

The role of seed/ware potato cooperatives in Ethiopia in improving quality and reducing transaction costs

Gumataw K. Abebe^{1, 3}, Jos Bijman¹, R. Ruben², Onno Omta¹, Admasu Tsegaye³

¹Wageningen University, Management Studies Group, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

²Radboud University Nijmegen, Development Studies, The Netherlands

³Hawassa University, Ethiopia

Abstract

Purpose – The current market for agricultural products is creating new challenges and opportunities for (smallholder) producers in many developing countries. Their ability to compete in the market is limited by new constraints related to product quality characteristics and the prevalence of market imperfection. The paper aims to assess the role of seed/ware potato cooperatives with respect to quality improvement, market access, and transaction costs.

Research methodology – We draw our conclusion based on an in-depth analysis of five cooperatives found in the central and southern parts of Ethiopia.

Findings – the case study result suggests that members of seed potato cooperatives were able to benefit more than members of the ware potato producing cooperatives in terms of receiving technical assistance (related to seed quality), accessing better market opportunities, and reducing transaction costs. This perhaps explains why there are relatively many seed potato coops and almost no ware potato coops in the country where nearly 27,000 primary coops reportedly exists. However, recent trends show that the seed market is also highly constrained by a thin market environment. The private sector's involvement in the seed market is negligible leaving the sustainability of the market in doubt. It was also shown that the involvement of an international agribusiness firm in the potato sector in some parts of Ethiopia under out growers' scheme brought better opportunities for potato growers in reducing transactional risks associated to market access. However, that requires a coordinated effort between the agribusiness firm and external parties (NGOs & GOs) with the former focusing on technical assistance and marketing activities and the latter on input provision necessary for potato production.

Keywords: cooperatives, quality, transaction costs, potato, contract farming, Ethiopia

1. Introduction

The current market for agricultural products is creating new challenges and opportunities for (smallholder) producers in many developing countries (Hellin *et al.*, 2009). The new constraints relate to characteristics of the market and smallholder production systems (Narayanan and Gulati, 2002). Information about product quality characteristics and consumer preferences has become more complex and specific; and quality is often difficult to measure (Barzel, 1982). Conversely, smallholder producers lack the necessary scale, skill, information and reputation to meet the required quality and quantity levels (Gulati *et al.*, 2007; Narrod *et al.*, 2009). Because of the high transaction costs involved, it is problematic for an agribusiness firm to deal with smallholder farmers (Runsten and Key, 1996; Key and Runsten, 1999). Therefore, smallholder producers are either excluded from selling to higher markets or given worse terms (Neven *et al.*, 2005; Chirwa *et al.*, 2005). Hence, institutional innovations are necessary for smallholders to obtain access to or to continue participating in a high value market (WDR, 2008). Collective action (such as cooperatives) has been suggested in the literature to help smallholders to have access to higher markets; for example through: (1) improving product quality by way of facilitating information exchange, providing technical assistance and value adding activities (e.g., grading and labeling); (2) reducing transaction costs (e.g., Staatz, 1987; Royer, 1999).

However, in many developing countries, attempts to organize farmers into successful cooperatives have often failed due to severe market imperfection (such as lack of information on prices and technologies, lack of connections to established market actors, distortions or absence of input and output markets, and credit constraints), poor management, political interference, etc (Poulton *et al.*, 2005; Akwabi-Ameyaw, 1997). Experience in the developed world show that cooperatives have become a significant force in agriculture; and play an increasing role in influencing national agricultural policies (Ortmann and King, 2007). They have operational and structural flexibility adaptable to the rapidly changing economic environment, characterized by technological change and industrialization of agriculture. Scholars argue that such flexibility will allow cooperatives to design offensive strategies against market failures (Harris *et al.*, 1996; Cook, 1995; Iliopoulos and Cook, 1999). For example, in Europe, agricultural cooperatives process and commercialize over 60 percent of agricultural production (Arcas-Lario and Hernandez-Espallardo, 2003). In the US, the conventional forms of cooperatives are being transformed into a new form, called “New Generation Cooperatives”, (Cook, 1995).

In an attempt to realize the (potential) benefits of collective action, the Ethiopian government set a five-year (2006 - 2010) development plan to provide cooperatives services up to 70 percent of the population that can supply 90 percent of production inputs and market 60 percent of surplus output . However, the participation rate in the modern forms of agricultural cooperatives reported to be 9 percent, despite 39 percent of smallholders had access to a cooperative organization (Bernard and Spielman, 2009). Previous empirical studies suggest mixed success story. In the cereal crops sector, Bernard *et al.* (2008, 2009) found that membership does provide better output price but no significant effect on output commercialization behavior; and cooperatives tend to exclude smallholder farmers from membership. In the dairy sector, Francesconi and Ruben (2007) found that membership tends to improve quantitative performance (such as market access, herd size and productivity) but negatively affect milk quality and safety. In the coffee sector, Myers (2004; Kodama, 2007) reported that membership helped coffee producers to be successfully linked to the international market. In this study, we focus on the less explored area – the potato sector. More specifically, the study attempts to answer: 1) what quality improvement activities do cooperatives offer to members that produce seed/ware potatoes? (2) What is the role of these cooperatives in improving market access and reducing transaction costs for seed/ware potato producers?’ This paper argues that, based on evidences from the five seed/ware potato cooperatives, the cooperative form of governance seems less effective; and suggests other forms of institutional arrangements, such as contract farming schemes, better solve quality and market access related transaction costs of seed/ware potato growers in Ethiopia. Few attempts have been made in the past to systematically analyze the role of agricultural cooperatives in Ethiopia (Bernard *et al.*, 2007). Even at global level, agricultural cooperatives have attracted little attention from the transaction cost economics perspective (Ménard, 2004). There remain further elaborations about transaction costs that are economized by cooperatives (Williamson, 2003; Valentinov, 2007).

1.1 Overview of cooperatives in Ethiopia

Ethiopia has long-existed indigenous institutions (self help associations) organized to solve social and economic problems. These institutions promote mutual benefits and have democratic and egalitarian structure, voluntary formation, more or less transparent decision making and flexibility of rules and operational modalities. They have bylaws; and the leaders often work on voluntary basis. Among the main indigenous institutions are: (1) “*Edir*” – a form of informal organization established to solve social and economic problems. Principally, this organization performs burial ceremonies and provides assistance (financial and other support) for the deceased family. It is highly structured and the most valued organization that is available in every part of the country (rural or urban). The “*Edir*” is funded by a mandatory monthly contribution, and often has legal status. The “*Edir*” has now evolved into an economic institution apart from providing social services; (2) “*Equb*” - a form of informal saving and credit institution organized by a group of people with similar earning position. Members contribute money on a periodic basis so that each one of them receives one period’s contribution in a rotation. The money collected doesn’t bear/earn any interest. Rather, members use the money to solve their immediate economic and social problems. This is particularly important in many areas of Ethiopia where the formal credit facilities are difficult to access; and (3) “*Debo or Wenfel*” – a practice limited to the rural areas where people living in the nearby areas pull their labour to perform agricultural activities in a rotation.

