

**FACTORS AFFECTING MEMBERSHIP INCREMENT AND
BENEFIT SHARING OF MEMBERS IN PRIMARY COFFEE
COOPERATIVES IN DEBUB BENCH DISTRICT, BENCH MAJI
ZONE, ETHIOPIA**

MSc THESIS

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**Factors Affecting Membership Increment and Benefit Sharing of
Members in Primary Coffee Cooperatives in Debub Bench District,
Bench Maji Zone, Ethiopia**

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MANAGEMENT**

By:

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DEDICATION

I dedicate this thesis manuscript to my family who gave me continuous support and encouragement in my life

STATEMENT OF THE AUTHOR

First, I declare that this thesis is my work and that all sources of materials used for this thesis have been duly acknowledged. This thesis has submitted in partial fulfillment of the requirements for M.Sc. degree at Jimma University, College of Agriculture and Veterinary Medicine and deposited at the University Library to be made available to borrowers under rules of the Library. Brief quotations from this thesis are allowable without the special permission provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the School of Graduate Studies when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

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ACRONYMS AND ABBREVIATIONS

ATA	Agricultural Transformation Agency
BMZRDB	Bench Maji Zone Rural Development Bureau
CLU	Coffee Liquoring Unit
CSA	Central Statistics Agency of Ethiopia
ERCA	Ethiopian Revenue and Customs Authority
FAO	Food and Agriculture Organization of the United Nations
FCA	Federal Cooperative Agency
GDP	Gross Domestic Product
GMM	Gross Marketing Margin
GoE	Government of Ethiopia
ICA	International Cooperative Alliance
ILO	International Labor Organization
MoFED	Ministry of Finance and Economic Development
NGO	Non-Governmental Organizations
ANRO	Agricultural and Natural Resource Office
SACCO	Saving and Credit Cooperative
SNNPRS	Southern Nations Nationalities & Peoples Regional State
TGMM	Total Gross Marketing Margin
USAID	United States Agency for International Development

BIOGRAPHICAL SKETCH

The author was born in 1988 in Jimma Town, Oromia Region, Ethiopia. He attended his Elementary, Junior Secondary, and preparatory School education at Delfire Elementary School, Seto-Semero Primary School, and Jimma preparatory School respectively. After passing University Entrance examination, he joined Haramaya University (the then Alemaya University) in 2006 and graduated with BA degree in Economics in July, 2009. Following his graduation, he has served Omo Micro Finance Institution in Kaffa zone from October, 2009 to November, 2011 and Raycon construction and machinery rental as senior accountant in Addis Ababa from December 2015 until he joined Jimma University to pursue his MSc degree study in Agribusiness and value chain management.

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Factor Affecting Membership Increment and Benefit Sharing of Members in Primary Coffee Cooperatives in Dehub Bench District, Bench Maji Zone, Ethiopia

ABSTRACT

The objective of the study was to identify factors affecting membership and estimating the benefit sharing of farmers in primary coffee cooperatives with the specific objectives of assessing if farmers get relatively more profit share while selling coffee through cooperative market channel than other private trading channel; analyzing farmer's membership and identifying the underlying determinants of decision to join primary coffee cooperatives and identifying opportunities and challenges for primary coffee cooperatives growth in the study area. Both primary and secondary data were used for the study. The primary data for this study were collected using semi-structured questionnaire from 216 households (154 members of primary coffee cooperative and 62 nonmembers). In addition to that two coffee cooperative unions, 10 suppliers, and five exporters were selected following the chain of actors. Both descriptive and econometric methods of data analysis were employed. Binary Logistic regression model was used to identify factors that affect coffee farmers' cooperative membership. The result of econometric analysis using Logistic regression model revealed that five among the 11 explanatory variables namely, educational level, land allocated for coffee production, awareness of farmers towards the socio economic importance of cooperatives, experience in coffee growing and the adequacy of dividend were found to significantly determine smallholder farmers' decision to joining primary coffee cooperatives in the district. The result of marketing margin analysis indicated that the two actors, unions and private exporters received highest share of market margin 65.82% and 56.21% and profit margin of 65.95% and 60.14% respectively compared to others actor in the coffee marketing chain. However, farmers received higher profit share (13.85%) when they sold their coffee through cooperative marketing channels and 7.30% if they used channel II (private trader channel) From the finding, it is, therefore, recommended that regional government in corroboration with other concerned bodies should work on improving educational status, allocation of land, farming experience, awareness of farmers about the socio-economic importance of cooperatives and distribution of dividend in order to encourage and attract smallholder farmers to join primary coffee cooperatives in the district.

Key Words: Primary Cooperative, Coffee, Cooperative membership, Opportunities and Constraints, Benefit Sharin

1. INTRODUCTION

1.1. Background of the Study

Agriculture remains to be the mainstay of the Ethiopian economy contributing about 47% of GDP and providing employment to more than 80% of the rural population (World Bank, 2010). Having all these importance, agriculture continues to face a number of problems and challenges. The major ones are adverse climatic conditions, lack of appropriate land use system resulting in soil and other natural resources degradation, limited use of improved agricultural technologies, the predominance of subsistence agriculture and lack and/or absence of business oriented agricultural production system, limited or no access to market facilities resulting in low participation of the smallholder farmers in value chain or value addition of their produces (Bezabih, 2010).

Ethiopia is the world's 5th and Africa's leading coffee producer. The country produces 5.6% of world production. It is also the world's 10th coffee exporting country. Coffee is the leading commodity in generating foreign exchange for the country i.e. 24.2% in 2012/13 (Alemseged and Yeabsira, 2014). The coffee sub sector has been characterized by a bunch of opportunities and constraints. Opportunities of coffee industry include favorable policy environment, unique character of coffee quality, and birth place of coffee and strong local coffee culture & availability of different varieties of coffee. Besides these most of the cooperatives are getting accesses to different certification schemes, which can be considered as a means for value addition (Grote et al., 2009 and Wissel et al., 2010).

Despite the above opportunities and others there are a number of challenges related to coffee business. Some of the challenges are inconsistency in quality supply, weak logistic services, weak public private partnership, and weak market information system (Alemseged and Yeabsira, 2014). The participation of smallholder coffee farmers and cooperatives in coffee value addition activities has been limited. Commonly smallholder coffee farmers and cooperatives perform activities like coffee harvesting, sorting, washing, and drying tasks. Besides, the whole chain is facing bottlenecks in using quality inputs and technologies, adulteration, awareness on quality of coffee, and breakups in maintaining trust & commitment among cooperative members. These all contributes negatively for value addition. The existing opportunities related to value addition of coffee should be identified

and the smallholder producers, processors and other value chain actors should capitalize on them. Even though coffee contributes a lot for income generation of the farmers there were different constraints which avert the smallholders' farmers from adding value to their product and benefit from participating in the international market.

The agricultural cooperative which is the sub-sector of agriculture plays a great role on the improvement of the rural areas. Agricultural cooperatives help farmers to solve a collective action problem, specifically how to procure inputs required to grow crops and keep livestock most efficiently, and transport and market their outputs on more favorable terms than they could achieve by themselves. Cooperatives in Ethiopia are mainly economic entities performing economic functions, contributing a lot to economic development of the country and are believed to contribute more to the living standard of members and the community as a whole (Natarajan *et al.*, 2015)

Well-functioning cooperatives tend to provide input procurement and distribution, specialized extension, output marketing, and efficient allocation of surpluses are core services to members. Some experts highlight financing as an additional core service that cooperatives provide to members, but only production-related financing (i.e. selling inputs on credit and purchasing outputs with cash advances) should be considered a core service, and can be captured within input and output services (ATA, 2012).

Agricultural cooperatives also plays major role by providing strong economic benefits to the farmers, through sharing and pooling of resources, improved access to markets, higher returns for their products, reduced transaction costs by obtaining inputs up to the warehouses of the cooperatives and by selling their produces on cooperatives center, and strengthened bargaining position. Agricultural cooperatives provide access to quality supplies and services at reasonable cost, and members to organize to have a voice for economic action and local economy enhancement and protection.

Cooperative membership improves the commercialization behavior of smallholder farmers (Markelova and Mwangi 2010). Commercialization improves farm productivity and farm income at micro level, and it improves food security and allocative efficiency at macro level . In addition to this, cooperatives can also reduce transaction costs and information asymmetry

by strengthening farmers' negotiation ability (Hellin *et al.* 2009; Trebbin 2014). This will, in turn, increase the income of farmers (members) through their bargaining power, which increases the price of the product they produced and lowers the costs of purchased inputs. Though it is assumed beneficial to members, farmers' perception towards the importance of cooperatives and benefit they would get from their participation may matter in deciding their membership in a cooperative. Agricultural cooperatives currently account for the primary channel through which agricultural inputs reach farmers. The opportunity on the output marketing side is even greater. Although farmers' cooperatives in Ethiopia currently account for less than 20% of the marketed outputs, their members tend to achieve a higher premium price of nearly 10% (ATA, 2016).

Now days, the survival of the cooperatives can be challenged by different internal and external factors. Internally cooperatives are challenged by weak linkage between individual members and primary cooperatives; lack of awareness, knowledge and skill on significance and impact of cooperatives, cooperative management, planning, leadership, and marketing; managerial problems are a problems related to transparency loyalty, good governance, efficiency, motivation; ethical problems are related to, managers and board members were reluctant in fighting corruption and they were also part of; credit, transport; marketing information; weak trade linkage, and poor rural infrastructure like road, energy, and agricultural processing (Nuredin and Wan Lee, 2015). Therefore, these factors hindered cooperative development and creates a doubt about the benefits that the members gain from cooperatives. So, these are the possible reasons to limit the members' participation on their cooperative

According to Muthyalu (2015), for many years, issues such as lack of capital, undertaking of conventional activities, weak structure, absence of good governance, lack of cooperation between cooperatives in the field of business, training, education and facilitating services, lack of managerial talent, lack of integrity among the management and the members in some cooperatives, are contributing to the inefficient performance of cooperatives are challenges that faced the cooperatives internally. The findings in Parvizi (2016) indicate that financial performance and managers' ability have been effective in the rate of members' participation in the cooperatives.

Externally, cooperatives are challenged mainly by weak leadership and supervision; weak and irregular technical assistance; expertise lack knowledge and skill, low quality; Shortage of efficient, qualified and committed leaders and expertise; weak documentation and information; weak horizontal and vertical relation, and coordination (Nuredin and Wan Lee, 2015). Though, this factor also lowers the performance of cooperative and the member' participation too.

Hence, having the above issues in mind and important role cooperatives can play in the development of the country's agricultural sector in general and Debub Bench woreda particularly. Therefore the study is conducted to compare the benefit share of farmers while selling their coffee through cooperative and identify factors determining smallholder farmers' decision to join primary coffee cooperatives in the study area and distinguishes major opportunities and challenges of primary coffee cooperatives in the study.

1.2. Statement of the Problem

Cooperatives are important in the expansion of locally based businesses generating huge job opportunities, benefiting of local communities through the provision of commodities at reasonable price and right time indicating cooperatives as operative-effective tool to meet challenge of market failure, and in the foundation of better life in rural community (Merrett and Walzer, 2001). Cooperative societies are practical vehicles for cooperation and collective action, crucial to sustainable development, stabilize regional economies and provide a favorable climate for further investment, reduce inequality, and promote equitable sharing of the costs and benefits of sustainable development. Furthermore, cooperatives can promote economic democracy and the empowerment of marginalized groups- a hallmark of sustainable development and a precondition for shared responsibility (Gertler, 2001).

The federal government of Ethiopia in general and the regional state government in specific, jointly with other organizations, have been providing various incentives and encouragements, technical and financial supports for rural farmers to join into agricultural cooperatives to solve their associated problems. If cooperatives are strong and powerful technically, socially, and economically, smallholder farmers in the rural area would join to and benefit and improve their livelihood from the membership. However, despite the impressive contribution, the development of co-operatives in the country is not without problems as with weak leadership,

dependence on supporting organizations and a lack of working finance, and low farmers participation (Borda-Rodriguez A. *et al.*, 2016). In the context of Ethiopia, farmers' cooperative membership is generally very low. According to Dejen Debeb and Matthews Haile (2016), smallholder farmers' participation in agricultural cooperatives is very low (9%) while around 40% of the households in the rural have access to cooperatives in their local *Kebele*. Regardless of the case that agricultural cooperatives are crucial for improving smallholder productivity and commercialization, farmers may have several specific reasons for joining an agricultural cooperatives.

