomma woreda around 79 and the highest/lowest standard deviation recorded at Manna woreda(16.8) /Limmu kossa woreda(14.1). From the value of red coffee we seen in the above table 4.6 we can say that Limmu kossa woreda provide the highest average ratio of Red coffee to the market that is 27.4 and Manna woreda provides the lowest average ratio of Red coffee to the market which is 22.8. Regarding standard deviation of ratio of Red coffee provided in the market Gomma woreda have the highest ratio (13.2) and Manna woreda has the lowest that is 8.7. Over all as we can see from the table above Mana woreda is the only provider of pulped coffee type to the market. From the total average of coffee provided to the market 75.2% are Jenfel or Buni and 24.8% are Red.

**Table 4.7: Coffee market frequency and price of the study area**

| Woreda | Frequency | | Price | |
|---|---|---|---|---|
| | Buni | Red | Buni | Red |
| Manna | 2.71 | 14.01 | 25.02 | 10.51 |
| Gomma | 2.40 | 6.22 | 26.04 | 10.69 |
| Limu Kossa | 5.29 | 5.11 | 23.31 | 10.02 |
| Mean | 3.47 | 8.66 | 24.79 | 10.41 |

Source; survey data

Regarding coffee market frequency, the average Buni coffe frequency provided to the market by all three woredas are 3.47 times while the average Red coffee frequency provided in the market is 8.66 times. The highest price of Buni coffee recorded in Gomma woreda which is 26.04 ETB and the lowest price in Limmu kossa woreda that is 23.31 ETB, while the average price of Buni coffee provided to the market in the three woreda is 24.79 ETB. When we look at the price of Red coffee that exist in the woredas, there is no that much visible difference in the price of Red coffee set in the woedas, the highest is 10.69 ETB in Gomma woreda and the lowest is 10.02 ETB in Limmu kossa woreda, while the average price of Red coffee is 10.41ETB.

Regarding coffee price, survey respondents were asked to evaluate coffee price over years and 62% responded it as improving and 24.5% as mild and the rest 13.5% responded as deteriorating.

**Main Coffee market outlet in the area**

**Table 4.8: main coffee market outlets in the area known by respondents**

| Outlets | Frequency | Valid percent |
|---|---|---|
| Individual traders | 107 | 68.6 |
| Cooperatives | 7 | 4.5 |
| Individual traders and cooperatives | 36 | 23.1 |
| ECX agent, individual traders and cooperatives | 6 | 3.8 |

Source; survey data

Individual traders are the main coffee market outlet in the area known by the respondent with 68.6 % followed by the combination of both individual trader and cooperatives with 23.1% and the rest percent is filled by the addition of cooperatives on the combination of ECX, individual traders and cooperatives

Respondents were also asked whether they have awareness about ECX and 82.1% responded that they know ECX, its jobs and advantages over individual traders. The source of information about ECX were from DAs, local coffee traders and TV or radio (23.3%) and TV/radio (19.4%) and the rests were informed from combinations of DA, cooperatives, PAs, local coffee traders, TV/Radio and journals. About 78.3% of respondents raised ECX coffee marketing system as better as compared to the previous coffee marketing system and only 17.8 raised the same as the previous and the rest responded poor marketing system.

**Coffee production, consumption and sale**

**Table 4.9: Mean coffee production, consumption and sales in the study area in kg**

| Woreda | Production | Consumption | | Sales | | Gift (in kind | | Payment for labor(in kind) | |
|---|---|---|---|---|---|---|---|---|---|
| | Buni | Buni | Red | Buni | Red | Buni | Red | Buni | Red |
| Manna | 3369.87 | 56.32 | 20.21 | 2108.96 | 1023.72 | 31.91 | 14.76 | 55.43 | 34.33 |
| Gomma | 1478.14 | 122.36 | 113.33 | 1102.49 | 601.36 | 15.29 | 20 | 146.37 | 20 |
| Limu Kossa | 1476.02 | 118.37 | 104.0 | 1079.17 | 322.87 | 32.65 | 50.22 | 188.7 | 20 |
| Mean | 2119.71 | 96.38 | 35.19 | 1425.83 | 663.27 | 28.92 | 28.69 | 133.12 | 28.13 |

Source; survey data

When we look at the production of Buni coffee among the woredas, Manna woreda produced the highest which is 3369.87 kg and both Limmu kossa and Gomma woreda produced the lowest which is 1476.02 and 1478.14 kg. The averge Buni coffe produced in the three woredas are 2119.71kg. Gomma woreda is the higehest consumer of both Buni and Red coffee with 122.36 and 113.3 kg, while the lowest consumption is recorded in Mana woreda with 56.32 kg of Buni and 20.21kg of Red. The average consumption of Buni and Red coffee in the three woredas are 96.3kg and 35.19kg. Manna woreda is the laeder of Buni and Red coffee sales with 2108 and 1023kg, and sales of 1079.17 kg Red coffee and 322.87 kg of Buni coffee recorded in Limmu kossa woreda is the lowest. The average sales recorded on the three woredas are 1425.83 kg Buni and 663.27 kg Red. The highest gift donator of the three woredas is Limmu kosssa with 32.65kg Buni and 50.22 kg Red. Regarding in kind payment of Buni coffee for labor Limmu kossa woreda found on the top with 188.7kg and Manna woreda found on the bottom with 55.43kg.on the other hand Manna woreda paid the highest amount of Red coffee for labor which is 34.33kg followed by both woreda with 20kg. The average amount of Buni and Red coffee paid in kind by the woredas are 133.12 and 28.13 kg.

**Table 4.10: Mean farmers coffee production status from 2003-2007 E.C in Kg**

| Woreda | Production year | | | | |
|---|---|---|---|---|---|
| | 2003 | 2004 | 2005 | 2006 | 2007 |
| Manna | 819 | 1328.4 | 1179 | 2419.2 | 1021.2 |
| Gomma | 948 | 1155.6 | 931.8 | 1294.2 | 841.2 |
| Limu Kossa | 1174..8 | 1324.2 | 1225.2 | 1352.4 | 1323.0 |
| Mean | 981.6 | 1270.2 | 1113.0 | 1689.0 | 1061.4 |

Source; survey data

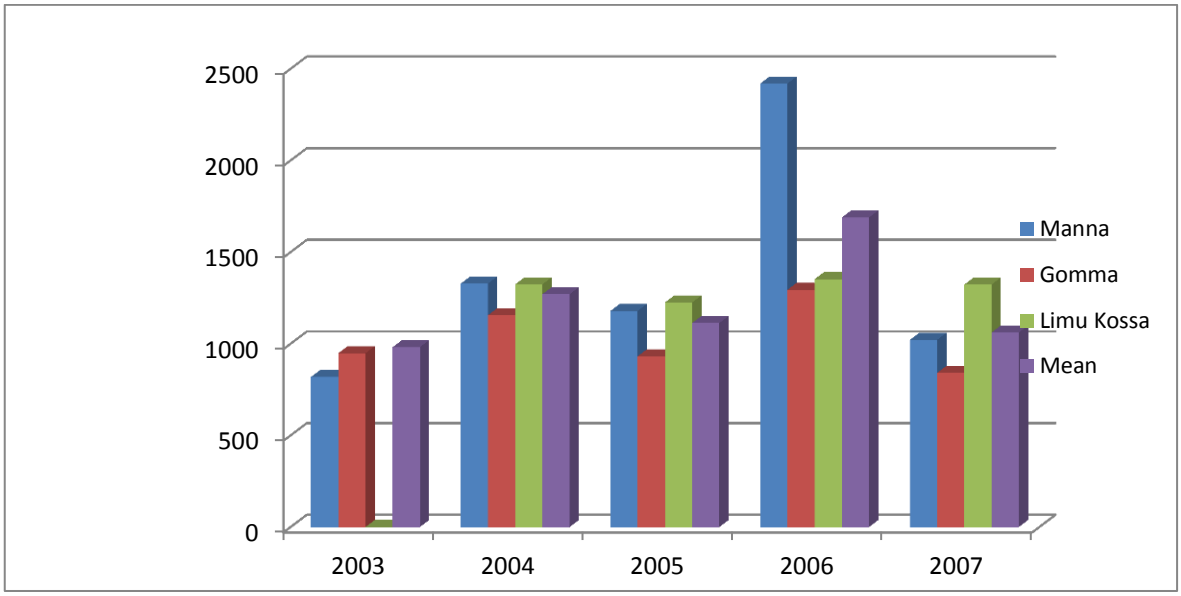


Figure 4.1: mean coffee farmer production status from 2003-2007 E.C. in kg

In the year 2003, 2005 and 2007 the highest coffee production recorded at Limmu kossa woreda with 1174.8, 1225.2 and 1323 kg. In the year 2004, 2005, 2006 and 2007 the lowest coffee production recorded in Gomma woreda with 1155.6, 931.8, 1294.2 and 841 kg. In the year 2004 and 2006 Manna woreda take the lead from Limmu kossa woreda by producing1328.4 and 2419.2kg. The only year that makes Manna woreda the least producer is 2003 with 819 kg. As we can see from the above table 13 and figure the average production of coffee over the past five year shows yoyo pattern. The year 2006 is the highest average coffee production year in comparison with the rest.