The beginning of modern form of cooperatives in Ethiopia dates back in the 1950s (during the imperial era). Until 1974, cooperative societies were guided under the free market system. However, membership was limited to the then landlords that produce and deliver industrial crops. During the military rule, which started in 1974 and lasted in 1991, the guiding principle was changed into socialism. At first proclamation no. 71/1975 was passed and gave the legal framework for the formation of peasant associations (in which membership was mandatory), agricultural producer organizations and service cooperatives. This proclamation was later replaced by proclamation no. 138/1978 and included other forms of cooperatives (like housing). Cooperatives during the military era were used as a political tool; and members lacked real benefits and sense of ownership. After 1991, when the current government took power, many of these cooperatives were looted by the local people, whereas others scaled down their activities due to failure to compete with private traders. After a moment of pause, cooperatives were revitalized first by proclamation No. 85 / 1994 and later by the more comprehensive “Cooperative Societies Proclamation No. 147/1998”. The latter proclamation has a number of distinct features (1) in terms of structure, cooperatives can have up to four layers (primary cooperatives, unions, federations, and cooperative leagues); (2) it outlines how profits should be distributed between cooperatives and its members; and (3) voluntary membership. At the beginning, people were suspicious about the role of cooperatives due to their negative experience during the military era (Bernard *et al.*, 2008).

As indicated in the government document “Plan for Accelerated and Sustained Development to End Poverty (FDRE, 2005)”, cooperatives societies are given a central role in the country’s rural development strategy, more specifically, to improve commercialization of smallholder producers. In 2009, the number of primary co-operatives reached to 26, 672 with an aggregate capital of over a billion birr embracing about 5.8 million members (of which 17 percent represent women members) (WIC, August 18, 2009). To further strengthen the countervailing power of primary cooperative societies, more than 122 cooperative unions with close to 1 billion birr capital have been established; and 44 cooperative unions were in the process of forming grain marketing co-operatives federation (ILO, 2008). Agricultural cooperatives are highly involved in input supply (such as fertilizer and seed). For example, during the year 2006/07 cooperatives covered about 75% of the annual fertilizer and seed supply in the country.

1.2 Overview of the potato sector in Ethiopia

Potato (*Solanum tuberosum* L.) has been cited by the Ethiopian government as a strategic crop aiming at enhancing food security and economic benefits to the country. It ranks first among the vegetable crops grown and is a rapidly expanding crop in Ethiopia (Mulatu *et al.*, 2005). It is one of the most economically important crops (as a source of food and cash) (Gildemacher *et al.*, 2009; Tesfaye *et al.*, 2008). Potato yields high productivity per unit of area and time (Gebremedhin *et al.*, 2008); and hence is one of the key crops for food security in the country. Ethiopia is endowed with good agro-ecological zone suitable for production of disease and virus free high quality seed potatoes. Potato is top in calorie, and contains high dry matter and protein content among major food crops worldwide (Horton and Fano, 1985). Potato has the potential to grow in the 70% of the 10M ha of arable land in Ethiopia (FAO

2008). Although potatoes can be produced four times per year (“*Meher*” – long rain, “*Belg*” – short rain, using residual moisture and irrigation), the “*Belg*” (which runs from January to June) supplemented by irrigation yields the bulk of production in Ethiopia due to less disease incidents during this time (Gebremedhin et al., 2008). In terms of access to market, Ethiopia is located in a strategic place to trade with the Middle East, the EU and the neighboring African countries.

The remainder of the paper is organized as follows. First we present the TCE framework as a basis for our analysis, the application of the TCE in agricultural transactions, the role of (agricultural) cooperatives with regard to quality and market access, factors influencing agricultural coops performance, the research methodology, results and finally discussions and conclusions follow, respectively.

2. Transaction Cost Economics

Transaction costs are the costs of contact (costs of searching for partners and/or products), making agreements (negotiation costs), and safeguarding the agreement (enforcing/ monitoring costs). They are caused by the combined effect of attributes of a transaction (such as asset specificity, uncertainty and frequency) and human behavior (bounded rationality and opportunism¹) as stated in the Williamson’s TCE framework. Opportunistic behavior occurs when an individual, organization, or institution takes advantage of the power they possess in a market or contractual setting (Harris et al., 1996). Key et al. (2000) categorize transactions costs into fixed and variable. Fixed transactions costs relate to costs incurred: to search for a buyer with the best price, or search for a market; for negotiation when there is asymmetric information on prices; and for screening the potential buyer and enforcing the contract in case of credit sales. These costs are often lumpy as they are not necessarily depend on volume. On the other hand, other transaction costs such as transportation² vary depending on volume. Williamson (1985) argues that there are different governance structures (market, hybrid and hierarchy) to mitigate transaction costs. These governance structures differ by their incentive intensity, administrative control and the contract law regime and are geared to solve governance problems. The basic prediction of TCE is that there is a discriminating alignment between transaction attributes and governance modes (Williamson, 2002); i.e., transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect a transaction cost economizing result.

2.1 The nature of transaction costs in agricultural transactions

Agricultural products are often distinguished from other commodities due to their perishability and much of the coordination task required to assure timely production, processing and distribution of the product (Masten, 2000). Hence, “agricultural transactions provide a rich and largely unexplored area for application and refinement of transaction-cost theory” (Masten, 2000, p.190). Other authors (Staal *et al.*, 1997; Holloway *et al.*, 2000; Winters *et al.*, 2005) also provide evidence on the importance of transaction costs in agricultural transaction. Producers of perishable products are vulnerable to opportunistic buyer; by defecting from the spirit of the contract, the latter can gain a bargaining advantage by forcing the former to renegotiate the contract (Williamson, 2003). Williamson argues that the nature of opportunism in agriculture (of perishable products) is different from what we observe in the TCE framework. Opportunism in the context of manufacturing (to which TCE refers to) applies to outliers, not to routines. However, (in agriculture) perishability is a recurrent, foreseeable hazard experience that appears every harvest season (Williamson 2003:23).

