

RESEARCH ARTICLE

The role of agricultural cooperatives in agricultural input and output marketing: in the case of Bale zone, Oromia region, Ethiopia

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Abstract: Agricultural cooperatives play a significant role in improving farmers' access to agricultural inputs and markets. In Ethiopia, they are considered important institutions for enhancing rural livelihoods, increasing income and addressing market challenges faced by smallholder farmers. The general objective of this study was to investigate the role of agricultural cooperatives in agricultural input-output marketing in Bale zone. Specifically, the study examined members' participation in cooperative marketing activities, assessed members' perceptions of cooperative performance and identified factors affecting the effectiveness of cooperatives in delivering input-output marketing services. The study employed descriptive and explanatory research designs. Both primary and secondary data were used. A purposive sampling technique was applied and 340 valid questionnaires were analysed. Structural equation modelling (SEM) using AMOS 23 and SPSS version 26 was employed for data analysis. The results revealed that members' perception of cooperative performance, satisfaction with cooperative services, infrastructure and organisational factors had a positive and significant effect on input-output marketing. However, members' participation in cooperative affairs, perceptions of transparency and accountability and external factors showed a negative effect on input-output marketing performance. The study recommends that agricultural cooperatives should provide timely and adequate agricultural inputs, improve service quality and ensure fair and timely distribution of benefits. The government and cooperatives should also strengthen members' awareness and participation and invest in infrastructure such as roads, communication systems, electricity and market facilities to improve the effectiveness of agricultural input-output marketing.

Keywords: *Agricultural cooperatives, Agricultural input marketing, Agricultural output, Marketing, Member participation, Market performance*

Introduction

Background of the study

Agriculture is the main economic pillars of the Ethiopian economy and the economic growth of the country is highly dependent on the success of the agriculture sector. The country's economy is largely based on agricultural sector. (CSA, 2016).

Agricultural cooperatives are often seen as key institutional intervention in enhancing farmers' access to markets, as one form of institution that fulfil exchange and coordination functions in an economy (Barrett, 2008, Hellin et al., 2009). In Ethiopia, agricultural cooperatives are playing a crucial role in the country's past and current development strategy (Mersha and Ayenew, 2018). Agricultural cooperatives are given the

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highest priority for improving access to markets and technologies for enhancing the productivity of smallholder agriculture in the country. As part of its effort to transform the agricultural sector, the Ethiopian government places a very strong emphasis on promoting cooperatives as one of the main organisational mechanisms to facilitate farmer access to inputs, credit, output markets and to improve coordination within the smallholder sector (Tefera et al., 2017).

The formation of agricultural cooperatives has been widely promoted as an agricultural development policy initiative to help smallholder farmers cope with multiple production and marketing challenges (Olagunju et al., 2021; Cisse and Shisanya, 2019). For example, agricultural cooperatives was an integral part of the Ethiopian Growth and Transformation Plan I (GTP I) (2011–2015) and is given high priority to play an important role in strengthening the commercialisation of smallholder agriculture in second Growth and Transformation Plan II (GTP II) (Commission, 2015). This has led to a substantial growth in the number of cooperatives and in the total number of members over the last decade. In Ethiopia, cooperatives (unions and primary cooperatives) have grown substantially in number over the last decade. For instance, from 2008 until 2013, the number of unions grew by 44% (Royer et al., 2017). Due to the importance given to agricultural cooperatives in today's Ethiopia, sustaining the contributions of cooperatives to members and the larger community becomes vital that deserves policymakers' attention.

Despite the crucial roles cooperatives can play in enhancing agricultural and rural developments in developing countries, they are generally characterised by poor performance and impeded growth. The performance and impacts of the agricultural cooperatives in Ethiopia, for instance, is very weak, particularly in creation of robust competitive advantage to smallholder farmers (Bernard et al., 2008, Bernard et al., 2010). Moreover, they suffer from the challenges of poor leadership, limited human capital, low financial means and a rigid institutional environment to assist the needs and priorities of their members. Linking smallholder farmers to input and output markets is one of the main challenges in developing countries. Markets for agricultural inputs, outputs and finance, consumer goods and services are relatively 'thin' (with small volumes traded) and prone to large seasonal variability in supply and demand (Shiferaw et al., 2011). In the absence of agricultural cooperatives, farmers do not have common standards for selling their products. However, because farmers do not have bargaining power, prices are largely determined by the company and this leads to price undercutting at the farm level (Onyilo and Adong, 2019). Therefore, linking with agricultural cooperatives has an optimistic impact on the welfare of smallholder farmers (Ahmed and Mesfin, 2017). Still, analysis by Ahmed and Mesfin (2017) also indicated that agricultural cooperative member participation has a mixed impact on welfare among its members and non-members. Therefore, reducing the challenges smallholder farmers are facing and improving their agriculture productivity can help to accelerate the agricultural sector and economic development of the country as a whole.

Statement of the problem

The formation of agricultural cooperatives has been widely promoted as an agricultural development policy initiative to help smallholder farmers cope with multiple production and marketing challenges (Olagunju et al., 2021; Cisse and Shisanya, 2019).

In Sub-Sahara African countries where agrarian economies are prevalent, the transformation of smallholder farming is generally viewed as a pre-requisite for economic growth and development (Ayenew, 2016). Hence, effort to improve their living standard highly depends on possibilities of enhancing agricultural productivity. However, smallholder agriculture is burdened with a multitude of challenges including lack of access to finance and markets (CSA, 2016).

Accordingly, study conducted by Mersha and Ayenew (2018) indicated that access to finance and input/output marketing are two of the critical problems affecting the productivity of smallholder agriculture in the country in general and in Oromia regional state in particular.

Several studies also established the positive impacts of cooperatives on the sales and marketing of agricultural produce, improved agricultural technology adoption and household welfare (Nlebem and Raji,

2019; Wossen et al., 2017; Lecoutere, 2017). There are existing studies that have established the importance of rural producer organisations in solving collective farmers' problems such as reducing transaction costs through collective action with specific emphasis on its relevance in developing countries (Ainembabazi et al., 2017).

Barati et al. (2017) posited that despite the crucial roles of the agricultural cooperatives in sustaining the livelihoods of rural communities and fighting poverty, various challenges confront them on their development and limit their potential. Malomane (2019) stated some of the challenges confront agricultural cooperatives as ineffective leadership and governance; a lack of transport and production and marketing infrastructure; group dynamics (conflict); low literacy levels; a lack of access to finance, value adding and processing opportunities and market access; inadequate land; a lack of understanding of the cooperative business model; mismanagement of funds; a lack of financial management; and a lack of extension/technical support.

Hence, agricultural cooperatives in Ethiopia are receiving due attention because of their immense contribution to address the challenge of the people with regard to low level of income, unemployment, poor market for agricultural product, etc. (Srinivasan and Sundaram, 2020).

According to Tadesse and Badiane (2018) agricultural cooperatives in Ethiopia are generally characterised by poor performance and impeded growth. The performance and impacts of the agricultural cooperatives in Ethiopia, for instance, is very weak, particularly in creation of robust competitive advantage to smallholder farmers. Improving agricultural markets is an important area of concern for helping smallholders' commercialisation and ensuring food security. These markets are characterised by complex problems that range from information asymmetry to monopolistic power.

Agricultural cooperatives have not been able to survive in the liberalised market economy and as a result smallholder farmer have limited access to inputs, subsidies, credit and agricultural market service. This led to increased poverty and food insecurity amongst rural smallholders (Onyilo and Adong, 2019). Many of the cooperatives have failed to link farmers to the market and farmers continue to be exploited by middlemen (UNDP, 2016). Onyilo and Adong (2019) also stated that the challenges faced by agricultural cooperatives that negatively impact their performance and survival, such as political interference, lack of administrative support, human resource constraints, inadequate knowledge of the operations by members and poor governance.

In output market, agricultural cooperatives are also participated as a marketing channel. However, due to the relatively loose management structure of agricultural cooperatives, members usually choose to sell only part of their production to agricultural cooperatives and some of them may choose to not use agricultural cooperatives as a marketing channel (Liu et al., 2018).

In Bale zone, there is no research that has been conducted so far. Therefore, there is a knowledge gap relating to whether agricultural cooperatives have a role to play in facilitating and marketing agricultural input and output for smallholder farmers in Bale zone. Based on the gaps in the literature highlighted above, there is a need to assess the contributions of agricultural cooperatives in facilitating and marketing agricultural input and output for smallholder farmers in the study area that helps to sustain the livelihood of smallholder farmers and contribute to economic growth of the country.

Research objectives

General objective of the study

The general aim of the study is to investigate the role of agricultural cooperatives in agricultural input and output marketing in Bale zone.

Specific objectives of the study

- To describe the participation level of agricultural cooperative members in agricultural input-output marketing activities
- To examine the effect of members participation of agricultural cooperative in agricultural input-output marketing activities
- To identify the effect members perception of agricultural cooperatives in agricultural input-output marketing activities in Bale zone.
- To examine the major factors that hinders the performance of agricultural cooperatives in delivering agricultural input-output marketing activities.

Hypotheses of the study

In order to achieve the objective of the study, a number of alternative hypotheses were developed regarding role of agricultural cooperatives in agricultural input and output marketing in Bale zone based on different empirical and theoretical research review made. Generally, there are three testable hypotheses with their sub hypothesis; participation, perception of members and constraints. It is formalised as follows:

Hypothesis A: Member's participation in cooperative affairs have positive and significant role on agricultural input-output marketing.

Hypothesis B: Perception of members

Hypothesis B1: Perception of members on transparency and accountability of cooperatives have positive and significant role on agricultural input-output marketing.

Hypothesis B2: Member's perception of satisfaction on the service rendered through agricultural cooperatives have positive and significant role on agricultural input-output marketing.

Hypothesis B3: Members perception on performance of agricultural cooperative has positive and significant role on agricultural input-output marketing.

Hypothesis C: Constraints that hinder the performance of agricultural cooperatives

Hypothesis C1: Organisational/internal factors have negative and significant impact on agricultural input-output marketing.

Hypothesis C2: External factors have negative and significant impact on agricultural input-output marketing.

Hypothesis C3: Infrastructure factors have negative and significant impact on agricultural input-output marketing.

Significance/importance of the study

The study would play a significant role in providing useful information regarding to agricultural input and output marketing and it will help also to address the needs and problems of the agricultural cooperative members to be benefited from their cooperative organisations and in the livelihood development of smallholder farmers'. The study will further provide recommendations on the success factors for agricultural cooperatives and smallholder farmers to play a meaningful role in rural development. It also helps to the extension workers to come up with some important ideas about agricultural input and output of marketing.

Furthermore, it is anticipated that the outcomes of this study will help the government and other stakeholders that collaborate with the cooperative sector in general and agricultural cooperatives in particular can use this study as an input to design appropriate intervention strategies that drive efficiencies in cooperatives ensuring that they become competitive and contribute to create jobs, eradicate poverty and improve livelihood of rural communities.

Moreover, it will help as an input for researchers for further study who wants to analysis and develop an appropriate agricultural input and output marketing system in relation to agricultural cooperatives and smallholder farmers.

Scope/delimitation of the study

This study is confined to the role of agricultural cooperatives in agricultural input and output marketing in Bale zone. Therefore, the study is purposively conducted by taking agricultural cooperatives found in Sinana, Agarfa, Gasera and Goro districts. The reason for selecting those districts is that there are tough cooperative institutions and they are more potential in facilitating and marketing agricultural input and output. Consequently, this study is focused only the role of agricultural cooperatives in agricultural input and output marketing. Though, the study is based on both primary and secondary sources of data. As a result, out of 87 agricultural cooperatives with a total of 23,653 members, 393 members of agricultural cooperatives were taken as sample respondents for this study.

Limitations of the study

As it is generally known every research study has its own limitations; the following were some of limitations the researcher faced while conducting the study; intensive review of past studies was limited, the sample size used in the research was small. The study is restricted both in space and time. Due to the constraints of resource and time as well as purpose of the study, not all the primary cooperatives involved in agricultural input and output marketing activity found in the study area were covered. The study is confined to rural agricultural cooperatives which are engaged in agricultural input and output marketing. The validity of certain data collected from the cooperative societies and respondents may not be such completely perfect. Even though, the result represents the conditions in Bale zone of Oromia Region, the results cannot be generalised to the whole part of Ethiopia.

Organisation of the paper

The research is focused on five chapters. The first chapter deals the introductory parts which are background, statement of the problem, objective, significance and scope of the study. The second chapter is focus on the review of different literatures related to areas under study. It consists of definition of terms and concepts about digital marketing and destination marketing organisation. The third chapter concentrates on the methodology of the study it consists of research approach and design, sample size, data source and types, data collection procedures and method of data analysis and ethical consideration of the research. The fourth chapter focuses on data analysis and interpretation of the study. And the last chapter (chapter five) includes summary, conclusion and recommendation of the research parts.

Definition of key terms/concepts

Cooperative: A cooperative is defined as a group of individuals with common interest who voluntarily come together to meet their economic, social and cultural needs by having a jointly owned and democratically managed business enterprise.