The respondents were also asked whether their income from coffee were increased or decreased in the past five years from 2003 to 2007 E.C. Accordingly, 75% responded their income has increased while 15.4% responded no change on their income from coffee and only 9% said their income from coffee has decreased. This shows that most of the farmer able to get increment in their income from coffee over the past five years. They were also asked the reason for the increment of the income and 38.5% raised improvement in production per hectare as a main reason for increment and 25.6% raised management improvement as the reason of improvement in income. 21% of respondents raised improvement in quality and production and 14.5% raised quality improvement as a reason for the improvement in income.

**Table 4.11: Coffee market type farmers used to sale their product (coffee)**

| Market type | Red | | Buni | |
|---|---|---|---|---|
| | Frequency | Valid percent | Frequency | Valid percent |
| Farm gate | 14 | 9.9 | 2 | 1.3 |
| Village market | 115 | 81.0 | 93 | 59.6 |
| Main market | 7 | 4.9 | 61 | 39.1 |
| Village and main market | 6 | 4.2 | - | - |

Source: survey result

Based on the table 4.11 shown above 81% of respondents used Village market to sell Red coffee, while 59.6% of respondent used the same market to sell Buni coffee. 39.1% of respondent used Main market to sell their Buni coffee, while 4.9% respondents use the same market to sell Red coffee. The respondent sold 9.95% of Buni and 1.3% of Red coffee to the Farm gate. On other hand 4.25 of Red coffee sold in the combination of Village and Main market. This shows most of the respondent prefer to sell their coffee at Village market.

Regarding solder, about 73.2% of Red coffee were sold by both male and female and 22.5% were sold by male alone and 4.2% sold by women alone. This show both male and female has relatively power on their Red coffee despite on some respondents. When we see solder of Buni coffee 51.3% of coffee were sold by male alone and 46.2% sold by both female and male and only 2.6% female sold their coffee.

About 23.2% of farmers sold their Red coffee on November and 40.1% of respondents sold their coffee from October to December. The rests sold their coffee on December and January based on agro ecology of the area and maturity time of coffee. However, about 21.2% of respondents sold Buni coffee on February and 20% sold from November to January and the rests sold from January to July.

Respondents were also asked whether coffee traders come to buy their coffee at farm gates and 18.6% of respondents raised brokers or assemblers and cooperatives have come to their farm gate. About 17.3% responded broker and consumers and the rest responded a combination of wholeseller, consumer, cooperatives and brokers as visited their farm gates to buy their coffee.

**Table 4.12: Buyer of coffee by coffee types**

| Buyer | Red | | Buni | |
|---|---|---|---|---|
| | Frequency | Valid percent | Frequency | Valid percent |
| cooperatives | 59 | 41.5 | 5 | 3.2 |
| consumers | 6 | 4.2 | 7 | 4.5 |
| Brokers or Assembler | 6 | 4.2 | 4 | 2.6 |
| Rural coffee trader | 30 | 21.1 | 59 | 37.8 |
| Urban coffee trader | 17 | 12.1 | 62 | 39.7 |
| Rural and Urban coffee trader | 1 | 0.7 | 2 | 1.3 |
| Coop+ Consumer+ broker | 23 | 16.2 | 17 | 10.9 |

Source: survey result

Cooperatives take the leading position on buying most percent of Red coffee sold by the respondent with 41.5% while rural coffee trader and the combination of coop, consumer and broker take the 2nd and 3rd position with 21.1% and 16.2%. Regarding Buni coffee Urban coffee trader take most of the share by buying 39.7% of the coffee type sold to the market, followed by Rural coffee trader that bought 37.8% of the coffee type. This result shows that most respondent prefer cooperative or farmer group to sell their production of Red coffee and they choose rural and urban coffee trader to their Buni coffee sell.

About 74.6% of respondents used donkey as a mode of transport of Red coffee and 9.7% of them used back or head load and the rests used, cart, bicycle and hired truck for transporting Red coffee to the market place or buyer. However, 70.5% of respondents used donkey as a main transport mode for Buni coffee while 14.1% used back or head load. The rests used cart, bicycle, hired truck and public transport. In general the result from the respondent mode of transportation for coffee shows most of the respondent uses donkey as their main mode of transport for both Red and Buni coffee marketing.

Regarding market information, almost all (99.4%) of respondents get information about the coffee market and price before they decide to sell through different information channels. Accordingly, 33.3% provided information through discussion and 22.4% though the

combination of discussion and telephone and 19.2% through telephone and the rests are through the combinations of observation, discussion and telephone.

Despite different market outlets, producers prefers different market channel. About 46.5% of respondents do not sell their coffee to brokers because they believe, the price is very low. The rests believe brokers unreliable scale or weight and then sold the whole to the market. On other hand, 68.5% the respondents does not sold to whole sellers because they does not come to their farm gates and 23.6% believe low price collected from them and the rest combines unreliable scale and poor quality coffee supplied to them.

On other hand, 65.4% the respondents does not sold to cooperatives because they does not come to their farm gates and 16.5% believe low price collected from them and the rest combines unreliable scale and poor quality coffee supplied to them and sold the whole to the market. Lastly, producers does not sold to the consumers because 48.8% of them responded consumers does not come and 36.4% believe that low price expected and the rest reason out unreliable scale and sold the whole to the market.

The respondents were also asked their reason for the preference of coffee market outlet and 30.5% raised accessibility of the market and 14% raised optimum price collected from the outlet. The rest of respondents responded least cost, fairness and lack of other alternative as a reason for the preference of the outlet.

### 4.3 Econometric results

As mentioned on descriptive statistics, farmers were preferred to sale their coffee for different market outlets such as Cooperatives, Middlemen, Rural coffee traders and Urban coffee traders and Combinations of the outlets. The preference of these depends on different socio economic and demographic factors. The multinomial Logit model was used to determine the factors influencing the choice of coffee marketing outlets in Jimma zone. The significant value (also known as p-values) show whether a change in the independent variable significantly influences the Logit at a given level (Gujarati, 2007).

### 4.3.1 Preference of farmers of Buni coffee market outlets

The variables included in the estimation were: farm experience, distance to main market, distance to village market, age of the head, distance from cooperatives, price of Buni coffee and single trip transport cost to the main market.

The output of the model describes the Chi-square value of 202.34 showed that likelihood ratio statistics are highly significant (P<0.000) suggesting that the model had strong explanatory power. The pseudo-R square was 0.785 (Naglekerke) indicating the explanatory variable explained about 78.5 % of the variable in the choice of market outlets.

The result shows that distance to village market and distance to cooperatives negatively and significantly related to preference to cooperatives, as distance decreases the preference of the outlet directly related to cost of transportation. On other hand price of Buni coffe., distance to main market in km and transportation cost to main market have positive and significant impact on the preference of the outlet. Staal et al. (2006) found out that the better the price offered by milk market channel, the more a household prefers that outlet for accessing and selling milk.