3. The role of agricultural cooperatives in reducing TCs related to quality improvement and market access

Berdegúe (2001) identified high transaction costs among the factors leading to the emergence of collective action. The hybrid nature of agricultural cooperatives may allow their members to capture many of the advantages of scale economies in marketing while independently undertaking their farm-level decisions (Staatz, 19987). Staatz (1987) contends that transactional attributes that were proposed by Williamson (1985) are relevant concepts for the emergence of farmer cooperatives. For example, the concept of asset specificity is the common rationale to build countervailing power and market access in farmer cooperatives. Temporal and location specificity pose transactional risks in agricultural transactions (Masten, 2000). While specialized inputs are often used for production, perishable

¹ Williamson (1985) describes opportunism as self-interest seeking strategic behavior aimed at redirecting profit from vulnerable parties.

² Hobbs (1996) treats transportation costs as part of the transaction costs

farm products are sunk costs once they are harvested (Harris *et al.*, 1996). By enabling farmers to integrate up or down the marketing chain, cooperatives provide an institutional mechanism for avoiding opportunism (Harris *et al.*, 1996). For example, in the relationship between farmers of perishable product and a processor, the processor can refuse to accept delivery from farmers during harvest time in order to force them to accept a lower price (Royer, 1999). A cooperative, as a form of (partial) vertical integration, can avoid potential threats to the quasi-rent of (small) producers investment by taking the position of the buyer (Bijman & Wollni, 2008).

Similarly, smallholder producers face uncertainty in finding a buyer, particularly if their product has idiosyncratic qualities (Staatz, 1987; Hobbs and Young, 2000). This raises their information or search costs. In addition to increasing uncertainty, product perishability also creates complexity of the transaction (Hobbs and Young, 2000). When the seller has to sell the product quickly, it adds to the complexity of the transaction; otherwise the quality of the product deteriorates leading to higher negotiation costs and price uncertainty. Apart from the direct transaction costs explained before, behavioral uncertainty poses indirect transaction costs (such as failure to identify appropriate partners and the productivity losses through shirking) (Rindfleisch and Heide 1997). Consequently, as uncertainty and complexity increase, a form of vertical co-ordination is expected over open market transactions (Hobbs and Young, 2000). Since farmer cooperatives combine some form of spot market and vertical integration, they may offer better ways of dealing with uncertainty than IOFs (Staatz, 1987).

In sum, cooperatives can address the problem of transaction costs by their ability to practice contingency pricing through patronage refunds (Valentinov, 2007); by reducing information asymmetry and the associated opportunism (Runsten and Key, 1996); by introducing “quality grades and standards (Bijman and Wollni, 2008); and by counterbalancing the market power of their trading partners to bring more equitable and efficient market outcomes (Galbraith, 1956; Staatz, 1987; Cook, 1995).

3.1. Main quality problems in the potato sector

The quality of ware potatoes are primarily influenced by the quality of seeds used (Struik and Wiersema, 1999). The main quality problems for seed potatoes are poor health, physiological disorder, poor genetic quality, impurity/variety mix, and inappropriate size (Hirpa *et al.*, 2010). In addition, lack of good potato varieties that can be used to produce high value products (such as crisps, French fries, pre-peeled potatoes, dehydrated potatoes, flakes, etc.) (Gildemacher *et al.*, 2009; Tesfaye *et al.*, 2008) are not available. Potato is a perishable crop that loses quality during the process of harvesting, storage, distribution and marketing. In Ethiopia post harvest loss of potatoes is estimated 30 to 50% (Endale *et al.*, 2008). Storage losses are caused by transpiration (water loss), respiration (dry matter loss), sprouting, changes in chemical composition, physical damage and disease (Wustman & Struik, 2007).

Three storage systems are practiced by potato growers in Ethiopia (Endale *et al.*, 2008; Hirpa *et al.*, 2010): (1) postponed harvesting (leaving the tubers in the soil unharvested); (2) use of a local granary, keeping on bed-like structures or on the floor of their house; and (3) diffused-light storage (DLS). Postponed harvesting seriously affects tuber quality due to tuber-borne diseases (Endale *et al.*, 2008); and was associated with large losses (up to 50% in some parts of the country) (Tefaye *et al.*, 2008). On the other hand, the use of DLS³ allows maintaining the quality of seed tubers up to 7 months (Endale *et al.*, 2008). The main problem with the use of DLS is that it causes the potatoes to turn into green making them unsuitable for keeping ware potatoes. Because potato is bulky to transport and the higher storage loss associated with postponed harvesting, most farmers prefer selling them directly from their plots. Due to oversupply of potatoes, farmers have little influence and usually accept the price the rural traders’ offer.

3.2. Market access problems in the potato sector

Potato farmers in Ethiopia sell about 61 percent of their production compared to 81 percent in the neighboring Kenya (Gildemacher *et al.*, 2009). Generally there are three potato market outlets in Ethiopia – farm gate, village market and the central market (Addis Ababa). 88 percent of the potatoes are sold in the village market (Gildemacher *et al.*, 2009). The Shashmene area and its vicinities, the largest potato producing area in the region, supply most of the ware potatoes to the central market place (Addis Ababa) and other major cities in the country (Tefaye *et al.*, 2008). Nearly all potatoes produced are sold to the domestic market; and only insignificant amount of ware potatoes

³ a low cost technology that was introduced by the International Potato Center (CIP)

are reported to be exported to Sudan, Djibouti and Somali (Tesfaye et al., 2008). Middlemen (brokers) play a key role in the Ethiopian potato supply chain, especially in the Shashemene area. Tesfaye et al., (2008) identified three types of brokers - field brokers operating with potato farmers on the field; local market brokers operating in the local market; and commission agents (brokers that are found at final market, such as Addis Ababa). The latter types of brokers do sell potatoes, collect money, transfer money, and provide price information for the traders who live close to the potato production areas.

Regarding the demand structure, potatoes are consumed as boiled, salad, and stew preparation. Others such as crisps, French fries, flakes, pre-peeled potatoes, etc. have not yet developed (Gildemacher et al., 2009). This contributed to the per capita consumption of ware potatoes in Ethiopia to be the lowest in Africa (FAO 2008). The focus of technical assistance, for example from research institutions, has been on developing varieties that are high yielding, widely adaptable to different agro-ecological zones, and resistant to late blight (Gebremedhin *et al.*, 2008). This is of course a necessary condition but not sufficient. If farmers are unable to fetch higher price by selling their potatoes the incentive to increase production and maintain good quality management practices would be less. Moreover, formal seed potato supply system is almost nonexistence in Ethiopia (Hirpa et al., 2010). It is only very recently that one private company (SolaGrow PLC in collaboration with the Dutch potato breeding company HZPC Holland B.V) started to produce seed potatoes formally for the (inter)national market (especially to the Middle East).