Agricultural Cooperatives: Agricultural cooperatives are defined as cooperatives whose primary purpose is increasing member and non-member producers' production and incomes by helping better link with finance, agricultural inputs, information and output markets.

Smallholder Farmers: Smallholder farmers are farmers with limited resource endowments relative to other farmers in the sector.

Agricultural Input Marketing: Agricultural input marketing is the process which includes all the activities, arrangements and preparation which assists the farmer in getting his/her required farm inputs. Farm inputs refer to item used in farm production, for example improved seeds fertiliser, improved implements, pesticides and feed.

Agricultural Output Marketing: Marketing of agricultural product or commodity (raw or processed) through cooperative to bring together the relatively small amount produced by individual growers, to sell them to the wholesaler or consumer cooperative or exporter at the best of obtainable price.

Review of Related Literature

Basic concepts and definitions of cooperatives

Cooperation has been the very basis of human civilisation. The inter-dependence and the mutual help among human beings have been the basis of social life (Krishnaswami, 1992). However, modern type of co-operative enterprise has its origins in the 19th century and has become one of the most ever-present example forms of business/economic enterprise.

The word cooperative is derived from the term “cooperation”, which means working together. Different authors defined cooperatives in different ways and meanings. For instance, Centre for Cooperatives (2002) defined cooperative as a private business organisation that is owned and controlled by the people who use its products, supplies or services. Although cooperatives vary in type and membership size, all were formed to meet the specific objectives of members and are structured to adapt to members’ changing needs.

Bajo et al. (2017) described cooperation as a way to act, an activity and effect, a way of social behaviour and a way to live that entails community relations. Cooperation constitutes one of the fundamental principles in the performance of cooperative organisations.

Cooperatives are an autonomous association of women and men, who unite voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (FAO, 2012). Cishe and Shisanya (2019) also defined cooperative 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. Cooperative businesses stabilise communities because they are community-based business anchors; and distribute, recycle and multiply local expertise and capital within a community.

Agricultural cooperatives

Agricultural cooperatives are agricultural-producer-owned coops whose primary purpose is increase member producers’ production and incomes by helping better link with finance, agricultural inputs, information and output markets (ATA, 2016).

Agricultural cooperatives have been playing important roles in the socio-economic lives of communities for a long time during which they have also encountered challenges and weaknesses. These have made countries to have their own distinct histories of the development of cooperatives and of course sometimes having similarities (Mojo et al., 2017). Agricultural cooperatives are institutional tools to improve smallholder production performance and thus improving farm income profitability and wellbeing through the improved farm profit (Kayitesi, 2019; Ahmed and Mesfin, 2017).

Cooperatives in general and that of the agricultural cooperatives in particular are established to play significant role in improving access to credit, provide agricultural inputs and create market linkage of smallholder farmers (Mersha and Ayenew, 2018). Other reasons included contributing to economic development and skills development, access to finance, as well as training and capacity development (Malomane, 2019).

Agricultural cooperatives in Ethiopia

In Ethiopia, the cooperative movement starts around 1960s for the essential of versatile activities as creating rural credit, storing and marketing agricultural produces, giving goods and services for production and consumption to the public and increasing saving habits. Because of that “Cooperative Societies’ Proclamation” was established in the year of 1974 and promotes commercial crop production in the area of Wollega, Jimma, Agaro, Kafa and Sidamo to earn money and foreign exchange (Srinivasan and

Sundaram, 2020). Cooperatives in Ethiopia is diverse systems and there are different forms of cooperatives are existed as traditional forms of cooperatives such as Debbo, Jiggie or Wonfel, Equib, Eddir, Mahiber and Senbetie which are giving assistant to the employment in the agriculture, input for production and marketing for its produces (Ibid).

Cooperatives in Ethiopia provide assistance mainly in improving access to input and output markets, credit and technologies for enhancing the productivity of smallholder agriculture (Tefera et al., 2017; Srinivasan and Sundaram (2020). This has led to a substantial growth in the number of cooperatives and in the total number of members over the last decade (Royer et al., 2017).

As of 2015, there were 56,044 primary cooperatives, both agricultural and non-agricultural having nine million members throughout the country. Of these, 8,435 primary cooperatives are organised in 309 unions. Agricultural cooperatives, however, only account for about one-fourth of cooperatives in the country. In Oromia region alone there are above 15,492 primary cooperatives, more than 124 cooperative unions and two cooperative federations. One of the objectives of cooperatives specifically agricultural cooperatives is providing or facilitating credit service to their members. Instead of borrowing money and purchase farm equipment, such as tractor and combiner or even complete farm and harvesting equipment; it is sometimes possible to acquire them through lease agreement (Mersha and Ayenew, 2018).

Performance of agricultural cooperatives

Daniel (2006) also used ratios analysis to evaluate performances of cooperatives taking the two years financial data (2001/2 and 2002/3) in the study districts. The liquidity analysis showed that the cooperatives under investigation were below the satisfactory rate. All of the cooperatives under his investigation in the two districts use financial leverage (financed more of their total asset with creditors fund i.e. on average 89.35 per cent of the assets of the cooperatives was financed with creditors fund in the two years). The profitability ratio of the cooperatives under his investigation also showed that the profitability of the cooperatives was weak. All the cooperatives earn return on their asset below the interest rate the financial institution extend credit.

There is well-documented empirical evidence on the roles of agricultural cooperatives in enhancing the adoption of improved agricultural technologies, land management practices, economic performance and welfare of smallholder farmers (Zhang et al., 2019). Even though the cooperatives have some challenges that should be worked on further to solve for more success (Fufa, 2016).

Membership and members' participation

Tesfaye (1995) revealed that producers' cooperatives failed in the past not because of failure inherent in the collective management but because of forced membership without the interest of the farmers and formation of the cooperatives in hurry without any sufficient preparation and feasibility study.

According to the finding of Haileselasie (2003), for example, out of the total respondents, members' participation in the annual meeting was 12.2 percent and 68.8 percent of the total respondents had bought only one share. The result of the study revealed that the overall participation of members in the study area was weak. As a result, the members were not aware of the duties and rights they have in the cooperative societies. Gebru (2006) found out in his study that the participation of women accounts 20-25 per cent in various cooperative types.

Haileselassie (2003) stated that most of the cooperative members appreciated the involvement of cooperatives in input marketing; as a result, members in the Saeisie tsaeda Emba Woreda have built a sense of ownership and confidence. He farther indicated that above all members were satisfied for the reason that it removed the need for members moving along distances to collect fertiliser and reduced time and finance spent on the way.

Role of agricultural cooperatives in agricultural input and output marketing

It is not astonishing that the agricultural cooperatives have a great part in making revenue, giving goods and services at rational price to their members whereas creates employment opportunity to the public of the country. Therefore, agricultural cooperatives have a significant role in poverty alleviation of the country (Srinivasan and Sundaram, 2020).

Cooperatives represent the majority of the farmers, since it is very difficult and highly costly to try to realise the market functions on individual farmer's basis and they systematise agricultural input output marketing. If cooperatives distribute major agricultural commodities directly to the farmer, the channels will be shortened and price decreases, thus, increasing the income (benefit) of farmers. Agricultural marketing and supply cooperative are most important types of cooperatives in Ethiopia, which are principal in rural areas. They are earnings for farmers who want to purchase inputs in bulk and cooperatively sale their crops in order to increase their trading power. The share in chemical, fertilisers, improved seed supply and purchase such collectives reach more than 85% of the total annually distributed (Srinivasan and Sundaram, 2020).

Agricultural inputs can be categorised into two types, consumable and capital inputs. The former includes manures and fertilisers, seeds, insecticides/ pesticides, diesel oil and electricity, etc, on the other hand, capital inputs include tractors and trailers, harvesters and threshers, pump sets and other implements. Most of the agricultural input markets are seen at the level of grain market towns and large villages or cooperative institutions (Singh, 2004).

Cooperatives are increasingly advocated as a means to improve incomes, livelihoods and the sustainability of smallholder farmers (Ofori et al., 2019). Agricultural cooperatives have been identified as an appropriate institution that enables farmers to participate in competitive inputs and output markets, improve the quality and safety of agro-food, adopt advanced technologies, enhance farm economic performance, increase rural household welfare (e.g. Kumar et al., 2016; Ma and Abdulai, 2016; Ma et al., 2018; Wossen et al., 2017).

According to Tumenta et al. (2021), in Cameroon, agricultural cooperatives are actively involved in the production and commercialisation of agricultural products and bulk purchase of inputs such as chemical fertilisers. Cooperatives can also provide credit services to member farmers that ease production constraints (Tefera et al., 2017). Simelane et al. (2019) supported that the role for cooperatives in strengthening rural smallholder farmers, but it also advocates for institutional evolution on cooperatives legislation to enhance their viability and sustainability.

Major constraints in agricultural input and output marketing

The agricultural cooperatives, especially in developing countries like Ethiopia, also present itself as an important element that can contribute to the realisation of the Millennium Development Goals (MDGs). The agricultural markets in Ethiopia are highly influenced by the production system itself. Moreover, the prices of agricultural inputs are increasing from year to year and farmers are complaining on it. If farmers are becoming more efficient to produce their products at lower cost and to sell them at a fair price through agricultural cooperatives, then it would be possible to achieve higher economic growth. Ahmed and Mesfin (2017) confirmed that agricultural cooperatives in Ethiopia provide assistance mainly agricultural farmers' input and marketing for their produces. For instance, in Ethiopia, cooperatives are actively involved in the dissemination of agricultural inputs and about 56% of chemical fertilisers were provided by cooperatives in the 2010 production season (Ibid).

Although cooperatives are considered as an appropriate tool of rural development, they are facing critical problems, which retain them from their positive role. Srinivasan and Sundaram (2020) stated that there is still lack of awareness about cooperatives among stakeholders, policy makers and even community people. There is also poor linkage among cooperatives and other stakeholders. The cooperatives are not getting proper legal support from government and NGOs because of that the cooperatives in Ethiopia indulge in

taxes for their economic activities (Ibid). The agricultural cooperatives in Ethiopia have deficiency of these activities among the people (Srinivasan and Sundaram, 2020).

Chernet and Tirfe (2019) and Yenesew and Debeb (2019) stated that agricultural cooperatives faced many challenges including lack of sense of ownership and lack of follow up and control system by members; lack of commitment, members little awareness about cooperatives, low participation of members in their cooperatives, mistrust; failure of management committee to serve the members' interest; management committees' little knowledge about cooperative proclamations, rules and bylaws, limited training access; limited professional support and follow up to cooperatives; failure to adapt the experience of other model cooperatives; little effort to promote cooperative policies, strategies, proclamations, rules and regulations, lack of commitment to find out the problems of cooperatives; and fail to organise and provide adequate, quality and timely information on cooperatives.

Accordingly, Chernet and Tirfe (2019) revealed that lack of financial resources, lack of market information, poor members' participation and the above mentioned problems place the farmers as usually price takers due to the fact that they have poor marketing skill and limited bargaining power were some of the critical problems facing agricultural cooperatives societies in the Wolaita zone.

Empirical study

The current approach of distribution of seed through farmer's cooperative unions and affiliated primary societies has its own limitation, as procurement of inputs is the responsibility of these cooperatives and unions, which usually have shortage of skilled labour and capacity to handle the process. Moreover, the approach does not create any competition, as the suppliers remain the government enterprise, i.e. Ethiopian seed Enterprise (Yonas, 2003).

Agricultural inputs can be categorised into two types, consumable and capital inputs. The former includes manures and fertilisers, seeds, insecticides/ pesticides, diesel oil and electricity, etc, on the other hand, capital inputs include tractors and trailers, harvesters and threshers, pump sets, 26 and other implements. Most of the agricultural input markets are seen at the level of grain market towns and large villages or cooperative institutions. There are some general aspects of the rural market like underdeveloped markets, illiterate buyers, lack of communication facilities, many languages and vast spread of the market, storage, transport problems, seasonality and demand which are applicable to agricultural input markets as well (Gopalaswamy, 1997 as cited by Singh, 2004). However, agricultural input markets differ from other product markets in many ways due to the nature of their products, the nature and location of users and the overall environment in which products are being bought and used. (Singh, 2004).

Agricultural inputs can be considered to be primarily yield saving or yield enhancing inputs. Their basic usefulness to the farmer and therefore their potential comes fundamentally from the quantity of yield they are able to raise or save. This gives the agronomic potential. They may also help to improve quality. They also help to reduce the uncertainty of obtaining good yields, especially if they are used at the consent or for prevention of disease (Singh, 2004). This study mainly focuses on the agricultural inputs in which the cooperative societies deal up on such as fertilisers, seeds and agro-chemicals, etc. (Gebru, 2007). Agricultural cooperatives are legitimate institutions which belong to farmers. Their main activities are to render variety of services and access the market for input supply particularly to the rural community. He noted that "the trend of agricultural inputs supply in the study area highly decreased in quantity of fertiliser, improved seeds and increased unit price almost from year to year.

