

The Role of Cooperative Union on Coffee Value Chain Performance in Case of Torban Anfillo Union, Kellem Wollega, Ethiopia

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ABSTRACT: The aim of this study was to investigate the role of cooperative union on coffee value chain performance, the case of Torban Anfillo coffee union of Oromia region. For this study, data was collected from members of the union and a random sampling technique is employed in order to give equal chance for each union members/respondents. The role of cooperative union on coffee value chain is weak in the study area due to socio-economic factors, organizational related issues, financing and marketing factors. Therefore, governmental and nongovernmental organizations, as well as all concerned body must support in provision of finance, education, training and consultancy service for the cooperatives union, primary cooperatives and management members and employees of the cooperatives at each primary and secondary level are important to further enhance the performance of Torban Anfillo union in coffee value chain.

Keywords:- Coffee value chain, socio-economic factors, organizational factors, financing and marketing factors, and cooperative union performance

I. Introduction

Agriculture is still the backbone of the economy in most developing countries. It is the largest source of employment; often two-thirds or more of the population are dependent for their livelihood on farming (Ahmedin, 2008). According to Diao (2010), since majority of sub-Saharan Africa's population live in rural areas where poverty and deprivation are the most severe; almost all rural households depend directly or indirectly on agriculture, and the sector contribute high share to the overall economy and development. Ethiopia is a country of an agrarian economy characterized by high population growth, huge dependence on erratic rainfall, low agricultural productivity, structural bottlenecks and land-locked-ness as described at the Plan for Accelerated Sustainable Development to End Poverty (PASDEP) (MoFED, 2002). Agriculture; value added (% of gross domestic product, product, GDP) in Ethiopia was last reported at 41.87 in 2011 (Bank, 2012). The sector is characterized by low productivity partly due to low investment level in the sector (particularly in smallholder farmers) backward farming technologies, low farm level capacity, land degradation and recurrent drought (Hagos, 2016).

Ethiopia accounts for about 4.5 percent of global coffee production, maintained its position as top export and accounts for about one-third of the country's export earnings, this percentage is gradually declining with increased export sales of gold, cut flowers, textiles, leather products and chat. Although coffee is produced in many parts of Ethiopia most of the marketed coffee comes from Oromia (64%) and Southern Regional State (35%) and the remaining (1%) from Gambela regional states FDRE MOT (2012). According to Ethiopia's official export statistics for 2014/15 (Oct-Sep), coffee exports reached nearly 207,000 metric tons, valued at nearly \$812 million (Francom, 2016). Coffee is not only a vital contributor to foreign exchange earnings, but also a significant proportion of the gross domestic product and livelihood for billions of people in many countries of the world. In Ethiopia it is the most important commodity which plays a prominent role in national economy. Over 30% of the foreign exchange, 4% of the GDP and 10% of the total agricultural output is generated from coffee and 25% of the population mainly around 25 million people depend on coffee for their livelihoods (ICA, 1995).

Coffee certification in Ethiopia is mainly undertaken within cooperative systems being historically rooted in local Agricultural Service Cooperatives established in the 1970s by the then military Derg

government. Since the 1990s, the ruling government in Ethiopia, the EPRDF-led government, promoted restructuring of cooperatives in the coffee sector and formation of coffee cooperative unions as umbrella associations. Moreover, based on the effort of existing Government, in Ethiopia till the end of 2011 there are 41,983 primary cooperatives which have 2,714,760,176 birr of capita and 278 cooperatives unions with their total capital of 1,373,602,629 have been established at federal level (FAO 2012). At the same time, in Oromia Regional state 11,321 primary cooperatives, 113 cooperatives unions and 2 cooperatives federation with their working capital of; 1,021,146,701, 975689818 and 25,170,576 respectively have been organized (NIGUSIE, 2013).

In line with these realities, the research was attempt to analyze the role and functions of cooperatives Union in coffee product marketing through evaluating its performances, analyzing members' participation and identifying the constraints of cooperatives marketing. Besides, in the research, an attempt was made find out issues which require further research and investigations so that other researchers can easily come up with outstanding recommendations to enhance cooperatives' contribution in the economic development of the country (NIGUSIE, 2013).

According to Bernard (2010), agricultural cooperatives established in developing countries frequently face problems since many of them are established on the basis of political criteria by external agents rather than by farmers themselves. Due to this, most cooperative in Ethiopia have a high level of distrust among members, and face major constraints to become effective for improving market commercialization and farmers' welfare. According to Kodama (2007), most Ethiopian coffee cooperatives were created during the socialist Derg government (1974–91) for political control reasons, without considering socio-cultural or economic criteria. After the breakdown of the Socialist regime, farmers' organizations tried to adapt to market competition, receiving technical and logistic support from the new government.

Farmer cooperatives are the actor which enables the farmer to develop their production and processing system via value chain development, such as: access to financial resources; provision of farm input, knowledge, and market information; and networking access. It also improves the value chain through process and product marketing. Therefore, farmer cooperatives can be a central player in order to maintain the coordination system in the coffee value chain development (Pratiwi, 2015). Therefore, depending upon the reality this research identified the overall factors that affect the role of cooperatives union on coffee value chain in the study area.

Cooperatives are expected to play an effective role in supporting coffee farmers by supplying the price information, capital and transportation those small-scale farmers often lack. In addition, a cooperative as a representative of coffee farmers can be a stronger negotiator than an individual farmer in the international market. Coffee cooperatives have become more market-oriented; have provided higher profits to coffee farmers than have private traders and brought benefits to coffee farmers by providing a new marketing channel. So, the dividends are appreciated by farmers and have encouraged farmers to improve the quality of their coffee (Kodama Y. , 2007).

According to Karthikeyan (2015), although coffee is an economically important commodity for country and individuals; the studies conducted on the effectiveness of cooperatives in coffee value chain are scanty. He identified several problems in coffee value chain and described that cooperative members have a minimum awareness regarding to coffee value chain and inadequate knowledge and skills on quality coffee production among value chain actors; hence, no attention is given for linking with actors. According to Ahmedin (2008), to create good performing primary cooperatives, it is essential to assess the performance of the already existing ones and draw practical lessons on the critical operational problems and constrains. To accomplish such an important task, empirical investigations have paramount importance in areas of coffee marketing cooperatives performance and level of members' satisfaction. However, he did not well identify the role of cooperative union in coffee value chain. Anteneh et al (2011), conducted study on coffee farmer's market outlet choice in Sidama zone, and identified that education, proportion of off-farm income to total income, satisfaction on cooperative performance and second payment affected market outlet choice.