There is little product differentiation in the ware market. But as the potatoes stay in the field unharvested or in store, the quality of potatoes deteriorates and the level of uncertainty rises (due to shrinkage). As a result the ware growers are forced to sell immediately for whatever price the traders offer them (who often behave opportunistically). For the seed potatoes, there are at least two groups of growers: those who grow improved varieties (specialized seed growers); and those who simply grow mixed or local varieties partly as ware and partly for seed. More than 98 percent of potato growers source their seed from the latter type of seed growers in Ethiopia. Because the cost structure differs between the specialized and the unspecialized seed growers, the former has to find specialized buyers that can offer better price. The involvement of the private sector in the improved seed market sector rarely exists despite high policy support for improved potato seeds. This has led NGOs and government agencies to involve in the seed market in order to fill the missing market for the specialized seed growers. They often buy at a higher price and distribute the seeds to other potato farmers in other regions at a discounted price or free of charge at times.

3.3. How can cooperatives reduce TCs related to potato quality and market access problems?

Cooperatives can solve transaction costs associated to quality improvement through: organizing joint investments in logistic assets (trucks, cold storages, etc.); and improving access to different services – input supply, market information, financial (credit), technological (e.g., extension, education, research) (Cook, 1995; Stockbridge *et al.*, 2003). For example, DLS is a least cost technology; seed growers can easily construct it individually as long as the cooperatives provide technical assistances and credit. For the ware producers, storage can be expensive; and hence the cooperatives can buy from individual farmers, keep them in a cold store until the prices are better. Moreover, the cooperatives can apply sprout inhibition technology to improve the shelf life of ware potatoes. Wustman & Struik (2007) reported that potatoes can be stored successfully for up to 10 months as long as the right initial product is loaded, the right storage conditions are created and the right treatments are applied. At the time of marketing potatoes, cooperatives can use own (hired) trucks to sell potatoes at a distant market (central market); or due to the economies of scale, buyers can come to the growers' farm with their own trucks.

Similarly, cooperatives can play a significant role in reducing transaction costs related to input and output markets because of economies of scale and the resulting countervailing power (Staatz, 1987; Cook, 1995; Barton, 2000; Blandon *et al.*, 2009; Narrod *et al.*, 2009). Cooperatives are better positioned to source varieties that can be used for high value products from (inter)national market. They can design new marketing strategies (Kaganzi et al., 2009) to enable smallholder producers reach the scale necessary to deal with buyers that were previously not accessible or access higher markets (such as supermarkets, hotels and restaurants) through processing or improving quality. In addition, cooperatives can improve market access by reducing risks through: (1) entering long-term contracts - because the nature of market linkages can affect risk factor (e.g. spot markets vs. contracts); and (2) reducing the variability of farmers' incomes (e.g., by pooling producers' returns and expenses across products, time, and space).

4. Factors influencing the performance of agricultural cooperatives

4.1. Internal organization of agricultural cooperatives

Leadership quality, social capital/level of trust, and member size are among the factors influencing cooperative performance (Markelova et al. 2009; Stockbridge et al., 2003; Agrawal, 2001; Ostrom, 1990). Strong and competent leadership in a cooperative organization is required to access factor and product markets and to ensure product quality (Machethe, 1990; Ortmann and RP King, 2007). Similarly, the level of social capital plays a significant role to cooperative performance (Thorp et al., 2005; Agrawal, 2001; Bebbington, 1996; Wadsworth, 2001; Hakelius, 1996). Cases in Zimbabwe (Masakure and Henson, 2005) and Mexico (Key and Runsten, 1999) reported that mistrust among members and the prevalence of corrupt leadership led cooperative organizations to disintegrate. Agrawal (2001), from the natural resource management perspective, highlighted the importance of group size in collective action. The general hypothesis is that cooperatives with smaller member size have higher internal cohesion because it is easier to know and monitor other members (Coulter et al., 1999). Member size especially becomes a necessary condition if a cooperative has to meet stringent quality and safety standards (such as in the export market) (Narrod et al., 2009). In that case, smaller group size helps to reduce monitoring costs by a third party or the cooperative. On the other hand, larger groups have the advantage of attaining economies of scale (Stringfellow et al., 1997). However, empirical analysis by Barham and Chitemi (2009) reported no evidence on the relationship between group size and group marketing performance; i.e., the hypothesis that smaller farmer groups will be better positioned to improve their market situation over larger groups was not supported in their study.

4.2. Member characteristics

In analyzing farmer organizations, membership characteristics are one critical issue to consider (Berlin and Eriksson, 2007). Age, gender, wealth/income, and education level are among the main attributes influencing cooperative performance (Klein *et al.*, 1997). Older farmers are more likely to become a cooperative member compared to young members (Black, 1985); and older farmers value the social and political role of cooperatives /non financial benefits of membership/ (Klein *et al.*, 1997; Cain *et al.*, 1989) compared to younger members who value more to economic benefits (Hakelius, 1996). While Stockbridge et al. (2003) highlight the importance of member homogeneity in a cooperative organization; Thorp et al. (2005) emphasize the importance of member heterogeneity to improve a cooperative's leadership quality. However, the latter comes at the expense of high trust building investment as it is put by Markelova et al. (2009). With respect to gender, Barham and Chitemi (2009) found that female only and female dominated groups had problems to search for and accessing to new markets compared to their male counterparts.

4.3. The institutional environment

Government agents - In many developing countries, input and output markets hardly exist (missing markets) or are poorly working (imperfect markets) (Kuyvenhoven, 2004; Thirtle & Echeverria, 1994; De Janvry et al., 1991), leading to high transaction costs. The general hypothesis is that public intervention is necessary in areas where the pervasiveness of market failure is expected to be high (Thirtle & Echeverria, 1994). A number of intervention areas have been suggested in the literature. These include the provision of: (1) research activities - due to inappropriability, uncertainty and indivisibilities concern, the private sector is unlikely to provide such services, especially in less developed countries, (Arrow, 1962, as cited by Thirtle & Echeverria, 1994); (2) extension services such as the transfer of new technology, provision of market information, etc. (Farrington, 1995); and (3) other services such as standards and quality control, contract enforcement, credit, transport, and storage services (Hellin et al., 2009; Kuyvenhoven, 2004). But there has been long existed concern that government sponsored extension agents and researchers work more with wealthier farmers than the poor (Farrington and Biggs, 1990; Farrington, 1995). Others (e.g., Deininger 1995; Jayne and Jones 1997; Banerjee et al., 2001) claim that poor leadership, elite capture and other rent seeking problems (that exist in many developing countries) as consequences of excessive state intervention.