Livestock markets in Ethiopia function at three levels consisting of primary, secondary; and terminal markets. Some also include a nominal forth tier at the farm gate level, which could hardly be considered to function as a market. (Solomon, et al, 2000 as cited by Yacob 2002) Primary markets have been identified as only village or also Woreda level markets with a supply of less than 500 head of cattle/week where primary producers (farmers and pastoralists) sell small number of animals to small traders, other farmers (replacement animals), farmer or pastoralist traders and in some cases to consumers and local butchers.

Such markets are not fenced, have no scales and no feeds and watering facilities. Purchasing is done through 'eye ball' negotiations.

The Government of Ethiopia is strongly supporting the restructuring and expansion of the cooperative movement including its involvement in grain marketing. The experience in the past in many countries is that grain marketing cooperatives have to be very efficient to compete with private sector traders when both are on a level playing field. This is mainly because private traders have often been better informed than cooperatives, have been able to respond more rapidly to changing market conditions, make assessments of the risks involved and take rapid decisions based on those assessments (Oxford Policy Management, 2003).

Frank et al. (2003) reported that cooperative marketing societies in India constitute one of the important segments of the agricultural cooperative societies. Cooperative marketing societies render marketing services to the poor and exploited farmers at reasonable cost, assembling, grading, storing, financing, sale and transportation are undertaken by these cooperative marketing societies at a lower cost by eliminating the middlemen. They added that cooperative society is to operate at two levels, viz., input marketing and output marketing. Input marketing includes the purchase and sale of agricultural inputs like seeds, fertilisers and pesticides. Output marketing denotes the purchase and sale of the produce of the member farmers. According to these scholars, a cooperative marketing society, to be successful, must engage in output marketing to the maximum level than the marketing of inputs.

C.M. Muniramappa (as cited by Franck, et al 2003), is one of the pioneers to throw light on this subject. He says, "If a society fails to market the produce of its members or for that matter the produce of any others, it ceases to be of any use to its members for marketing. Many are there just for the name-sake and exist as agents of government for distribution of controlled commodities like wheat, sugar, rice, pulses and production requisites like seeds, fertilisers and pesticides. For all purposes they are either dormant or defunct and can be removed from out of the list of the societies."

Kimberly A. Zeuli and Robert Cropp (2004) Stated that the primary function of marketing cooperatives is to market the products of their members. Beyond that, there is a great range of additional functions the cooperatives in this group perform, bargaining cooperatives (or associations) are at one end of the spectrum. Moreover, they added, in 2002, cooperatives marketed 27% of all farm products in the United States and had a combined net business volume of 569.6 billion US dollar.

A good majority of the livestock markets in Ethiopia belong to this group. Secondary markets are trader and to some extent butcher, breeding and draught stocks and located mainly in regional capitals. Secondary markets serve the local consumers to some extent but mainly feed the terminal markets. These markets also supply live animal exporters and meat processors.

Under the current institutional arrangement, the Ministry of Agriculture and Rural Development (MoARD) is responsible to design, implement and monitor agricultural marketing policies through the different divisions organised under the department of agricultural marketing and inputs of the Ministry. Other organisations like cooperatives, unions, traders' associations, exporters' associations etc also play important role in improving the marketing skill, bargaining power and also in the process of policy formulation. However, under the current situation, they are not strong enough to play the expected role. Thus, it is important that these institutions are strengthened. (Dawit, 2005).

Cooperatives have also found it difficult to retain the 'loyalty' of their members if they can obtain better prices for their grain from alternative outlets. Because of these inherent problems, governments are frequently tempted to tilt the playing field in favour of cooperatives by giving them preferential access to credit facilities and investment grants and/or loans. It is to be hoped that the Government of Ethiopia will not follow this path but rather encourage healthy competition between all participants in the grain marketing system, leading to lower marketing costs that will benefit all of the rural poor, both consumers and producers. There is already considerable support being given to the cooperative movement through

the USAID-funded ACE programme. It would be desirable to undertake a study to assess the need for additional donor funding and technical assistance, bearing in mind the desirability to foster a competitive environment in the grain marketing system on a level playing field.

Kebede (2006) used the logit model to analyse the farmers' perception and determinants of land management practices in Ofla Woreda, southern Tigray, Ethiopia. His findings showed that Age, Sex, Distance to Woreda market, , perceived water logging problem, perceived gully and degradation status, Investment in soil and water conservation practices, slope category were found to determine the farmers perception of land management practice.

Daniel (2006) used the Tobit model to assess the performance of primary agricultural cooperatives and determinants of members' decision to use as marketing agent in Adaa Liben and Lume districts. His finding showed that among these significant variables district, Cooperative price for teff, position in the cooperative, farm size, yield of teff, patronage refund and distance of the district market from the farmer's house were found to be significantly and positively related to the farmers' marketing of teff through the cooperatives. Gizachew (2007) used ratio analysis and found that the liquidity ratios of the cooperatives under his study are fluctuating during the consecutive three years of his study period. This is because of the difference in the amount of the loan from year to year which results for fluctuating in interest payable. Here, the impact of borrowing has shown in decreasing the liquidity ratio. Therefore, cooperatives should increase their capital to minimise a loan.

Conceptual framework of the study

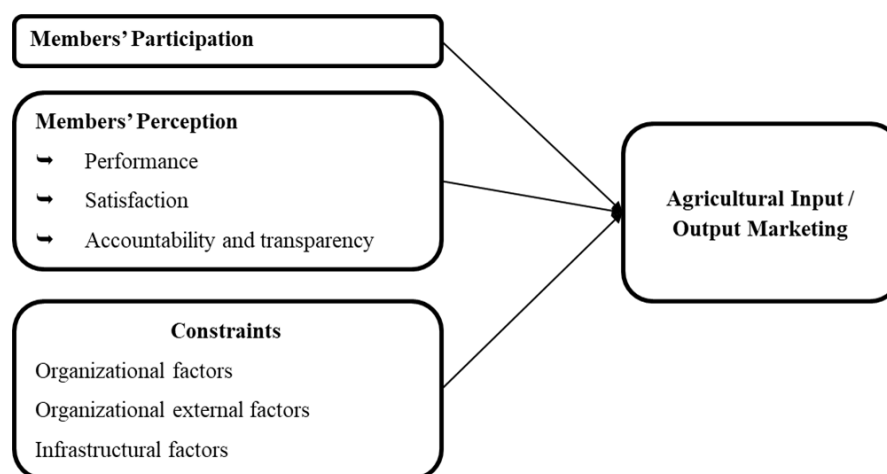


Figure 1: Conceptual framework of the study

Source: Research team's conceptual framework (2023)

Methodology of the Study

Description of the study area

Bale zone is located in south eastern part of Ethiopia, 430 km from the Addis Ababa (Capital city of Ethiopia) with the capital city of Robe. Bale zone is the second largest zone in Oromia National Regional State after Borena zone with a total area of 63,555 km². It shares about 17.5% of total area of Oromia. Bale is bordered on the south by the Ganale Dorya River which separates it from Guji Zone, on the west by the West Arsi Zone, on the north by Arsi Zone, on the northeast by the Shebelle River which separates it from West Hararghe Zone and East Hararghe Zone and on the east by the Somali Region. Bale zone is one of the 19 zones of the Oromia National Regional State. According to Bale zone Agricultural and Natural Resource Development Office (2014 E.C.), about 90% of the population is dependent on agriculture and 88% lives in rural areas. Altitude of Bale zone extends from less than 300 meters around Meda Welabu, southeast of Rayitu and Gura Damole districts; to more than 4377 meters above sea level in Goba district namely Mount Tulu Dimtu. The annual average temperature of Bale zone is 17.5 °C. The maximum and

minimum temperature is 25 °C and 10 °C respectively. The mean annual average rainfall is 875mm, whereas maximum 1200mm and 550mm minimum annual rainfall was recorded in the zone.

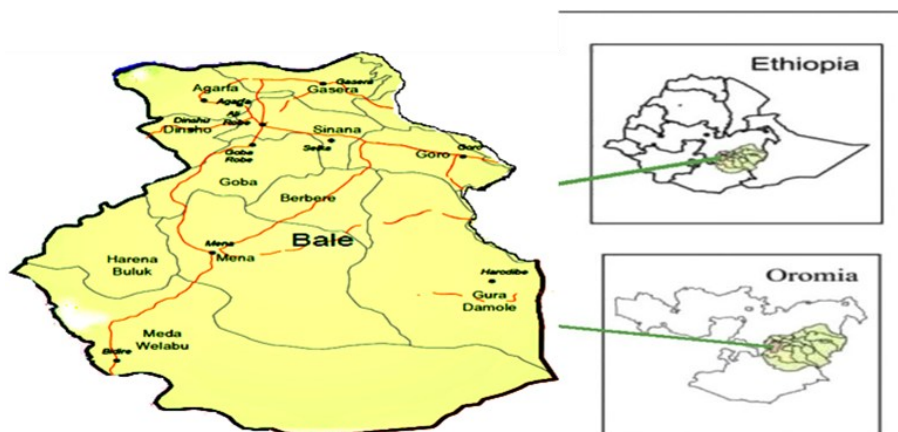


Figure 2: Map of study area

Source: Bale zone administrative office (2013)

Research design and approach

The study was employed descriptive and explanatory research design. Descriptive research design is used to describe the data and characteristics about the population or phenomenon being studied, in the form of table and frequency statistics. Explanatory study clarifies the relationship between two aspects of a situation or phenomena (Kumar, 2011). This research design is considered as appropriate because it is suitable in providing a description of the role of agricultural cooperatives in agricultural input and output marketing. And also, the study combined both qualitative and quantitative approaches for the sake of understanding the role of agricultural cooperatives in agricultural input and output marketing.

Type and source of data

Both quantitative and qualitative data types were used by the research team. The qualitative and quantitative data is gathered through primary and secondary data sources.

Population of the study

The target population of this study was comprised 87 agricultural cooperatives from some selected woredas/districts in Bale zone (i.e. 23 from Sinana district, 25 from Gasera district, 22 from Agarefa district and 17 from Goro district). Therefore, target population of the study was 23,653 members of agricultural cooperatives.

Table 1: Target population of the study

Districts	Agricultural Cooperatives	Frequency		Total (Frequency)
		Male	Female	
Sinana	23	8614	598	9212
Gasera	25	4393	428	4821
Agarefa	22	4230	547	4777
Goro	17	4411	432	4843

Source: Researchers' survey, 2023

Sample size determination and sampling technique

The sample respondents for this study were drawn from four purposively selected districts (namely Sinana, Gasera, Agarefa and Goro districts) of Bale zone agricultural cooperatives. Among the seven districts comprising 32,085 cooperative members (SMFCU 2013), these four districts represented a target population of 23,653 members across 87 agricultural cooperatives. A sample of 393 respondents was determined by using the formula of Yamane (1967) at a 95% confidence level and 5% margin of error.

Table 2 shows that the largest proportion of respondents was drawn from Sinana district (153), followed by Goro (81), Gasera (80), and Agarefa (79). The distribution of respondents across districts is proportionate to their respective cooperative membership sizes, ensuring balanced representation and minimising sampling bias. This proportional allocation enhances the representativeness, reliability and generalisability of the study findings across the selected districts.

Table 2: Total sample respondents

District	Frequency		Total (Frequency)	Proportion Sample Size
	Male	Female		
Sinana	8614	598	9212	153
Gasera	4393	428	4821	80
Agarefa	4230	547	4777	79
Goro	4411	432	4843	81

Source: Researchers' survey, 2023

Method of data collection

The data collection tools to be used in this research as the primary data collection instrument are both open and close ended questionnaire and semi-structured interview. Accordingly, both open and close ended questionnaire was prepared and distributed for agricultural cooperatives members. Pilot study is conducted by testing and pre-testing the questionnaire with 30 randomly selected agricultural cooperative members. Feedbacks was incorporated and questions revised. The questionnaire that was prepare and translated in to the local language (Afan Oromo language). Hence, semi-structured interview was conducted with 20 managers of agricultural cooperative.

The information required with regard to secondary data is gathered from the agricultural cooperatives including: both financial and physical quantity of purchased and sold of agricultural input/output, recording of activities, data related to production, purchases, sales, members, assets, credits disbursed and collected, employees, profits/losses. Accordingly, 4 enumerators were recruited for data collection.

Research validity and reliability

Validity is the degree by which the sample of test items represents the content of test is designed to measure (Heale & Twycross, 2015). Content validity that was employed by this study is a measure of the degree to which data were collected through questionnaires. The instrument validity is checked by represent a specific domain or content of a particular concept and experts in the field of research evaluated it.

According to Phelan and Wren (2005), reliability is the degree to which an assessment tool produces stable and consistent results. An instrument is reliable when it measures a variable accurately and obtains similar results under the same conditions over a period of time. Therefore, the study illustrates on every feature of the study. The study collected several types of information from different sources that could improve the reliability of the data and its results. The instrument was calculated by finding Cronbach's alpha coefficient. Cronbach's alpha is an index of reliability associated with calculating the reliability of items that are not scored right versus wrong (Fraenkel & Wallen, 2003).