Though, different studies like Getnet K, Anullo T, (2012) and Ito J, Bao Z, Su Q (2012) also confirmed the role of cooperatives in poverty reduction and in improving the livelihood of smallholder farmers, there are still challenges where collective actions did not improve member farmers' situation discouraging others not to be a member of a given cooperative. The establishment and rapid expansion of primary cooperatives without adequate facilities and supports might also lead to many problems and failures. Besides, farmers' perception towards the importance of cooperatives and benefit they would get from their participation also matter their decision to membership in a cooperative.

In spite of the importance and the special attention given to the rural cooperatives believing it as a basis for poverty reduction at smallholder level, there are still some rural people who do not want to join agricultural cooperative. More specifically, based on the prior preliminary information conducted in the study district, this situation of refusing to join cooperatives is especially an important issue for the coffee cooperatives.

A study by Bizualem and Saron (2018) conducted on identifying factors determining farmers' decision to cooperative membership status in Ethiopia and found that factors in relation to demographic, socio-economic and institutional factors as determining smallholder farmers' decision to joining agricultural cooperatives

However, the above and other researchers like Nazirha, CheJaafar *et al* (2017), Woldegebrial, Nugusse *et al* (2013) Dejen and Matthews (2016), Tesfaye (1995), and others conducted a study on the identification of factors determining farmers' cooperative membership but focusing on other than coffee crop. On the other hand, though Mugabekazi (2014) conducted a study on factors influencing membership in coffee cooperatives in Rwanda, similar study in

this specific crop, coffee, case failed to be found in the country Ethiopia. Again, Dagne Mojo *et al* (2015) studied determinants and economic impacts of coffee farmers in Ethiopia but nothing was emphasized on the underlying coffee cooperative membership factors which initiated the current study to be addressed on. In this aspect, thus, with the maximum knowledge of the researcher, limited numbers of studies were conducted on identifying factors that affect membership in primary coffee cooperatives in the study area leading to lack of empirical local studies and evidences on this topic. Therefore, this study in particular, is supposed to emphasis on the membership factors on the coffee sector as far as the country's in general and the district's economy specifically have been relied greatly on the trade of primary agricultural cash crops among which coffee is the most important and strategic one. Hence, to bridge the above stated information gap, this study aimed to identify factors affecting farmers' membership and benefit sharing of members in primary coffee cooperatives.

1.3. Research Questions

The following basic research questions were addressed with this particular study

1. Are farmers get relatively more profit share while selling coffee through cooperative market channel than other private trading channel?
2. What are the main determinates affecting membership of farmers in primary coffee cooperatives?
3. What are the major opportunities and challenges of primary coffee cooperatives growth in the study area?

1.4. Objective

The general objective of this study is to identify factors affecting membership farmers in primary coffee cooperatives and compare the benefit share of farmers in cooperative and other marketing outlet

The specific objectives are:

- To compare the benefit share of farmers while selling their coffee through cooperative and other trader channel

- To identify factors determining smallholder farmers' decision to join primary coffee cooperatives in the study area
- To identify the major opportunities and challenges of primary coffee cooperatives study area.

1.5. Scope and Limitations of the Study

Scope of the study

Geographically this study was delineated on only one district from the zone. Besides, the study specifically addressed only the primary cooperative purposed on the commodity coffee. Conceptually it was focused on the identification of factors affecting membership of farmers in cooperative and comparing of benefit sharing of farmers in primary coffee cooperatives. The study also scoped to identify the major opportunities and challenges of primary coffee cooperatives growth.

Limitations of the study

This study was done based on the cross sectional data collected at a time. This way, unlike time series data, the result of this study lacks time trend analysis which in turn might not be used to give inference for periods of time ahead. The other limitation this study might face is that data gathered from farmers were based on recalling and reminding. Because usually smallholder farmers have no the habit of recoding the production, marketing and other transactions in their respective business then by are often might be unable to provide the required data for scientific research accurately. Thus computations done based on this guessed/recalled data might be limited to some extent.

1.6. Significance of the Study

The result of this study would enable us to know determinates of membership in primary coffee cooperatives in the study area. The study also identifies whether farmers get relatively more profit share while selling coffee through cooperative market channel or not and opportunities and challenges for primary coffee cooperatives growth in the study area. Thus, it would be useful to different stakeholders. For instance, it would be useful for the management bodies of the primary coffee cooperatives under consideration as well as other cooperatives operating under similar conditions. The findings can be also used as input for the federal

cooperative agency and other interested institutions on cooperatives while devising a policy on increasing cooperative success.

Finally, this study could be a good stepping-ground for other studies on determinates of membership and benefit sharing in primary coffee cooperatives

1.7. Organization of the Thesis

The thesis is organized into five major chapters. Chapter one consists of background of the study, statement of the problem, objectives of the study, research questions, significance, scope and limitation of the study. Chapter two deals with literature review on topics relevant to the study. Chapter three presents the research methodology-part including description of the study area, data types, sources and methods of data collection, sampling technique and sample size determination, and methods of data analysis. Chapter four presents results and discussions of both descriptive and econometric analysis. The last chapter, Chapter five, presents summary, conclusions and policy recommendations.

2. LITERATURE REVIEW

2.1. Definitions and principles of cooperatives

Definition

According to International Cooperative Alliance (ICA,2014) cooperative is defined as an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise” International Labor Organization (ILO, 2015) defines a cooperative as, “an organization of persons, usually of limited means who have voluntarily joined together to achieve a common economic end through the formation of a democratically controlled business organization making equitable contribution to the capital required, and accepting fair share of the risks and benefits of the undertaking”

Principles of Cooperatives

The cooperative principles are guidelines by which cooperatives put their values into practice. There are seven internationally recognized cooperative principles (Ortmann and King, 2007).

Voluntary and Open Membership: Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, and social, racial, political or religious discrimination.

Democratic Member Control: Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and decision-making. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are also organized in a democratic manner.

Member Economic Participation: Members contribute equitably and democratically control the capital of their cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for one or all of the following purposes: developing their cooperative possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative, and supporting other activities approved by the membership.

Autonomy and Independence: Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

Education, Training and Information: Cooperatives provide education and training for their members, elected representatives, managers, and employees so that they can contribute effectively to the development of their cooperatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of cooperation.

Cooperation among Cooperatives: Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

Concern for Community: Cooperatives work for the sustainable development of their communities through policies approved by their members.

2.2. Overview of Cooperatives in Ethiopia

Role of Cooperatives in Society

Cooperative societies are practical vehicles for cooperation and collective action as well as build and reinforce community, which are crucial to sustainable development, they help to stabilize regional economies and provide a favourable climate for further investment, reduce inequality and promote equitable sharing of the costs and benefits of sustainable development, promote economic democracy and the empowerment of marginalized groups|| cited in (Nugussie, W.Z. 2010:139). Uma (1981) wrote that that ‘traditionally cooperatives were expected to serve a broad set of socio-political and economic objectives ranging from self-help and grassroots participation to welfare and distribution’. Thus cooperatives for a long time have been —recognised to play an important role in the society that translate into the improvement of living conditions of their member (Ofeil 2005) cited in (Wanyama et al. 2009). The US Overseas Cooperative Development Council (2007:22) points out that cooperatives — integrate economic and social objectives which foster collective local action and , in turn, builds and reinforces communities’ and helps to reduce inequalities and empower marginalised groups through the development of local knowledge and management skills’. According to the National Cooperative Business Association (2005) cooperatives are set up in order ‘to help members strengthen their bargaining power , maintain access to markets, capitalize on new market

opportunities , obtain needed products and services and improves income opportunities, as well as reduce costs and manage risks‘ cited in (Ortmann 2007:42-43). In addition, ILO observes that cooperatives _create sustainable employment, contribute to decent work promotion, improve working conditions for women and men, provide essential infrastructure and services in areas neglected by the state and investor driven enterprises‘ as cited in (Wanyama *et al.*, 2009). Koopmans (2006) also joins others to agree that cooperatives are useful to small farmers because they help to mobilise assets, knowledge and skills and become **Right off way problems** easily accessible to traders and buyers as cited in (Modderman 2010). While Wanyama et al. 2008:3) report that some International Agencies for example the United Nations, ILO, ICA and the European Union view _cooperatives as organizations which help to meet all dimension of **Right off way problems** poverty and have advantages of identifying economic opportunities for the poor, empower the disadvantaged and provide security.

2.3. Cooperative Members’ Perception

The strength of a cooperative depends, in part, upon its ability to mobilize its resources and members not only in gaining market share and achieve economic growth, but also in maintaining member commitment, satisfaction and retaining them (Dakurah *et al.*, 2005). The authors also stated that Satisfied, highly committed members are more likely to support their cooperative by participating in all cooperative activities. The services provided by cooperatives to the members’ are appropriate and on timely rendered, the members’ are motivated to participate and build better perception on cooperatives. The attitude people hold towards their cooperatives is posited to affect their patronization behavior, which is vital for the success of cooperatives and members’ participation. Zakić *et al.* (2013) propose that people are willing to show high commitment to a cooperative when the cooperative is perceived to act effectively as their agent.

But, it is evident that members' goals, what they desire from their cooperatives are not critically related to why they joined the cooperative it affects perception of the members’. These goals also affect member satisfaction with the cooperative, their commitment to it, and their participation in its activities. Österberg *et al.* (2009) argued that the cooperative members’ perception was affected by the combined effects of lack of social cohesion and commitment, conservatives and individualism, and members’ ideological and traditional view of cooperatives explain their preference for unallocated equity capital. Thus, considering the members’ perception on services provided by cooperatives is very crucial

to cooperatives success and to build trust on cooperatives which motivates members' participation.

2.4. Historical Development of Cooperatives in Ethiopia

Cooperative movement during the Derg Regime (1974-1991)

The legal ground for the establishment and development of agricultural cooperatives was first provided by the proclamation 71/1975. Later on in 1978 the regime necessitated the establishment of different cooperative societies for combating exploitation of workers and peasants by enabling them secure services safeguard the economic, political and social rights of peasants by securing goods and services and ensuring the participation of the broad mass. The objectives of the cooperative societies at that time were to develop self reliance and promote the interest of the members, to put the means of production under the control of the cooperative, to increase production, to expand industries, to conduct political agitation, and to eliminate reactionary culture and customs (Wegenie, 1989). The Derg regime violated some of the internationally recognized basic principles and values of cooperatives and it made cooperatives a platform for conducting political agitation, rather ignoring their political neutrality. It also violated the very basic principles of cooperatives (open and voluntary membership). In some places farmers were forced to be the member of the cooperative through external pressure especially in the farmers' "producers" cooperatives. Cooperatives were administered by the government cadres and untrained manpower. There were corruptive practices in the cooperatives. In general, the regime misused cooperatives for its political ends violating the underlying principles of cooperatives. As a result, similarly as the previous government, cooperative movements during the regime had a life equal to the then government in power (Subramai, 2005). During this time, cooperatives were forced to operate in line with socialist principles, which meant that production and marketing of produce were done collectively. Membership to cooperatives was also compulsory, which goes against the basic cooperative principle of voluntarily participation. They were instruments for implementing government policies; leaders loyal to government. Violation of cooperative principles proved to destabilize cooperative movements in Ethiopia as most of the cooperatives were dismantled following the downfall of the socialist system (Bezabeh, 2012).

Cooperative movement in post 1991

During the late 1990s, the government of Ethiopia revived its interest in cooperatives and they become part and parcel of the country's agriculture and rural development strategy (MoFED, 2006). Since 1994, the Government of Ethiopia has made efforts to promote a

new generation of cooperatives that differ from their predecessors that were put in place under previous regimes. In agriculture, cooperatives are meant to play a central role in efforts to develop the sector. Ethiopia's sustainable development and poverty reduction program seeks to organize, strengthen and diversify autonomous cooperatives to provide better marketing services and serve as a bridge between small farmers (peasants) and the non-peasant private sector (FDRE, 2002).