NGOs - The importance of NGOs as facilitators for a successful collection action have been documented in the literature (Chirwa et al., 2005; Markelova et al. 2009; Kaganzi et al., 2009; Devaux et al., 2009). NGOs provide information, technical assistance, and training, lobby greater market access necessary to engage in effective marketing activities (Coulter et al., 1999; Berdegú, 2001; Thorp et al., 2005; Kruijssen et al, 2009). The NGOs also

operate as facilitators to bring government services and farmers, and cooperative organizations together (Farrington and Biggs, 1990). In contrast to the claim that government sponsored extension agents and researchers work more with wealthier farmers, the focus of NGOs is more on resource poorer groups in rural areas to address any technology gaps left by the government (Farrington and Biggs, 1990). But two questions remain. The first one is for how long development agents should continue supporting a cooperative organization. According to Hellin et al (2009), development agents are necessary at the early stages of farmer organizations; but as they evolve, it is critical for the farmer organizations to be independently linked with the private sector. The second one is the extent of external support. Berdegú (2001) argues that heavy reliance on external support will isolate the farmer organization from its market context. Moreover, NGOs have a number of inherent problems (Kaimowitz, 1993): (1) NGOs' efforts lack continuity; (2) most NGO staffs have low level of formal education; and (3) their holistic approach (doing a little of everything) leads to a dispersion of activities and loss of technical capacity. One possible way of reducing the latter, as suggested by Bebbington (1991), is the idea of linking the NGOs up with formal research institutions (coordination).

Secondary/tertiary level cooperatives - It is argued that most successful cooperatives are the one coordinated and integrated with secondary or tertiary level cooperative organization (Foxall, 1981, as cited by Carman, 1997). By integrating up into higher level cooperatives, primaries can reduce competition and duplication of efforts in their dealings (Carman, 1997). Organizing primary cooperatives into union or federation provides members' of the primaries with better market opportunities (Bebbington, 1996). It has been hypothesized that first level agricultural cooperatives operate together as an integrated unit by forming higher level cooperatives to achieve economies of scale, greater negotiation power in the market and higher efficiency in performing marketing activities (Kohls and Uhl, 2002). Conversely, the secondary cooperative is dedicated to commercializing their first level cooperatives production by establishing, developing and maintaining relationships with the distribution channels and international markets (Arcas-Lario and Hernandez-Espallardo, 2003).

Based on the above theoretical and empirical analysis, the following hypothesizes are drawn. Agricultural cooperatives with the following characteristics will have better chance of improving market access through improving product quality and reducing transaction costs.

- High level of trust among members and between members and the management
- Higher linkages to NGOs and government offices
- Smaller group size
- Member homogeneity (age, education, wealth/income level)
- Better educated groups
- Male dominated groups
- Primaries integrated into higher tier cooperatives (marketing union)

5. Research methodology

A case study approach was selected to answer the research questions outlined above for two main reasons. (1) It provides the option for a wider range of variables influencing cooperative performance; and (2) the qualitative nature of the data in the study. We used the following analytical framework to qualitatively analyze the aforementioned hypothesized relationships.

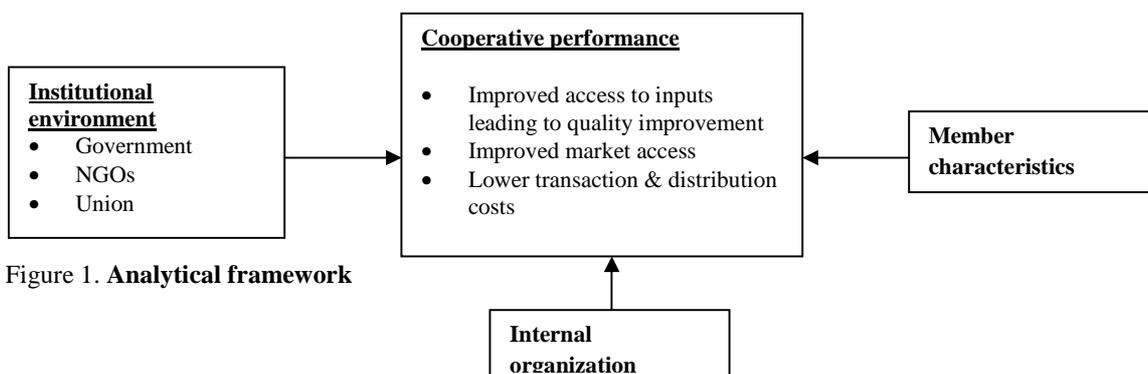


Figure 1. Analytical framework

5.1. Selection of cases

The Central, the Eastern, the North-West and the Southern parts of Ethiopia contribute about 83 percent of the total potato production (Hirpa et al., 2010). Our selection of the cases was mainly based on the availability of cooperatives that actively deal with seed/ware potato growers. Consequently, we selected the central and the southern regions. Though only 10% of potato growers belong in the central part, because of its good agro ecology (cool and high altitude), this region serves as a source of relatively good quality seeds for the rest of the country. In addition, the central part is where the Holeta Agricultural Research Center, in which the potato research unit, is located. Not surprisingly so, there were a lot of seed potato cooperatives established in the area. Based on the recommendation of the HARC, we purposely selected two districts (Welmera and Jeldu). In Welmera area, we selected two cooperatives (1 male dominated and the other women-only) from a total of 12 seed cooperatives; and one cooperative was selected from a total of four seed cooperatives (all men dominated) in Jeldu district. The cooperatives in Wemera and Jeldu are located 85 km and 10–15 km far from the HARC, respectively. Unlike the seed potato part, it was difficult to find cooperatives that partially or fully engaged in ware potato production and marketing in the country. To the best of our knowledge, we could only find two cooperatives that focused (partly) in (ware) potato production and marketing. They are located in the Southern part of the country where 30 percent of potato producers found (Hirpa et al., 2010). We included these two cooperatives for the ware potato part of the case study. The two cooperatives are also members of Duru Lango Marketing Union.

To gather relevant data personally administered structured and semi-structured interviews as well as field observations were held with different stakeholders: 5 cooperative leaders, 2 marketing union leaders, 14 cooperative members, and 8 non cooperative members, 4 experts from HARC and 3 experts from government agricultural offices. Members and non members were randomly selected from a list presented to us by the cooperatives and the respective peasant associations, respectively. Questions to the cooperative and the union leaders were related to member size, year of establishment, the landholding structure, the current activities about quality improvement, market access, and transaction costs, the level and type of support from external parties, the level of trust in the cooperatives relationship with members. Questions for members were related to household characteristics, membership benefits and costs, the level of trust with the cooperative leaders. Similarly, questions for nonmembers were related to their perception about the cooperative's performance and the reasons for not participating in such cooperatives in addition to their household characteristics. The questions for research centers and agricultural development offices relate to the type of services/assistances they offered to these cooperatives. The field observation was made to see how the seed/ware potatoes are stored. As a result, a total of 10 storage places were visited in two rounds. To get an in-depth understanding of the situation we conducted the case study at two different points in time. The first one was made in November 2009 and the second in April 2010.