Saarelainen (2011), studied value chain and various activities involved in the coffee sector and made a clear picture of the role of cooperatives to improve the value chain by providing various input factors as well as market linkages for domestic and international markets. However, the role of cooperatives union in coffee value chain performance was not clearly identified in their study.

Out of Kellem Wollega Zone, Anfillo district has high level of coffee production and supply highest coffee output in the Zone. TorbanAnfillo Cooperative Union that found in AnfilloWoreda has good potential to market the members output and provides different service to their members (KWZOoCPD, 2017). To the best of the researcher's knowledge, even though coffee is economically and socially crucial cash crop of this district

and more than 34% of the total land was planted with this crop (ADOoARD 2017). Coffee marketing outlets and the role of cooperative union on coffee value chain performance have not yet been undertaken and assessed for the target study area. Cognizant of these facts, this study answer the following problems by conducting factors that affect the role of cooperative union on coffee market value chain in TorbanAnfillo Union. This study specifically tried to fill the following objectives:

- To identify the role of cooperatives union on coffee value chain in case of TorbanAnfillo Union.
- To examine factors that affect Coffee value chain performance in case of TorbanAnfillo Union.
- To analyze the organizational issues on the Coffee value chain in case of TorbanAnfillo Union.
- To show the coffee market value chain channel of TorbanAnfillo Union.

II. Review of literature

2.1. Theoretical literature

2.1.1. Definitions and concepts of value chain

Value chain can be defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production, delivery to the final consumer and final disposal after use. The study in the value chain sector will improve the attempt to understand the distribution of power and value in the chain and to be able to address the agency of workers and small producers (Miller, 2011).

Value chain actors: The chain of actors who directly deal with the products, i.e. produce, process, trade and own them. They are those involved in supplying inputs, producing, processing, marketing, and consuming agricultural products (Haile, 2009). They can be those that directly involved in the value chain (rural and urban farmers, cooperatives, processors, traders, retailers, cafes and consumers) or indirect actors who provide financial or non-financial support services, such as credit agencies, business service and government, researchers and extension agents.

Value chains can be classified into two based on the governance structures: buyer-driven value chains, and producer-driven value chains (Kaplinsky, 2000). Buyer-driven chains are usually labor intensive industries, and so more important in international development and agriculture. In such industries, buyers undertake the lead coordination activities and influence product specifications. In producer-driven value chains which are more capital intensive, key producers in the chain, usually controlling key technologies, influence product specifications and play the lead role in coordinating the various links. Some chains may involve both producer and buyer driven governance.

Value chain upgrading refers to the acquisition of technological capabilities and market linkages that enable firms to improve their competitiveness and move into higher-value activities (Kaplinsky, 2000). Upgrading in firms can take place in the form of process upgrading, product upgrading, functional upgrading and chain upgrading. Upgrading entails not only improvements in products, but also investments in people, know how, processes, equipment and favorable work conditions. Empirical research in a number of countries and sectors (Humphrey J. a., 2006) and (Humphrey J. a., 2002) provide evidence of the importance of upgrading in the agricultural sector.

Supply chain is the means logistical and procedural activity involved in producing and delivering a final product or service, from the production area to customer or end users. Market may be defined as a particular group of people, an institution, a mechanism for facilitating exchange (Tilahun, 2002). The market concept has also been linked to the degree of communication among buyers and sellers and the degree of substitutability among goods. The concept of perfect market, for example, is an abstraction used by economists as a benchmark for evaluating the performance of market situations that deviate from its specifications.

Marketing is the performance of business activities that direct the flow of goods and services from producer to consumer or user or the process in a society by which the demand structure for economic goods and services is anticipated (enlarged) and satisfied through the conception, promotion, and physical distribution of such goods and services or the process of planning production, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goals cited in (Kotler, 2003). Marketing channels are sets of interdependent organizations involved in the process of making a product or services available for use or consumption. Marketing channel decisions are among the most critical decisions facing management (Kotler, 2003).

Farmers' choice of marketing channels: All farmers must utilize marketing channels, regardless of whether they are production oriented or market-oriented, if they produce goods, which are in excess of their domestic consumption. Marketing margin is percentage of final weighted average selling price taken by each

stage of marketing chain. Total marketing margin is the difference between what a consumer pays and what a producer receives for the product. In other words it is the difference between retail price and farm gate price (Berhanu, 2012).

2.1.2. Concepts and Principles of Cooperatives

cooperative is an autonomous association of persons, united voluntarily to meet their common economic and social needs through jointly-owned and democratically-controlled organization/enterprise (ICA, 1995) or it is a business voluntarily owned and controlled by its member patrons, and operated for them and by them on a nonprofit or cost basis. A cooperative enterprise belongs to the people who use its services, i.e., members control it, and its gains are distributed to the members in proportion to the use they make of its services.

According to Rabirou (2013), cooperative can be defined as a social enterprise or organization created voluntarily by members with the full support and assistance from members in order to cater for the economic needs and interests of the members. The idea was to pull members economic forces together to ease their access to finance and other socio-economic resources. The basis instituting a cooperative organization includes common business interest, location, professional goals and objectives, need for social interaction on common interest, exploitation of common resources through group strategy. (Ijere, 1978) Defined cooperative as a business entity that seeks to maximize profit to ensure growth of the social enterprise, grow members' business and alleviate poverty of member-shareholders.

Agricultural cooperatives are agricultural-producer-owned cooperatives whose primary purpose is increase member producers' production and incomes by helping better link with finance, agricultural inputs, information, and output markets). Its purpose is to help farmers by increasing their yields and incomes, by pooling their resources to support collective service provisions and economic empowerment. Given their primary remit to contribute to smallholder farmer production, agricultural cooperatives are seen as critical in achieving the government's development targets in the Growth and Transformation Plan, and focusing on other types of cooperatives requires an alternative framework for analysis. The main categories of agricultural co-operatives fall into mainstream activities of agricultural undertaking including supply of agricultural inputs, joint production and agricultural marketing(Sifa, 1991).