Besides, the reliability concerns the extent to which a measurement of a phenomenon provides stable and consist result (Carmines & Zeller, 1979). Otherwise, it is all about the consistency of the result (Taherdoost, 2016) to measure inter-item homogeneity of each construct using Cronbach's alpha value greater than or equal to .70 (Cronbach & Warrington, 1951) and the inter-item correlations were greater than or equal to .30 (Tavakol & Dennick, 2011) were included to collect data and included in the analysis. Besides, Sharma (2016) classified the reliability statistics depending on the Cronbach's alpha value: $\alpha \geq .90$ =Excellent, $.90 > \alpha \geq .80$ =Good, $.80 > \alpha \geq .70$ =Acceptable, $.70 > \alpha \geq .60$ =Questionable, $.60 > \alpha \geq .50$ =Poor and $\alpha < .50$ =Unacceptable.

In the current study, the reliability of the survey instruments was estimated based on Cronbach's alpha measure of internal consistency as indicated in the table below. Fortunately, the result of the pilot survey

exhibited no variable was found below .70. The reliability analysis revealed the Cronbach's alpha coefficient that exhibited the consistency of the results that ranges from .738 to .876 that made the result acceptable based on (Tavakol & Dennick, 2011; Cronbach & Warrington, 195).

Table 3: Reliability analysis using Cronbach's alpha

Variables		Cronbach's alpha	Total number of tested items
Independent variables	Members perception on cooperatives performance	.899	6
	Perception on accountability and transparency	.745	5
	Perception on satisfaction	.774	6
	Members participation	.889	8
	Infrastructural factors	.731	7
	Organisational problem	.664	8
	External problem	.850	6
Dependent variables	Agricultural input output marketing	.883	7

Source: Researchers' survey, 2023

Method of data analysis

Structural equation modelling using AMOS version 23.0 was employed for data analysis. (SEM) model applied to test the conceptual model and examine the relationships between each pairs of variables as suggested in the hypothesis. Structural equation modelling (SEM) refers to a statistical method used to measure and analyse the relationship of observed and latent variables. It is similar but more powerful than regression analyses; it examines linear causal relationship among variables, while simultaneously accounting for measurement error (Tanya and Claudio, 2010).

Path analysis, on the other hand, had its beginning in biometrics and aimed to find the causal relationship among variables by creating a path diagram (Wright, 1918; 1920, 1921 as cited in Fan et al., 2016). It was the early name for SEM before there were latent variables and was very powerful in testing and developing the structural hypothesis with both indirect and direct causal effects. Path analysis can explain the causal relationships among variables. A common function of path analysis is mediation, which assumes that a variable can influence an outcome directly and indirectly through another variable (Shao et al., 2016) Path analysis developed to quantify the relationships among multiple variables (Wright, 1921 as cited in Fan et al., 2016). Therefore, in this study the structural equation modelling of path analysis was employed to test the effect of each of the determinant factors on agricultural input and output marketing through testing the formulated hypotheses. The questionnaires were collected manually from the sample respondents and the responses was coded and entered into the statistical software Statistical Package for Social Scientists (SPSS) Version 26 to make a clear recording of data. The statistical software was helped to analyse and present the data through the statistical tools that includes descriptive analysis (frequencies, mean, standard deviation and percentages).

Model specification

Descriptive statistics was used to analysis demographic profile of population and general information by using SPSS v26.0 statistical tools. Frequencies and percentages were used to analyse demographic and general information of the respondents.

In order to examine the effect and relationship between agricultural cooperatives and agricultural input-output marketing the explanatory variables, structural equation model (SEM) is used. The path analysis takes place using SPSS and AMOS. The data imported from SPSS to AMOS for testing each hypothesis and research objectives. The model was adopted from different studies conducted on the topic area.

*Variable description and their expected sign***Table 4: Summary of variables measurement, symbols and expected results**

Variables	Symbol	Measurement of Variable	
Members perception on cooperatives Performance	PER	variable measured by five-point Likert scale	+/-
Members Perception on accountability and transparency	ATT	variable measured by five-point Likert scale	+/-
Members Perception of satisfaction	SATI	variable measured by five-point Likert scale	+/-
Members participation	PART	variable measured by five-point Likert scale	+/-
Infrastructural factors	IPR	variable measured by five-point Likert scale	+/-
Organisational factors	OPR	variable measured by five-point Likert scale	+/-
External factors	EPR	variable measured by five-point Likert scale	+/-
Agricultural input output marketing	IO	variable measured by five-point Likert scale	+/-

Source: Researchers' field survey, 2023

Ethical consideration and confidentiality

Researchers are professionals; hence, research ethics as a branch of applied ethics has well established rules and guidelines that define their conduct (Ifedha and Bretta, 2016). The study conducted by considering appropriate ethical principles. In this study, the researcher had letter of cooperation request from Maddawalabu University to agricultural cooperatives and then to approach targeted the study area for data collection. The objectives of the study were made clear for the respondents and their consent has been considered in the current study. Moreover, no information modified or changed and the sources of data used for this study were properly acknowledged and cited.

Results and Discussion*Introduction*

This chapter focuses on the analysis and interpretation of the data collected through questionnaires. For clarity purpose first, the result of descriptive analysis is presented. In descriptive statistics data was analysed using frequency, percentage, mean and standard deviation were used to aid the analysis of data because they are effective illustrations of depicting relations and trends.

Response rate

To achieve the objective of the research, 393 sample respondents were selected from four woredas (namely Sinana, Gasera, Agarefa and Goro districts) of Bale zone agricultural cooperatives by using Yemane's formula. Out of the total of 393 questionnaires distributed, 340 complete and valid responses were obtained and used for data analysis and interpretation, yielding a response rate of 86.5%.

*Descriptive statistics***Demographic characteristics of the respondents****Table 5: Demographic characteristics of the respondents**

Variables	Category	Frequency	Percent
Gender	Male	275	80.9
	Female	39	19.1
Age	21-30	170	50
	31-40	107	31.5
	41-50	24	7.1
	>50	39	11.5
Educational Level	Illiterate	49	14.4
	Read and Write	87	25.6
	Primary school	71	20.9
	High school	96	28.2
	Diploma	13	3.8
	Certificate	24	7.1
Marital Status	Married	308	90.6

Variables	Category	Frequency	Percent
Family Size	Single	8	2.4
	Widowed	15	4.4
	Divorced	9	2.6
	0	9	2.6
	1 up to 5	159	46.8
	6 up to 10	172	50.6

Source: Researchers' survey, 2023

Sex of Respondents: The above table shows that among the total number of respondents 275 (80.9%) are male and 39 (19.1%) of the total respondents are female. It can be said that the number of male agricultural cooperative members are by 61.8% higher than female members. The implication of this result is that even though the same minimum requirement of membership is required for both men and women, households in the study area were dominantly men headed and male members outweigh female members of cooperative.

Age group of sample household heads: Age of the farmers measured in years is one of the characteristics that is worth mentioned in literature which affect farmers' economic participation in cooperatives. In this study, it was assumed that the age of household head influences the farmers' engagement in input output marketing of cooperatives. It is generally expected that older farmers would manifest better experience and innovation skill than their younger counterparts as they have more experience on the challenges and opportunities for agricultural productivity (Semeneh, 2010). Based on the data of response group 170 (11.5%) of the population belongs to the age group 21-30 years, 107 (50.0%) belong to the age group of 31-40 years, 24 (31.5%) belong to age group 41-50 years and 39 (7.1%) of the population belongs to 50 and above age groups. This is an indication that majority of the respondent's heads in the study area were in their young and mid years with few of them who could be considered as old.

Educational level of households: Since the households with some basic education knowledge might better get and process information about improved technology. Hence, education would have clear implication to both membership and productivity of cooperative members. This is because education has more to do with farmers' awareness and sensitivity to input output marketing of cooperatives in era of inflation, competition and vulnerability to market shocks. The levels of educational background were varying among study participants. Almost 96(28.2%) of the respondents have attained High school, 13 (3.8%) have achieved diploma, 71 (20.9%) have attained Primary school, 49 (14.4%) respondents are Illiterate, 87 (25.6%) of respondents are Read and Write and 24 (7.1%) of the respondents are achieved Certificate. This indicates that members were predominantly could have basic reading, writing, computing and communication skills.

Looking at marital status of households, 8(2.4%) was single, 308 (90.6%) were married, 15 (4.4%) Widowed and 9 (2.6%) were divorced.

Finally, out of 340 sample cooperative members, more than half 172(50.6%) and 159(46.8%) of them had 6-10 and 1-5 family members respectively and 9 (2.6%) of the respondents are zero family size.

Income of members

Table 6: Income and expenditure of members

Variables	Category	Frequency	Percent	Mean	Std. Deviation
Major sources of income	Sale of cereals and pulses	337	99.1	1.02	.187
	Sale of vegetables and fruits	3	0.9		
	Sale of livestock	0	.00		
	Others	0	.00		
Do you have off/non-farm income	Yes	0	.00	2.00	.000
	No	340	100.0		
Your income source from on-farm activities in the year 2014 E.C. in birr.	51000-100000	53	15.6	3.1118	.70345
	101000-150000	210	61.8		
	151000-200000	63	18.5		

Variables	Category	Frequency	Percent	Mean	Std. Deviation
	>200000	14	4.1		

Source: Researchers' survey, 2023

As per the table, 99.1% and 0.9% of respondents obtain their income through sale of cereals and pulses and Sale of vegetables and fruits respectively. The table shows the sales of cereals and pulses activities are consider as major sources of the income (99.1%). Cooperative and professional should participate in enhancing productivity of cereals and pulses to increase their income.

According to the respondent's response, the communities have not non-farm income (100%). On the other hand, the community economic is depended only in the farm activity. The government and other stakeholders should create awareness to the local communities about the role and significance of cooperative in farming activity.

The result indicates 61.8% of respondents 101000-150000, 18.5% 151000-200000 and 15.6% of respondents were in the 51000-100000 response categories. The remaining were in the >200000 (4%). The result also indicates that the majority of the respondents respond their last year annual income is between 101000- 150000 which is categorised under middle income but, because of family size and different farming activity cost they become fall under low earn society.

Members farming characteristics and agricultural activities

Table 7: Members' farming characteristics and agricultural activities

Variables	Category	Frequency	Percent	Mean	Std. Deviation
Farming experience in full years	1 up to 2	0	.00		
	3 up to 4	39	11.5	2.89	.319
	5 and above	301	88.5		
Do you own land	Yes	340	100.0	1.0000	.00000
	No	0	.00		
How do see the fertility status and soil character of your plot	Good	103	30.3		
	Medium	233	68.5	1.7088	.48021
	Poor	4	1.2		

Source: Researchers' survey, 2023

Concerning farming experience, 301 (88.5%) of the respondents confirmed that 5 years and above experience, while 39 (11.5%) are 3 up to 4 years and there is no 1 up to 2 years. This shows that the majority of the agricultural cooperatives have experience on agricultural activities. Although, all of the members have their own land 340(100%). They see the fertility status and soil character of the plot as good, medium and poor with the percent of 103 (30.3%), 233 68.5(%) and 4 (1.2%), respectively.

Access to input supply and output marketing service with its members

Table 8: Access to input supply and output marketing service with its members

Variables	Category	Frequency	Percent	Mean	Std. Deviation
Did you involve in purchasing agricultural input from the agricultural cooperatives	Yes	340	100.0	1.0000	.00000
	No	0	.00		
What type of agricultural inputs currently you get from the agricultural cooperatives	Soil Fertiliser	163	47.9	1.9824	1.18234
	Chemicals	97	28.5		
	Commodities	3	.9		
	Improved seeds	77	22.6		
Are you able to get all the agricultural inputs from your cooperative society on correct time and quantity	Yes	87	25.6	1.7441	.43700
	No	253	74.4		
Do you sell your agricultural products to the agricultural cooperatives	Yes	340	100.0	1.0000	.00000
	No	0	.00		
From where do you get information about the market price of agricultural product	Local market	127	37.4	3.1735	3.15703
	Cooperative promoter	18	5.3		

Variables	Category	Frequency	Percent	Mean	Std. Deviation
How do you see the pricing strategy of the agricultural cooperatives in input/output marketing	Retailers	49	14.4	2.4765	.72627
	Extension workers/development agent	7	2.1		
	Wholesalers	138	40.6		
	Others	1	.3		
	Poor	40	11.8		
	No difference	105	30.9		
	Reasonable	188	55.3		
	Attractive/Very good	7	2.1		

Source: Researchers' survey, 2023

Although all of the members were involved in purchasing agricultural input from the cooperative 340 (100%). This finding contradicts with (Hussi et al., 1993), especially agricultural cooperatives, provide their members with the advantages of economies of scale by combining their resources, producers can obtain the needed goods and services more efficiently and market them in the larger volume, thus giving them a stronger bargaining position in dealing with traders and processors.

The type of input provided to farmers through cooperatives solely were soil fertiliser, chemicals, commodities and improved seeds in order of importance (47.9%, 28.5%, 0.9% and 22.6%) respectively. This finding coincides with (Hussi et al, 1993) that cooperatives could serve their members by providing agricultural supplies and bargaining their produces to the market. The main types of agricultural inputs provided through cooperatives to member farmers were hence, soil fertiliser, chemicals and selected seeds.