6. Results and discussion

6.1. Internal organization of the seed/ware potato cooperatives

Group formation, participation and level of trust

The three seed potato cooperatives in Jeldu and Welmera areas were largely organized by a few lead farmers who used to participate in farmer research group (FRG). The Holeta Agricultural Research Center (HARC) played a key role in the process leading to the formation of the seed potato cooperatives in order to: (1) institutionalize the transfer of agricultural technologies (such as improved varieties, farming practices, etc.) for smallholder farmers in general; and (2) produce released potato varieties at commercial level in particular. Despite good economic reason these farmers had to form a seed cooperative, they lacked the necessary trust building process. This was particularly evident in one of the three seed potato cooperatives. Top cooperative leaders used the opportunity they had with buyers in order to sell their own seed potatoes before fellow members. Similarly, the volume of production for the leaders during the study period was significantly high. For example, the average volume of production (2009) per

member was about 25 tons while that of the chairman was 170 tons. In the same cooperative, individual members could only sell 4.6 tons on average via the cooperative while the chairman sold 130 tons (as of April, 2010). The conflict of interest in the cooperative later grew into hostility. Consequently, the chairman was dismissed from his position and part of his property was destroyed by a fire set on by unknown person(s). Soon after the chairman and other two top leaders withdrew from the coop and started working individually.

A systematic restriction from membership was observed particularly in the men dominated seed potato cooperatives. The economic rationale can be attributed to the structure of the current seed market in the region. The main buyers of seed potatoes were institutions (such as GOs, NGOs, and/or occasionally cooperative unions). These institutions often buy from the cooperatives recognized by the HARC. Hence, there was disincentive for increasing member size.

In addition, the analysis showed that the wealth/income gap between members and the leaders was significantly high among the men dominated seed cooperatives. Moreover, the seed potato cooperatives were formed around a few individuals' entrepreneurial skills. This led us to assume that this 'entrepreneurs', realizing the good policy environment towards agricultural cooperatives, might have used the cooperatives as a tool to pursue their own economic interest. For example, it was possible to get improved varieties and other inputs from research centers free of charge; some cooperative leaders were able to get training from government and non government organizations (even some got training by going abroad); and more importantly, they were able to generate higher revenue from seed potato sales by unfairly using their leadership position. Our hypothesis is that particularly men dominated seed potato cooperatives were systematically orchestrated by few 'entrepreneurs' that decided to use the cooperative as means to accumulate their own wealth at the expense of the ordinary members. The fact that 80 to 90 percent of members in the cooperatives were either illiterate or only had less than three years of formal education allowed these 'entrepreneurs' to remain in power until they finally leave the cooperative and establish their own business.

Table 1. Amount produced, sold and income generated from seed potato sales by the top three coop leaders during 2009/10.

The top three coop leaders	Amount produced (tons)	Amount sold (tons)	Income from potato sales (ETB)
1	170	140	490,000
2	100	80	280,000
3	60	60	210,000

Note: average production and amount sold per member in the same period were 25 and 4.2 tons, respectively.

The two ware potato producing cooperatives located around Shashemene and Arsi Negele area, on the other hand, were formed by producers living in the same community for many years. We observed a relatively high level of social capital between members. The wealth/income gap between members and their leaders was reasonably low.

Unlike that of seed potato cooperatives, individual members' production decision (and the level of income) was not so much dependent only on potatoes – they grow a number of other vegetables and cereal crops as well. The cooperatives had a limited access to improved potato seeds. At the same time, potato growers had high storability problem to use part of their produce as a seed. Consequently, they continued buying seed potatoes every season from neighboring highland areas.

Due to limited role of the cooperatives with respect to collective input purchases and output sales we were unable to analyze the extent of member opportunism in the two ware coops. We also observed no systematic restriction from membership as these cooperatives were formed by farmers who share common resources (irrigation facilities).

It was observed that there was high level of member opportunism, particularly, in one of the men dominated seed coops. This coop was characterized by a higher income gap between members (and between members and the coop leaders) from potato sales and a lower percentage of potato sales via the coop compared to the other men dominated seed coop (see table 2). In addition, seed cooperatives that had restricted membership policy were able to sell higher percentage compared to those of the women only seed coop and the two ware potato producing coops.

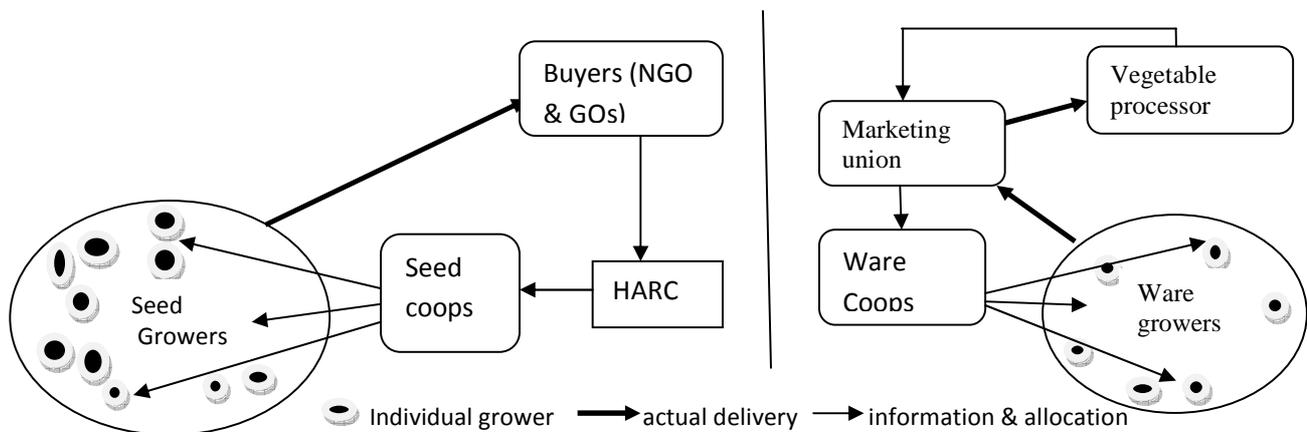


Fig 1. The existing structure of the seed/ware coops

Member characteristics and coop performance

With regard to gender difference, we noticed that members of women only seed cooperatives created lower market access compared to members of the men dominated seed cooperatives in 2009/10. Similarly better educated groups had better performance in terms of access to markets.