**Table 4.13: Preference of farmers for cooperatives as a market outlet of Buni coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -38.12 | 13.24 | 0.004 | |
| Farm experience | -0.143 | 0.177 | 0.418 | 0.867 |
| Distance to village market in km | -2.013 | 0.769 | 0.009*** | 0.134 |
| Distance to main market in km | 0.902 | 0.455 | 0.047** | 2.466 |
| Distance to cooperatives in km | -1.018 | 0.574 | 0.076* | 0.36 |
| Head age | 0.252 | 0.175 | 0.148 | 1.287 |
| Price of Buni coffee | 0.853 | 0.443 | 0.054* | 2.347 |
| Transport cost to main market | 0.539 | 0.239 | 0.024** | 1.715 |

Number of observations = 156 Wald chi $^2$: 202.34
Prob > Chi$^2$= 0.000
Pseudo $R^2$= 78.5
Log likelihood = 201.23
*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

The result also shows that farmers usually prefers brokers or middlemen to sell their Buni coffee when transport cost to the main market is high as its coefficient is positive (0.518) which is statistically significant at 1%. In addition, when farmers are distant from cooperatives and main market, the preference of this outlet increases as the variables have a positive and significant coefficient. Magogo, Juma Riziki etal. (2015) found an increase in distance by one kilometer to the nearest agricultural produce market increases the likelihood of selling to the brokers outlet because as distance increases, the cost of transporting the AIVs to the alternative marketing outlet increases and thus the agro-pastoral Maasai decide to sell to brokers because the brokers cater for these cost.

**Table 4.14: Preference of farmers for Brokers as a market outlet of Buni coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -27.384 | 14.763 | 0.064 | |
| Farm experience | 0.156 | 0.257 | 0.543 | 1.169 |
| Distance to village market in km | -0.524 | 0.677 | 0.440 | 0.592 |
| Distance to main market in km | 0.844 | 0.469 | 0.072* | 2.325 |
| Distance to cooperatives in km | 1.046 | 0.582 | 0.072* | 2.847 |
| Head age | 0.193 | 0.234 | 0.410 | 1.213 |
| Price of buni coffee | 0.053 | 0.493 | 0.915 | 1.054 |
| Transport cost to main market | 0.518 | 0.196 | 0.008*** | 1.679 |

Number of observations = 156 Wald chi $^2$: 202.34
Prob > Chi$^2$= 0.000
Pseudo R$^2$= 78.5
Log likelihood = 201.23
*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

The result of multinomial regression model also tried to investigate who prefer to sell its Buni coffee to Rural coffee traders. Accordingly, those farmers who are far from the nearest village and main coffee market prefer to sell their product to outlet other than the rural coffee traders as the variable has a negative and significant coefficient. Nkori (2004) and Mburu et-al (2007) observed that the longer the distance to selling point, ceteris paribus the higher the transaction costs which in turn negatively influence producers' participation in a particular marketing channel.

On other hand, as farmers are far from cooperatives and when transport cost increases, the likelihood of them to sell their coffee to rural market is high as coefficients are positive. Age, a demographic factor were also considered whether it has an impact on market preference and found that it has a positive coefficient of 0.288(exp=1.33) meaning a one year increase on the age of the farmer increases the preference of farmers to sell for the rural market by 1.33 times.

**Table 4.15: Factors affect rural coffee trader's market preference for Buni coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -22.720 | 10.545 | 0.031 | |
| Farm experience | -0.056 | 0.137 | 0.682 | 0.945 |
| Distance to village market in km | -1.172 | 0.515 | 0.023** | 0.310 |
| Distance to main market in km | -0.879 | 0.451 | 0.051* | 0.415 |
| Distance to cooperatives in km | 1.033 | 0.559 | 0.065* | 2.811 |
| Head age | 0.288 | 0.151 | 0.056* | 1.334 |
| Price of buni coffee | 0.251 | 0.304 | 0.409 | 1.285 |
| Transport cost to main market | 0.355 | 0.185 | 0.054* | 1.427 |

Number of observations = 156 Wald chi $^2$: 202.34

Prob > Chi$^2$= 0.000
Pseudo $R^2$= 78.5
Log likelihood = 201.23
*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

The table below shows factors related to the preference of Buni market outlet related to urban traders. The lower the distance to village coffee traders, the higher the preference to the outlet. Berhanu and Moti (2010) found out negative relationship between market participation and distance to the nearest urban market center. On other hands distance to main market, head age, high transport cost and high price of coffee drives the farmers to prefer this market outlet summarized below.

Single trip transport cost had a positive influence on the choice of urban trader. An increase in transport cost increases unit increases the probability of selling the Buni coffee yield in the urban market by 1.38 times or by 32%.

**Table 4.16: Factors affect Urban coffee traders market preference for Buni coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -37.66 | 11.012 | 0.001 | |
| Farm experience | -0.105 | 0.138 | 0.447 | 0.900 |
| Distance to village market in km | -1.365 | 0.511 | 0.008*** | 0.255 |
| Distance to main market in km | 0.823 | 0.452 | 0.069* | 2.278 |
| Distance to cooperatives in km | 0.904 | 0.561 | 0.107 | 2.469 |
| Head age | 0.299 | 0.151 | 0.048** | 1.349 |
| Price of Buni coffee | 0.976 | 0.331 | 0.003*** | 2.653 |
| Transport cost to main market | 0.321 | 0.182 | 0.078* | 1.379 |

Number of observations = 156 Wald chi $^2$: 202.34
Prob > Chi$^2$= 0.000
Pseudo $R^2$= 78.5
Log likelihood = 201.23
*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

In addition to those common coffee market outlets, some farmers also prefer to sell their coffee to other farmers or to consumers. Those significant factors related to this are distance to cooperative, farm experience, age of the household and transportation cost to the main market. The high the transport cost, the more farmers are experienced and high the distance from the cooperative; the high the willingness to sell for farmers around or consumers to save the transport cost. But as the age of the farmers increases their preference for other farmer or consumer decreases. Okoye *et al.* (2010), Salasya and Burger (2010) and Ohajianya and Ugochukwa (2011) also found an increase in distance to the market to increase on-farm sales and reduce sales to distant markets. Gebregziabher (2010) indicated that households located far from the market, incurred high transportation and other related costs which discouraged them from marketing in distance markets. Lapar *et al.* (2003), Bellamare and Bareth (2006), Gani and

Adeoti (2011) also have the view that marketing cost often increases with long distance and poor infrastructure. Staal *et al.* (2006) included the variable (dairy farming experience) in probit model and found out that the variable revealed positive relation to milk market participation and market outlet choice.

**Table 4.17: Factors related to preference of other farmers (consumers) as a market outlet for Buni coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -3.786 | 20.65 | 0.855 | |
| Farm experience | 0.686 | 0.295 | 0.020** | 1.986 |
| Distance to village market in km | 0.665 | 0.664 | 0.317 | 1.944 |
| Distance to main market in km | 0.028 | 0.590 | 0.962 | 1.029 |
| Distance to cooperatives in km | 1.205 | 0.622 | 0.053* | 3.336 |
| Head age | -0.507 | 0.311 | 0.013** | 0.602 |
| Price of Buni coffee | -0.070 | 0.745 | 0.925 | 0.932 |
| Transport cost to main market | 0.562 | 0.202 | 0.005** | 1.755 |

Number of observations = 156 Wald chi $^2$: 202.34

Prob > Chi$^2$= 0.000

Pseudo R$^2$= 78.5

Log likelihood = 201.23

*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

### 4.3.2 Preference of farmers for Red coffee market outlets

The variables included in the estimation were: farm experience, distance to main market, distance to the nearest village market, age of the head, distance from cooperatives, price of Red

coffee and single trip transport cost to the main market. The output of the model describes the Chi-square value of 207.045 showed that likelihood ratio statistics are highly significant (P<0.000) suggesting that the model had strong explanatory power. The pseudo-R square was 0.812 (Naglekerke) indicating the explanatory variable explained about 81.2 % of the variable in the choice of market outlets.

The result shows that distance to the village market is positively and significantly related to the preference for cooperatives. The high the distance of the farmer to village market the probability of the farmer to sell for the cooperative increases by 7.91 times which is the same as increase in transportation cost to the main market with only different magnitude. On other hand, as the age of the farmer increases, the preference to sell for cooperatives increases by 1.25 times as a positive coefficient from the variable. Staal *et al.* (2006) and Berhanu *et al.* (2013) also found a positive relationship of experience in dairy farming and the choice of a more profitable milk marketing outlet, number of years a household has been in dairy farming positively and significantly affected accessing cooperative milk market outlet as compared with accessing individual consumer milk market outlet. This is also in agreement with Chelang'a *et al.* (2013) who also contend that experience comes with knowledge. However, when the price of Red coffee increases, they prefer another market outlet than the cooperatives as a negative coefficient. Berhanu *et al*. (2013) also found Price offered by milk market outlet per liter of milk significantly and negatively affected accessing cooperative milk market outlet as compared with accessing individual consumer milk market outlet.