Primary cooperative is a cooperative formed by a minimum of five natural persons whose object is to provide employment or services to its members and to facilitate community development. A primary cooperative society must have at least ten individuals if it is an auxiliary cooperative and six persons if it is a productive or industrial cooperative. Each of these must have qualified for membership (ICA, 1993).

Secondary cooperative is a co-operative formed by two or more primary cooperatives to provide sect oral services to its members, and may include juristic persons.Principles of Cooperatives according ICA General Assembly held on 23rd September 1995, the following seven basic guiding principles were stated.

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

Second Principle: Democratic Member Control: Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Women and Men, 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.

Third Principle: Member Economic Participation: Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any 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.

Fourth Principle: 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 and independence.

Fifth Principle: Education, Training and Information: Cooperative provides 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.

Sixth Principle: Cooperation among Cooperatives: Cooperatives serve their members most effectively and strengthen the Cooperative Movement by working together through local, national, regional and international structures. These were attained through horizontal and vertical integrations among level of the cooperatives.

Seventh Principle: Concern for the Community: Cooperatives work for the sustainable development of their communities through policies approved by their members. Cooperative may engage in different social and community development work like construction of roads, school, health center, electricity, water services etc.

2.2. Empirical review of study

2.2.1. Distribution of value added

Differences in market power and dependency relationships have a clear impact on the (choice of) governance regime in trade relationships. A powerful party can dictate governance mechanisms. In this respect, small scale producers depend in many cases on downstream parties in the chain, such as intermediaries, transporters or exporters, for input supplies and credits on the one hand and market access on the other (Trienekens, 2011).

According to Kubischta (2001), value-added agriculture involves the processing of food and nonfood raw materials, thus adding value to a food product. It is the transformation of raw agricultural commodities to consumer-ready food products. It includes local processing, packaging, or marketing, which adds value to raw agriculture products. Small farmers often get involved in value-added processing and marketing as a means to improve farm income and sustain farm operations. They involved in value-added agriculture can make creative combinations of products, by-products, processing, and markets. Farmer to consumer relationships is often face to face, which increase social interactions. This social interaction within the local food system creates trust and norms that increases social capital. Social capital offers information and control benefits, which attract consumers to products that represent a certain set of social and environmental values. Thus, the profit from the value-added business operation can flow to and within the community. Value-added activities often make wise use of local resources and enhance the quality of community life desired by its people.

According to Zeuli (2004), people who organize and belong to cooperatives do so for a variety of economic, social, even political reasons. Farmers create farm supply and marketing cooperatives to help them maximize their net profits. This requires both effective marketing of their products for better prices as well as keeping input costs as low as possible. Distribution of benefits on the basis of use, describes the principle of proportionality, another key foundation for cooperatives. Members should share the benefits, costs, and risks of doing business in equal proportion to their patronage. Cooperatives benefits may include better prices for goods and services, improved services, and dependable sources of inputs and markets for outputs. Most cooperatives also realize annual net profits, all or part of which are returned to members in proportion to their patronage. Cooperatives are an alternative way of organizing and carrying out business activities, help to enhance social cohesion and work for the benefit of society (Enterprise & Economics 2008). Over 100 million jobs have been generated by cooperative societies around the world. Agriculture remains the major source of income and employment in rural areas and the majority of the cooperatives are found in the agricultural sector. About 90,000 people in the agricultural sector of Ethiopia are estimated to generate their livelihood from their cooperatives (ILO, 2007).

According to Trienekens (2011)) activities such as transport, processing and acquisition of information about market opportunities are performed more efficiently if producers such as coffee farmers, form a group than if each one acts alone. Hence a cooperative is a best way for farmers to capture the profit that exist in selling their produce directly to an international trader, instead of the middlemen. Cooperatives, especially agricultural and multipurpose cooperatives are considered as institutional intervention to increase agricultural production and productivity. These cooperatives are functioning with provisions of agricultural credit, provision of agricultural inputs, facilitating sale of agricultural products, operating a consumer store, inclusion of thrift and saving habits of members (Supply, 2010).

According to Mojo (2003), Ethiopian coffee cooperatives have been addressing the benefits (mainly the socioeconomic benefits) of cooperatives to their members through ensuring fair trade, linking them to the markets, or by improving value chains (Kodama Y. , 2007) ; (Emana, Market assessment and value chain analysis in Benishangul Gumuz Regional State, Ethiopia SID-Consult-Support Integrated Development, Addis Ababa, Ethiopia, 2009); (Haile, 2012). In other cases, agricultural cooperatives improved members' technical efficiency because of better access to productive inputs and services as compared to nonmembers.

Access to market in the form of different market outlet for coffee farmers is crucial to exploiting the potential of coffee production to contribute to increased cash income of rural households. Identifying factors affecting market outlet choice is important. People form cooperatives to do something better than they could do individually or through a non-cooperative form of business. Forming a cooperative will not automatically solve business problems faced by individual households. This is because of cooperatives are subject to the same economic forces, legal restrictions and international relations that other business face (Medeksa, 2014).

Jari (2009) provided an insight into the institutional and technical factors that influence agricultural marketing channel choices among smallholder and emerging farmers in Kat River Valley. The institutional factors that influence agricultural marketing channel choices include transaction costs, market information flow and the institutional environment which encompasses formal and/or informal rules, the use of grades and standards, organization in the markets and the legal environment. An appropriate institutional environment reduces transaction costs for traders. Rao (2010), Found that educational level of the operator, off- farm employment, access to transportation facility and age of operator had positive effect whereas the household size was negatively associated with supper marketing channel choices(Abera, 2015).

Riziki (2015), employed multinomial logistic regression to identify determinants of choice of marketing outlets for African Indigenous Vegetables (AIV) among the agro-pastoral, Maasai of two countries of Kenya and Tanzania. The result of their study revealed that quantity of AIVs sold, distance to the agricultural market, sex of the household head, education level, family size, levels of value addition, farming experience in agro-pastoralist, off-farm income and marketing costs influenced the choice of marketing outlet of the sampled agro-pastoral Maasai.

According to Mujawamariya (2013), apart from the difficulty to attract new members, leakage of sales outside the cooperative is a major challenge for the coffee cooperatives in Rwanda. Local (independent) traders still constitute a major market for coffee producers. Yet, cooperatives also accept the produce from non-members and pay them the same price.