In terms of group size, the women only coop had 210 members, higher than the two seed cooperatives. But the percentage sold by the women only coop was only 40 percent compared to 90 and 63 percent of the men dominated seed coops respectively. For the ware potato producing coops, the percentage sold via the respective cooperatives was insignificant and hence unable to establish relationships with group size. Similarly, seed cooperatives with relatively more educated members were able to sell higher percentage of seed potatoes via their coops compared to the less educated group members. But member heterogeneity with regard to land size and age showed no systematic relationship with regard to market access (reflected by percentage sales via the coop).

Table 2: **Member characteristics**

Coops	Potatoes sold via the coop (%)	Group size	At least 1 year formal education	Land size (ha)	Age of members (year)
Derara	63	104	40%	0.25 - 5	28 - 65
Gudena	90	76	55%	0.25 - 2	19 - 77
Yerob Gebeya*	40	210	10%	0.16 - 2.5	20 - 65
Dadaba Guda	5	136	5%	0.125 - 3	20 - 67
Shaka Bulti	0	63	25%	0.125 - 1.5	24 - 71

*Women only seed coop

6.2. The role of external agents

Public agencies

The Ethiopian government follows two extension approaches - Participatory demonstration and training extension systems (PADETS) and Farmers training centers (FTC). The two approaches aimed at increasing smallholder farmers' yield and volume of production, increasing food self-sufficiency, and encouraging farmer organizations. In recent years, the government's investment related to extension services reached over 50 million USD (2% of GDP) (Spielman et al., 2010). One of the criticisms facing the extension system in Ethiopia has been on the increasing

emphasis given by extension workers on input provision as their primary responsibility. To this end, cooperatives have been expected to overcome this problem by overtaking the input provision from the extension agents so that the later can fully engaged in provision of technical assistances and technology transfer. In the five cases, the services received by the cooperative members from the development agents (DAs) were not specific to quality improvement and market access. Moreover, the “Cooperative Promotion Office”, which has administrative unit up to district level, played little role and unable to go beyond approving bylaws and issuing certificates. Perhaps one of the most important public agencies, especially for the three seed potato cooperatives in our case study, was the Holeta Agricultural Research Center (HARC). The seed potatoes varieties commonly found in the region were a direct outcome of the HARC (with the assistance of the International Potato Centre). Moreover, the HARC through its extension division provided periodic technical assistances on seed quality management. As a result the seed potato cooperatives used an innovative quality management practice – the seed coops established a committee that had training from the HARC to provide technical assistances and monitor individual members’ quality management practices at least at three critical stages (flowering, maturity, and storage). The HARC also served as an intermediary between the main institutional buyers (NGOs and GOs) and the seed potatoes cooperatives.

While the three seed cooperatives were formed by the active role of the HARC, the agriculture and rural development office was responsible for the formation of the two ware potato producing coops in Shashemene and Arsi Negele area. This is consistent with what has been reported by Bernard et al., (2010)⁴. But one of the main problems we noticed at least in the two of the seed cooperatives was the problem of ‘elite capture’. By and large relatively economically better off farmers were selected to participate in those coops. Seed coops had more ties to both government offices (such as the HARC or the Ethiopian Institute of Agricultural Research) and NGOs (such as the world vision) compared to the ware potato producing coops in the South. As a result, members of seed coops were better in improving the quality of potatoes and accessing markets via their coops which was in line with the hypothesis drawn before.

Duru Langano Fruits and Vegetables Marketing Union

This union was established in March 2008, with 7 primary cooperatives by the government. In the year 2009/2010, the number of member primary cooperatives reached to 12. The primary cooperatives engaged in the production of many products - potato, tomato, onion, carrot, beetroot, apple, papaya, banana, maize, wheat and teff. Despite the union’s interesting objectives (related to provision of improved market access, technologies and agro-processing services, among others), the analysis in the two primary cooperatives showed no evidence of such benefits (only limited amount of fertilizer and pesticides was supplied to potato growers in the year 2008/2009). In our case study, we found no evidence supporting the hypothesis that primary coops integrated to a secondary coop will have better market access opportunity. Perhaps it is too early to say much about the union at this point in time as it was only recently formed.

NGOs

Not many NGOs were involved in the potato sector. Nevertheless, the role of World Vision in the Ethiopian potato market found to be very significant in two ways: (1) it created market opportunity for seed potato cooperatives which was rarely provided by the private sector; (2) it took the initiative to coordinate the seed and ware potato sectors. For example, it tried to introduce the seed potato varieties found in the central and highland areas (such as from Welmera, Jeldu, Degem, etc) to some potato farmers in other regions (for example in Shashemen and Arsi Negele).

6.3. The role of cooperatives

6.3.1. Quality improvement activities

⁴ reported that 63 and 11 percent of the agricultural marketing cooperatives in Ethiopia were created by the government and NGOs respectively.

We used the following criteria to assess the level of quality improvement activities members received from their cooperatives - input supply (such as improved seed and credit facilities) and technical assistance (training and extension services).

Input supply

Improved seed - members of seed potato cooperatives were commonly using Jalenie and Gudenie that were once released by HARC in 2002 and 2006, respectively. Due to unavailability of newly released varieties from the HARC or other research institutions, the seed growers continued to use the long existed varieties as a source of improved seed both for themselves and other potato producers in the country. Moreover, the seed cooperatives were not able to source improved varieties from abroad due to limited financial as well as managerial capabilities. In the ware potato sector, members of the cooperatives used local varieties that were either left from consumption or sourced from nearby places as a seed. The seed potatoes were often bought individually. Hence, members were unable to enjoy one of the benefits of collective action (economies of scale). In general, the utilization of improved potato seed varieties in Ethiopia reported to be very low, about 0.5 percent (ESCS 2005).

Credit – credit availability helps smallholder farmers to buy fertilizers and pesticides. Insufficient fertilizer application will have impact on potato tuber size. Similarly, the application of pesticides helps to supply disease free seeds. In all of the five cases, we found little formal credit arrangement made by the cooperatives for member producers. The exception was that the ware potato producers received some inputs on credit from their secondary cooperative (marketing union). In general, all the cooperatives seemed poorly structured to raise (retain) sufficient capital in the cooperatives. Little or no part of members' income was retained in the cooperatives despite the Ethiopian Cooperative Proclamation requires 30% of the net profit to be retained in the coop for reserve, expansion works and other social services.

Technical assistances

Training - We observed no arranged training by any of the five cooperatives for members. Moreover, these cooperatives didn't have their own extension agents.

Quality control - The seed potato cooperatives greatly concerned about seed quality. To assure the quality of seed potatoes the three seed potato cooperatives set up a team to intensively monitor the quality management practices of individual member seed growers. Supervision of the seed quality was usually made at least at three critical stages – during flowering, at maturity, and in the store. Normally, members receive a feedback from the team at spot. Any member who fails to meet the committee's recommendation will find his seed potatoes downgraded and might not be allowed to sell on the cooperatives name (will be forced to sell his/her potatoes in the local market). On the contrary, there was no such practice (or any other system of quality control) in the ware potato producing cooperatives found in Shashemene and Arsi Negele areas. If there was any, it was down to individual producers. This (partly) can be attributed to lack of (insufficient) collective marketing and proper incentive for quality (ware) potatoes. For ware potatoes that were sold via the marketing union, there was no rejection due to poor quality. Hence, the incentive for quality improvement was also low.