**Table 4.18: Preference of farmers for Cooperatives as a market outlet of Red coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -4.435 | 7.43 | 0.551 | |
| Farm experience | -0.159 | 0.123 | 0.195 | 0.853 |
| Distance to village market in km | 2.068 | 0.622 | 0.001*** | 7.91 |
| Distance to main market in km | 0.158 | 0.271 | 0.561 | 1.171 |
| Distance to cooperatives in km | -2.025 | 0.843 | 0.016** | 0.132 |
| Head age | 0.225 | 0.126 | 0.074* | 1.252 |
| Transport cost to main market | 1.202 | 0.373 | 0.001*** | 3.328 |
| Price of red coffee | -1.540 | 0.774 | 0.047** | 0.214 |

Number of observations = 156 Wald chi $^2$:219.27

Prob > Chi$^2$= 0.000

Pseudo $R^2$= 81.2

Log likelihood = 207.045

*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

On other hands small aged farmers prefer brokers to sell their coffee as a negative coefficient from the variable being. Berhanu *et al*. (2013) found that young aged household head is hypothesized to affect accessing hotel/restaurant milk market outlet choice positively as compared with accessing other milk market outlets. Paradoxically being distant from the cooperatives and single trip transportation cost from main market has positive and significant impact on the preference for brokers as Red coffee market out let.

**Table 4.19: Preference of farmers for Brokers as a market outlet of Red coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -9.273 | 10.670 | 0.385 | |
| Farm experience | -0.022 | 0.188 | 0.909 | 0.979 |
| Distance to village market in km | -0.358 | 0.712 | 0.616 | 0.699 |
| Distance to main market in km | -0.044 | 0.307 | 0.886 | 0.957 |
| Distance to cooperatives in km | 2.017 | 0.862 | 0.019** | 7.519 |
| Head age | -0.096 | 0.178 | 0.0590* | 0.91 |
| Transport cost to main market | 1.198 | 0.375 | 0.001*** | 3.313 |
| Price of Red coffee | -1.478 | 0.953 | 0.121 | 0.228 |

Number of observations = 156 Wald chi $^2$:219.27

Prob > Chi$^2$= 0.000

Pseudo $R^2$= 81.2

Log likelihood = 207.045

*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

Even though most of peoples used rural coffee traders as a market outlet to sell their Red coffee, there were core variables which affect farmers' preference for it. The larger the farm experience drives the farmer out to use the rural coffee traders by 0.932 times and being distant from the cooperatives lead them to choose the rural market traders by 6.936 times which is the same as high transport cost from main market since positive coefficients from the variables.

**Table 4.20: Preference of farmers for rural coffee traders as a market outlet of Red coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -11.291 | 7.970 | 0.157 | |
| Farm experience | -0.071 | 0.126 | 0.0573* | 0.932 |
| Distance to village market in km | -0.510 | 0.638 | 0.424 | 0.601 |
| Distance to main market in km | 0.058 | 0.272 | 0.832 | 1.059 |
| Distance to cooperatives in km | 1.937 | 0.844 | 0.022** | 6.936 |
| Head age | 0.148 | 0.125 | 0.239 | 1.159 |
| Transport cost to main market | 0.989 | 0.375 | 0.008*** | 2.687 |
| Price of Red coffee | -0.891 | 0.774 | 0.250 | 0.410 |
| Number of observations = 156 Wald chi $^2$:219.27 | | | | |
| Prob > Chi$^2$= 0.000 | | | | |
| Pseudo $R^2$= 81.2 | | | | |
| Log likelihood = 207.045 | | | | |
| *** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10% | | | | |

Source: survey result

Some farmers also prefer to sell their Red coffee product for urban coffee traders due to different reasons. When they are far from main market and cooperatives they prefer the urban coffee traders as the variables has a positive coefficient. Symmetrically, when the transportation cost to the main market is high they chooses to sell their product to the urban traders with a coefficient of 1.178 (exp=3.248) meaning as a transport cost increase, the preference to sell to urban traders increase by 3.2 times.

**Table 4.21: Preference of farmers for urban traders as a market outlet of red coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | -5.309 | 7.621 | 0.486 | |
| Farm experience | -0.054 | 0.128 | 0.672 | 0.947 |
| Distance to village market in km | -1.524 | 0.617 | 0.14 | 0.218 |
| Distance to main market in km | 0.085 | 0.272 | 0.0756* | 1.088 |
| Distance to cooperatives in km | 1.828 | 0.845 | 0.031** | 6.220 |
| Head age | 0.115 | 0.129 | 0.370 | 1.122 |
| Transport cost to main market | 1.178 | 0.374 | 0.002*** | 3.248 |
| Price of red coffee | -1.284 | 0.782 | 0.101 | 0.277 |

Number of observations = 156 Wald chi $^2$:219.27

Prob > Chi$^2$= 0.000

Pseudo $R^2$= 81.2

Log likelihood = 207.045

*** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10%

Source: survey result

Farmers sometimes sale their Red coffee to other farmers or consumers due to different factors. The model shows that as the price of Red coffee increases, the preference to sale to other farmers' decreases. It seems just to not waste their time and transportation cost. On other hands, being distant from the village and cooperatives increases the willingness of the farmers to sale their coffee product to outlet other than consumers. Berhanu etal (2013). Found out that households who are at farthest to access hotel/restaurant milk market considered transaction costs of travelling as a hindering factor and thus accessed neighborhood individual

consumer milk market outlet. Farm experience of the farmer is negatively and significantly related meaning more experienced farmers prefer to sell their red coffee to other outlets rather than other neighbor farmers and high transport cost increases the choice of farmers for this outlet.

**Table 4.22: Preference of farmers for consumers (other farmers) as a market outlet of Red coffee**

| Variables | B | Standard error | Significance | Exp(B) |
|---|---|---|---|---|
| Intercept | 20.785 | 16.245 | 0.201 | |
| Farm experience | -0.382 | 0.230 | 0.096* | 0.682 |
| Distance to village market in km | -1.267 | 0.699 | 0.070* | 0.282 |
| Distance to main market in km | -0.414 | 0.471 | 0.380 | 0.661 |
| Distance to cooperatives in km | -2.082 | 0.885 | 0.019** | 0.125 |
| Head age | -0.367 | 0.256 | 0.153 | 0.693 |
| Transport cost to main market | 1.233 | 0.377 | 0.001*** | 3.431 |
| Price of red coffee | -3.103 | 1.264 | 0.014** | 0.045 |
| Number of observations = 156 Wald chi $^2$:219.27 | | | | |
| Prob > Chi$^2$= 0.000 | | | | |
| Pseudo $R^2$= 81.2 | | | | |
| Log likelihood = 207.045 | | | | |
| *** = Statistically significant at 1%; ** = Statistically significant at 5%; * = Statistically significant at 10% | | | | |

Source: survey result

# CHAPTER FIVE

## CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

The study was undertaken with the objective of assessing factors that determine farmers' coffee market outlet preference using coffee farm household survey data from 156 household head and multinomial logistic regression model were analyzed.

Socio demographic characteristics like years lived in the area, farming experience, total family size, and head age were described. The result show that the average year that the respondent lived in the area is 43.75 years. The mean farming experience of the respondent is 24.12 years. The average family size of the woredas is 4.52, while the mean head ages of the respondent are 44.67 years.

Gender shows that 92% of the respondents are male while the rest 8% are female. Educational level show that 44% of respondent can read and write 28% attained primary education level, 17% are illiterate and 10% attained secondary education level.

The average land sizes allocated for coffee by the respondents are 1.80 hectare. 3.22 km is the mean distance that the farmers have to go to reach village market and 10.64 km is the average distance that it takes the farmers to reach the nearest main market, while they have to go an average of 5.5 km to get the destination of farmers' cooperatives.

From the total average of coffee provided to the market 75.2% are Buni and the rest 24.8% are Red. The average price of Buni coffee delivered to the market is 24.75 ETB while the average price of Red coffee is 10.41 ETB. Regarding market information almost all (99.4%) of farmers get information about the coffee market and price through different channels before they decided to sell. The main coffee market outlet preferred by the farmers in the area is individual trader followed by cooperatives. According to the reason behind preference of coffee market outlet 30.5% of the farmers mentioned accessibility of the market outlet as the main reason and 14% mentioned optimum price collected from the outlet while the rest reason out least cost, fairness and lack of other alternative as their main reason.