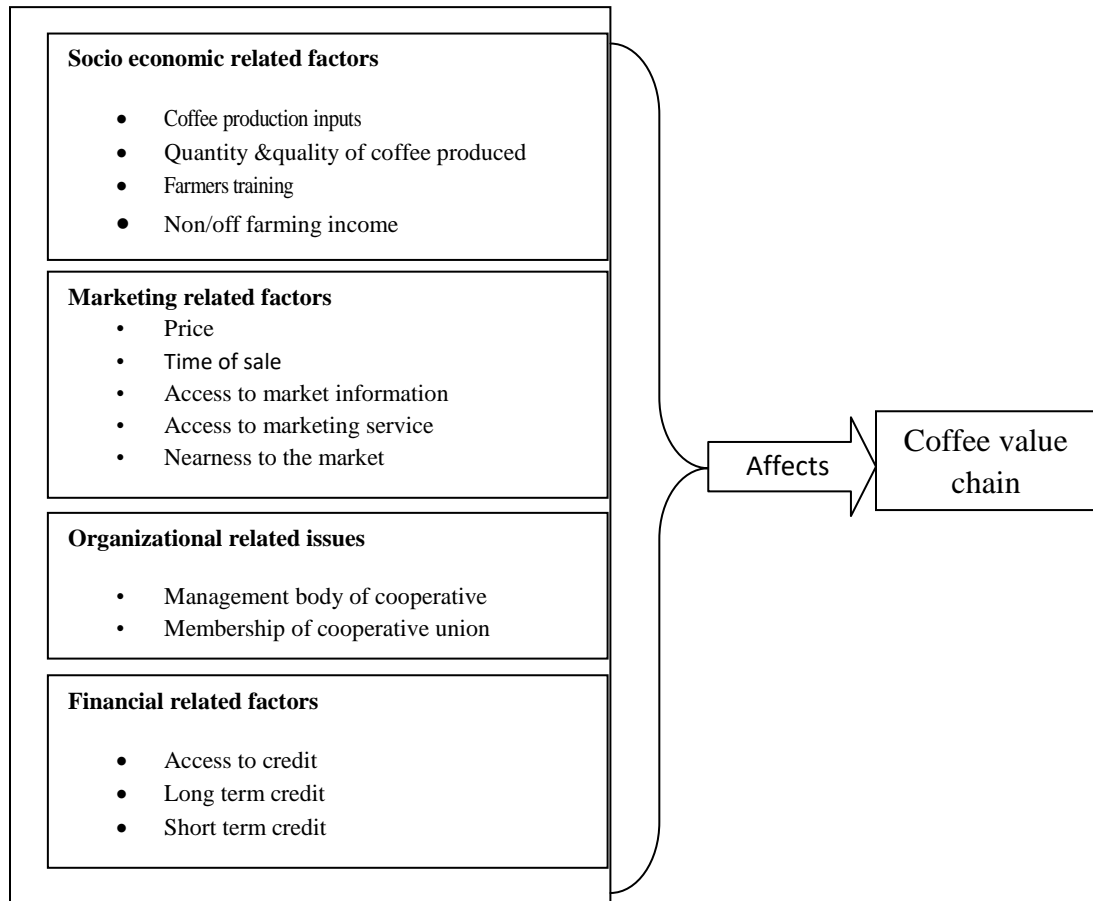
Although, cooperatives have been playing significant socioeconomic roles by reducing transaction costs and improving the bargaining power of individuals in all sectors including agriculture (Staatz, 1986) and agricultural cooperatives in particular are recognized as major tools to fight poverty especially in rural areas. However, some studies showed poor performance of agricultural cooperatives in developing countries (Nkhoma, 2011).

Accordingly, the majority of members have sold their coffee to private traders, which may affect the economic impact of cooperatives on their members. Moreover, (Anteneh.etal, 2011)reported that only 42% of members sell their coffee to their respective cooperatives due to no unique economic benefits of cooperatives to their members. However, as long as Ethiopian cooperatives are guided by International Cooperative Alliance (ICA) principles, they should be economically viable and profitable, socially equitable and environmentally sustainable, while benefiting members who own and control them (Mojo, 2003).

2.3. Conceptual framework

The application of the conceptual framework in current study is mainly focusing on role of the primary cooperatives on coffee value chain. As it pictured in the following figure, several factors such as socio-economic, financial, marketing infrastructure and information, organization and institutional factors influences the role of cooperatives union and market outlet choice in the study area. In addition, the framework provides the knowledge to understand the actors involved in the coffee value chain and the marketing system in the chain. Various activities from on farm activities and off-farm activities (post-handling and processing activities) take place along the value chain. Value added product, income share and profit margin are the primary driving force for producers to fulfill domestic market demand. The existence of agents which provides assistance in term of intensification, improved production and upgrading processing activities may help the farmers to have a direct access to the broader market. From this point of view the researcher develop the following conceptual frame work diagram.

Figure 1: Conceptual framework



Source: Cognizant of the researchers (2019)

III. Methodology

3.1. Type of data

To achieve the intended objectives of this research both primary and secondary sources of data were employed. Moreover, in this study both qualitative and quantitative data were used to describe the role of cooperatives union on coffee value chain performance in the study area. Primary information was collected from randomly selected Cooperatives members using questionnaires, Focus Group Discussion and key informant Interviews. Furthermore, Secondary information were collected from different offices such as Zonal Cooperative Office, Cooperative Union, and District agricultural Office, District cooperative office, Journals, research papers, Internet and other relevant publications and documents were used to supplement the primary data.

3.2. Sampling Procedure and Sample Size

For this study, random sampling technique was employed to select primary cooperatives (coffee producer households) for the study. Since out of 23 rural kebeles in the district, only 21 kebeles produce coffee and cooperatives members are evenly distributed in all kebeles, then the sample frame is limited to those high coffee producing 9 primary cooperatives (kebeles) and depending on the strata three primary were randomly

selected. Lastly, members of cooperative Union were identified and selected by using (yemane, 1970) at 95% confidence, then probability proportional to size (PPS) was used (yemane, 1970).

$$n = \frac{N}{1 + N(e)^2} \times 1$$

$$= \frac{825}{1 + 825(0.05)^2}$$

$$= 269, \text{ Members of cooperatives samples}$$

Where:

- ▶ n is the sample size,
- ▶ N is the population size, and
- ▶ e is the level of precision (5%).