In 1996/97, the Ethiopian Government prepared a draft cooperative law with the mission to enable the rural and urban working people solving their socio-economic problems based on their local resource basis. To this end, the new law proposed for the pooling of the responsibilities of organizing and promoting all types of cooperative societies under a single administrative agency (i.e. a commission at federal level and bureau at regional levels); unlike Proc.No.138/1987 of the previous government that segregates such responsibilities to different government organs. Accordingly, Federal Cooperative Commission is established by "Cooperative Commission" Establishment Proclamation No., 274/2002, which latter on renamed as Federal cooperative Agency in 2006. It is established as autonomous federal government organ, which is accountable to the Ministry of Agricultural and Rural Development (Hailu, 2007). Agricultural cooperatives has also given more emphasis by the government as they are means to implement agricultural development policies directed specifically towards small holder farmer. Over the last five years, according to data from the Federal Cooperative Agency, the number of cooperatives in Ethiopia grew by 87.4 percent. Much of this growth trend is explained by expansion of cooperatives in Oromia, Tigray and Somali regions during 2007-2012. In Ethiopia, as of 2012, there were 43,256 primary cooperatives (Table 1), both agricultural and nonagricultural, with 6.5 million members (of which 21.5 percent are female) and have own 2.7 billion birr capital (Bernard *et al.*, 2013).

2.5. Analytical modeling

Logistic regression model is one among the models which are used for modeling binary outcomes. For example participate/not participate, member/non member. Some of the other popular model used for binary outcomes includes probit model, tobit model and discriminate analysis model (Thompson *et al.*, 2009). This study used the logistic regression model due to the following strength of the model.

- I. In logistic regression model there is less consensus on how best rank predictors unlike liner regression model where predictors are usually ranked by partial correlation (Thompson et al., 2009).
- II. According Harrell (2001), under the consideration of the weakness of other binary models, probit lacks natural interpretation of the regression parameters and discriminate analysis assumes predictor variables are normally distributed and that variables jointly assume a multivariate normal distribution. These assumptions are often violated since many variables in regression analysis are dichotomous or discrete. In contrast the logistic regression model makes no assumptions about the variables distribution, that it is a direct probability model because it is stated in terms of $\Pr\{Y = 1|X\}$.

2.6. Empirical Review

Othman *et al.* (2009) analyzed factors that influence cooperative membership and increment in shares in Malaysian cooperatives using a logit model. The results of the study showed that gender, age, occupation, annual general meeting attendance and membership duration influenced cooperative membership.

Jensen *et al.* (2011) using a probit model studied and found that the interest in joining a cooperative is positively influenced by farm size, on-farm storage and off-farm income. Grace (2011) conducted a study on exploring the determinants of joining dairy farmers' cooperatives in Rwanda, and the result revealed that farmers' membership in cooperatives was mainly affected by the need to access to markets, agro-vet services and access training opportunities, and the need to work with others. The study established that some farmers have not yet joined because they could not afford membership fees and because of the poor performance of the cooperatives and lack of awareness about the cooperative.

Thomas and Fanaye (2012) analyzed the determinants of the proportion of women and women in the membership of agricultural cooperatives using a Tobit and logit model respectively showed that the functions undertaken and the way the cooperatives are organized significantly affected women's proportion in cooperatives membership; and age and household size are likely to influence women's participation in cooperative.

Azmah Othman *et al.* (2012) studied factors influencing cooperative membership preferences in Malaysian using logistic regression analysis and found that age and occupations are important predictors of cooperative membership preferences.

Woldegeberia *et. al.* (2013) conduct study on determinants of rural people to join cooperatives in Northern Ethiopia using probit model. The finding illustrated that information access, special skill, membership in rural association, frequency of attending a public meeting/workshop, household head education, credit access, training access, number of family members in school, distance to main market, availability of infrastructures, farmland ownership and farmland sizes are the major explanatory variables statistically influencing the rural people in joining the cooperative societies in the study areas.

The study by Divine Mugabekazi (2014) adopted probit regression analysis to determine factors influencing membership in coffee cooperatives in Huye district, Rwanda. The result showed that factors such as age of the household head, household size, distance to cooperative washing station, access to credit, experience in growing coffee and quantity of coffee produced were statistically significant factors influencing membership in coffee cooperative.

Dejen Debeb and Matthews Haile (2016) studied on factors affecting farmers' cooperative membership increment in Bench Maji zone, south-western Ethiopia; and in that level of education, information/media access, training, marketing and cooperative promotion offices' support, embezzlements of assets, attitude of farmers towards cooperatives, leadership commitment, trust among members and management committee, awareness level were found to statistically and significantly influence farmers' cooperative membership in the study area.

Nazirah Che Jaafar *et..al.* (2017) used stepwise multiple linear regression analysis to examine factors affecting membership of sustainable oil palm grower cooperative among oil palm smallholders in Malaysia. Factors like gender, non-farm occupation, knowledge of cooperatives, community/society involvement, household income, commitment, perception, management and communication were identified as significantly influenced respondents in the decision to become members of the cooperatives.

2.7. Conceptual Framework of the Study

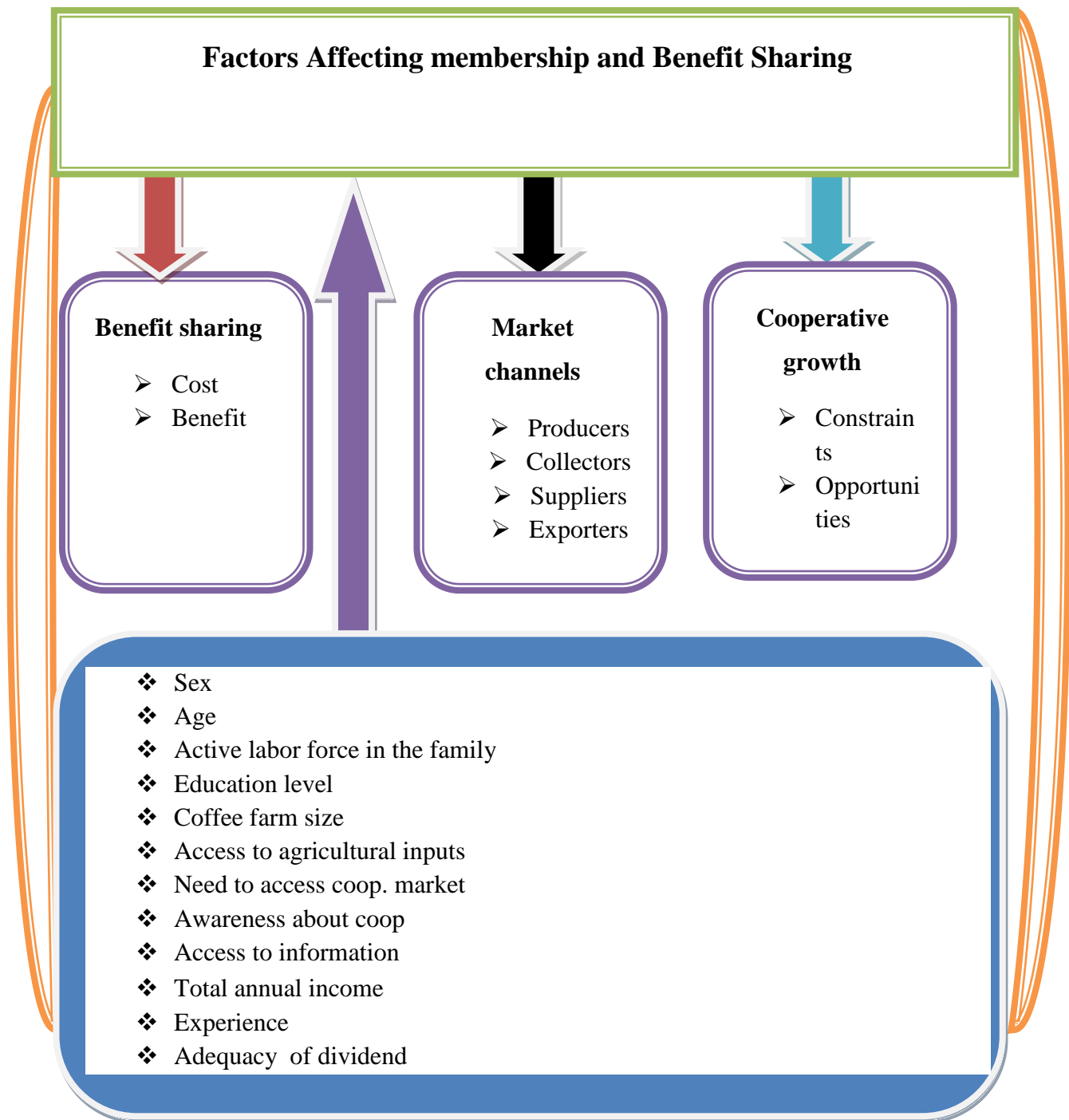


Figure 1: Conceptual framework of the study
Source: Own sketch

3. RESEARCH METHODOLOGY

3.1. Description of the study area

Bench-Maji zone is found in the Southwestern border of Ethiopia in the South Nations, Nationalities and Peoples Region. It is one of the thirteen zones of the SNNP Regional State. The zone is located in 34°_45' to 36°-10' East 5°-40' to 7°-40' North (Bench-Maji Zone Tourism and Communication Bureau Report, 2010). The zonal capital, Mizan-Teferiis, found 561 Km southwest of Addis Ababa and 850 Km from the regional city, Hawassa.

The zone is bordered in north by Sheka Zone and Gambella Regional State; the South Sudan in the west and the south border, in the northeast by Kaffa Zone, and in the southeast and east by the South Omo Zone (Awoke, 2007:99). The zone has one municipality and ten districts which are divided in to 240 *kebeles*. The zone is situated in 193, 266 square Kilometer area of land (Bench-Maji Zone Tourism and Communication Bureau Report, 2010). According to the 2007 census, the population of Bench-Maji Zone is 659,046 (CSA, 2008). However, in the reality on the ground, the population is rising from time to time due to high in migration. The same source shows that, of the total population of the zone 582,198 and 76,848 people dwell in rural and urban areas respectively. CSA, in its projection of 2010, estimated the population of the zone would be 700,812 (Ibid).

Dehub Bench is one of the district in the Southern Nations, Nationalities, and Peoples' Region of Ethiopia. It is named for the Bench people. Part of the Bench Maji Zone, Dehub Bench is bordered on the south by Meinit Shasha, on the west by Guraferda, on the north by Sheko, on the northeast by Semien Bench, on the east by She Bench, and on the southeast by Meinit Goldiya. The district is known for its highest production of coffee and other cereal crops. However, coffee production takes the lion share and main source of income generation of the household in the district. Major cereal crops grown in the district are maize and teff. Moreover, root crop are produced in the district include potato and taro (godere) and fruit product like banana and avocado are produced in the district.. There are nine farmers coffee cooperatives in district.