This study specifically focused on the determinants of farmers' coffee market outlet choice. Based on the outcome of multinomial logistic regression model, the main factor that determine farmers choice of coffee market outlet in Jimma zone are: farming experience, age of head, price of coffee, distance to the nearest village market, distance to the nearest main market, distance to cooperatives and single transport cost to the main market.

Five factors were found to be significance in determining farmer preference of cooperatives as Buni coffee market outlet: distance to main market, transportation cost to the main market and price of Buni determine positively and significantly while distance to village market and distance to cooperative determines negatively and significantly, which means as the distance to village market increase the preference of farmers for cooperatives decreases.

Three factors were found to be significant in determining farmers' preference of broker or middlemen as Buni coffee market outlet: transportation cost, distance from cooperatives and distance from main market determines positively and significantly.

Five factors were found to be significant in determining farmers' preference of rural coffee trader as Buni coffee market outlet: distance to village market and distance to main market determines negatively and significantly, while distance to cooperatives, age of head and transportation cost determines positively and significantly.

Five factors were found to be significant in determining farmers preference of urban coffee trader as Buni coffee market outlet: distance to main market, head age, transportation cost and price of Buni determines positively and significantly while distance to village market determines negatively and significantly which means as the distance to village market increase farmers preference of urban coffee trader for Buni coffee increases.

Four factors were found to be significant in determining farmer preference of consumer or other farmers as Buni coffee market outlet: distance to cooperatives, farm experience and transportation cost to the main market determines positively and significantly while age of head determine negatively and significantly, which means as the age of head increases farmers preference of other market outlet, rather than consumer or neighbor farmer, for Buni coffee increases.

Five factors were found to be significant in determining farmers preference of cooperatives as Red coffee market outlet: distance to village market, age of head and transportation cost to the main market determines positively and significantly while price of Red coffee and distance to cooperative determines negatively and significantly, which means as the price of red coffee increases the preference of farmers to lookout for other market outlet, other than cooperatives, increases.

Three factors were found to be significant in determining farmers preference of brokers as Red coffee market outlet: distance from cooperatives and transportation cost determine positively and significantly while age of head determines negatively and significantly, which means as the age of head increase farmers preference for brokers decreases.

Three factors were found to be significant in determining farmers' preference of rural coffee trader as Red coffee market outlet: distance from cooperative and transportation cost determines positively and significantly while farming experience of farmers determines negatively and significantly which means as the farming experience of the farmers increase the farmers' preference for rural coffee trader decreases.

Three factors were found to be significant in determining farmers' preference of urban coffee traders as Red coffee market outlet: distance from main market, distance from cooperatives and transportation cost to the main market determines positively and significantly.

Five factors were found to be significant in determining farmers preference of other farmers or consumers as Red coffee market outlet: price of Red coffee, distance from village market, distance from cooperatives, and farming experience to the main market determines negatively and significantly while transportation cost to the main market determines positively and significantly. This means more experienced farmers prefer to sell their Red coffee to other outlet rather than their neighbor farmer or consumer.

## 5.2 Recommendation

Price is an important factor observed to determine coffee farmers' choice of marketing outlet. Implying that with knowledge on prices farmers are more likely to choose wisely on the appropriate outlet. Coffee price information therefore needs to be available to the coffee farmers possibly at all times. This may be done through agricultural extension service providers or development agent.

Distance from the farm to market significantly determines farmer preference of coffee market outlet decisions, government should ensure developing markets for coffee farmers within reach this will motivate a lot of farmers to participate in coffee supply chain their by increase their income and subsequently change their livelihood. Farmers do not want to travel long distances because there will be more transaction costs. Poor infrastructure was noted to be a hindrance in marketing of coffee and this study recommend the improvement of the infrastructure to enhance coffee marketing.

The results of the study shows that the farmers prefer broker or middlemen as their market outlet because transportation cost and distance from cooperative is high so the study recommend the establishment of cooperatives within reach of the farmers then they will be free from the abuse of brokers.

Experience variable is also an important factor observed to determine choice of coffee farmers marketing outlet. Implying that coffee farmers which are more experienced participate in marketing outlet which are more beneficiary because they are aware of the benefits. Farmers with little experience may be trained on how to market their coffee in different outlet as well as benefits associated with these outlets.

# BIBLOGRAPHY


Abu Tefera, USDA foreign agricultural research service. Coffee annual report. Gain report no. ET1202/2012

Adegbola, P. and Gardebroek, C. (2007). The Effect of Information Sources on Technology Adoption and Modification Decisions. Journal of Agricultural Economics, 37 (1): 55-65.

Alene, A.D., Manyong,V.M., Omanya, G.,Mignouma, H.D., Bokanga, M. and Odhiambo, G.(2008). Smallholder Market Participation under Transactions Costs: Maize Supply and Fertilizer Demand in Kenya. Journal of Food Policy, 33:318–28.

A.Antenehe, R.Muradin, R, Rubben.(2011). Factors Affecting Coffee Farmers Market Outlet Choice. The case of Sidama zone, Ethiopia.

ARDO. 2008. Annual Report of Agriculture and Rural Development Office of Gomma woreda, for year 2007/2008, Agaro, Gomma.

ARDO. 2008. Annual Report of Agriculture and Rural Development Office of Manna woreda, for year 2007/2008, Yebbu, Manna.

ARDO. 2008. Annual Report of Agriculture and Rural Development Office of Limmu Kossa woreda, for year 2007/2008, Limmu, Limmu Kossa.

Barker, J., 1989. Agricultural Marketing. Oxford University Press. New York.

Barret, C.B. (2009). Smallholder Market Participation: Concepts and Evidence from Eastern and Southern Africa. *Journal of Food Policy*, 33: 299-317.

Bellemare, M. F. and Barrett, C. B. (2006). An ordered tobit model of market participation: Evidence from Kenya and Ethiopia. *American Journal of Agricultural Economics,* 88(2), pp. 324–337.

Berhanu G, Moti J (2010). Commercialization of smallholders: does market orientation translate into market participation? Improving Productivity and Market Success (IPMS) of Ethiopia farmer project working paper 22. Nairobi Kenya, ILRI.

Berhanu, K., Derek, B., Kindie, G. and Belay, K. (2013). Factors affecting milk market outlet choices in Wolaita zone ,Ethiopia. *African Journal of Agricultural Research*, 8(21), pp. 2493–2501.

Berry T. (2010) Channel Marketing Moves Goods from Producer to Consumer: Available at www. Mplans. Com

Bijman, J., R. Delnoye and G. Ton (2007), 'The rise of new rural producer organizations in China', in: Giel Ton, Jos Bijman, and Joost Oorthuizen, Producer Organisations and Chain Development: Facilitating Trajectories of Change in Developing Countries, Wageningen: Wageningen Academic Publishers.

Chelang'a, P. K., Obare, G. A. and Kimenju, S. C. (2013). Analysis of urban consumers' willingness to pay a premium for African Leafy Vegetables (ALVs) in Kenya: a case of Eldoret Town. *Food security*, 5(3),pp. 273-279.

Demeke, T. (2007). "Performance of coffee marketing co-operatives and members' satisfaction in Dale district: SNNPRS-Southern Ethiopia". A Thesis Submitted to the School of Graduate Studies In Partial Fulfilment of the Requirements for the Degree of Master of Science in agriculture, Haramaya University.

Demel Teketay; Manfred Denich; Tadesse W/mariam and Vlek, P.L.G. 2002. Human impacts on Coffea arabica L. genetic pools in Ethiopia and the need for its in situ conservation. In: Engels, J.M.M. Rao, V.R. Brown, A.H.D. and Jackson, M.T. (Eds.), Managing Plant Genetic Diversity. AB International/IPGRI, Rome. pp. 237-247.

Dempsey, J., and Campbell, R., 2006. A Value Chain Approach to Coffee Production: Linking Ethiopian Coffee Producers to International Markets. (ACDI/VOCA) Technical Bulletin. Addis Ababa: Ethiopia.