In general, using the above sample size and the total number of members of cooperative of coffee producers from selected kebeles, the number of sample cooperative members from primary Cooperatives is summarized according to the following table.

Table 1: Sample distributions of Primary Cooperatives (coffee producers) in selected study area

L.No	Name of Primary Cooperatives	Total Cooperatives Members	Sample Size (Proportion of)	Percentage (%)
1	Ashi	247	$(247 \times 269) \div 825 = 80$	33
2	Hena	208	$(208 \times 269) \div 825 = 68$	33
3	Gayi	370	$(370 \times 269) \div 825 = 121$	33
	Total	825	269	

Source: Own computation from Anfillo district Cooperative data, 2017

3.3. Data Collection Method

Different tools of primary data collection methods were used to collect the raw data from primary sources. Accordingly, questionnaire was used for sampled members and semi structured interview for key informant and focus group discussion. Focus group discussion was taken place with influential members in the selected primary cooperatives (6-8 people). Key informant interview was conducted with, committee members of selected primary cooperatives, Union managers and the district Cooperative Agency workers so as to attain dual objective; that is, minimizing the limitations of questionnaire methods and to obtain supplementary information through cleared stated check list.

3.4. Methods of Data Analysis

The inferential statistical tools were used to analyze the relationship between the dependent and independent variables, by using OLS model. The Ordinary Least Square (OLS) Regression Model is well suited for studying the relationship between a quantitative or qualitative outcome variable and one or more or multiple predictor variables. The probability of impact of cooperative membership can be analyzed using the OLS regression model that may be used for the comparison of selected outcome (performance) variables, the indicators of dependent variables that the researcher use for performance evaluation was; coffee value chainprofitability.

3.4.1. Model Specification

The OLS regression model could be extended to include multiple explanatory variables by simply adding additional variables to the equation. The form of the model is the same as above with a single response variable (Y), but this time Y is predicted by multiple explanatory variables (X₁ to X_n).

$$Y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_n X_{ni} \dots \dots \dots 2$$

Where, Y_i = the outcome variables as defined above

∂ = constantTerm

β_i = coefficient terms : β₁, β₂, β₃ ... β_n are coefficient terms .

X_i = independent variables: x₁, x₂, x₃ ... x_n are multiple explanatory independent variables

The summation from the results of variables found in five point Likertscale question of each independent variables of the survey tool is used for analysis. The model specified takes the following specific form:

$$CVC = a_0 + bMP + \sum c(OF) + \sum d(FF) + \sum e(MF) + \sum f(SEF) + \epsilon \dots (3)$$

Where: CVC: Are coffee value chain and the independent variables including the following:

- MP: is cooperative member participation
- OF: is cooperative related organizational factors
- FF: is financial factors related to cooperative
- MF: is Marketing factor

- SEF: is Socio-economic factor
- The a_0 is the constant values of the effect of dependent variables on CVC
- The coefficients b, c, d, e and f are estimated values of each factors
- And ϵ is the stochastic error of the study.

IV. Result and discussion

This chapter presents the data analysis and findings from the questionnaires completed by the respondents, so the purpose of the study is to assess the role of Farmer Cooperatives union on Coffee Value Chain performance in case of TorbanAnfillouunion. A total of 269 questionnaires were distributed to the respondents or for the members of the coffee value chain union to rate the extent of factors each factor variables or activity. The totals of 269 distributed questionnaires were returned. Moreover, those returned questionnaires is used for data analysis. Added to this, the questionnaire has two sections, one about demographic information of the respondents and the other part includes questions for addressing the purpose of the study. Each variable has a total of twelve and five questionnaires with a total of 35 questionnaires and each were categorized under five elements/constructs.

Table 2: Mean Score of items related toCoffee Value Chain

	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
Coffee Value Chain	269	4.3024	.46817
Coffee value chain is fully integrated and performing well due to support Provided by cooperative union	269	4.03	.891
Farmers, primary cooperatives, cooperatives union , processors and exporters of Coffee are introduced to Innovative farming, distribution and marketing of coffee	269	4.49	.700
The current proclamation of Coffee value addition fully accommodates its potential	269	4.38	.721
Valid N (list wise)	269		

Source: Research Questionnaires 2019

The finding shows that the mean score of all items captured under coffee value chain related roles were 4.30. According to this response, coffee value chain is fully integrated and performing well due to support provided by cooperative union, it supports at high way with mean score values of 4.03. The finding of the study also indicates that ‘farmers, primary cooperatives, cooperative union, processors and exporters of coffee are introduced to innovate farming technology, distribution system and on finding of coffee marketing’ in a great commitment that shows a mean score values of 4.49. The above table also shows role of coffee value chain on the economy of the community.

4.5. Factors affecting the role of cooperatives union on coffee value chain

3.4.2. From the side of the respondents

This section presents the main body of the questionnaire to answer the basic research questions. The questionnaire part contains 36 questions categorized under five categories, socio-economic related factors, marketing related factors, organizational related factors, financial related factors and the coffee value chain. The questionnaire were distributed to the respondents to rate the level of factors affecting the role of farmers’ cooperative on coffee value chain.

Moreover, mean for individual question and overall mean for each four predictor and one response variable, dimension is calculated to analyze the factors level of affecting the role of farmers’ cooperative union on coffee value chain. For easier interpretation of the results of the study, researcher refers Haile (2015) to the interpretation of scores results which indicate result with less than 1.85 = worst, 1.85 – 2.85 = low, 2.85 – 3.5 = moderate, 3.5 – 4.5 = high and above 4.5 is excellent.

3.4.3. Socio-economic related factors

As the researcher introduced under background information on table the 4 above 25.7% of the Farmer Cooperatives union on Coffee Value Chain of TorbanAnfillo union members are having age between 18 to 30, 33.1% are age between 31 to 40 that represent 89 respondents, 23.4% are age between 41 to 50, whereas the only 17.8% of the union members are have age above 59 years. The finding shows that, around 82.2% of the farmer cooperatives union that represents 221 members exists in productive age groups. Most farmers have

been engaged in coffee cultivation since a decade and more, hence they are relatively experienced in terms of coffee production and the basic post-harvest activity. In addition, the descriptive statistics of socio-economic related factors has presented using mean score of items as indicated in the following table.