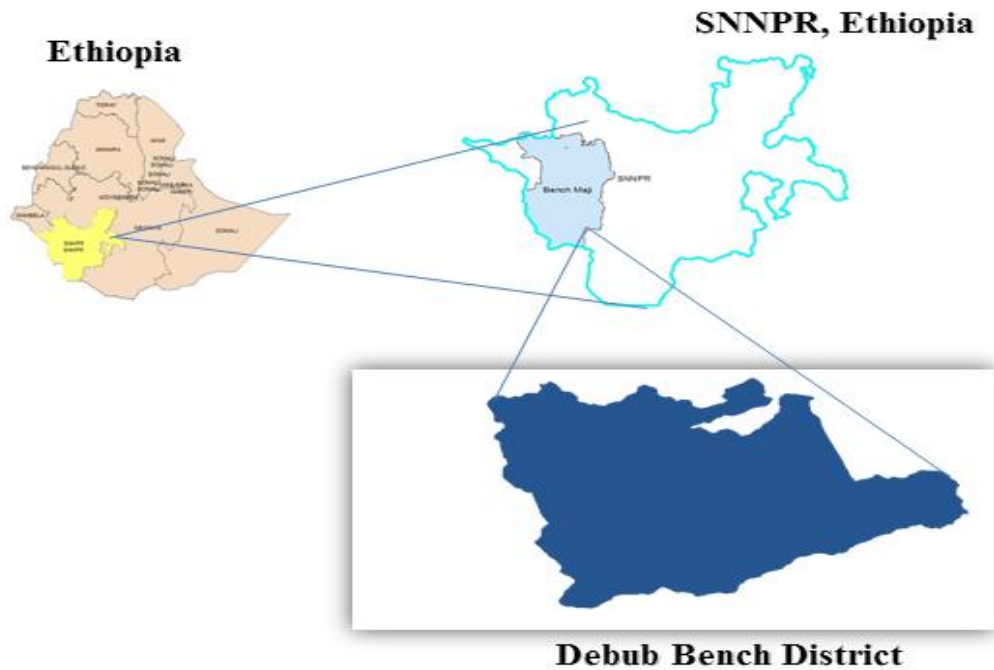


Figure 2: Map of the study area manipulated from Arc GIS 10.3.1

3.2. Data Types, Sources and Methods of Data Collection

The data, both quantitative and qualitative types, needed for this study were collected from both primary and secondary sources. The primary data like on sex of the household, age of the household, educational status of the household, farming experience, annual income of the farmers, awareness of the farmers about the cooperatives, farmers need to access the cooperative marketing outlet, input, access to the information and perception of farmers about the adequacy of dividend, challenges and opportunities of primary cooperatives were collected from randomly selected households (coffee cooperative members and non members), suppliers, cooperative unions and exporters using a pre-tested semi-structured questionnaire for each group.

In addition to the primary data, the secondary data like purchasing price information, production and marketing cost data from traders and other secondary data were collected from published and unpublished reports of different level of agricultural bureau (country, regional and zonal, district and *kebeles*), report of CSA (Central Statistical Agency).

3.3. Sampling Technique and Sample Size Determination

Farmers' sampling technique

The target population for this study were the smallholder coffee producers (members and non members) and other actors along the coffee market chain. For this study, in order to select a representative sample, purposive and multi stage sampling procedures were used for the selection of sample household heads. Dehub bench district was selected purposively as it was one of the highest coffee producing district in Bench Maji zone.

In the first stage nine major coffee producing *kebeles* of the total 26 *kebeles* in the district were stratified based on production potential into three as high producing, medium producing, and low producing *kebeles*. In the second stage, three sample *kebeles* (namely *Mashinay, Fanika, Kite kebeles*), one from each stratum, were selected randomly. In the third stage, smallholder farmers in each three sample *kebeles* were stratified based on coffee cooperative membership status into two as member farmers and non-member farmers. Then, a total of 216 sample coffees producing farmers (154 member and 62 non-member sample farmers) were selected randomly and proportionately.

Then using Kothari (2004) sample size determination formula as described in below equation, sample of the determined size of farmers were drawn. Accordingly, the required sample size at 95% confidence level was used to determine a sample size required to represent the population.

$$n = \frac{z^2 pqN}{e^2 (N-1) + z^2 pq} \text{-----} (1)$$

Where N is total population of coffee growing farmers in the district (7260), n is the sample size for the study, Z is the selected critical value of desired confidence level under normal curve (1.96), p is the estimated proportion of an attribute that is present in the population which is 0.175 in this study. q =1-p that is 0.825 and e is the desired level of precision which is 0.05

Table 1: Sampling procedure

Kebeles	Total Number of Households (N)	Stratum	Number of households (Member) N ₁	Number of households (Non-Member) N ₂	Total sampled farmers (n)	Sampled farmers (Member) n ₁	Sampled farmers (Non-Member) n ₂
Mashinay	135	Medium	100	35	62	46	16
Fanika	114	Small	84	30	53	39	14
Kite	220	Large	150	70	101	69	32
Total	469		334	135	216	154	62

Source: Dehub Bench District Agriculture Office (2017).

Sampling technique for actors other than farmers

Data from, suppliers, cooperative unions, exporters were selected for the purpose calculating the marketing margins. Following the chain of actors trading with sampled farmers, the following sample sizes were taken for actors other than farmers.

Cooperatives/union: Following the chain of actors, all the two cooperative unions linked with the sampled farmers with marketing and other activities were selected.

Suppliers: a sample of 10 suppliers out of the total of 30 suppliers which were linked with the smallholder farmers were selected in proportionately sampled using systematic random sampling technique. The systematic random sampling technique was done based on the volume of coffee they bought from the farmers.

Exporters: currently there were around 500 exporters involving in Ethiopian coffee business. These exporters had license to buy coffee comes from any parts of the country. But in the year 2016/17 only 25 were frequently purchased coffee from the Banch Maji zone. Among these 25 exporters, only 15 exporters were linked with the selected sample of 10 suppliers in the district. Then, for the purpose of this study, sample of five exporters were selected randomly.

3.4. Methods of Data Analysis

After the data collection, the data collected were coded to simplify further tasks. The respondents' scores was summarized & made ready for analysis. Two types of data

analysis, namely descriptive statistics and econometric analysis, were used for analyzing the data from farmers and coffee traders.

Descriptive statistical analysis

Descriptive statistics like frequency, percentages, mean and standard deviation in were used in examining and describing marketing share and farm household characteristics and presented using tables and graphs.

Marketing margin

In a commodity subsystem approach, the institutional analysis is based on the identification of the marketing channels. When there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and by comparing them with the final price to the consumer. The consumer price is then the base or the common denominator for all marketing margins. Comparing the total gross marketing margin is always related to the final price or the price paid by the end consumer and then expressed as a percentage (Mendoza, 1995).

$$TGMM = \frac{(end\ buyingprice - first\ sellingprice)}{end\ buyerprice} \text{ ----- (2)}$$

Where, TGMM is total gross marketing margin. It is useful to introduce the idea of producers’ gross margin (GMMp) which is the portion of the price paid by the consumer that goes to the producer. The producers’ margin is calculated as:

$$TGMMp = \frac{(end\ buyingprice - marketing\ gross\ margin)}{end\ buyerprice} \text{ ----- (3)}$$

Where, GMMp = the producer's share in consumer price

Econometric analysis

In order to analyze factors affecting membership in primary coffee cooperative at household level, binary logistic regression model was used with the help of STATA 2014 version. The dependent variable is qualitative and dichotomous and therefore, binary logistic regression model is the adequate model to be employed. Because the dependent variable i.e. membership status in coffee cooperatives is not a continuous one, the goal of logistic regression is a bit different, because it predict the likelihood that the dependent variable membership status in coffee cooperatives is equal to 1 (member) or 0 (non-member) (given certain values of the explanatory variables. Similar studies (Dejen and

Matthews, 2016; Mugabekazi, 2014) have used binary logistic. Hence, an appropriate analysis on factors influencing membership in coffee cooperatives was captured through dichotomous dependent variable (it takes 1 if the coffee grower household was a member of primary coffee cooperative and 0 otherwise).

Therefore, following Gujarati (2004), the Logit distributional function was specified as follows

$$\text{Prob (event)} = \text{Prob (being a member of cooperative)} = P_i = \frac{1}{1 + e^{-z}} \quad \text{where } z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p + \varepsilon$$

The probability of the event not occurring (in this case not being a member of cooperative) is estimated as

$$\text{Prob (no event)} = 1 - \text{prob (event)} = \text{Prob (not being a member of cooperative)} = 1 - \text{Prob (being a member of cooperative)} = 1 - P_i$$

Where, P_i is the probability of being member in coffee cooperatives in relation with the explanatory variables

$1 - P_i$ refers to the probability of being non-member in coffee cooperatives in relation with the explanatory variables

e^z = Irrational number to the power of Z_i

Z_i = A function of 'n' explanatory variables

β 's = parameters

ε = error/stochastic term

i = Individuals/respondents in the study in which $i = 1, 2, 3, \dots, n = 216$

3.5. Estimation procedure

Testing multicollinearity problem

Two measures are often suggested to test for the presence of multicollinearity. These are: Variance Inflation Factor (VIF) to test for association among the continuous explanatory variables and contingency coefficients to test for dummy variables (Gujarati 2003). Prior to the estimation of the model parameters, it is crucial to look into the problem of multicollinearity among the potential hypothesized independent variables. The reason for this is that if multicollinearity turns out to be present, regression results obtained might not be used to make valid policy recommendations. Before running the binary logit regression all, the independent/hypothesized explanatory variables were checked for the existence of

multicollineality problem among them. It was measured using Variance Inflation Factor (VIF). According to Gujarati (2004), VIF can be defined as $VIF(X_i) = 1/(1-R^2)$ Where R^2 is the coefficient of determination when the variable X_i is regressed on the other explanatory variables. A statistical package known as STATA 2014 version was employed to compute these values. Once R^2 values were obtained, the VIF values can be computed using the formula. As a rule of thumb, if the VIF of a variable exceeds 10 (this will happen if R_i^2 exceeds 0.95), the variable is said to exhibit collinearity (Gujarati, 2004). Thus, it is quite essential to omit the variable with the VIF value exceeds 10.

3.6. Hypothesis and Definition of Variables

Dependent variable:

Household's membership in primary coffee cooperatives is dichotomous dependent variable in the model taking a value of 1, if a household is member of the cooperatives and, 0 for non-members of the cooperatives.

Independent variables

The major explanatory variables hypothesized to influence the farmers' membership in primary coffee cooperatives are defined and hypothesized as follows.

Sex of household head (SEX): This is a dummy variable taking a value of 1 if the head of the household is male and 0 if otherwise. Male headed households might be more interested in becoming members of coffee cooperatives due to their opportunities and culture of participating in cooperatives and clubs in the surrounding communities. Furthermore, they are the ones who attend meetings of campaigns for membership while women are left at home to attend to household cares. As confirmed by Abebaw and Haile (2013), this variable influenced cooperative membership decision in that male-headed households are more likely to participate in agricultural cooperatives than female-headed households'. Othmanet *al.*, (2009) also found that sex of the household affected the decision to cooperative membership.

Age of household head (AGE): This was a continuous variable defined as the farm household head's age at the time of interview and measured in years. The age of the household head is considered because the head of household is the one who makes decisions in the farm regarding whether or not to be a member of a cooperative. The study by Bizualem and Saron (2018) found that increase in the age of the households positively affected the probability of joining primary cooperative. The result of Thomas and Fanaye

(2012), Othman *et al.*, (2009) and Karl *et al.*, (2006) revealed that age of the household matter their decision to cooperative membership.

Active family labor force (AFLF): This variable is a continuous explanatory variable measured in the total number of family the household has in terms of active labor force (15-65 years of age). In the rural agricultural context, larger households are associated with more labor for coffee production, processing and marketing related activities. Previous studies also showed that family size is another variable that affects the membership decision positively (Mojo *et al.* 2015; (Bernard and Spielman 2009). Therefore, the variable expected to have positive effect on cooperative coffee membership.

Education of household head (EDUC): This is a continuous variable defined as the farm educational level at the time of interview. The higher the education level, the better would be the knowledge and awareness of the farmer towards the importance of primary cooperatives (Kraenzle, 1989; Klien *et al.*, 1997). Hence, those farmers with higher formal education are in a better position to know the benefits of cooperative and are more likely to join cooperative. So this variable was expected to affect cooperatives membership positively. Dejen and Matthews (2016), Woldegebrial, Zeweld *et al.* (2013), and Karl *et al.*, (2006) found that education of the farmers has something to do with the cooperative membership.

Coffee Farm Size (CFS): It continuous variable and it represents the land allotted to coffee production in hectare. As the land of household for coffee production increases the yield proportionally may increase, that in turn forces the farmers to join cooperatives to sell their product. Francesconi and Heerinck (2010) who revealed that farmers who produced under the required level (with small coffee farm size) are excluded from agricultural cooperatives Therefore, this variable expected to influence positively.