The main advantages of buying items from cooperatives over private businesses were relatively cheaper price and correct measurement of items. In contrast to this more than half, 253 (74.4%) witnessed that they were not able to get all the agricultural inputs from their cooperative society on the right time and at the required quantity. Nearly a comparable number of them 87 (25.6%), however confirmed that they were able to get all the agricultural inputs from their cooperative society on the right time and at the required quantity. Therefore, it can be inferred farmers were not getting all the agricultural inputs from their cooperative society on the right time and at the required quantity though their need of agricultural input differs according to the type of crop they grow.

All of the members were selling their agricultural products to the agricultural cooperatives 340 (100%). This implies that all the agricultural members benefited from the agricultural cooperatives.

Out of 340 sample cooperative members, their source of information about the market price of agricultural product were local market, cooperative promoter, retailers, extension workers/development agent, wholesalers and others with percent of 127 (37.4%), 18 (5.3%), 49 (14.4%), 7 (2.1%) and 1 (0.3%) respectively. These shows that the majority of the respondents 37.4% get information about the market price of agricultural product is from local market.

Concerning pricing strategy, 188 (55.3%) of the respondents confirmed that the pricing strategy of the cooperatives in input/output marketing was reasonable while 40 (11.8%), 105 (30.9%) and 7 (2.1%) of them evaluated it as poor, no difference and attractive/very good respectively.

Members credit using pattern and cooperative credit services

Table 9: Members' credit using pattern and cooperative credit services

Variables	Category	Frequency	Percent	Mean	Std. Deviation
Did you borrow money from the agricultural cooperative to access agricultural input	Yes	340	100.0	1.0000	.00000
	No	0	.00		
For what purpose do you borrow money from	Purchase of fertiliser	164	48.2	2.0088	1.20590
	Purchase of chemicals	90	26.5		
	Purchase of farm implements	5	1.5		

Variables	Category	Frequency	Percent	Mean	Std. Deviation
your agricultural cooperative	Purchase of farm implements	81	23.8		
Why do you prefer to borrow and purchase input in loan from the cooperative	Less security is required	43	12.6		
	Easier to get loan	165	48.5		
	Cheapest source of credit that could be found	6	1.8	2.6324	1.10915
	Possibility of getting on time	126	37.1		

Source: Researchers' survey, 2023

The above table shows that all of the members were get borrow money from the agricultural cooperative to access agricultural input 340(100%). Their purpose of borrow money from agricultural cooperative is purchase of fertiliser, purchase of chemicals, purchase of farm implements and purchase of farm implements, with the percent of 164 (48.2%), 90 (26.5%), 5 (1.5%) and 81 (23.8%) respectively. Their reasons to borrow and purchase input in loan from the cooperative were less security is required 43 (12.6%), easier to get loan 165 (48.5%), cheapest source of credit that could be found 6(1.8%) and possibility of getting on time 126 (37.1%). This implies that members of agricultural cooperatives are mostly prefer those agricultural cooperatives because of the possibility of getting loan.

Membership duration and condition

Table 10: Membership duration and condition

Variables	Category	Frequency	Percent	Mean	Std. Deviation
How long have you been a member of this cooperative	2	4	1.2		
	3	19	5.6		
	4	26	7.6		
	5	65	19.1		
	6	86	25.3	6.32	1.834
	7	40	11.8		
	8	59	17.4		
	9	23	6.8		
	10	18	5.3		
	On own interest and free choice	42	12.4		
How do you become a member of the cooperative	Awareness by promoters	58	17.1		
	Friends influence	75	22.1		
	Influenced by neighbours	110	32.4	3.2294	1.25989
	Looking for service rendered by the cooperatives	55	16.2		
	To get training from my cooperative	8	2.4		
What was your purpose of joining the agricultural cooperative	To get credit service	16	4.7		
	To get market stabilisation	74	21.8	4.7794	1.09767
	To get agricultural inputs supply	163	47.9		
	To get agricultural output marketing service	79	23.2		

Source: Researchers' survey, 2023

The large majority of the respondents have been a member of the cooperative for six years (25.3%) followed by five years (19.1%). The remaining respondents consist of 17.4%, 11.8%, 7.6%, 6.8%, 5.6%, 5.3% and 1.2% of respondents have been members of the cooperative , 8,7,4,9,3,10 and 2 years respectively. This implies that majority of respondents are more experienced about the cooperative condition.

As per the tables above, the majorities of respondents are influenced by neighbours 32.4%, friends influence 22.1%, Awareness by promotes 17.1%, 9.6 , 16.2% looking for service rendered by the cooperatives and 12.4 % On own interest and free choice respectively on the issue about the how they become a member of the cooperative This shows, member have awareness about the role of cooperative and they influence their neighbours and friends become the part of cooperative benefit.

As depicted in table , 47.9%, 23.2% , 21.8% and 4.7of respondents to get agricultural inputs supply, to get agricultural output marketing service, to get market stabilisation and to get credit service respectively. The rest 2.4 % are to get training from cooperative. These indicate that members of cooperative joined increase their productive live by get agricultural input supply and output marketing service.

Inferential statistics results

The analysis starts with presenting the correlation between variables in the model. The result of the correlation coefficients indicates how strong or weak the relationship is between variables concerned. Then the inferential statistics presents the structural equation modelling results obtained from the Amos 23 outputs. These data describe the casual relations between and among the exogenous variable and the endogenous variables.

Correlation analysis

It is common in most studies to make correlation analysis among variables before going to do detailed regression analysis. Correlation analysis is used to identify the direction of the relationship between two variables and to measure the degree of association between them. The value of correlation lies between +1 and -1. A correlation coefficient close to either -1 or +1 indicates that there was a strong inverse or direct relationship between variables respectively; whereas a correlation coefficient of zero indicates that the variables are uncorrelated. Correlation analysis was conducted in this section to analyse and examine the relationship between variables and to provide evidence of construct validity. As it is indicated in the above table, positive relationship was found among the majority of independent (explanatory) variables. Except perception of members on transparency and accountability of cooperatives and organisational/internal factors, perception of members on transparency and accountability of cooperatives and infrastructure factors and perception of members on transparency and accountability of cooperatives and members perception on performance of agricultural cooperative. However, the majority variables have a very strong positive relationship with each other. It means that, the majority variables determine agricultural input-output marketing.

Table 11: Summary of correlations results

Path/Effects				Estimate	Path/Effects				Estimate
PER	<-->	EPR		.899	ATT	<-->	EPR		-.002
ATT	<-->	OPR		-.007	PER	<-->	OPR		.775
PART	<-->	OPR		.874	PER	<-->	IPR		.774
IPR	<-->	OPR		.851	PER	<-->	PART		.804
ATT	<-->	IPR		-.012	PER	<-->	SATI		.910
SATI	<-->	IPR		.874	SATI	<-->	OPR		.851
PART	<-->	IPR		.833	OPR	<-->	EPR		.752
ATT	<-->	PART		.012	SATI	<-->	PART		.851
IPR	<-->	EPR		.777	PER	<-->	ATT		.020
PART	<-->	EPR		.844	ATT	<-->	SATI		.012
SATI	<-->	EPR		.856					

Source: Researchers' survey, 2023

Normality of data and multivariate analysis

In structural equation modelling, the most important assumption is testing normality and multivariate analysis. Therefore, the researcher has employed structural equation model, path analyses to check the normality of the data collected. To begin with, the analytical way of normality test, descriptive statistics were produced. Skewness and kurtosis were used to determine whether a data set is normally distributed or not and to judge the normality of the data. Though, normally distributed has both Skewness and kurtosis value between -2 to +2 is accepted (George & Mallery, 2010). It can be noted in the table that the value of skewness and kurtosis fall within the acceptable range of -2 to +2 and it indicate that the data is fairly normal and the basic the assumption normality testing is fulfilled.

Multivariate analysis is a process of involving multiple variables resulting in one outcome. MVA is a statistical procedure for analysis of data involving more than one type of measurement or observation and it may mean solving problems where more than one variable is analysed simultaneously with other variables. According to the rule of thumb, the range of acceptance for multivariate analysis is between -1.96 to 1.96 (GLT, 2020). Thus, the table below indicates that the result is found between the range of acceptance and it is accepted.

Table 12: Assessment of normality and multivariate results

Variables	Min	Max	Skew	C.R.	Kurtosis	C.R.
External factors	6.000	30.000	-.373	-2.718	-1.144	-4.164
Organisational factors	8.000	26.000	-.703	-5.121	-.503	-1.829
Infrastructural challenges	7.000	28.000	-.932	-6.785	.766	2.787
Participation	8.000	40.000	-.964	-7.016	.009	.032
Satisfaction	6.000	24.000	-.423	-3.082	-.916	-3.335
Accountability and transparency	5.000	25.000	-1.012	-7.368	.013	.047
Performance	6.000	26.000	-.485	-3.528	-1.410	-5.132
Input/output	7.000	30.000	-.454	-3.305	-1.391	-5.062
Multivariate					1.786	1.225

Source: Researchers' survey, 2023

Model fit indexes

Table 13 provides a summary of the key measures of fit for each of the constructs in the model estimated by Maximum Likelihood Estimates. Hair et al. (2010) suggest that researchers should provide a minimum of "one absolute fit index and one incremental fit index and that three to five fit indexes provide adequate evidence of model fit. Furthermore, Kline (1998) also suggests the inclusion of a fit index that adjusts the explained variance for the model's degree of complexity.

Accordingly, it is possible to use three to four fit indexes as mentioned by the above authors, however the researcher uses fit indexes including the suggested incremental fit index (IFI), absolute fit index (CFI) and root mean square error residual (RMSEA), goodness of fit indexes (GFI) and absolute fit indexes (AGFI). Hence, this model is fit for the analysis as indicated in the table below. The hypothesised relationships were tested using SEM AMOS V23 on SPSS v26. According to Yuan (2005), fit indices are classified based on their distributional assumptions. For instance, in convenience, we classify fit indices in four categories as follows: first, independent model based; secondly, root mean square error of approximation; thirdly, residual based and lastly; information criterion based fit indices.

CMIN/DF is a parsimonious conformity index that measures the goodness of fit of the model with the estimated coefficients to achieve conformity. The result of CMIN/DF in this study is 2.602, indicating that the research model fits from the threshold of less than 3 (Marsh et al., 1988). This value is used to compare whether the observed variables and expected results are statistically significant.

The Goodness of Fit Index (GFI) shows the overall level of conformity calculated from the residual square of the model predicted compared to the actual data. The GFI value in this model is 0.994. The approximate value with the recommended level is higher than 0.90 (Mulaik et al 1989).

RMSEA is an index used to compensate for the chi-square value in a large sample. The RMSEA value of this study was 0.066 with the recommended value of ≤ 0.08 , showing the fit research model (Browne & Cudeck 1993).

AGFI is GFI, which is adjusted to the ratio between the degree of freedom that is proposed and the degree of freedom from the null model. The AGFI value in this model is 0.944. The approximate value with the recommended level should be higher than 0.9, indicating the fit of the research model (Mulaik et al 1989).

The CFI value in this study is 0.998, with a recommended value higher than 0.9 indicating a fit research model (Bentler, 1992). The NFI value in this study is 0.998, with a recommended value higher than 0.9 indicating a fit research model (Bentler, 1992). The IFI value in this study is 0.999, with a recommended

value higher than 0.9 indicating a fit research model (Hu and Bentler 1999). All values meet the criterion of preferable values. The hypothesised relationships were tested using SEM AMOS v23 on SPSS v26. Overall, the fit indices indicated that the proposed structural model fits the data reasonably well. All values meet the criterion of preferable values. Therefore, the model is found to be fitted for goodness and hence the analysis was done accordingly.

Table 13: Model goodness fitting test

Model Goodness Fitting	Recommended Value	Research Model	Model
CMIN/DF	<3	.105	Fit
GFI	>0.9	1.00	Fit
AGFI	>0.9	0.997	Fit
RMSEA	<0.08	0.066	Fit
NFI	>0.9	1.00	Fit
CFI	>0.9	1.00	Fit
IFI	>0.9	1.00	Fit

Source: Researchers' survey, 2023

Maximum likelihood estimates

Maximum likelihood estimation (MLE) is by far the most common method and literatures recommend that unless the researcher has good reason, this default should be taken. MLE makes estimation based on maximising the probability (likelihood) that the observed covariance are drawn from a population assumed to be the same as that reflected in the coefficient estimates. That is, MLE picks estimates, which have the greatest chance of reproducing the observed data. In connection to this, the following regression estimates were obtained from my analysis.

Modification indexes (MI) may be used to add arrows to the model. The larger the modification indexes, the more arrows will be added to the model, which will improve the model fit (Nora, 2004). Therefore, the researcher used modification indices to get good fitness indexes though adding the both sharpen arrows. (Figure 3).