Table 3: Mean Score Values of Socio-economic related roles

	N	Mean	Std. Deviation
Socio Economic Related issues	269	4.2196	.41437
Farmers learn about coffee cultivation very well	269	4.20	.863
Coffee production inputs (seedlings, fertilizer, pesticides, labor, ... etc) are Sufficient available	269	4.48	.683
Currently Coffee Picking practices are mechanized(supported by tools	269	4.03	.891
Farmers produce Coffee efficiently (with low cost)	269	4.49	.700
Coffee types/varieties that meet customer demand are available	269	4.04	.876
The current Coffee productivity (yield) is sufficient to sustain in the market	269	4.31	.814
There is enough production of Coffee every year	269	3.61	.848
Coffee production is in its increasing rate in the past five years	269	4.23	.814
Volume of annual Coffee export is increasing in the past five years	269	4.36	.663
The quality standard implemented reflects the actual quality of coffee	269	3.49	.994
Farmers have any other job rather than coffee farming activities	269	4.36	.838
Valid N (list wise)	269	4.22	

Source: Statistical output of the questionnaires, 2019

The finding of the study indicates that, the total mean values of socio-economic related issues was less than the mean values of coffee value chain which represents 4.22. However, according to Haile, (2009), the socio-economic related issues have high role on enhancing the coffee value chain of Turban Anfillo coffee union. Therefore, the finding of the study also reveals that, the union supports the community to supply coffee production inputs like seedlings, fertilizer, pesticides, and etc. at sufficient and available condition with mean score values of 4.48 which is above the mean score values of coffee value chain.

In addition, the finding of the study tells us, except coffee picking practices, selection of coffee varieties to meet customer demand, enough production capacity of coffee trees every year, quality of coffee implementation and income obtained from coffee production with mean score values of 4.03, 4.04, 3.41, 3.49 & 3.02 respectively, other related issues of socio-economic factors was having high roles with the above mean score values of coffee value chain.

3.4.4. Marketing related factors

The mean score of items covered under the role of market institutions is presented in the following table. According to the study, most of the items scored below the mean score values of market related factors. The price of the coffee sold to benefits all actors, price change with change in coffee market price, the best criteria that makes farmers to select the channel price in the market are not performing well that representing the mean score values of 3.85, 3.03 and 3.47 respectively.

Table 4: Descriptive Statistics of Market Related items

	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic

The Role of Cooperative Union on Coffee Value Chain Performance in Case Of Union....

Market Related Factors	269	4.3226	.39863
Coffee is sold with price that benefits all actors	269	3.85	1.042
Farmers get market information at the right time	269	4.42	.810
Price information of Coffee disseminated is accessible	269	4.48	.683
Farmers updated with the prices of coffee	269	3.03	.891
Farmers sale their coffee to cooperatives union	269	4.49	.700
Farmers choose cooperative market outlet choice	269	4.38	.721
The best criteria that makes farmers to select the channel is price	269	3.47	.682
Farmers have an access to marketing infrastructure	269	4.49	.700
Distance of farmers residence from the nearest market center is far	269	4.38	.721
Valid N (list wise)	269	4.2	

Source: statistical output of the questionnaires, 2019

The result indicates that, the existence of marketing used only to promotes the availability of quality coffee supply. The finding also shows that, even though the farmers’ sales their coffee to their cooperative union, effectiveness of quality grading is heavily dependent on the effectiveness of the sampling process and the distance of farmer’s residence from the nearest market center. Therefore, the interviewers and key informant were agreed on marketing factors were the problem faced TorbanAnfillocooperative union in coffee market value chain.

3.4.5. Organizational related factors

The mean score values items covered under the role of organization presented in the following table indicates that, except the questionnaire which says cooperative leaders are elected by the members vote mean score value, the other elements of organizational related role such as, board members are transparent and accountable, cooperative union effectiveness, cooperative members participation, awareness of cooperative members duties and responsibility, attention of cooperative union on supporting development of the coffee value chain have greater role on increasing the coffee chain of the union with their mean values of 3.85, 4.42, 4.48, 4.49 and 4.38 respectively.

Table 5: Descriptive Statistics of Organizational issues

	N	Mean
Organizational Related Factors	269	4.290
Cooperatives leaders are elected by members vote	269	3.85
Board members are transparent and accountable	269	4.42
Cooperative union leader ships are effective	269	4.48
Cooperatives members participate in approving annual plan and budget	269	4.03
There is lack of awareness about duties and responsibilities of Cooperatives leaders	269	4.49
There is favorable rule & regulation of cooperatives union in place that improves market efficiency	269	4.38
Coffee growing areas have full attention and support from concerned body	269	4.37
Valid N (list wise)	269	

Source: Own Questionnaire, 2019

In this study, there were seven questions used under the variable ‘organizational related roles’. According to different study, the researcher explain under chapter two of this study governance and coordination are two main elements in the value chain, (Kaplinsky, 2000) stated that governance determines the

interaction between actors in the value chain. On the other hand, coordination is needed because of the mutual dependencies (or interdependencies between different activities and different transactions in the value chain(Bijman, 2014).

Like ways, the finding of this study shows that the total mean score values of organizational related roles have high impact on enhancing the development of coffee value chain which representing 4.29 score values. In another way, duringinterview and focus group discussion the interviewers and key informant confirmed that, the chain structure from farmers to local and regional trader, the complexity of the information is low, thus the information exchange between the actors are relatively easy. Price is the main coordination mechanism; therefore, marketing arrangement is based on the mutual benefit received by both parties. Informal cooperation is common in this case, where the mutual dependence is built by trust, good relationships, and reputation of the respective farmers and trader. In some cases, such cooperation exists due to the preference of the farmer to sell their coffee to well-known agents.

3.4.6. The financial related roles

The mean score of items covered under the role of financial related elements presented in the following table indicates that, except financial institutions that encourage modern farming of coffee by providing the necessary loan and the timing of the credit for cooperative members, the other elements of financial related role of cooperative members having experience for using credit, credit access for coffee production and marketing and the financial institutions support for credit and saving having mean score values of 4.42, 4.48 and 4.49 respectively.