Dorsey, J. & Tesfaye Assefa. 2005. Final Evaluation Report of Agricultural Cooperatives in Ethiopia(ACE)ProgramActivities.Washington,D.C.:USAID.(http://pdf.usaid.gov/pdf_docs/PDACG205.pdf#search=%22USAID%20Cooperative%20Ethiopia%20Dorsey%22, accessed January 31, 2007)

Dougherty, C. (1992). Introduction to Econometrics. Oxford University Press, New York.

ECX. Analysis of Coffee Supply, Production, Utilization and Marketing Issues and Challenges in Ethiopia. Volume I, July, 2008 Addis Ababa.

EDF (1995). Ethiopian coffee hand book. A Practical Guide for Subject Matter Specialists and Development Agents. International Agricultural Training Program, East Close, Ditch eat, Shepstone Mallet, Somerset BA4 6PS, United Kingdom.

Ehui, S., Benin, S. and Paulos, Z. (2009). Policy Options for Improving Market Participation and Sales of Smallholder Livestock Producers: A Case Study of Ethiopia. Draft Prepared for Presentation at the 27th Conference of the International Association of Agricultural Economists (IAAE), 16-22 August 2009, Beijing, China.

Endale Taye, Behailu Weledesenbet, Bayetta Bellachew and Fabrice Davrieux. 2008. Effects of genotypes and fruit maturity stage on caffeine and other biochemical constituents of arabica coffee. In: Proceedings of a National Work Shop Four Decades of Coffee Research and Development in Ethiopia. 14-17 August 2007, EIAR, Addis Ababa, Ethiopia. pp. 169-172

FAO/WFP. 2008. Special report FAO/WFP crop and food supply assessment mission to Ethiopia, 24 January 2008.

FDRE, 2001. Unpublished Statistics. Addis Ababa: Federal Democratic Republic of Ethiopia, Ministry of Agriculture and Rural Development. Coffee, Tea, Spices and Cotton Marketing Department.

Gani, B. S. and Adeoti, A. I. (2011). Analysis of market participation and rural poverty among farmers in Northern part of Taraba State, Nigeria. *Journal of economics*,2 (1), pp. 23–36.

Gebregziabher, D. (2010). Market chain analysis of poultry: The case of Alamata and Atsbi - Wonberta Woredas of Tigray region. Master of Science thesis, Department of Agricultural Economics, Haramaya University, Ethiopia.

Gebremedhin .B. et.al .Commercialization of Ethiopian agriculture: extension service from input supplier to knowledge broker and facilitator. Working paper (2006). ILRI, Nairobi, Kenya

Gemech F. and Struthers J., (2007), "Coffee Price Volatility in Ethiopia: Effects of Market Reform Programmes", Journal of International Development, 19, 1131–1142

Geoffrey Sigei, Hillary Bett and Lawerance Kibet. (2004). Determinants of market participation among small scale pineapple farmers in Kericho country, Kenya. MPRA paper no 56149.

Goetz, S. (1992). "A Selectivity Model of Household Food Marketing Behavior in Sub-Saharan Africa." American Journal of Agricultural Economics, 74:444-452.

Greene, W.H. (2000). *Econometric Analysis* (4th edition). Prentice Hall, New Jersey.

Greene, William H., Econometric Analysis, fifth edition, Prentice Hall, 1993: 720-723.

Guiterrez, M. (2003). Macro Economics: Making Gender Matter Concepts, Policies and Institutional Change in Developing Countries. Zed Book, June.

Gujarati D N (2003) Basic Econometrics. Fourth Edition. McGraw – Hill companies, Inc , New York, USA. pp. 1002.

Gujarati, D. (1992). Essentials of Econometrics. McGraw–Hill, New York.

Gujarati, D.N., Sangeetha, N. (2007). *Basics Econometrics* (4th edition). Tata Mac Graw-Hill

Haile Abebe, and Tolemariam Tesfaye, 2008. The feed value of indigenous multipurpose for sheep in Ethiopia. The case of vernonia amygdaliana, Buddlaja polystachya and Maesalancaolata. Live Stock Research for Rural Development .V.20, No.45. Ratread December 12, 2009, from http//www.lrrd.org/lrrd 20/3/hail htm.

ICO/CFC (2000). Marketing and trading policies and systems in selected coffee producing countries: Ethiopia Country Profile. International Coffee Organization/Common Fund for Commodities, New York: LMC International

IPMS. 2007. Improving productivity and marketing success of Ethiopian farmers project GommaPilotLearningworedaDiagnosisandprogramDesign.www.ipmsethiopia.org/content/files/Documents/PLS-DPD/goma.pdf. (Accessed: June, 2008).

Jagwe, J., Machethe, C. and Ouma, E. (2010). Impact of Transaction Cost on the Participation of Smallholder Farmers and Intermediaries in the Banana Market in Burundi, Democratic Republic of Congo and Rwanda. African Journal on Agricultural and Resource Economics, 6:1.

Jari, B. (2009). "Institutional and Technical Factors Influencing Agricultural Marketing Channel Choices amongst Smallholder and Emerging Farmers in the Kat River Valley" Master of Science in Agriculture (Agricultural Economics) Faculty of Science and Agriculture University of Fort Hare.

Key, N., Sadoulet, E. and DeJanvry, A. (2000). Transactions Costs and Agricultural Household Supply Response. American Journal of Agricultural Economics, 88 (2): 245-259.

Kidane Asmerom, 1999. "Real exchange rate price and agricultural supply response in Ethiopia: The case of perennial crops." African Economic Research Consortium, Nairobi, November 1999

Kotler P, Armstrong G, Suanders J and Wong V (2004). Principles of Marketing. Second Edition. Prentice Hall Publishers.

Kufa, T. 2012. Recent coffee research development in Ethiopia, Presentation at the "Ethiopian Coffee Export Conference: Strengthening the Legacy of Our Coffee", November 8-9, 2012, Hilton, Addis Ababa

Lapar, M. L., Holloway, G. and Ehui, S. (2003). Policy options promoting market participation among smallholder livestock producers: A case study from Philippines. *Food policy*, 28, pp. 187-211.

Maddala, G.S. (1983). *Limited-Dependent and Quantitative Variable in Econometric.* (1st edition). Cambridge University Press, Cambridge.

Magogo, Juma Riziki, Mswnga, Patience Mlongo, Mwanarusi, Nkurumwa, Agnes Oradu, Shem Ipomai. (2015). Determinants of Choice of Marketing Outlet for African Indigenous Vegatables among Agro Pastoral Massai of Narok and Kajiado counties of Kenya.

Makhura, M., Kirsten, J. and Delgado, C. (2001). Transaction Costs and Smallholder Participation in the Maize Market in the Northern Province of South Africa. Seventh Eastern and Southern Africa Regional Maize Conference, 11-15 February, Pretoria, South Africa.

Ministry of Trade (2012). Coffee opportunities in Ethiopia. Ministry of Trade, Federal Democratic Republic of Ethiopia. February 2012. Addis Ababa, Ethiopia

Montshwe, B. D. (2006). Factors Affecting Participation in Mainstream Cattle Markets by Small-Scale Cattle Farmers in South Africa. MSc. Thesis, University of Free State, Bloemfontein.

Ogunleye, K.Y. and J.O. Oladeji (2007). "Choice of Cocoa Market Channels among Cocoa Farmers in ILA Local Government Area of Osun State, Nigeria" Middle-East Journal of Scientific Research 2 (1): 14-20, Nigeria.

Ohajianya, D.O. and Ugochukwa, A. I. (2011). An ordered probit model analysis of transaction costs and market participation by sweet potato farmers in South Eastern Nigeria.http://www.aes.ac.uk/_pdfs/_confrences/311_paper.pdf. Accessed 14th October 2013

Okoye, B., Onyenweaku, C. E. and Ukoha, O. O. (2010). Effect of transaction costs on seller decisions among smallholder cassava farmers in South Eastern Nigeria, http://mpra.ub.uni-muenchen.de/26120/MPRA Accessed 14th October 2013.

Olwande, J. and Mathenge, M. (2012). Market Participation among the Poor Rural household in Kenya. Tegemeo Institute, Egerton University, Kenya. Selected Paper Prepared for Presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguaçu, Brazil, 18-24 August.

Omiti, J.M., Otieno, D.J., Nyanamba, T.O. and McCullough, E. (2009). Factors Influencing the Intensity of Market Participation by Smallholder Farmers; A Case Study of Rural and Peri-Urban Areas of Kenya, African Journal of Agricultural and Resource, Economics, 3:71.