Access agricultural inputs (AAI): This is a dummy variable taking 1 if farmers responded that they need access to agricultural inputs from primary cooperatives and 0 if otherwise. Farmers' need of agricultural inputs from cooperatives is supposed to increase the probability of membership. The study by Bizualem and Saron (2018) and Gasana (2011) revealed that more farmers can be pooled to the agricultural cooperatives when cooperatives provide agricultural inputs and technologies. Thus this variable was hypothesized to affect the coffee cooperative membership positively.

Need to access cooperative market (COMRKT): This is a dummy variable taking: As farmers needs to sell their products via primary cooperative and 0 if not. The more

attractive the cooperative market is, the more the likelihood would be the cooperative membership by farmers. The result of the study by Dejen and Matthews Haile (2016), Gasana Grace (2011) showed that need to access cooperative market affects farmer's decision to the cooperative membership. Therefore, it is hypothesized that farmers need to access to cooperative market outlet can affect the probability of primary coffee cooperative membership positively.

Awareness about cooperatives (AWARENESS): This variable is defined as the awareness of farmers towards the socio economic importance of cooperatives. It is a dummy variable taking 1 if farmers have positive awareness about cooperatives and 0 if not. Farmers having better awareness towards the socio economic importance of cooperatives would likely to decide to be a member of cooperative. The study by Nazirah,et.al. (2017), Dejen and Matthews Haile (2016), and Gasana Grace (2011) showed that farmers who had more knowledge about cooperatives are more interested to be a member of agricultural cooperatives. Thus, this variable was expected to influence primary coffee cooperative membership positively.

Access to information/media (AIFO): It is a dummy variable which takes a value 1 if the farmer has access to information and 0 if otherwise. Information/media access plays a great role in creating awareness about the socio economic benefit of primary coffee cooperatives. The information about the idea of cooperatives disseminated through media would motivate households to use the cooperatives or it would encourage them to join the cooperatives. Therefore, this variable was expected to have positive effect on cooperative membership. The findings of Dejenand Matthews Haile (2016) revealed that access to information affected decision of farmers to join or not join of primary cooperatives.

Total annual income (TAY): It is a continuous variable and it refers to the sum of all money received from on-farm and off-farm activities. On-farm income refers to the total annual earnings of the family from sale of crop, livestock and livestock products (Kaba, 2009). Off-farm income represents the amount of income the farmers earn in the year from nonfarm activities. It is measured in terms of birr. This income improves the farmers' financial position that in turn enables them to invest in purchasing the needed amount of farm inputs. Income is assumed to have direct or inverse relation with marketable surplus. Bizualem *et al.* (2015) found an increase in the income, increase coffee marketed surplus. Total annual income was expected to influence membership negatively or positively.

Experience in coffee growing (EXP): It is a continuous variable and defined as the number of years of coffee growing farmers spent on coffee farming business. More experienced farmers have more ideas on costs and returns associated with being a coffee cooperative member. The result of this study agreed with Ayelech, 2011 Farmers with longer farming experience are expected to be more knowledgeable and skillful. Hence, farming experience is likely to influence positively the membership decision

Perception of farmers towards the adequacy of dividend (ADD): As farmers believed that the dividend given is relatively adequate enough, their membership preferences to agricultural cooperatives would increase. The result of the study by Bizualem and Saron (2018) revealed that perception of farmers towards the adequacy of dividend affected the cooperative membership status. Hence, attractiveness of dividend distributed was hypothesized to affect farmers' decision to join primary coffee cooperatives positively.

Table 2: Summary of definition and hypothesis of variables in the model

Independent variables	Descriptions	Expected effect
Sex of household head	Dummy 0= Female; 1= Male	+/-ve
Age of household head	Continuous measure in year	+/-ve
Active labor force in the family	Continuous measure in Number	+ve
Education level	Continuous Years of schooling	+ve
Coffee farm size	Continuous measured in hectare	+ve
Access to agricultural inputs	Dummy 0= No; 1= Yes	+ve
Need to access coop. market	Dummy 0= No; 1= Yes	+ve
Awareness about coop	Dummy 0= No; 1= Yes	+ve
Access to information	Dummy 0= No; 1= Yes	+ve
Total annual income	Continuous measured in birr	+/-ve
Experience	Continuous measured in year	+ve
Adequacy of dividend	Dummy 0= No; 1= Yes	+ve

4. RESULTS AND DISCUSSION

In this chapter, results of descriptive; marginal and econometric analysis are presented. It has four main sections. The first section deals with the description of the sample households. The second section presents marketing channels, marketing costs and margins, and benefit shares of actors. The third section presents the, opportunities and challenges of primary coffee cooperatives in the study area. The fourth section presents results of Econometric analysis on identifying factors that affect farms decision to join primary coffee cooperatives in the study area.

4.1. Farmers Characteristics by Cooperative Membership

The chi-square test for the variables sex, awareness towards the socio-economic importance of cooperatives, need to access to cooperative's market, Access to information/media and Adequacy of dividend distributed of farmers have significant difference among the cooperative membership at 1% significance level. Out of the total sample respondents, 211(97.69%) were male-headed households and5 (2.31%) were female-headed. The chi-square test for the variables awareness of farmers towards the socio-economic importance of cooperatives and perception of farmers towards primary coffee cooperative have significant difference among the cooperative membership at 1% significance level. As depicted in the table 3 below, about 95.45% of farmers who have awareness that cooperatives played crucial role in socio economic development were member of the primary coffee cooperative.

Regarding the Need to access to coop market about, 94.16% of members and 30.65% of nonmembers were preferred to sell their product (coffee) using cooperative marketing channel. But the remaining 4.55% members and 69.35% non members were preferred to sell their coffee via the other marketing channels. The majority of coffee farms 79.87% members 11.29% of nonmembers had access for information /media. But the rest 24.07 % coffee farms were unable to get the necessary information. According to the survey result, nearly 82% members and 32% of nonmembers believed that the dividend given is relatively adequate enough. On other hands 18% members and 67% of nonmembers disagreed on this issue.

Table 3 : General Characteristics of sampled households (dummy variables

Variables	Number (N=154)	Non members (N= 62)	Total (N=216)	Pearson chi ² test
	%	%	%	
Sex of household head				6.5813***
Male	99.35	93.55	97.69	
Female	0.65	6.45	2.31	
Total	100.00	100	100	
Access agricultural inputs				15.96***
Yes	68.18	38.71	59.72	
No	31.82	61.29	40.28	
Total	100	100	100	
Awareness about cooperatives				57.3649***
Yes	95.45	24.19	75	
No	4.55	75.81	25	
Total	100	100	100	
Need to access to coop market				35.4807***
Yes	94.16	30.65	75.93	
No	5.84	69.35	24.07	
Total	100	100	100	
Access to information/media				86.7595***
Yes	79.87	11.290	60.19	
No	20.13	88.710	39.81	
Total	100	100	100	

Source: survey result, 2017

***, **, and * represents level of significance at 1%, 5%, and 10% respectively.

The average age of the respondents in general was around 39; that of non member and member farmers were around 34 and 41 respectively. The t-test result for this variable showed that member and non member farmers have significant difference by their age at 1% significance level. While the mean educational level of the farmer as a whole was found to be around 6, the average educational level of that of non member and member farmers were around 5 and 6 respectively. The t-test result for the education of the farmers revealed that the education level of framers have significant difference among member and non member farmers at 1% significance level.

The average family labour force size of the respondents in general was around 2.28; non member and member farmers were around 1.67 and 2.53 respectively. The t-test result for this variable showed that member and non member farmers have significant difference by their family labour force size at 1% significance level.

Regarding total income of the respondents, the average income was around 45,929.63 birr; non member and member farmers were around 35,139.19 birr and 50,273.83 respectively.

The t-test result for this variable showed that member and non member farmers have significant difference by their income level at 1% significance level.

Table 4: General Characteristics of sampled coffee households (Continuous variables)

Variable	Non-Member (N= 62)	Member (N = 154)	Total (N =216)	t test
Age (year)	33.87	41.15	39.06	-5.3469***
Educational level (year)	5.145	6.38	6.03	-2.7392***
Family labour force size (number)	1.67	2.53	2.28	-4.4118***
Total income (birr)	35,139.19	50,273.83	45,929.63	-3.4700***
Coffee Farm Size(ha)	2.53	3.94	3.54	-3.7875***
Experience in coffee growing (year)	9.53	16	14.15	-7.2640***

Source: survey result, 2017

***, **, and * refers to significance level at 1%, 5%, and 10% respectively.

4.2. Identification of Marketing Channels and Margins

Coffee market chain actors and their role

As stated in Mendoza (1995), Coffee marketing channels is the sequence of intermediaries through which coffee passes from farmers to ultimate consumers. The analysis of marketing channels is intended to provide a systematic knowledge of the flow of goods and services from their origin (producers) to the final destination (consumers). The study revealed that coffee passes through different stages before it reaches the final consumers. Major actors participated in the coffee marketing chain were smallholder farmers, rural collectors, cooperatives/unions, suppliers, exporters, domestic wholesalers, domestic retailers and consumers. These were firms and individuals who assumed different marketing functions along the marketing chain.

Smallholder farmers: Smallholder farmers were basically involved in production, harvesting, processing and/or post-harvest handling. Most of smallholder farmers' production role in the marketing chain include land clearing (land preparation), seedbed preparation, seedling rising, planting, fertilizing, spraying, weeding, cultivation, plant/tool maintenance and harvesting/picking.

Collectors: Collectors are those immediate buyers of coffee from smallholder farmers. In the newly ECX market arrangement, collectors are not legally acknowledged, but delegated for the suppliers and participated in the market on behave of the suppliers.

Primary cooperatives: Primary cooperatives are actors in the marketing chain who purchase coffee directly from smallholder farmers and sell to cooperative unions. Primary cooperatives movement in the area aims at overcoming marketing problems and increasing farmers’ bargaining power. Cooperatives benefit the farmers to combine their strength and gain more income.

Cooperative unions: Unions are those actors in a marketing chain buying coffee directly from primary cooperatives and sold to mainly international importers.

Exporters: Coffee exporters are the last market chain link in the domestic trade. They are relatively well equipped with the necessary capital, facilities and knowledge. Those exporter mainly concentrated at the central market (Addis Ababa) and they purchased coffee based on the given quality criteria’s. They are allowed to buy from ECX through auction floor in Addis Ababa. Before the product they process into export standard sell it to importer.

Marketing channels in the study area

According to this study coffee passes through different stages before it reaches the final consumers. In generally, three major coffee marketing channels were identified in the study area

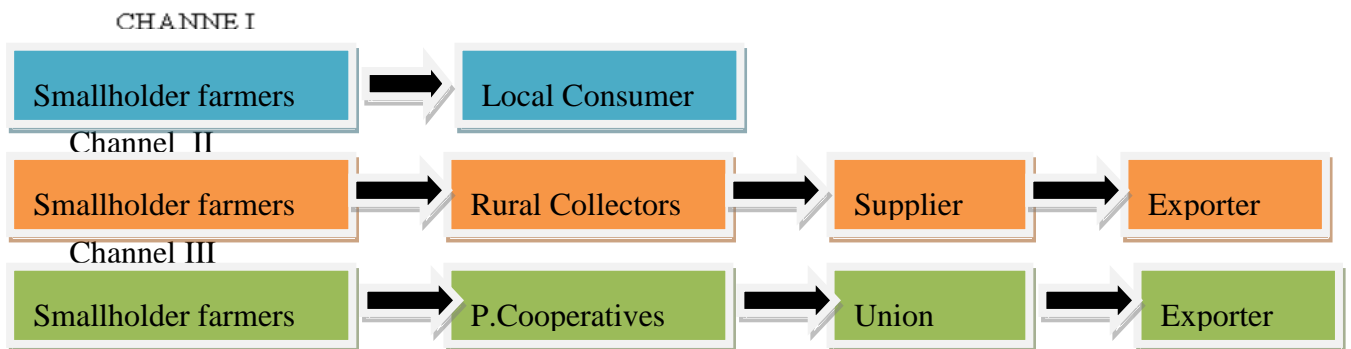


Figure 3: Marketing channels in the study area

Source: Authors observations

Among the above major marketing channels, channel II and channel III were the concerning channels against which the marketing margin share of farmers was computed and compared through. In addition to that rural collectors were not considered to compute the margin in this study since they are not the main actor who play vital role in coffee

marketing channel compared to others. In the study area they perform only the purchasing activities on behalf of the suppliers.