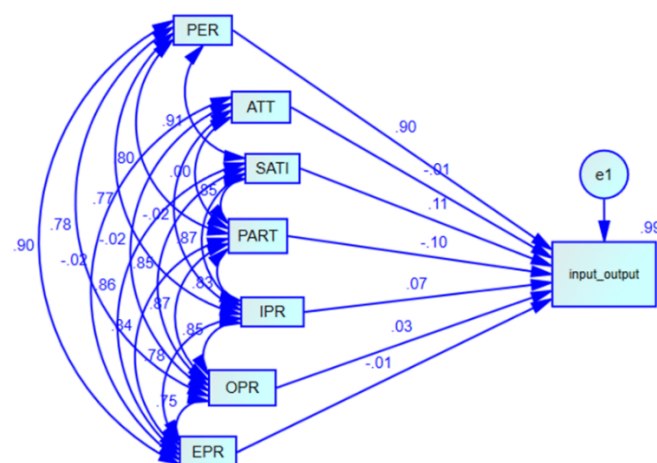


Figure 3: Model fit and research model

Source: Researchers' survey, 2023

Path analysis

Path analysis is an extension of multiple regression that allows us to examine more complicated relations among the variables that having several independent variables predict one dependent variables and to compare different models against one another to see which one best fits the data (Psychiatry, 2005). Path analysis is based on a closed system of nested relationships among variables that are represented statistically by a series of structured multiple regression equations (Colombia public health, 2022). Wright (1934, as cited in Valenzuela, & Bachmann, 2017) describe path analysis as a system of correlation coefficients, path

analysis is now regarded as one type of the more general statistical technique known as structural equation modelling (SEM).

Interpretation of beta value

Since the SEM employed for standardised regression on path analysis, the beta coefficient of each independent variable on the dependent variable is not constant and it depends on the value of the independent variables. Thus, the coefficient can be a means for summarising how a change in response is related to a change in a covariate. For continuous variables, the coefficients of discrete changes are continuous, for continuous independent variables, the coefficient indicates when the unit change in the independent variable leads to an increase in the probability of input and output marketing in this study.

The value of β is used to show which independent variable is the most predictor of the dependent variable. According to Zikmund et al., (2010) the advantage of β is to provide a constant scale and that the β s are comparable, that the greater the value of standardised regression coefficient the more the independent variable explains the dependent variable. A standard coefficient beta was used to determine the strong predictor of agricultural input and output marketing from independent variables. The standardised beta coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the dependent variable. In the following section, the regression result of each explanatory variable is individually discussed to test the hypotheses of the study and reach conclusion in the general model.

R² values (squared multiple correlation)

In structural equation model, R² is known as squared multiple correlations (SMC) which indicates the variance level reflected by predictors of the factors in question. Having minimum value of 0.409 and maximum value 0.8 in SMC analysis it can be taken as general predictors explain respective variable (Byrne, 2010). Therefore, on this study the exogenous variables outstandingly explain the endogenous variable as shown in Table 14.

Table 14: R² Value

Endogenous variables	R2 (SMC) Value
Input/output market	.82

Source: Researchers' survey, 2023

Hypothesis testing

Hypothesis testing is used to address the study's objectives and to assess the relationships between structural models. Table 15 illustrates the analysis of the data hypotheses using the value of the standardised regression weight, which indicates the coefficient of effect between variables.

According to the results from the regression paths of the hypothesis development shown in Table 15, Hypothesis A: Members participation in cooperative affairs have positive and significant role on input-output marketing, which is rejected thus, the null hypothesis is accepted ($t=-7.598$, $\beta=-.101$, $p<.001$). Hypothesis B1 Perception of members on transparency and accountability have positive and significant role on input-output marketing, which is rejected thus, the null hypothesis is accepted ($t=-1.91$, $\beta=-.010$, $p=.05$). Hypothesis B2: Perception of members satisfaction on the service rendered have positive and significant role on input-output marketing, which is accepted, thus, the null hypothesis is accepted ($t=-6.666$, $\beta=.112$, $p<.001$). Hypothesis B3: performance of agricultural cooperative have positive and significant role on input-output marketing, which is accepted, thus, the null hypothesis is accepted ($t=58.781$, $\beta=0.901$, $p<.001$).

Members participation in cooperative affairs have positive and significant role on input-output marketing, which is accepted thus, the null hypothesis is accepted ($t=7.598$, $\beta=.101$, $p<.001$). Hypothesis C1: Infrastructure problem have negative and significant role on input-output marketing, which is rejected thus, the null hypothesis is accepted ($t=5.929$, $\beta=.071$, $p<.001$). Hypothesis C2: Organisational/internal

problems have negative and significant role on input-output marketing, which is rejected thus, the null hypothesis is accepted ($t=2.684$, $\beta=.033$, $p<.007$). Hypothesis C3: External problems have negative and significant role on input-output marketing, which is accepted thus, the null hypothesis is accepted ($t=-.784$, $\beta=-.011$, $p<.001$).

Table 15: Path coefficients and hypothesis testing

Hypothesis	Path/Effect	β -value	Standard error	t-value	P	Results
HA	PART ----> input_output	.101	.012	-7.598	***	Accepted
HB1	PER ----> input_output	.901	.016	58.781	***	Accepted
HB2	ATT ----> input_output	-.010	.008	-1.913	.05	Rejected
HB3	SATI ----> input_output	.112	.026	6.666	***	Accepted
HC1	IPR ----> input_output	.071	.018	5.929	***	Rejected
HC2	OPR ----> input_output	.033	.021	2.684	.007	Rejected
HC3	EPR ----> input_output	-.011	.015	-.784	***	Accepted

Source: Researchers' survey, 2023

*** Significant at $p<.001$; **Significant at $p<.01$, * Significant at $p<.05$

NB: PER (Performance), ATT (Accountability and Transparency), SATI (Satisfaction), PART (Participation), IPR (Infrastructural factors), OPR (Organisational factors), EPR (External factors).

Discussion

Income and expenditure of members

Table 6 shows the sales of cereals and pulses activities are considered as major sources of the income 99.1%. Cooperative and professional should participate in enhancing productivity of cereals and pulses to increase their income. This report provides an analysis of the critical role of pulses and cereals in agricultural production as a driver for economic growth and food security. This finding contradicts with (Gezahegn A. and Dawit A 2006) sales of cereals and pulses, which occupy approximately 13 percent of cultivated land and account for approximately ten percent of the agricultural value addition, are critical to smallholder livelihoods in Ethiopia. On the other hand, the community economic is depended only in the farm activity. The government and other stakeholders should create awareness to the local communities about the role and significance of cooperative in farming activity. This finding support with (Michael S. 2020) Agricultural cooperative aims to increase members' production and incomes by helping better link them with finance, agricultural inputs and information and output markets. It also helps farmers' benefits from economies of scale to lower their costs to acquiring inputs or hiring services such as storage and transport, enables farmers to improve product and service quality and reduce risks. Their annual income also indicates that the majority of the respondents respond their last year annual income is between 101000- 150000 which is categorised under middle income but, because of family size and different farming activity cost they become fall under low earn society.

Members farming characteristics and agricultural activities

As shown in Table 7, concerning farming experience, (88.5%) of the respondents confirmed that five years and above experience. This shows that the majority of the agricultural cooperative's members have experience on agricultural activities. This finding contradicts with (Fulton M. and Giannakas K., 2007) Those experienced members play an important role in supporting small agricultural producers and marginalised groups such as young people and women. They empower their members economically and socially and create sustainable rural employment through business models that are resilient to economic and environmental shocks. Although, all of the members have their own land 340(100%). The majority of the respondents see the fertility status and soil character of the plot as medium, 68.5%.

Access to input supply and output marketing service with its members

Agricultural input-output supply service is one of the important areas of socio- economic activity where cooperatives can play worthwhile role. While providing such Agricultural inputs-output rural markets have some common features including underdeveloped markets, illiterate buyers, lack of communication

facilities, many languages and vast spread of the market, storage and transport problems, seasonality of demand which are applicable to agricultural input markets as well (Singh,2004).

Table 8 shows that all of the members were involved in purchasing agricultural input from the cooperative and sales their agricultural product to the agricultural cooperative 340 (100%). This finding contradicts with (Hussi et al, 1993), especially agricultural cooperatives, provide their members with the advantages of economies of scale by combining their resources, producers can obtain the needed goods and services more efficiently and market them in the larger volume, thus giving them a stronger bargaining position in dealing with traders and processors.

The type of input provided to farmers through cooperatives solely were soil fertiliser, chemicals, commodities and improved seeds in order of importance (47.9%, 28.5%, 0.9% and 22.6%) respectively. This finding supports with (Hussi et al, 1993) that cooperatives could serve their members by providing agricultural supplies and bargaining their produces to the market. The main types of agricultural inputs provided through cooperatives to member farmers were hence, soil fertiliser, chemicals and selected seeds.

The main advantages of buying items from cooperatives over private businesses were relatively cheaper price and correct measurement of items (Hussi et al, 1993). In contrast to this more than half, (74.4%) witnessed that they were not able to get all the agricultural inputs from their cooperative society on the right time and at the required quantity. So, it can be inferred farmers were not getting all the agricultural inputs from their cooperative society on the right time and at the required quantity though their need of agricultural input differs according to the type of crop they grow.

Out of sample cooperative members, their source of information about the market price of agricultural product were local market, cooperative promoter, retailers, extension workers/development agent, wholesalers and others with percent of (37.4%), (5.3%), (14.4%), (2.1%) and (0.3%) respectively. These shows that the majority of the respondents 37.4% get information about the market price of agricultural product is from local market. This finding supports with (Chiyoge B. 2013) local market facilitate small producers' access to: Information, knowledge and extension services about the market price of agricultural product.

The pricing strategy of agricultural products not only affects the product demand and purchasing behaviour of members, but also the income distribution of node enterprises and the overall profit of the agricultural supply chain. Concerning pricing strategy, (55.3%) of the respondents confirmed that the pricing strategy of the cooperatives in input/output marketing was reasonable. This finding supports with (Huo et al., 2022) reasonable product pricing can promote the fair distribution of income and adjust consumer demand for products and the market share of enterprises. For some agricultural product supply chains with farmer cooperatives as their core enter-prices, which are mainly engaged in characteristic agricultural products, it is of practical significance to rationally formulate their pricing strategies.

Members credit using pattern and cooperative credit services

As shown in Table 9, all of the cooperative's members were get borrow money from the agricultural cooperative to access agricultural input (100%). Their purpose of borrow money from agricultural cooperative is purchase of fertiliser, purchase of chemicals and purchase of farm implements, with the percent of (48.2%), (26.5%), (1.5%) and 81 (23.8%) respectively. Their reasons to borrow and purchase input in loan from the cooperative were less security is required (12.6%), easier to get loan (48.5%), cheapest source of credit that could be found (1.8%) and possibility of getting on time (37.1%). This implies that members of agricultural cooperatives are mostly prefer those agricultural cooperatives because of the possibility of getting loan. When the supply of agricultural input credit is enough to fulfil its demand, then farmers may be able to use the recommended rate of farm input. Therefore, farmers who acquire the amount demanded can able to produce enough products and then they can easily repay their debt on time compared to those who do not get the required amount of input. This finding supports with Bekele (2005),

revealed that increased input loan amount enables the borrowers to generate more income and this leads them to repay their debt in time.

Membership duration and condition

As shown in Table 10, a majority of the respondents have been members of the cooperative for six years (25.3%) followed by five years (19.1%). This implies that majority of respondents are more experienced about the cooperative condition. This represents the total number of years since the household head has become a member of that cooperative. Since member's active participation is an important cooperative principle, member who have joined the cooperative earlier may have strong attachment to the institution and may contribute to and democratically control the capital of the cooperative society. They receive limited compensation if any, on capital contributed as a condition of membership. So, it is fair to hypothesise that senior members have better sense of belongingness and show loyalty to their cooperative than the fresh ones. This finding supports with (Sholotan, et al., 2017) For the cooperative to be successful, its members, as user-owners of the cooperative must be active through their patronage, capital investment and participation in decision making. Cooperatives should also efficient to provide services to their members and their families. Moreover, they have also social responsibility to improve the quality of life in its community. Unlike a private enterprise, whose basis is its capital investment, the cooperative is based on its membership H/Selassie W. (2003).

On the other hand, member have awareness about the role of cooperative and they influence their neighbours and friends become the part of cooperative benefit. members of cooperative joined agricultural cooperatives in order to increase their productive live by get agricultural input supply and output marketing service.

Members perception on performance of agricultural cooperative on input/output marketing

As shown in Table 15, the performance of agricultural cooperative have positive and significant role on input-output marketing. This finding implies that member's evaluation of performance of agricultural cooperative positively influenced their overall perception of input/output marketing on Sinana, Agarfa, Gasera and Goro agricultural cooperatives. In other words, the performance of agricultural cooperatives plays a vital role on the perception of a members based on price stabilisation, disseminating marketing information, credit provision, solving members marketing problems demand oriented service provision and achieving objectives. Several previous studies reveals that performance of agricultural cooperative have found a linear relationship in input-output marketing. (for cooperative, 2004; Kebede, 2006; Sukhpal, 2002).