ORG (Oromia Regional Government). 2003. Gomma district based development program:project document. Oromia economic study project office. Addis Ababa, Ethiopia.

Petit, N. (2007), Ethiopia's coffee sector: A bitter or better future? Journal of Agrarian Change7(2): 225-263.

Pingali, P. L., and M. W. Rosegrant. 1995. Agricultural commercialization and diversification: processes and policies. Food Policy 20(3): 171–186. publishing company limited, New Delhi

Salasya, B. and Burger, K. (2010). Determinants of the point of sell and price of kale for Kiambu, Kenya. *African journal of Agricultural Research*, 5(9), pp. 805-812.

Sall, S., Norman, D. and Featherstone, A.M. (2000). Quantitative Assessment of Improved Rice Variety Adoption: The Farmers Perspective. Agricultural Systems, 66(2): 129-144.

Shiferew, B.A., Obare. G., Muricho, G., Silim. S. (2009). Leveraging Institutions for Collective Action to Improve Market for Smallholder Producers in Less-Favored Areas. African Journal of Agricultural and Resource Economics, 3:1-18.

Staal SJ, Baltenweck I, Njoroge L, Patil BR, Ibrahim MNM, Kariuki E (2006). Small holder dairy farmer access to alternative milk marketchannels in Gujarat. IAAE Conference, Brisbane, Australia.

Stellmacher T. in prep. Use, Management and Conservation of Coffee Forests in Ethiopia. A Local Level Institutional Analysis in Koma Forest/Kaffa Zone and Kankicho Forest/Bale Zone. PhD thesis, University of Bonn.

Tefera, A., and T. Tefera. 2013. Ethiopia: Coffee Annual Report, Gain report ET-1302, USDA

The national regional government of Oromia statistical abstract 12th edition, October 2013

Von Braun, J., and E. Kennedy. 1994. Conclusions for agricultural commercialization policy. In Agricultural commercialization, economic development, and nutrition, ed. J. von Braun and E. Kennedy. Baltimore, Md., USA: Johns Hopkins University Press for the International Food Policy Research Institute.

Willem J. Boot. Ethiopian Coffee Buying Manual. USAID/Ethiopia's Agribusiness and Trade Expansion. March, 2011.

Wintgens, J.N. 2004. Coffee: Growing, Processing, Sustainable Production. A guide book for growers, processors, traders and researchers. Weinheim.

Wooldridge, J.M. (2002). Econometric Analysis of Cross Section and Panel Data. Cambridge: MIT Press.

Worako, T., Van Schalkwyk, H., Alemu, Z., and Ayele, G., 2008. Producer Price and Price Transmission in a Deregulated Ethiopian Coffee Market, Journal of Agrekon, Vol 47, No 4.

World Bank (2007), World Development Report 2008: Agriculture for development. Washington, DC: World Bank.

Zegeye, T., Tadesse, B., Tesfaye, S., Nigussie, M., Tanner, D. and Twumasi. A. S. (2001).Determinants of Adoption of Improved Maize Technologies in Major Growing Region of Ethiopia. Second National Maize Workshop of Ethiopia, 12-16 November, 2001.

Zewede Jotte Tulu. (2005). Incentives and Conflicts in coffee forest conservation and use. The case of Yoyo

Zuniga-Arias, G. and Ruben, R. (2007). Determinants of Market Outlet Choice for Mango Producers in Costa Rica. In: R, M. Van Boekel, A. Van Tilburg and J. Trienekens (Eds.), Tropical Food Chains; Governance Regimes for Quality Management. Wageningen Academic Publishers, pp. 49-67.

# ANNEX

**HOUSEHOLD SURVEY QUESTIONNAIRE FOR ASSESSING DETERMINANTS OF FARMERS PREFERENCE OF COFFEE MARKET OUTLETS IN SOUTH WEST ETHIOPIA, JIMMA ZONE**

1. Date of interview (dd/mm/yyyy)…… ……. Enumerator name……

## 1.0 RESPONDENT AND SITE IDENTIFICATION

1. Respondent's code……

2. Sex a) Male b) Female

3. Respondent's position in the household a) head b) wife c) son d) daughter e) dependent

4. Religion a) Muslim b) Orthodox c) Protestant d) Other

5. Woreda/district …… Kebele…… Village/Gare ……

6. Years the household lived in the area ……

7. Farming experience of the household (years)……..

8. Distance to the nearest village market (km)…… minutes of walking time ……..……

9.Distance to the nearest main market (km)…… minutes of walking time ……..……

10. Distance to ECX (km)----------minute if walking time----------

11. Single trip transport cost (per person) to the main market using car (Birr/person)…….

12. Distance to the nearest farmer cooperative (km)…… minutes of walking time ……..……

13. Distance to the nearest agricultural extension office (km)……minutes of walking time ……..……

14. Walling material of main residential house

1. Burned bricks 2. Unburned bricks 3. Stone 4. Earth 5. Wooden (timber) 6. Other, specify

15. Roofing material of main residential house

1. Grass thatch 2. Iron sheet 3. Tiles 4. Other, specify

## 2.0 CURRENT HOUSEHOLD COMPOSITION AND CHARACTERISTICS

| Family code | List of HH member by code (start with respondent) | Sex<br>Codes A | Marital status<br>Codes B | Age | Education (years)<br>Codes C | Occupation<br>Codes D<br>Main |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 9 |
| 01 | | | | | | |
| 02 | | | | | | |
| 03 | | | | | | |
| 04 | | | | | | |
| 05 | | | | | | |
| 06 | | | | | | |
| 07 | | | | | | |
| 08 | | | | | | |
| 09 | | | | | | |
| 10 | | | | | | |

| Codes A | Codes B | Codes C | Codes D |
|---|---|---|---|
| 1. Female | 1. Married, single spouse | 1. Illiterate | 1. Farming (crop + livestock) |
| 2. Male | 2. Married, many spouses | 2. Read and Write only | 2. Salaried employment |
| | 3. Divorced/separated | 3. Primary | 3. Self-employed off-farm |
| | 4. Widow/widower | 4. Secondary | 4. Casual labourer on-farm |
| | 5. Never married | 5. Technical & vocational level | 5. Casual labourer off-farm |
| | 6. Other, specify…… | 6. College/ University | 6. School/college child |
| | | | 7. Non-school child |
| | | | 8. Herding |
| | | | 9. Household chores |
| | | | 10. Other, specify…… |

## 3.0 Social networks

1. Number of coffee traders that you know in this village who could buy your coffee ……
2. Number of coffee traders that you know outside the village who could buy yours ……..…….
3. Generally speaking, would you say that most traders can be trusted?

   a. Strongly disagree b. Disagree c. slightly disagree d. slightly agree e. Agree f. strongly agree
4. Which types of traders do you trust more and why? ..... ..... ..... ..... ....
5. How many chain of the coffee market do you know? .....
6. Do you think you can rely on government support (subsidies, food aid etc) if your crop fails?

   Yes=1, No=0
7. How would you say about your living conditions with your family this year compared to three years ago? 1. Much less 2. Same 3. Better 4. Much better

## 4.0 HOUSEHOLD FARM ASSETS

### 4.1 Land holding (fechasa) during the 2006/2007 cropping years ------- (1ha=4 fechasa)

| **Land ownership** | **Cultivated land** | **Fallow land** | **Rented out** | **Shared out** | **Other, *specify*** |
|---|---|---|---|---|---|
| Own | | | | | |
| Rented in | | | | | |
| Shared in | | | | | |
| **Total** | | | | | |

### 4.2. Land allocation in (fechasa)

| **Particulars** | **Own** | **Rented-in** | **Total** |
|---|---|---|---|
| • Land for coffee | | | |
| • Land for other crops | | | |
| • Land for pasture and tree crops | | | |
| • Fallow farmland | | | |
| • Land for non-agricultural uses | | | |
| **Total land** | | | |

## 5.0. COFFEE PRODUCTION TRENDS over the last 5 years in kesha (1KESHA= 60K

| Crop produced | Year 5 (2003) | Year 4 (2004) | Year 3 (2005) | Year2 (2006) | Current (2007) |
|---|---|---|---|---|---|
| Coffee | | | | | |