4.3. Result of Marketing Margins Analysis

Production and marketing cost structure of coffee

Marketing margin is defined as the percentage of the final weighted average selling price taken by each of the marketing actor. The margin must cover the cost involve in transporting the produce from one stage to the next and provide a reasonable return to those doing the marketing.

Production costs: This includes mainly those costs related with labor and/or materials for production of coffee. Coffee production needs costs for land clearing, purchase of seedling/seeds, cost for cultivation and weeding, management of coffee trees (pruning, shearing, planting shadow trees) and other costs related with production. Smallholder farmers' production cost is identified as the major portion of all costs along the marketing chain.

Marketing costs: the major marketing costs were handling cost (packing, loading and unloading), transport cost, product loss storage costs, processing cost, and capital cost (interest on loan), market fees, commission and other costs. Costs incurred and price received by major actors in the chain are identified.

Table 5: Estimated cost and margins of farmers

Description	Cost /birr/quintal of: Red cherry
Farmers	
Production and harvesting cost	445.75
Sorting & marketing cost	24.5
Packaging (bag and labor)	7
Loading/unloading	2.5
Tax	15
Other miscellaneous expenses	2.46
Total marketing cost	51.46
Total cost	497.21
Selling price (to coop)	750
Selling price (supplier)	590
Gross margin (Cooperatives)	304.25
Gross margin (suppliers)	144.25
Net benefit (Cooperative)	252.79
Net benefit (supplier)	92.79

One quintal of red cherry after being dried becomes 36 kg of dry cherry
 36kg of dry cherry becomes 17kg of clean coffee bean

Source: Own computation from survey result, 2017

Table 5 depicts that the main part of cost for farmer was production 89.65 % of the total cost. The remaining 10.35% was marketing cost. The selling price for farmers received from cooperatives was greater than that of other private traders. The selling prices per quintal of red cherry were 750 birr and 590 birr respectively. Other things being constant, Farmers on average obtained a profit margin of 252.79 birr per quintal when they supply their coffee for cooperatives and 92.79 birr if they preferred the private trader channels.

Table 6: Estimated cost and market margins of actors in channel II (trader channel)

Suppliers	
	Costs/birr
Purchasing cost	590
Pulping and washing	43.83
Cleaning/sorting/grading	3.95
Packaging (bag and labor)	11
Storage	3.5
Loading and unloading	2.5
Transport to Bonga ECX	15
Transit fee to municipality	2.45
ECX service/commission cost	22.95
Interest on capital	6.35
Utility and communication costs	3.65
Miscellaneous expenses	5.55
Total marketing cost	120.73
Total cost	710.73
Selling price	1,125
Gross margin	535
Profit margin (Net margin)	414.27
Exporters	
Purchasing cost	1125
Loading and transport to A.A	12.5
Polishing and blending	3.74
Packaging green bean (labor and bag)	13.26
Warehouse storage service	2.88
CLU liquoring/grading cost	32.72
Loading and transport cost	20.8
Unloading and handling at port	1.09
Export taxes	6.13
Insurance fee	2.05
Interest on Capital	7.79
communication cost	4.44
Total marketing cost	107.4
Total cost	1232.4
selling price	1,997.00
Gross margin	872.00
Profit margin (Net margin)	764.60

Source: Own computation from survey result, 2017

Table 6 above indicates that the marketing costs for suppliers and exporters were 120.73 birr and 107.4 birr respectively. The major cost components which accounted 36% for suppliers was pulping and washing fee. For exporters, CLU liquoring/grading, Packaging green bean (labor and bag) and Loading and transport costs are major costs incurred by exporter. Relatively higher gross and profit margin were obtained by exporters than suppliers.

Table 7: Estimated cost and market margins of actors in channel III (cooperative)

Primary Cooperatives	Costs /birr
Purchasing cost	750
Pulping and washing	36
Cleaning/sorting/grading	4.5
Packaging (bag and labor)	10
Storage	3.5
Loading and unloading	2.5
Transport to Bonga ECX	15
Transit fee to municipality	2
ECX service/commission cost	22.95
Interest on capital	4.72
Utility and communication costs	3.25
Total marketing cost	104.42
Total cost	854.42
Selling price	1,223
Gross margin	473
Profit margin (Net margin)	368.58
Cooperative Unions	
Purchasing cost	1,223
Loading and transport to A.A	10.2
Unloading in A.A	1.02
Polishing and blending	4
Packaging green bean (labor and bag)	9.45
Warehouse storage service	1.5
CLU liquoring/grading cost	30.95
Loading and transport cost	20.8
Unloading and handling at port	0.75
Export taxes	5.25
Insurance fee	1.95
Capital cost	5.42
communication cost	4.44
Total marketing cost	95.73
Total cost	1,318.73
selling price	2,522.00
Gross margin	1,299
Profit margin (Net margin)	1,203.27

Source: Own computation from survey result, 2017

Table 7 above implied that both purchasing and marketing costs related to transaction of coffee by primary cooperatives and cooperative union. Transportation, hulling, packaging and ECX's service costs were the major cost components for cooperative union. Cooperatives incurred costs on pulping, drying, de-husking, and packaging activities. Primary cooperative and unions received higher share of market margin and profit margin

Compared to farmers. Their profit margins were 369 birr and 1,203.27 birr per 17kg of clean bean coffee respectively

Table 8: Summary of cost and benefit sharing of actors in channel II and III

Channel II (Trader channels)				
Items (Birr/85kg	Producers	Suppliers	Exporter	Sum
Purchase prices	-	590	1125	1715
Production cost	445.75	-	-	445.75
Marketing cost	51.46	120.73	107.4	279.59
Total	497.21	710.73	1232.40	2440.34
Sale prices	590	1125	1,997.00	3712
Marketing margin	144.25	535	872	1551.25
% share of margin	9.30	34.49	56.21	100.00
Profit margin	92.79	414.27	764.60	1271.39
% share of profit	7.30	32.56	60.14	100

Channel III (cooperative channels)				
Items	Producers	Cooperatives	Union	Sum
Purchase prices	-	750	1223	1973
Production cost	445.75	-	-	445.75
Marketing cost	51.46	104.42	95.73	251.61
Total	497.21	854.42	1318.73	2670.36
Sale prices	750	1223	2,522.00	4495
Marketing margin	304.25	473	1,497.00	2274.25
% share of margin	13.38	20.80	65.82	100
Profit margin	252.79	368.58	1203.27	1824.64
% share of profit	13.85	20.20	65.95	100

Source: Own computation from survey result, 2017

Table 8 above indicated the summary of costs, gross margin and profit margin of actors both cooperatives and other private traders channels. The two actors, unions and private exporters received highest share of market margin 65.82% and 56.21% and profit margin of 65.95% and 60.14% respectively compared to others actor in the coffee marketing chain. However, farmers received higher profit share (13.85%) when they sold their coffee through cooperative marketing channels and 7.30% if they used channel II (private trader channel). This could be due having higher premium selling price by the

cooperative unions as the result of organic coffee production. Furthermore, the highest profit share taken by cooperative unions has an advantage for farmers because it benefiting them in the form of dividend, social service, capacity building via their respective cooperatives.

4.4. Econometric Results

In order to analyze factors affecting farmer's membership in primary coffee cooperatives at household level binary logistic regression model was employed. This model is selected for the following reasons. The dependent variable is qualitative and dichotomous and therefore, Logistic regression model is the best to use. Because the dependent variable i.e. membership status in coffee cooperatives is not a continuous one, the goal of logistic regression is a bit different, because it predict the likelihood that the dependent variable membership status in coffee cooperatives is equal to 1 (rather than 0) given certain values of the explanatory variables. Similar studies (Dejen and Matthews, 2016; Mugabekazi, 2014) have used binary logit. An appropriate analysis on factors influencing membership in coffee cooperatives will be captured through dichotomous dependent variable named CMSH (it takes 1 if the coffee grower household is a member of a coffee cooperative and 0 otherwise).

Empirical Results of the Econometric Model

From the twelve (12) independent variables, six (6) of the variables were found to be significant while the remaining were less significant in explaining the variations in the dependent variable. The binary logistic regression model show that Sex, Educational level, Land allotted to coffee, Awareness about socio-economic importance of cooperatives, Experience in coffee growing and Adequacy of dividend were important factors affecting farmers' primary coffee cooperative membership in the study area .

Table 9: Logistic regression estimate of variables affecting membership

Variables	Odds Ratio	Coefficient	Std. Err	Z	P> z	dy/dx
Sex	58.49	4.06	2.16	1.89	0.059	0.1938
Age	1.03	0.03	0.09	0.34	0.73	0.0001
Active family labor force	1.38	0.32	0.83	0.38	0.70	0.0015
Educational status	12.47	2.52	1.13	2.22	0.03**	0.0116
Land allotted to coffee	2.40	0.87	0.34	2.58	0.01***	0.0040
Agricultural input	2.50	0.92	1.54	0.60	0.55	0.0048
Access to market	7.40	2.00	1.26	1.59	0.11	0.0191
Awareness about socio-economic importance	7761.70	8.95	3.07	2.92	0.00***	0.8059
Access to information	9.58	2.25	1.65	1.36	0.17	0.0159
Total income	1.00	0.00	0.00	1.41	0.15	1.25e ⁻⁰⁷
Experience	1.30	0.26	0.11	2.26	0.02**	0.0012
_cons	2.73	-26.62	8.49	-3.14	0.00	-

Number of obs = 216
LR chi2(11) = 240.82
 Prob> chi2 = 0.00
 Pseudo R² = 0.93

Source: Author work, 2017

Significant level *** (1%), ** (5%) and *(10%)

According to the Logistic regression model result Table, 9 the diagnostic tests conducted on the regression model reveal its convenience to depict factors that affect coffee producer's cooperative membership status.

The chi2 (χ^2) test remind as the regression model is adequate (chi2 (11) =240.82 or P-value = 0.0000). The model adequacy test and the coefficient of determination all together confirmed that model used for the study is soundly well to be used for the purpose of prediction with exception of sex, age, active family labor force, Agricultural inputs, need to access cooperative market outlet, access to information and total income of the household all other explanatory variables included in the regression are significant at 1%, 5% and 10% levels of significance.

Education of Household Head (EDU): the variable education was found to statistically and significantly affect membership in primary coffee cooperative at less than 5% significant level with expected sign. The marginal effect value of 0.0116 for this variable implied that an increase in the educational level of farmers by one schooling year would likely increase the probability of membership in primary coffee cooperatives by around 1.17%. It revealed that

educated farmers are more likely to participate in primary coffee cooperatives than those who are not educated. This result was in consistent with a participation study done by Daniel (2006).

This result implies that education enhances farmer's awareness towards working in cooperatives. Since educated farmers have more access to information, they become to understand the use and benefits of cooperatives, and this awareness enhances their participation in market-oriented activities. Furthermore, the odds-ratio value for education, 12.47, implied that other things being kept constant, as the schooling year of the framers increased by one year, participation will be increased by a factor of 12.5. This result is in agreement with the findings of Kaba (2009), Bawa *et al.*, (2010), Mengistu (2012), Thomas and Fanaye (2012) and Daniel (2013), who revealed that educated farmers can get information from a wide range of sources and use their abilities to secure the necessary information as a powerful instrument for attaining the desired objectives. This implies that those farmers with higher education are in a better position to know the benefits of cooperative and are more likely to join cooperative.