Table 6: The Mean Score Values of Financing

	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
Financing Related Factor	269	4.2565	.48106
Financial institutions encourage modern farming of Coffee by providing the necessary loan and subsidy	269	3.85	1.042
Cooperative members have the experience of using credit	269	4.42	.810
Farmers have credit access for coffee production and marketing	269	4.48	.683
The timing of the credit for Cooperative members is just on time	269	4.03	.891
Financial institutions like Banks and Credit and Saving Institutions provide enough credit to run the business	269	4.49	.700
Valid N (list wise)	269		

Source: Questionnaires output, 2019

The finding of the study also shows that, financial institutions in promoting mechanization, in creating market linkage, logistics and their accessibility of proximity to the value chain actors scored above expected average value.Currently, the role of government policy and regulation in place and support of financial institutions towards the performance of coffee value chain is in its modest stage in the areas enhancing quality and adequate supply of coffee, promoting availability of supply of production inputs, promoting market linkage and access to market information, financial supports in coffee trade related investments and accessibility to value chain actors. Institutional support in enabling private sector environment, in addition to increasing productivity by applying science and technology, is stated as one of the difficulties of agribusiness in Africa in the book of (Karthikeyan, 2015). In Ethiopia there is no supportive policy that enables coffee value chain actors and traders to reach out market destinations and the current market structure does not improve coffee production in terms of providing the necessary attention to all coffee growing woredas.

3.4.7. Inferential analysis result

3.4.7.1. Correlation test

In order to conduct multiple regression tests, a correlations test was conducted as shown in the following table.

Table 7: Correlation results

Correlations					
	Coffee Value Chain	Socio Economic	Market Related	Organizational	Financing

The Role of Cooperative Union on Coffee Value Chain Performance in Case Of Union....

Coffee Value Chain	PC	1				
	Sig.					
	N	269				
Socio Economic issues	PC	.788**	1			
	Sig.	.000				
	N	269	269			
Marketing factors	PC	.827**	.708**	1		
	Sig.	.000	.000			
	N	269	269	269		
Organizational issues	PC	.789**	.729**	.982**	1	
	Sig.	.000	.000	.000		
	N	269	269	269	269	
Financing role	PC	.643**	.668**	.853**	.913**	1
	Sig.	.000	.000	.000	.000	
	N	269	269	269	269	269

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Output of the data collected, 2019

The Pearson correlation table above shows that the correlation between each variables are correlated to the other variables with p value is lower than 0.001. Moreover, the Pearson correlation between coffee value chain and the socio-economic related roles was .788 with significance values of .000 and the relation between the two variables was high and statistically significant.

The Pearson correlation between coffee value chain and market related items role is also high and statistically significant with correlation results of .827 at p-value is lower than 0.001. In addition, the Pearson correlation between coffee value chain and organization related roles and the Pearson correlation between financial related roles and coffee value chain is high and statistically significant with correlation results of .789 and .643 at p-value lower than 1 percent respectively.

3.4.7.2. Multiple regression analysis

The overall role of coffee value chain contribution of socio-economic related roles, marketing related roles, organizational related roles and financial related roles has presented in the table of model summary below.

Table 8: Model summary

Model	R	R Square	Adjusted R Square	R Square Change	F Change	Sig. Change	Durbin-Watson
1	.898 ^a	.807	.804	.807	275.304	.000	1.931

Source: Own questionnaire results. 2011

The aggregate values or the beta weight of socio-economic roles, marketing related roles, organizational related item roles and financial related roles is found to be .807. This coefficient value is high and statistically significant at p-value is lower than even one percent. Moreover, the coefficient determination was found to be .804 with a significant p value is lower than 1 percent. In other way, the contribution of the coffee value chain in the economy was explained about 80.4% of the aggregate economy.

Regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
	B	Std. Error	Beta		Tolerance	VIF
(Constant)	.358	.150		.018		
1 Socio Economic	.540	.045	.478	.000	.467	2.143
Market	1.679	.202	1.430	.000	.025	4.253

Organizational	1.041	.266	.872	.000	.015	6.775
Financing	1.097	.077	.100	.012	.116	8.654

Source: Output of the data collected, 2019

Moreover, when we see organizational related issues, it is found to be significant at one percent level of significance with a positive coefficient of 87.2%. This indicates one percent increase in organizational related role commitment results in 87.2% increase in coffee value chain of the TorbanAnfillo cooperative coffee value chain.

The guideline regarding the variance inflation factors (VIF) and tolerance statistics (with tolerance being 1 divided by the VIF) vary. According to (Draper, et al., 1998), if the largest VIF is greater than 10 then there is cause for concern and tolerance below 0.1 indicates a serious problem. Since the VIF values of the variables considered in the study are lower than 10 and the tolerance values are greater than 0.10, there is no multi collinearity problem.

Moreover, the interview was held with most cooperatives members to point out several problems associated with coffee cultivation and the post-harvesting activity. The financial and individual resource constraints (e.g. Limitations in knowledge and market information) are some hindering factors for farmers to engage in the coffee value chain. In addition, environmental aspects and physical infrastructure are also substantial for value chain development to be successful. Farmers also require adequate support from the government and related institutions in order to improve the present situation. Clearly, there is a need to ensure the existence of actors who provide appropriate supports. Kodama Y. (2007), shown actual volume of purchase by cooperatives is limited due to financial constraints putting their sustainability under question. Also, he shows income and current investment significantly explain the variations in success of cooperative.

Neilson, (2008) has drawn evidence that the experience of Indonesian farmers in term of agricultural cooperatives has been particularly contradictory in the past. Therefore, in most coffee producing regions in Indonesia, smallholder farmers are reluctant to voluntarily establish or becoming a member of the cooperatives. In particular cooperatives, which initially established by the government, the cooperatives have a limited role and the ability to secure farmer support. In comparison with traditional market mechanisms, the cooperatives are unable to provide hassle-free access to credit and simple marketing procedures, and to the perceived high costs of dealing with bureaucracy and corrupt cooperative structures that has been historically embedded in the bureaucratic structure.