Perception of members on transparency and accountability and its role on input-output marketing

As revealed in Table 15, the perception of members on transparency and accountability have negative and significant role on input-output marketing. This finding implies that member's evaluation of cooperative transparency and accountability negatively influenced by their overall awareness of transparency and accountability on input/output marketing on Sinana, Agarfa, Gasera and Goro agricultural cooperatives. In other words, the transparency and accountability plays a vigorous role on the perception of a members on transparency and accountability based on cooperatives' board and management report to the general meeting, cooperatives' board and management decide based on the by-law, cooperatives' board and management aware on duties and rights, cooperatives' board and management dividend distribution procedure. (Alema, 2008; Jemal, 2008; Eshetu, et al., 2019).

Perception of members satisfaction on the service rendered role on input-output marketing

As revealed in Table 15, perception of members on satisfaction on the service rendered have positive and significant role on input-output marketing. This finding implies that member's evaluation of satisfaction on the service rendered by agricultural cooperatives positively influenced their overall insight of satisfaction on input/output marketing on selected woreda of agricultural cooperatives. In other words, members

satisfaction on the service rendered plays a vigorous role on agricultural input and output marketing accountability based on price differences, demand oriented, proximity to the village, timing of input supply, costs to use the services and quality of services. Several previous studies found a linear relationship between member's satisfaction and input/output marketing which determines input/output marketing. (Gebru, 2006; Dejene, 2016; Jemal, 2008).

Members participation in cooperative affairs role on input-output marketing

As revealed in Table 15, members' participation in cooperative affairs have positive and significant role on input-output marketing. This finding implies that members participation in cooperative affairs plays a vital role on like attending annual meeting, approving the by-law/amendment, electing different committee and board members, approving annual plan and budget of cooperative, approving audit report. determining share values, participating/sharing responsibilities, evaluating and approving executed activities report. Several previous studies members participation in cooperative affairs have found a linear relationship between members participation and input/output marketing which determines input/output marketing (Chukwu, 1990; Deselegn, 1994; Hailesilasie, 2003; Kebede, 2006).

Organisational internal factor's role on input-output marketing

As revealed in Table 15, organisational/internal factors have negative role on input-output marketing. This finding implies that member's evaluation of organisational/internal factors of cooperative negatively influenced overall input/output marketing on selected woreda of agricultural cooperatives. In other words, those organisational/internal factors are limited capacity of board and management, inadequate initial capital, poor participation of members in decision making, lack of transparency and accountability, failure to notify annual meetings, knowledge about duties and responsibilities, equal opportunity in passing decision and limitation to exercise their right (Tesfaye, 1995).

External factors' role on input-output marketing

As revealed in Table 15, external factors have negative role on input-output marketing. This finding implies that member's evaluation of External factors of cooperative positively influence overall input/output marketing on selected woreda of agricultural cooperatives. In other words, external problems effects on input/output marketing are small and fragmented farm holdings, high influence of vested interest, price increase for agricultural inputs, existence of other competitors, low price of produces and high cost of production. Several previous studies found external factors have a linear relationship with input/output marketing which determines input/output marketing (Alema, 2008; Gebru, 2006; Jemal2008; Julia 1999; Tesfaye, 1995).

Infrastructure factors' role on input-output marketing

As revealed in Table 15, infrastructure challenges have positive and significant role on input-output marketing. Infrastructure challenges affects and unimportant on input/output marketing, those challenges are, communication technology, marketing infrastructure, storage and transportation facility, access to irrigation facilities, linkages with financial institution. (Fassil, 1990; Jemal2008; Julia 1999; Tesfaye, 1995).

Interview analysis

The responses from the interviews indicated that the main objective of the agricultural cooperatives is to enhance the economic well-being of their members through collective action and shared resources.

Interviewees highlighted that the agricultural cooperatives have clear rules and regulations governing their operations, ensuring transparency, accountability and equitable decision-making processes.

The functions of the agricultural cooperatives include bulk purchasing of inputs, collective marketing of outputs, sharing knowledge and resources among members and advocating for the interests of farmers at the local and national levels.

The organisational structure typically consists of a board of directors, management team and various committees responsible for specific aspects such as finance, marketing and membership.

The management team is entrusted with the powers to make strategic decisions, implement policies and oversee day-to-day operations. They have a duty to act in the best interests of the members, be accountable for their actions and ensure transparency in financial and operational matters.

Interviews revealed data regarding the volume and types of inputs purchased and distributed by the agricultural cooperatives over the last five years, indicating the cooperative's commitment to providing members with necessary resources for farming activities.

Challenges faced included limited market access, price fluctuations, inadequate storage and transport facilities, competition from larger players and difficulties in accessing credit and technical support.

Recommendations to address these challenges included enhancing market linkages, improving storage and transport infrastructure, providing training on marketing strategies, facilitating access to credit, promoting value addition activities and strengthening collaboration with other stakeholders in the agricultural value chain.

Conclusion and Recommendations

Conclusion

Agricultural cooperatives are often seen as key institutional intervention in enhancing farmers' access to markets, as one form of institution that fulfil exchange and coordination functions in an economy (Barrett, 2008, Hellin et al., 2009). For maximisation of the agricultural input-output marketing, identifying and knowing the role of agricultural cooperative has a great role.

The study is with overall objective of investigating the role of agricultural cooperatives in agricultural input and output marketing in Bale zone. Consistent with the overall objective it is with specific objectives of:

- To describe the participation level of agricultural cooperative members in agricultural input-output marketing activities
- To examine the effect participation of agricultural cooperative members in agricultural input-output marketing activities
- To identify the effect perception of members in agricultural input-output marketing activities in Bale zone.
- To examine the major factors that hinders the performance of agricultural cooperatives in delivering agricultural input-output marketing activities.

In order to address the research objective, the study used a data collected from 340 out of 393 sampled agricultural cooperative members. Having the above-stated objectives in mind, the data from the questionnaires was analysed by using descriptive analysis (frequencies, mean, standard deviation and percentages) Descriptive analysis is used to describe the data and characteristics about the population or phenomenon being studied, in the form of table and frequency statistics and a structural equation model (SEM) and path analysis through a path diagram. The researcher used AMOS v23, which was installed on IBM SPSS Statistics (version 26), for diagnostic tests, model selection, path analysis results of the structural equation model and hypothesis testing. Path analysis (regression analysis) was identified as the most fitting tool for econometric analysis of the data. The path analysis with maximum likelihood estimation technique was chosen for this study because the data was purposefully chosen and an analytical test of all assumptions included the structural equation model between dependent and independent variables. Normality, measurement of sampling error and model fit indexes (goodness of fit index, absolute fit indexes, root mean square error approximation, normal fit indexes, comparative and incremental fit indexes) were validly tested.

Concerning on the income of members agricultural cooperative increase members' production and incomes by helping better link them with finance, agricultural inputs and information and output markets. It also helps farmers' benefits from economies of scale to lower their costs to acquiring inputs or hiring services such as enables farmers to improve product and service quality and reduce risks. Their annual income also indicates that good. On the other hand, the community economic is depended only in the farm activity like sales of cereals and pulses activities.

The cooperative's members also have experience on agricultural activities. Although, all of the members have their own land and they see the fertility status and soil character of the plot as medium.

Although farmers were engaged in purchasing agricultural input from their cooperative and sales their agricultural product to the agricultural cooperative. The main types of agricultural inputs provided through cooperatives to member farmers were soil fertiliser, chemicals, commodities and improved seeds. The main advantages of buying items from cooperatives over private businesses were relatively cheaper price and correct measurement of items (Hussi et al, 1993). In contrast to this more than half, cooperative members were not able to get all the agricultural inputs from their cooperative on the right time and at the required quantity. So, it can be inferred farmers were not getting all the agricultural inputs from their cooperative society on the right time and at the required quantity though their need of agricultural input differs according to the type of crop they grow. The pricing strategy of agricultural products not only affects the product demand and purchasing behaviour of members, but also the income distribution of node enterprises and the overall profit of the agricultural supply chain. Concerning pricing strategy, the members confirmed that the pricing strategy of the cooperatives in input and output marketing was reasonable and they get information about the market price of agricultural product from local market.

Most of the members of the cooperatives are beneficiaries of credit service. Their purpose of borrow money from agricultural cooperative is purchase of fertiliser, chemicals and farm implements. Their reasons to borrow and purchase input in loan from the cooperative were less security is required, easier to get loan, cheapest source of credit that could be found and possibility of getting on time.

The majority of respondents are more experienced about the cooperative condition. This represents the total number of years since the household head has become a member of that cooperative. Since member's active participation is an important cooperative principle, member who have joined the cooperative earlier may have strong attachment to the institution and may contribute to and democratically control the capital of the cooperative society.

The second specific objective of this study was to examine members participation in cooperative affairs have positive and significant role on input-output marketing. The study found that members participation in cooperatives affairs have positive and significant effect on agricultural input-output marketing.

The third specific objective of this study was to identify the members perception that positively and significantly determine agricultural input-output marketing. The study found that members perception on performance of agricultural cooperative and members perception of satisfaction on the service rendered through agricultural cooperatives have statistically significant effects and positive associations with agricultural input-output marketing. However, Perception of members on transparency and accountability of cooperatives have negative and significant effect on agricultural input-output marketing. It indicates that members perception on performance of agricultural cooperative and members perception of satisfaction on the service rendered through agricultural cooperatives were the most important variable which predicts agricultural input-output marketing.

The fourth specific objective of this study was to examine constraints that hinders the performance of agricultural cooperatives that positively and significantly determine agricultural input-output marketing. The study found that external factors have statistically significant effects and negative impact on agricultural input-output marketing. However, contrary to the researcher expectation, organisational/internal factors and infrastructure factors have positive association and significant effect on agricultural input-output

marketing. It indicates that external factors were the most important variable which predicts agricultural input-output marketing.

In general, the results obtained from the analysis allow the acceptance of the majority of the proposed hypotheses. As part of its managerial implications, this study offers invaluable inputs to various agricultural cooperatives as far as the essentials of agricultural cooperatives was concerns.

The interviews shed light on the pivotal role of agricultural cooperatives in facilitating input supply and output marketing for their members. To enhance their effectiveness, cooperatives should focus on streamlining operations, improving market access, enhancing member participation and fostering partnerships with key stakeholders. By addressing challenges and implementing the suggested improvements, agricultural cooperatives can further empower farmers, boost agricultural productivity and contribute to sustainable rural development.

Recommendations

Based on the findings, the conclusions drawn, the following recommendations are suggested:

- Agricultural cooperatives should provide all the agricultural inputs (soil fertiliser, chemicals, commodities and improved seeds) for their cooperative society on the right time and at the required quantity.
- As indicated by the model members participation in cooperative affairs were crucial for agricultural input-output marketing it have positive effect on agricultural input-output marketing, especially attending annual meeting, approving the by-law/amendment, electing different committee and board members, approving annual plan and budget of cooperative and participating/sharing responsibilities. therefore, the government and agricultural cooperatives should be improving the participation of members to encourage agricultural input-output marketing by creating awareness about significant of agricultural cooperatives.
- Cooperatives should ensure timely and equitable dividend, provide quality of services, provide input on time and attract more suppliers and buyers.
- The federal as well as the regional Governments should invest on infrastructure such as marketing infrastructure, introducing appropriate communication technologies, roads, power supply, water supply etc. Particularly, the role of cooperatives in promoting quality and standardisation is vital and it is useful to the farmers to have access to high value market. Thus, familiarisation of cooperatives with the technology useful for quality and standardisation improvement and maintenance including their application is important to improve members' participation as well as input-output marketing.
- Continuous and intensive education/trainings should be given for the cooperative leaders at all levels and the capacity of employees requires the attention of government officials and other concerned bodies.
- Government and stakeholders should educate local communities about the role and benefits of cooperatives in farming activities.
- The cooperative should focus on fostering collaboration, promoting education and improving access to resources to enhance the livelihoods of its members.
- Agricultural cooperatives should prioritise building strategic partnerships with input suppliers, output buyers, financial institutions, governmental bodies and other relevant partners, the cooperative can enhance its operational efficiency, expand market access and gain access to crucial resources and expertise.