Coffee farm size: This variable also influenced the membership of farmers in primary coffee positively at 1% significance level. The result showed that as the area of land allocated for coffee production increases by one hectare, the probability of being a member in primary coffee cooperative increased by 0.4%. This is due to the fact that ownership of large coffee land plots increases the production size of coffee there by increases membership to primary coffee cooperatives. Wubeshet (2010) also found that an increase in farm land allocated for coffee land increases the quantity of coffee supplied.

Awareness of farmer's towards the socio economic importance of coffee cooperatives:

As expected, this variable determined decision to primary coffee cooperative membership positively and significantly at less than 1% significance level. Compared to others, farmers having better awareness towards the socio economic importance of coffee cooperatives would increase the probability of membership. The marginal effect value of 0.8059 for this variable implied that, farmers having relatively better awareness about primary coffee cooperative than those who haven't would likely to increase the probability of membership by around 80.6%. Furthermore, the odds ration result revealed that the tendency of farmers with better awareness about primary coffee cooperatives to become members was 7761.7 times more compared to those with slight/no awareness. The result of this study agreed with Bizualem and Saron (2018), Nazirah CheJaafaret.*al.* (2017), Dejen and Matthews Haile (2016), and

Gasana Grace (2011) studies, where farmers who had more knowledge about cooperatives are more inclined to be members of agricultural cooperatives.

Experience in coffee growing: Experience in coffee growing is significant at less than 5% and positively influences the farmer's decision to be a member of primary coffee cooperative. The result shows that farmers with more experience in growing coffee were more likely to join primary coffee cooperatives. Increasing the experience by 1 year increases the probability of membership in coffee cooperative by about 0.12%. This is due to the fact that farmers with more experience are better informed on the costs and benefits related with membership and non-membership of a primary coffee cooperative. The result of this study agreed with MUGABEKAZI (2014) and (Ayelech, 2011) studies, where Farmers with longer farming experience are expected to be more knowledgeable and skillful.

4.5. Challenges and opportunities of primary coffee cooperatives growth in the study area

The growth of primary coffee cooperatives in the study area faces several challenge and opportunities. Some of the challenges of the coffee Cooperatives under study raised by the respondents were lack of capital, limited capacity to use modern technologies, lack of equal opportunity in decisions, low awareness background of members, limited capacity of management committee, lack of transparency and accountability, lack of knowledge about duties and responsibilities, unhealthy Competition from private traders and lack of capital.

On the other hand, some of the opportunities raised-were: Availability of suitable agro ecology to produce high-quality coffee, availability of different development collaborates (NGOs and government organizations) that can enhance cooperative performance high demand for natural Ethiopian coffee in importing countries, Government special attention and support and availability of training colleges and universities specialized in cooperatives

Major challenges

Major challenges that hampered the growth of primary coffee cooperatives in the study area were ranked by the respondent in their order of degree of challenge as more challenging, challenging, less challenging, not challenging and not sure respectively and the sample members requested to give their belief according to the classification. Accordingly, 98.61% of the respondents responded that the cooperatives growth were more challenged because of lack of capital 76.39% fluctuations of the international coffee price, 54.63% limited capacity to use modern technologies, 50.46% limited capacity of management committee.

Table 10: challenges for the growth of primary coffee cooperatives in the study area

Challenges	Level of suffer /Degree of challenge(N=216)									
	More challenging		Challenging		Less challenging		Not challenging		Not sure	
	No	%	No	%	No	%	No	%	No	%
Lack of educated professionals	75	32.72	68	31.48	37	17.13	29	13.42	7	3.24
Fluctuations of the international coffee price	165	76.39	36	16.67	15	6.94				
Limited capacity to use modern technologies	118	54.63	98	45.37						
Lack of Equal opportunity in decisions	87	40.28	122	56.48	5	2.31			2	0.92
Low awareness background of members	68	31.48	4	1.85	125	57.87	19	8.79		
Limited capacity of management committee	109	50.46	107	49.54						
Lack of transparency and accountability	99	45.83	66	30.55	41	18.98	3	1.40	7	3.24
Lack of knowledge about duties and responsibility's	61	28.24	24	11.11	102	47.22	29	13.42		
Illegal trader	49	22.68	157	72.68	3	1.39	5	2.31	2	0.92
Lack of capital	213	98.61	3	1.39						

Source: Authors' own computation from survey result, 2017

Existing opportunities for primary coffee cooperatives

Coffee farmers were raised different opportunities and the major once were: Availability of suitable agro ecology to produce high-quality coffee 216 (100%), High demand for natural Ethiopian coffee in importing countries 199 (92.13%), availability of training colleges and universities specialized in cooperatives 185(85.65), availability of different development collaborates (NGOs and government organization 101 (46.76%) and government special attention and support 96(44.44%)

Table 11: Opportunities of primary coffee cooperatives in the study area ranked

Opportunities	No	%	Rank
Availability of suitable agro ecology to produce high-quality coffee	216	100	1 st
High demand for natural Ethiopian coffee in importing countries	199	92.13	2 nd
Availability of training colleges and universities specialized in cooperatives	185	85.65	3 rd
Availability of different development collaborates (NGOs and government organizations)	101	46.76	4 th
Government special attention and support	96	44.44	5 th

Source: own computation from survey result, 2017

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary and Conclusion

This study mainly addressed the identification of determinants of membership and benefit sharing of smallholder farmers in primary coffee. It specifically assessed if farmers get relatively more profit share while selling coffee through cooperative market channel, identified challenges and opportunities of primary coffee cooperatives in the district, and analyzed and identified the underlying determinants of farmer's membership decision to join primary coffee cooperatives. For this purpose, data were collected from a total of 216 households (154 members of primary coffee cooperative and 62 nonmembers). In addition to that two coffee cooperative unions, 15 suppliers, and five exporters were selected following the chain of actors.

Both descriptive and econometric methods of data analysis were employed. The result of marketing margin analysis indicated that the two actors, unions and private exporters received highest share of market margin 65.82% and 56.21% and profit margin of 65.95% and 60.14% respectively compared to others actor in the coffee marketing chain. However, farmers received higher profit share (13.85%) when they sold their coffee through cooperative marketing channels and 7.30% if they used channel II (private trader channel). This could be due having higher premium selling price by the cooperative unions as the result of organic coffee production. Furthermore, the highest profit share taken by cooperative unions has an advantage for farmers because it benefiting them in the form of dividend, social service, capacity building via their respective cooperatives.

The growth of primary coffee cooperatives in the study area faces several challenge and opportunities. Major challenges that hampered the growth of primary coffee cooperatives in the study area were ranked by the respondents in their order of degree of challenge as more challenging, challenging, less challenging, not challenging and not sure respectively and the sample households were requested to give their belief according to the classification. Accordingly, 98.61% of the respondents responded that their cooperatives growth were more challenged because of lack of capital, 76.39% need of immediate price and dividend by farmers, 54.63% limited capacity to use modern technologies, 50.46% limited capacity of management committee. In addition to that the farmers also raised different opportunities: among these availability of suitable agro ecology to produce high-quality coffee high demand for natural Ethiopian coffee in

importing countries, availability of training colleges and universities specialized in cooperatives, availability of different development collaborates (NGOs and government organization and government special attention and support were the major once.

The result of econometric analysis revealed that five among the 11 explanatory variables namely, educational level, Area of land allocated for coffee production, Awareness of farmers towards the socio economic importance of cooperatives and Experience in coffee growing was found to significantly determine small holder farmers' decision to joining primary coffee cooperatives in the district.

5.2. Recommendation

Based on the findings of this study, the following recommendations were drawn:

The result of the marketing margin analysis revealed that the net marketing margin earned by the small holder farmer when selling via the cooperative marketing outlet was found to be more than the net margin obtained when selling through the private marketing outlet. Hence, farmers there in the study area are highly recommended to supply their coffee products through the cooperative to get relatively higher price and then better marketing margin.

The education as factor was also found to be significantly affecting the cooperative membership. The result showed that educated farmers have relatively more access to information and they in turn became to better understand the use and benefits of primary cooperatives in the rural areas. Therefore, the respective cooperative promotion office at the district and zonal level should facilitate both formal and informal education and vocational or skill training opportunities to increase rural households' awareness and improve their decision to be a member of cooperatives.

The findings of this study also revealed that awareness of farmers towards the socio-economic importance of rural cooperatives was significantly affected the farmers decision towards the membership in cooperative. The Regional government in collaboration with other concerned bodies should expand (introduce) awareness creation initiatives such as provision of intensive trainings, and organization of awareness promoter public meetings, discussion and workshops for small holder farmers to access.

Farming experience is also significant variable influencing primary coffee cooperative membership. Thus, building farmers' exposure through trainings and creating favorable

environment to share their experience with other coffee farmers found in the district is highly recommended based on the findings of this study.

Furthermore, there were opportunities and challenges for the growth of primary coffee cooperatives in the districts which need to be taken under a series consideration by concerned body in policy making and those opportunities need to be enhanced and promoted for further benefits. According to the study, lack of capital, fluctuations of the international coffee price, poor promotion efforts, and poor management and lack of educated professionals in the organization were major challenges that primary cooperatives are confronted with.

In this regard, the federal government should give special attention and allocate adequate budget and facilitate other stakeholders to support cooperative in finance. Illegal trading route must also be banned and controlled by the concerned regulatory body.

Primary cooperatives should encourage small holder farmers to supply highly qualified and organic coffee to compete for the international market and get higher and premium price helping them to offset fluctuated price.

More importantly cooperatives should hire professional personnel and make their management process better while dealing with any problem existed in the organization in turn making it more competitive and profitable. Besides the primary cooperative are highly advised by this study to make use of the external opportunities like suitable agro ecology for coffee production, high demand of the international marketers for the Ethiopian natural coffee, the available governmental and other non-governmental supports/interventions.

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7. APPENDIX

Appendix 1: Logistic regression model results

```
. logit cmshp sex age aflf edu cfs input comrkt awarness infor incme exp dividnd, or
```

```
Iteration 0: log likelihood = -129.4871
Iteration 1: log likelihood = -32.252866
Iteration 2: log likelihood = -21.942742
Iteration 3: log likelihood = -16.169457
Iteration 4: log likelihood = -15.153706
Iteration 5: log likelihood = -15.033123
Iteration 6: log likelihood = -15.030888
Iteration 7: log likelihood = -15.030886
Iteration 8: log likelihood = -15.030886
```

```
Logistic regression                               Number of obs   =       216
                                                    LR chi2(12)     =       228.91
                                                    Prob > chi2     =       0.0000
Log likelihood = -15.030886                       Pseudo R2      =       0.8839
```

cmshp	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
sex	58.49435	126.214	1.89	0.059	.8520527	4015.702
age	1.032349	.0966918	0.34	0.734	.8592143	1.240371
aflf	1.376762	1.154445	0.38	0.703	.2661389	7.122126
edu	12.47419	14.15485	2.22	0.026	1.349357	115.3181
cfs	2.403272	.8153088	2.58	0.010	1.236042	4.67275
input	2.500594	3.850511	0.60	0.552	.1222729	51.13945
comrkt	7.398565	9.334621	1.59	0.113	.6240273	87.71854
awarness	7761.697	23843.51	2.92	0.004	18.84133	3197436
infor	9.580775	15.86138	1.36	0.172	.3734224	245.8108
incme	1.000027	.0000193	1.41	0.159	.9999894	1.000065
exp	1.299163	.1501487	2.26	0.024	1.035827	1.629446
dividnd	326.4193	624.357	3.03	0.002	7.685	13864.61
_cons	2.73e-12	2.32e-11	-3.14	0.002	1.62e-19	.000046

```

Logistic regression
Number of obs   =      216
LR chi2(12)    =     228.91
Prob > chi2    =      0.0000
Pseudo R2     =      0.8839
Log likelihood = -15.030886