It is also important to draw a line between producers group and cooperative. As described by Wollni, (2007) “a cooperative is 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”. Although any group of actors or stakeholders can form cooperatives, producers group is not necessarily equal to cooperative. Following this, the study also emphasized that cooperative has a dual nature of being both an association and an enterprise at the same time (Wollni, 2008). Therefore, the existing farmers’ group in the study area is merely an association since it cannot perform the function of the enterprise.

In the study area, cooperative union and traders play a role as the intermediaries in the coffee value chain who perform several functions. The trader has a significant power in terms of financial resources and market information. The asymmetry in the information and bargaining power thus limits the farmers to improve their livelihoods through better income. Collective action organizations such as farmer cooperatives are able to fill the gap between farmers and other actors in the value chain, and helping them to address the challenges arise from the value chain requirement. During the research study, 6 interviews have been carried out. However, generalization should not be applied to the selected farmers’ groups which embedded in the coffee farmers association in TorbanAnfillo union. In such condition, the bargaining power of smallholder farmers is low. And this aggravated by the fact that the role of farmer association is weak due to socio-economic factors, organizational related issues, financing and marketing factors.

V. Summary of the findings, conclusion and recommendations

5.6 Summary of findings

Understanding the value chain, identifying the determinant factors and analyzing their effect on their performance is inevitable if maximum output is expected from any coffee value chains. In general, an in-depth value chain analysis considers the economic costs along the value chain, identifying who and what most

important actors in the value chain, the institutional framework of the value chain, where the bottlenecks are in the value chain and where the market potentials and what possible synergies do exist (SNV, 2004).

Production of high value and marketable commodities such as coffee is crucial as this subsector of agriculture contributes towards better income generation of households and as a result to contribute towards increasing foreign currency earning to the country and GDP. This study used the following four research questions to describe and explain the role of cooperative union on coffee value chain development in TorbanAnfillo union in terms of improvements in profit and sales volume increment.

The study showed that factors affecting the role of Cooperative Union on coffee value chain in TorbanAnfillo Union affect coffee value chain development and performance with contribution to the economy in terms of improvements in GDP contribution, foreign currency earning, benefit and sales volume are positive and representing 80.4%.

- The finding of the study shows that, the socio-economic related items role of coffee production inputs (seedling, fertilizer, pesticides, coffee picking process) have high role on enhancing the coffee value chain of the coffee union with its mean score values of 4.22, and it explaining a development of coffee value at 47.8% of the whole cooperative union activities.
- Organizational related issues: The existence of organization in place is effects the development of the union at high level with its mean values of 4.256. This indicates improves and supports adequate supply of coffee production inputs, coffee production and quality of coffee. This implies that the contribution of the coffee value chain to the TorbanAnfillo Union economy in terms of institutional contribution high and explained the cooperative union activities at 87.2%.
- Issues of Financing: In the findings of this study the role of financial institutions is positively affects coffee value chain performance of the union. However, their contribution is weak which explain activities of the union at 10%.
- Marketing related issues: As per the study, although a statistically significant and positive contribution to the economy is found out to be high. Even improvements in coffee's contribution to cooperatives members profit and increments in sales volume of coffee is great with its mean values of 4.32 and also it explained the TorbanAnfillo Coffee value chain at high level than the other latent variables of the study.

5.7 Conclusion

Production of coffee could be an important opportunity to increase farmers' earnings provided they have timely access to the required inputs including the know-how to meet requirements of high value markets. The Value Chain practices of coffee, the organizational issues, socio-economic, marketing and the financing issues have great role on development of coffee value chain in TorbanAnfillo union that affect its performance in terms of improvements in contributing to the aggregate activities of the union and coffee sales volume improvement in the market. Even, the availability of coffee production input supplies, mechanization or use of technologies for land preparation and selection of seedling and availability of highly demanded coffee fertilizer in improving coffee value chain performance of TorbanAnfillo Union on average rate is high. There is a huge capacity to increase yield by increasing inputs and by replacing old coffee trees with new plantations and improved seedling coffee varieties. Generally, the following can be concluded from the findings of this study:

First, socio-economic factors positively affect the performance of cooperative union on coffee value chain availability of coffee production inputs such as fertilizers, pesticides, mechanization and efficiency of productivity and availability of coffee seedlings that meet customer demand. Secondly, financial institutions in cooperative union play a positive role in coffee value chain performance by providing the necessary financial support in coffee trade related activities, value addition, investments and their accessibility to coffee value chain. Thirdly, role of cooperatives organizations which are engaged in coffee subsector positively affect coffee value chain performance by introducing new and innovative ideas that improve productivity of coffee, market linkage, cooperative member's satisfaction and quality of coffee produced. Finally, marketing infrastructure is making a positive and significant contribution to the economy in terms of GDP contribution, foreign currency earnings of coffee export and sales volume.

5.8. Recommendations

In this study, as the result from an interview with the sampled individual members of the cooperatives union and collected data results; it was found that there were high role between socio-economic issues and the cooperative union. Even, the linkage between the coffee value chain growth of the union and the marketing services, the organizational service and the financial related issues are also high. However, in light of the findings of the study the following areas are identified for future improvement as a recommendation for coffee value chain development of TorbanAnfillo Union: The Value Chain of coffee constraints in efficiency of

production of coffee which includes factors of production, land improvements, application of mechanization and utilization of appropriate supply inputs.

Therefore, it is better if the cooperative union uses a technological incentive inputs in order to bring the coffee value chain of the union at high level. Even though, the existing market structure and services provided in relation to accuracy of quality grading system, reliability and accessibility of market information mean score is high, the way coffee union develop its activity in the market still in a traditional approach, therefore, it is better for the union if they use different mechanisms of skimming market to earn more market gain not only in the establishment area but also as a country and abroad too.

In addition, even though the role of finance related items is positive and significantly affect the value chain of coffee, but it explained the aggregate activities of the union at 10%, therefore, awareness or activities of the union on generating possible amount of finance should be changed from existing direction to other by supporting their union in professionals. Therefore, to enhance the role of cooperative union in coffee value chain, the union is better to promote its activities more and more through use of different promotional activities and by developing farmers' awareness about marketing and post-harvest handling, developing storage infrastructure and coordinating fragmented producers in cooperatives. Even, the union is better to give training and creating awareness for farmers about the benefits of the cooperatives in marketing as the best option of market choice with different academic institutions like universities, and different coffee market companies.

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