## 6.0 UTILIZATION OF COFFEE PRODUCED AND HOUSEHOLD CASH GENERATING (last year 2006)

| Crop | Stock at time of harvest (kg) | Production (kg) | Sales (kg) | In-kind payments (kg) | | | Seed (kg) | Gift, or donations given out (kg) | Consumption (kg) | Currently available stock for consumption of the year (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | For Land | For Labour | Others | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1. washed Coffee | | | | | | | | | | |
| 2. clean | | | | | | | | | | |
| 3. Buni (jenfel) | | | | | | | | | | |
| 4. red | | | | | | | | | | |

1. How do you rate the income you gained from coffee over the past 5 years?

1=highly increased 2=increased 3) normal 4=decreased 5 =highly decreased

2. If increased what is the main reason?

1) Quality improvement 2) improvement in production/ha 3) increase in production due to management 4) 1&2

## 7.0 MARKETING OF CROPS [*RECORD SALES BY CODE TYPES*]

| Crop sold (From Table **6.0**; column 1) | Market type **Codes A** | Frequency of sales last 12 months | Quantity sold **kg** (From Table; **6.0** Column 4) | Who sold **Codes B** | Price **(Birr/ kg)** | Month sold **Codes C** | Period to payment after selling **weeks** | Buyer **Codes D** | Sales tax or charges /unit **(Birr)** | Distance to major point of sale **(km)** | Time taken to get to the market **minutes** | Mode of transport **Codes E** | Average transport cost **(Birr)** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | **2** | | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **16** | **13** |
| 1. washed Coffee | | | | | | | | | | | | | |
| 2. clean | | | | | | | | | | | | | |
| 3. Buni (jenfel) | | | | | | | | | | | | | |
| 4. red | | | | | | | | | | | | | |

| **Codes A** | **Codes B** | **Codes C** | | **Codes D** | **Codes E** |
|---|---|---|---|---|---|
| 1. Farm gate | 0. Female | 1. Meskerem | 7. Megabit | 1.cooperatives | 1. Bicycle |
| 2. Village market | 1. Male | 2. Tikimt | 8. Miazia | 2. broker or middle men | 2. Hired truck |
| 3. Main/district market | 2. Both | 3. Hidar | 9. Ginbot | 3. Consumer or other farmer | 3. Public transport |
| | | 4. Tahsas | 10. Sene | 4. Rural coffee trader | 4. Donkey |
| | | 5. Tir | 11. Hamle | 5. urban coffee trader | 5. Oxen/horse cart |
| | | 6. Yekatit | 12. Nehasse | 6. Rural and urban coffee trader | 6. Back/head load |
| | | | | 7.consumer + coop + broker | 7. Other, specify…. |

7.1 Why do you preferred the outlet you opted above?

1. Easily accessible
2. Least cost
3. Non cheating
4. Optimum price
5. No other alternative
6. Government interventions
7. Informed from neighbor
8. Others –specify_____

**8.0: MARKET ACCESS**

| Commodity | Did you get market information before you decide to sell the crop? **Codes A** | Means of accessing market information **Codes B** | Ever failed to sell due to? **Codes A** | | | No. of buyers who came to buy at farm-gate last season | | | | If you didn't sell to some of these buyers, then why? **Codes C** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lack of buyers | Poor price | Poor harvest | Assembler or brokers | wholesalers | Farmer group or coop | Consumer | Assembler or brokers | wholesalers | Farmer group or coop | Consumer |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** |
| 1. coffee | | | | | | | | | | | | | |
| 2. Other crops | | | | | | | | | | | | | |

| **Codes A** | **Codes B** | **Codes C** | |
|---|---|---|---|
| 0. No | 1. Observation | 1. No buyer came | 4. I was not able to meet the desired **quality** |
| 1. Yes | 2. Discussion | 2. Price offered was low | 5. I was not able to meet the desired **quantity** |
| | 3. Telephone | 3. Unreliable scale or weight | 6. Sold the whole to market |
| | 4. Other/combinations …. .specify…….. | | 7. Other, specify……. |

8.1 What type of coffee and ratio you provide to the market usually?

1. Pulped _____% 2. washed_____% 3. genfel (buni) _____% 4. Red

8.2. Which type of coffee you prefer mostly to provide to market

1. Pulped _____% 2. washed_____% 3. genfel (buni) _____% 4. Red

8.3. What is the problem in providing washed coffee?

8.4. Who is the main coffee trader in the area

1. ECX Agents 2.individual traders 3. NGOs 4. Cooperatives

8.5 Do you have any information about ECX? 1) Yes 2)No

8.6 If yes where did you get the information?

1. DAs 2 Cooperatives 3.PA 4.local coffee traders 5.TV/Radio 6.journals 7 other

8.7 How do you compare ECX marketing system with the previous one?

1. Much better 2. Better 3. Same 4. Not good 5. Worse

8.8 What benefits you do you think from ECX to coffee marketing?

8.9 What problems you faced with ECX marketing system?

8.10 How do you evaluate coffee price over the years in the market?

1= highly improving 2= improving 3= mild 4 deteriorating 5= highly deteriorating

**9.0 OTHER SOURCES OF INCOME/BUSINESS (Since September 2007) [*If several household members earn the same income source, fill the sum total income*]**

| **Sources** | **Total income (Birr)** |
|---|---|
| **1** | **2** |
| 1. Rented out land | |
| 2. Shared out land | |
| 3. Rented out oxen for ploughing | |
| 4. Salaried employment | |
| 5. Farm labor wages | |
| 6. Non-farm labor wages | |
| 7. Non-farm agribusiness NET income (e.g. grain milling/trading/liquor) | |
| 8. Other business NET income (shops, trade, tailor, etc) | |
| 9. Pension income | |
| 10. Drought relief | |
| 11. Remittances (sent from non-resident family and relatives livingelsewhere) | |
| 12. Marriage Gifts | |
| 13. Sales from firewood, brick making, charcoal making etc | |
| 14. Other short term employment | |
| 15. Sale of maize crop residues | |
| 16. Sale of legumes crop residues | |
| 17. Sale of wheat crop residues | |
| 18. Sale of tef crop residues | |
| 19. Sale of other crop residues | |

| | |
|---|---|
| 20. Interest from saving and lending | |
| Total annual income | |

## 10.0 ACCESS TO INFORMATION AND TECHNOLOGY TRANSFER PARTICIPATION

| Issue | Received training or information before 2007 (Codes A) | Received during Jan – Dec 2007? (Codes A) | Main source for 2007 (codes B) | | | Number of contacts - with govt extension agent 2007 (days/year) | Number of contacts - with NGOs 2007(days/year) |
|---|---|---|---|---|---|---|---|
| | | | Rank 1 | Rank 2 | Rank 3 | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. New varieties of crops | | | | | | | |
| 2. Output markets and prices | | | | | | | |
| 3. Input markets and prices | | | | | | | |
| 4. Collective action/farmer organization | | | | | | | |
| 5. Family health | | | | | | | |
| 6. Family planning | | | | | | | |
| 7. Tree planting | | | | | | | |
| 8. General agriculture | | | | | | | |

| **Codes A** | **Codes B** | | | |
|---|---|---|---|---|
| 0. No<br>1. Yes | 1. Government extension service<br>2. Farmer Coop or groups<br>3. Seed traders | 4. Neighbour/other farmers<br>5. NGOs<br>6. Other private trader<br>7. School | 8. Research center<br>9. Newspaper<br>10. Radio/TV<br>11. Mobile phone | 12. Other, specify…….. |

**11.0 KEY PRODUCTION AND MARKETING CONSTRAINTS FOR SELECTED COFFEE PRODUCTION**

| Production constraints | Coffee | |
|---|---|---|
| | Constraint? **1=yes 0=no** | Rank its importance (only those with **Yes** in column 2) |
| 1 | 2 | 3 |
| **Socioeconomic** | | |
| 1. Availability of credit to buy seed | | |
| 2. Timely availability of fertilizer | | |
| 3. Price of fertilizer | | |
| 4. Availability of credit to buy fertilizer | | |
| 5. Access to markets and information | | |
| 6.shortage of labor | | |
| 7.post harvest/drying management | | |
| 8.improved production management | | |
| 9. weed | | |
| 10. Reasonable coffee prices | | |
| 11.shade tree problem | | |
| **Biological** | | |
| 1. Drought | | |
| 2. Floods | | |
| 3. Pests | | |
| 4. Diseases | | |
| 5. Soil fertility | | |

***Questionnaire No…… (Supervisor to fill)***