```

cmshp	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
sex	4.06893	2.157712	1.89	0.059	-.1601069	8.297967
age	.031837	.0936619	0.34	0.734	-.151737	.2154109
aflf	.3197347	.8385213	0.38	0.703	-1.323737	1.963206
edu	2.523661	1.134732	2.22	0.026	.2996283	4.747694
cfs	.8768309	.3392496	2.58	0.010	.211914	1.541748
input	.9165283	1.539838	0.60	0.552	-2.1015	3.934556
comrkt	2.001286	1.26168	1.59	0.113	-.4715612	4.474133
awarness	8.956956	3.071946	2.92	0.004	2.936053	14.97786
infor	2.259758	1.655542	1.36	0.172	-.985045	5.504562
incme	.0000271	.0000193	1.41	0.159	-.0000106	.0000649
exp	.2617201	.1155734	2.26	0.024	.0352004	.4882398
dividnd	5.788183	1.912746	3.03	0.002	2.03927	9.537095
_cons	-26.62608	8.489687	-3.14	0.002	-43.26556	-9.986598

```
. mfx
```

```

Marginal effects after logit
y = Pr(cmshp) (predict)
= .99538341

```

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]		X
sex*	.1938143	.34561	0.56	0.575	-.483565	.871193	.976852
age	.0001463	.00048	0.31	0.760	-.000794	.001086	39.0602
aflf	.0014693	.00424	0.35	0.729	-.00685	.009788	2.28241
edu	.0115969	.01718	0.68	0.500	-.022075	.045269	1.50463
cfs	.0040293	.00619	0.65	0.515	-.008096	.016155	3.53519
input*	.0047579	.00828	0.57	0.565	-.011464	.020979	.597222
comrkt*	.0190679	.02743	0.70	0.487	-.034687	.072823	.791667
awarness*	.8059249	.2023	3.98	0.000	.409426	1.20242	.759259
infor*	.0158678	.02413	0.66	0.511	-.03143	.063166	.601852
incme	1.25e-07	.00000	0.58	0.564	-3.0e-07	5.5e-07	45929.6
exp	.0012027	.00194	0.62	0.535	-.002596	.005001	14.1481
dividnd*	.1875905	.16464	1.14	0.255	-.135097	.510278	.675926

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Appendix 2: VIF value for continuous variables in the model for multicollinearity test

```
. vif
```

Variable	VIF	1/VIF
aflf	2.36	0.423696
age	2.27	0.440394
exp	1.16	0.862275
edu	1.12	0.889359
comrkt	1.10	0.906274
incme	1.04	0.957505
cfs	1.03	0.974172
Mean VIF	1.44	

Appendix 3: Contingency coefficient values for dummy variables in the model for multicollinearity test

```
. cor sex input comrkt awarness infor dividnd
(obs=216)
```

	sex	input	comrkt	awarness	infor	dividnd
sex	1.0000					
input	-0.0009	1.0000				
comrkt	0.0727	0.1133	1.0000			
awarness	-0.0147	0.1558	0.4577	1.0000		
infor	0.1264	0.2384	0.3047	0.5153	1.0000	
dividnd	0.0908	0.2986	0.1806	0.2811	0.3057	1.0000

Appendix 4: Interview Schedule

Instructions

This questionnaire is to be filled by coffee farmer (members and non member of coffee cooperatives)

Please try to fill all the questions.

Indicate what choice applies to you by ticking

Whenever necessary explain your answers clearly

I. General Information

1. Sex: Male Female
2. Age: _____
3. Marital status:
4. Education: _____
5. Location: _____
6. Number of household (15-65 age):_____
7. How long have you practiced production of coffee? _____year
8. What was the estimated amount of income for last year (2016/17)? _____ Birr.

(For Members)

1. Name of the cooperative: _____
2. When did you join:_____
3. Why did you join the cooperative?
 - Compulsory
 - Expected benefits
 - Followed others
 - Other (Specify) _____
4. As a member of the cooperative, what is your role in the cooperative?

5. How does being in the cooperative benefit you as a coffee farmer?
 - Improves current livelihood welfare
 - Important in time of emergency
 - Reduced burden/risk of crop failure
 - Access to technical advice & training

- Higher prices
- Access to input
- Access to credit

Other(Specify)_____

6. Do you participate in the cooperative activity? Yes No

How do you participate in the cooperative activities?

Attend meetings

Decision making

Election of new leaders

Farmer trainings/seminars

Events organized by the cooperative

Sharing of profit

Other(Secify)_____

7. How does the cooperative practice its democratic values?

- Holding regular elections
- Equal representation of all members
- Observing the constitutional principles (rules and regulations)

Other(Secify)_____

8. How does the cooperative elect its leaders?

Through election

Volunteering

Self-appointed

Other(Secify)_____

9. Do you think the cooperative management is accountable and transparent?

Yes No

10. What are the reasons for your answer?

11. List the incentives that yours' cooperative provides to members?

12. Do you have any assets that you have acquired as a result of being in the cooperative?

Yes No

13. What assets have you got as a result of being in a cooperative?

(Non –members)

1. What is the reason for not joining the coffee coop?

No real benefits:

No clear idea about the socio-economic importance of coffee cooperatives:

High membership fee:

The coop washing station is far away from household home

- Requirements are high:
- Bad coop leadership:
- Still thinking about it: Other (Specify _____)
- 2. Do you perceive any loss of benefits for not having joined the cooperative?
 - No Yes (Specify _____)
- 3. Do you think the cooperative management is accountable and transparent?
 - Yes No
- 4. What are the reasons for your answer? _____

Challenges and opportunities (for both members and non members)

A. What are the major challenges and opportunities that hindered the growth of coffee cooperatives in your area?

Challenges:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

B. Opportunities

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Coffee production and marketing

1. When did you start coffee farming? _____
2. On how many hectare of land do you cultivate coffee? ___
3. Did you sell coffee in 2016/17 production season? Yes No
4. If your answer for Q*3 is yes, how did you sale your coffee in 2016/17?

Direct to the trader Direct to consumer Direct rural collector

Other (Specify)_____

5. From where did you get agricultural inputs? _____

6. Do you think cooperative supplies agricultural inputs at lower price than others?

Yes No

7. Did you prefer to get agricultural inputs from cooperatives?

Yes No

8. Did you have information about the nearby market price before you transport your

Coffee? Yes No

9. If yes from where do you get market information?

Neighbors' Local market National newspaper

Radio/Television Cooperative Community leaders

Government agent Others (Specify) o market?

10. How did you transport your coffee from home to market places? Head carrying

Own Pack animal. Public transport other (specify)_____

11. What is the distance from home to coffee market in Km_____/hrs_____?

12. What are the major coffee market chain actors in your district? Private trader

cooperatives Consumer Rural collectors all others (specify)_____

13. Did you need cooperative marketing channel to sell your coffee

Yes No

14. If your answer for Q* 13 is "yes" why? Specify _____

15. Which market channel do you prefer to sell your coffee? (Multiple responses is

possible) local/private traders Cooperatives direct sell to end consumers Rural

collectors Others (Specify)_____

16. How much coffee did you sold in the year 2016/17

17. How much did you use for home consumption (kg)_____

18. Total Quantity Produced (kg) _____

19. Average selling price for cooperatives (Birr/kg in 2016/17)_____

20. Average selling price for other traders (Birr/kg in 2016/17)_____

21. How much and to whom did you sell your coffee in 2016/17?_____

(√)	Purchaser	Amount /kg	Types /red/dry cherry	Selling price	Remark
	Consumer				
	Cooperatives				
	Union				
	local traders				
	local collectors				
	Suppliers				
	Others				

22. What factors do you consider to sell you coffee? (Multiple responses are possible)

Price Fairness of scaling (Weighing) Expectation of
- future benefits (dividend) Transport availability others (specify)

Who sets the selling price of coffee? Producer Buyer Negotiated

Others (specify) _____

23. Do you think the benefit that members received in the form of divided is adequate?

Yes No

24. Is credit accessible to you? Yes No

25. From whom did you get credit (Multiple responses are Possible) Friends

Bank Micro finance institution Traders Cooperatives Others (specify)

26. How much cost did you incurred in the year 2016/17 coffee production season for production and marketing of one quintal red cherry on average?

Cost item	Cost per birr/quintal(85kg)
Production cost	
Cost of cultivation	
Weeding	
Cost of composite preparation	
Land rent	
Land tax	
Cost of drying bed preparation	
Total production cost	
Marketing cost	
Labor /unloading cost	
Material cost	
Transportation cost	
Municipality tax	
Other marketing expenses	
Total marketing cost	

Traders Questionnaire

1. From whom did you purchase coffee? Farmers/ producers Cooperatives
2. Local collectors others (specify _____)
3. What kind of coffee did you purchase? Dried cherry (jenfel) red (wet) cherry
4. Average purchasing price/kg of dried cherry (jenfel): _____.red (wet) cherry: ____
5. How do you attract your suppliers? By giving credit to purchase inputs By giving better price relative to others by fair weighing by visiting them others
6. How many famers supplied coffee to you? _____
7. Average quantity supplied by each farmer? _____
8. Do you have your own place of purchase? Yes No
9. If yes to Q*8 would mention the name of market place :_
10. What is the distance from coffee store house to market center? _____
11. Do you have your own transportation material? Yes No
12. If no to Q*11 how did you transport from buying center to coffee store house?
13. Means of transportation mostly used?
 - A. For red cherry from collection point to store_____
 - B. For dried cherry from store to hulling station_____
 - C. For clean beans to Addis Ababa_____
14. How many birr did pay for loading per quintal? _____
15. For who did you sale? Wholesalers Consumers others, please specify__
16. Average selling price/17kg of clean bean?
17. for domestic market _____
18. for international market _____
19. Who purchases coffee products for you? Yourself Brokers/commission agent
 Local coffee collectors/*sebisabi* others specify them: _____
20. What is the term of payment? Cash Credit?
21. Who set the purchase price? Negotiation By the market Your Self
 Other (specify_ _____)
22. Did you have coffee trade license? Yes No

23. How much did you pay for coffee trade license? _____
24. How much is the yearly renewal payment? _____birr
25. At which season of the year was preferable to purchase coffee in terms of price? _
26. How do you measure your purchase? By weighing (kg) by traditional weighing materials other (specify) _
27. Do you pack your purchase? Yes No
28. If your answer for **Q.27** yes, what were your packing materials? Sisal sack
 Plastic Sack (Madaberya) Sisal sack (jonja) Basket Others_
29. What is the cost of packing? _____Birr/qt
30. Did you have your own store house? Yes No
31. Did you have your hulling machines? Yes No
32. If yes to **Q*31** how much did you pay for different costs?
33. If no to **Q*31** how many birr did you pay for hulling per quintal?
34. What is the cost of labor (wage) did you pay per quintal in hulling processing?
35. Average volume of coffee in quintal transported in each trip:___
36. Cost of transportation you have paid for each trip:_____
37. Did you get enough quantity of coffee that you expect in the year 2016/17?
 Yes No
38. If no to Q* 34 what is the reason behind? _____
39. Estimated average costs incurred in trading of coffee in 2016/17?

A) For suppliers

Cost component	Costs/birr
Purchasing cost	
Pulping and washing	
Cleaning/sorting/grading	
Packaging (bag and labor)	
Storage	
Loading and unloading	
Transport	
Transit fee to municipality	
ECX service/commission cost	
Interest on capital	
Utility and communication costs	
Miscellaneous expenses	
Total marketing cost	

B)For exporters

Purchasing cost	
Loading and transport	
Polishing and blending	
Packaging green bean (labor and bag)	
Warehouse storage service	
CLU liquoring/grading cost	
Loading and transport cost	
Unloading and handling at port	
Export taxes	
Insurance fee	
Interest on Capital	
communication cost	

C) For primary Cooperatives

Cost component	Costs /birr
Purchasing cost	
Pulping and washing	
Cleaning/sorting/grading	
Packaging (bag and labor)	
Storage	
Loading and unloading	
Transport	
Transit fee to municipality	
ECX service/commission cost	
Interest on capital	
Utility and communication costs	
Total marketing cost	
Selling price	

D)For cooperative unions

Purchasing cost	
Loading and transport	
Unloading	
Polishing and blending	
Packaging green bean (labor and bag)	
Warehouse storage service	
CLU liquoring/grading cost	
Loading and transport cost	
Unloading and handling at port	
Export taxes	
Insurance fee	
Capital cost	
communication cost	