References

- Ahmed, M. H., & Mesfin, H. M. (2017). *The Impact of Agricultural Cooperatives Membership on the Wellbeing of Smallholder Farmers: Empirical Evidence from Eastern Ethiopia*, *Agricultural and Food Economics*, ISSN 2193-7532, Springer, Heidelberg, Vol. 5, ISS. 6, pp. 1-20.
- Ainembabazi, J. H., Van Asten, P., Vanlauwe, B., Ouma, E., Blomme, G., & Birachi, E. A. (2017). Improving the Speed of Adoption of Agricultural Technologies and Farm Performance through Farmer Groups: Evidence from the Great Lakes Region of Africa. *Agricultural Economics*, 48(2), 241-259.
- ATA (2016). *Agricultural Cooperatives Sector Development Strategy 2012-2016*. Retrieved from <http://www.ata.gov.et/news/resources/sector-strategies/>
- Ayenew, H. Y. (2016). Production Efficiency and Market Orientation in Food Crops in North West Ethiopia: Application of Matching Technique for Impact Assessment. *PLoS One* 2016, 11(7). DOI: 10.1371/journal.pone.0158454.
- Barati, A. A., Kalantari, M. R., Nazari, M. R., & Asadi, A. (2017). A Hybrid Method (ANP-SWOT) to Formulate and Choose Strategic Alternatives for Development of Rural Cooperatives in Iran. *Journal of Agricultural Science and Technology*, 19(4), 757-769.
- Barrett, B. C. (2008). Smallholder Market Participation: Concepts and Evidence from Eastern and Southern Africa. *Food Policy*, 33, 299-317.
- Bajo, C. S., Vuotto, M., & Icaza, A. M. S. (2017). Review of International Cooperation, 104/2017. *International Cooperative Alliance: Rome*.
- Bekele Hundie, & Kassa Belay (2005). Factors influencing Repayment Agricultural input loan in Ethiopia. *Journal of Agricultural Economics*, 1, 117-120.
- Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin*, 112(3), 400.
- Bernard, T., Taffesse, A. S., & Gebre-Medhin, E. Z. (2008). Impact of Cooperatives on Smallholders' Commercialisation Behavior: Evidence from Ethiopia. *Agricultural Economics*, 39, 1-15.
- Bernard, T., Abate, G. T., & Lemma, S. (2013). *Agricultural cooperatives in Ethiopia: Results of the 2012 ATA Baseline Survey*. Research for Ethiopia's Agriculture Policy and International Food Policy Research Institute, Washington, DC.
- Central Statistical Authority (CSA) (2016). Agricultural Sample Survey Country Summery, Addis Ababa, Ethiopia: Accessed from www.csa.gov.et/ehioinfo, on June 05, 2021.
- Chernet, Z. M., & Tirfe, G. G. (2019). Factors Affecting Agricultural Output Marketing Performance: A Case of Damota Farmers' Cooperative Union, Wolaita Zone, Ethiopia. *IOSR Journal of Business and Management (IOSR-JBM)*. 21(4), 13-21, e-ISSN: 2278-487X, p-ISSN: 2319-7668, Ser. V (April. 2019).
- Cishe, B. E., & Shisanya, S. O. (2019). Transforming Smallholder Agriculture through Cooperatives for Improving Households' Food Security at OR Tambo District Municipality, South Africa. *African Journal of Agricultural Research*, 14(34), 1878-1882.
- Colombia Public Health, (2022). <https://www.publichealth.columbia.edu/research/population-health-methods/path-analysis>
- Commission, N. P. (2015). The Second Growth and Transformation Plan (GTP II) (2015/16-2019/20)(Draft), Addis Ababa: The Federal Democratic Republic of Ethiopia.
- Daniel, B. (2006). *Performance of Primary Agricultural Cooperatives and Determinants of Members' Decision to Use as Marketing Agent in Ada'a Liben and Lume Districts*. MSc. Thesis in Agricultural Economics, Alemaya University, Ethiopia.
- FAO (2012). *Agricultural Cooperatives: Paving the Way for Food Security and Rural Development*. Italy: Food and Agriculture Organisation and World Food Programme.
- Fufa, Z. (2016). *Assessing the Contribution of Agricultural Cooperatives to Poverty Alleviation: In the Case of Gechi District, Ilubabor Zone, Ethiopia*. Project Submitted for the Award of MA in Rural Development. Indira Gandhi National Open University (IGNOU).
- Fulton, M., & Giannakas, K. (2007). *Agency and leadership in cooperatives*. In *Vertical markets and cooperative hierarchies* (pp. 93-113). Springer, Dordrecht.
- Gebbru, D. G. (2006). *The Benefits of Cooperative Membership: A Comparative Study in Ofla and Kafita Humera District, Tigray Region, Ethiopia*. A Thesis in University College Cork, National University of Ireland, Cork.
- Gezahegn Ayele, & Dawit Alemu. (2006). *Marketing of Pulses in Ethiopia*. pp: 346-351.
- George, D., & Mallery, M. (2010). *SPSS for windows step by step: A simple guide and reference*, 17.0 update (10th ed.). Boston.
- GLT (2020) Overview of multivariate analysis/what is multivariate analyses and model building process.

- Haileselasie, G. N. (2003). *The Benefits of Cooperative Membership: A Comparative Study in Saesie Tsaeda Emba District, Tigray Region, Ethiopia*. A Thesis in University College Cork, National University of Ireland, Cork.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective*, 7th Edition. New Jersey: Pearson Educational Inc.
- Hellin, J., Lundy, M., & Meijer, M. (2009). Farmer Organisation, Collective Action and Market Access in Meso-America. *Food Policy*, 34, 16-22.
- Hora, A. (2016). *Determinants of Smallholder Farmers' Participation in Agricultural Cooperatives: The Case of Abeshge Woreda, Gurage Zone, SNNPR*. A Thesis Submitted to the College of Business and Economics, Department of Economics, School of Post Graduate Studies of Arba Minch University.
- Hussi, P., Murphy, J., Lindberg, O. & Brenneman, L. (1993). *The Development of Co-operatives and Other Rural Organisations: The Role of the World Bank*. Washington, D.C: The World Bank.
- Jiali Wang, Yujia Huo, Xiangyu Guo, & Yang Xu. (2022). The Pricing Strategy of the Agricultural Product Supply Chain with Farmer Cooperatives as the Core Enterprise. *Agriculture*, MDPI, 12(5), 1-17, May.
- Johnston, J., & Dinardo, J. (1997). *Econometrics Methods*. Fourth Edition, the McGraw-Hill Companies, Inc, New York, U.S.A.
- Kayitesi, C. (2019). *Determinants of Membership and Benefits of Participation in Pyrethrum Cooperatives in Musanze District, Rwanda*. A Thesis Submitted for the Degree of Master of Science in Agricultural and Applied Economics, University of Nairobi.
- Kline, R. B. (1998). Software review: Software programs for structural equation modeling: Amos, EQS and LISREL. *Journal of Psychoeducational Assessment*, 16(4), 343-364.
- Krishaswami, V. K. (1992). Theory of Cooperation: An in-depth Management and Gujarat.
- Kumar, A., Roy, D., Tripathi, G., Joshi, P. K., & Adhikari, R. P. (2016). *Can Contract Farming Increase Farmers' Income and Enhance Adoption of Food Safety Practices? Evidence from Remote Areas of Nepal*. IFPRI Discussion Paper 01524.
- Kumar, R. (2011). *Research Methodology: A Step-by-Step Guide for Beginners*. 3rd Edition. SAGE, New Delhi.
- Lecoutere, E. (2017). The Impact of Agricultural Cooperatives on Women's Empowerment: Evidence from Uganda. *Journal of Cooperative Organisation and Management*, 5:14-27.
- Liu, Y., Ma, W., Renwick, A., & Fu, X. (2018). The Role of Agricultural Cooperatives in Serving as a Marketing Channel: Evidence from Low-income Regions of Sichuan Province in China. *International Food and Agribusiness Management Review*, DOI: 10.22434/IFAMR2018.0058.
- Ma, W., & Abdulai, A. (2016). Linking Apple Farmers to Markets: Determinants and Impacts of Marketing Contracts in China. *China Agricultural Economic Review*, 8(1): 2-21.
- Ma, W., Abdulai, A., & Goetz, R. (2018). Agricultural Cooperatives and Investment in Organic Soil Amendments and Chemical Fertiliser in China. *American Journal of Agricultural Economics*, 100(2): 502-520.
- Maddala, G. S. (1997). *Limited Dependent and Quantitative Variables in Econometrics*. Cambridge University Press.
- Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, 103(3), 391-410. <https://doi.org/10.1037/0033-2909.103.3.391>
- Malomane, M. A. (2019). *The Role of Smallholder Farmers' Cooperatives in Rural Development: A Case of Umgungundlovu District Municipality, KwaZulu-Natal*. Research Dissertation Submitted for the degree Masters in Development Studies. University of the Free State, Bloemfontein.
- Mersha, D., & Ayenew, Z. (2018). Financing Challenges of Smallholder Farmers: A Study on Members of Agricultural Cooperatives in Southwest Oromia Region, Ethiopia. *African Journal of Business Management*, 12(10), 285-293.
- Mojo, D., Degefa, T., & Fischer, C. (2017). The Development of Agricultural Cooperatives in Ethiopia: History and a Framework for Future Trajectory. *Ethiopian Journal of the Social Sciences and Humanities*, 13(1).
- Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105(3), 430.
- Nlebem, B. S., & Raji, W. I. (2019). Impact of Agricultural Cooperative Societies on Farmers Productivity and Rural Transformation in Etche Local Government Area of Rivers State. *Global Scientific Journal*. 7(11), November 2019, Online: ISSN 2320-9186.
- Ofori, E., Sampson, G. S., & Vipham, J. (2019). *The Effects of Agricultural Cooperatives on Smallholder Livelihoods and Agricultural Performance in Cambodia*. Natural Resources Forum published by John Wiley and Sons Ltd on behalf of United Nations. DOI: 10.1111/1477-8947.12180.
- Olagunju, K. O., Ogunniyi, A. I., Oyetunde-Usman, Z., Omotayo, A. O., & Awotide, B. A. (2021). Does Agricultural Cooperative Membership Impact Technical Efficiency of Maize Production in Nigeria: An Analysis Correcting for Biases from Observed and Unobserved Attributes. *PLoS ONE*, 16(1): e0245426.

- Onyilo, F., & Adong, A. (2019). Agricultural Cooperative Marketing and Credit Policy Reform in Uganda: An Opportunity for Poverty Reduction. *African Journal of Food, Agriculture, Nutrition and Development*, 19(1), 14156-14170.
- Psychitry, C. (2005). Benzodiazepine use, abuse and dependence. *Journal of Clinical Psychiatry*, 66(Suppl 2), 28-33.
- Royer, A., Bijman, J., & Abebe, G. K. (2017). Cooperatives, Partnerships and the Challenges of Quality Upgrading: A Case Study from Ethiopia. *Journal of Cooperative Organisation and Management*, 5, 48-55.
- Shiferaw, B., Hellin, J., & Muricho, G. (2011). Improving Market Access and Agricultural Productivity Growth in Africa: What Role for Producer Organisations and Collective Action Institutions? *Food Security*, 3, 475-489.
- Simelane, S. M., Terblanche, S. E., & Masarirambi, M. T. (2019). Collective Action for Access to Inputs, Finance, Markets and Extension for Smallholder Farmers in Eswatini. *South African Journal of Agricultural Extension*, 47(2), 21-36.
- Singh, A. K. (2004). Rural Marketing: With Special Focus to Input Marketing. India.
- Srinivasan, S., & Sundaram, B. B. (2020). The Performance of Agricultural Cooperatives to Endorse Socio-Economic Development in Ethiopia. *International Research Journal of Science and Technology*, 1(3), 199-205.
- Tadesse, G., & Badiane, O. (2018). *The Boundary of Agricultural Marketing Cooperatives in Africa: A Conceptual Framework and Empirical Evidence from Ethiopia*. 30th International Conference of Agricultural Economists, July 28-August 2, 2018. Vancouver.
- Tefera, D. A., Bijman, J., & Slingerland, M. A. (2017). Agricultural Co-operatives in Ethiopia: Evolution, Functions and Impact. *Journal of International Development*, 29, 431-453.
- Tefera, E., Cho, Y. B., & Kwag, S. H. (2019). Role of Cooperatives and Participation of their Members in Agricultural Output Marketing: Empirical Evidence from Hetosa District, Ethiopia. *Journal of Accounting, Business and Finance Research*, 5(1), 1-11.
- Tesfaye, L. (1995). An analysis of Cooperation Approach to Agricultural Development in Ethiopia: With Special Attention to Producers' Cooperatives, Addis Ababa, Ethiopia.
- Tumenta, B. F., Amungwa, F. A., & Nformi, M. I. (2021). Role of Agricultural Cooperatives in Rural Development in the era of liberalisation in the North West and South West Regions of Cameroon. *Journal of Agricultural Extension and Rural Development*, 13(1), 69-81.
- UNDP (United Nations Development Programme) (2016). *Reengineering Cooperative into Enables Agricultural Transformation in Uganda*. Kampala, United Nations Development Agency.
- Valenzuela, S., & Bachmann, I. (2017). *Path analysis*. The International Encyclopedia of Communication Research Methods, 1-9.
- Wossen, T., Abdoulaye, T., Alene, A., Haile, M.G., Feleke, S., Olanrewaju, A., & Manyong, V. (2017). Impacts of Extension Access and Cooperative Membership on Technology Adoption and Household Welfare. *Journal of Rural Studies*, 54, 223-233.
- Yamane, T. (1967). *Elementary Sampling Theory*. Englewood Cliffs, Printice Hall Inc.
- Yenesew, A., & Debeb, D. (2019). Challenges and Prospects of Cooperatives in Ethiopia with Reference South Gondar Zone, Ethiopia. *European Journal of Business and Management*, 11(34).
- Yuan, K. H. (2005). Fit indices versus test statistics. *Multivariate Behavioral Research*, 40(1), 115-148.
- Zhang, S., Sun, Z., Ma, W., & Valentinov, V. (2019). The Effect of Cooperative Membership on Agricultural Technology Adoption in Sichuan, China. *China Economic Review*. 2019:101334.
- Zikmund, W., Babin, B., Carr, J., & Griffn, M. (2010). *Business Research Methods* (8th Ed., Vol.). South-Western Cengage Learning.