6.3.2. Improved Market access

We assessed the role of cooperatives with respect to market access based on three dimensions – *percentage sold to or via cooperatives, the price obtained (per 100 kg bag) and sustainability of the market*. Members of the seed potato cooperatives in Jeldu and Welmera areas were able to sell most of their potatoes via the cooperative in the years before 2009/2010. For example, out of total production of the year 2009, members were able to sell about 64 percent of the potatoes that were available for sale via cooperatives. In contrast, those ware potato growers in Shashemene and Arsi-Negele were unable to get real market opportunities. For example, during the same season, members of the ware producing cooperatives could only sell on average 2.5 percent via their cooperatives.

In terms of price obtained, we compared the price that individual members received by selling to the local market and via their cooperative in the same season. Accordingly, members of seed potato cooperatives received (per 100 kg) on average ETB 320 when they sold to the local market and ETB 414 when they sold via their cooperative in the year 2009. On the other hand, members of the ware potato producing cooperatives received on average ETB 150

when they sold to the local market (often through middlemen) and ETB 250 when they sold via their cooperative in the year 2009.

Table 3. Market access

	% marketed via the coop	Average selling price per Quintal (=100kg)			Income from potato sales
		without a coop	With a coop	% increased	
Derara	63	283	412	46%	45,000 - 490,000
Gudena	90	220	400	82%	12,000 - 120,000
Yerob Gebeya	40	325	450	38%	6,000 - 48,000
Dadaba Guda	5	150	250	67%	1,000 - 20,000
Shaka Bulti	0	160	-	-	1,000 - 15,000

In terms of sustainability of the market, during and before 2008/2009 members of the three seed potato cooperative enjoyed better market opportunities created with institutional buyers (such as with GOs and NGOs). Almost they could sell what they had produced at reasonably high price (up to ETB 600 per 100 kg). But this didn't continue during 2009/2010 season. We identified two main reasons for that. The first one was the relatively high price the cooperatives used to receive from the institutional buyers in the year 2008/2009 and the years before significantly stimulated the supply side of seed potatoes. Consequently (1) the number of cooperatives participating in the seed potato market increased. For example, in Jeldu district, the number of seed potato cooperatives reached to four. The total supply of these four cooperatives was estimated about 12,500 tons; (2) the incumbent seed cooperatives increased their volume of production. For example, one of our cases, Derara Improved Seed Potato cooperative in Jeldu district increased its volume of production from 1,250 tons to 2,600 tons in a space of one year. The second, perhaps, the most important one was that the demand for seed potatoes significantly decreased. The main observed evidence was that the usual institutional buyers (most importantly NGOs) gradually declined their role as a main buyer. We did this case study at two points in time – during November 2009, where most of the seed potatoes were harvested and stored and in April 2010, where most seed potatoes should be sold. So our visit in April 2010 helped us understand well this problem. The two seed potato cooperatives in our case study hadn't received any offer from the usual institutional buyers. Similarly, the seed cooperative in Jeldu could only sell 480 tons out of the total 2600 tons produced. And we could see the frustrations that these farmers had while visiting their seed potatoes being deteriorating in their stores.

The above cases showed the high price volatility of the seed market and the inability of these cooperatives to provide a form of guarantee for their members.

Members of the ware potato coops did sell their potatoes to the local market, which was characterized by undifferentiated product and the involvement of middlemen (brokers). According to members, the involvement of middlemen further reduced the margin they could receive and the incentive for quality improvement. The marketing union, in which the two ware potatoes producing are member of, hardly solved member potato farmers' marketing problems (especially the problem related to middlemen), partly because the union was only recently formed. Therefore, marketing activities continued to be dependent on individuals' entrepreneurial skills and resources.

6.3.3. Economized logistic and transaction costs

Logistics

Our analysis of logistic services was limited to the case study in the three seed cooperatives as the others were hardly involved in output marketing. Moreover, we limited logistic to the provision of storage facilities and transportation services by the cooperative to its members. We found out that the three seed cooperatives didn't provide storage services to its members. Nonetheless, we observed many diffused light stores (DLS) built by member producers that we visited. Some farmers even had up to three DLSs. Although the cooperatives didn't directly provide common storage services, they educated fellow members about the importance of the DSL. When it comes to transportation costs, it was the buyer who goes to the cooperative's location. Therefore, the role of each

cooperative was mainly focused on the coordination part; i.e., scheduling the timing of delivery, organizing fellow members to deliver potatoes as allocated, locating individual stores, etc.

Coops	Potatoes sold via the coop (%)	Distance from coop's location to destination of sales
Derara	63	350 – 650 km
Gudena	90	350- 590 km
Yerob Gebeya	40	350 – 588 km
Dadaba Guda	5	60 km
Shaka Bulti	-	-

Transaction costs

Our analysis of the case study was based on the theoretical propositions of transaction cost economics. From the producers' point of view, the temporal nature potato (perishability) and the high weight-to-value ratio increases level of behavioral uncertainty which paves a room for an opportunistic buyer to influence the balance of trade in his/her favor. Hence, the potato producer will have increased negotiation and monitoring costs. Moreover, the presence of asymmetric information (due to limited access to information technology and/ or distance from buyers), potato producers will face high searching costs to find appropriate buyer (partner). The question remains whether member producers were able to solve these problems through the governance of cooperatives in the seed/ware potato supply chain. We present our analysis of the cases as follows.

Uncertainty - the level of uncertainty was high with seed growers than the ware growers as coop members had to keep their potatoes in DLS for months (up to 6 months) in the latter case. Yet, the growers (or the coop) had no forward contract (or any other form –written or oral) with potential buyers. They simply hope that the usual buyers (NGOs and GOs) would come at some point during the main growing season. Should these buyers don't show up or buy only a smaller amount than expected (which was the case during 2009/2010) seed growers would have little choice but discard it as it can't be used as ware. On the other hand, the consumption pattern for ware potatoes seems more or less flat⁵. As a result, they were able to sell at least to the local market whenever they wanted to albeit assuming the risk of price volatility and opportunism from middlemen or traders. Most potato growers produced under rain-fed condition; hence they experienced the risk of oversupplying as farmers were not able to keep their ware potatoes too long unharvested⁶. Unfortunately, the seed coops and the ware coops were not able to avoid members' uncertainty resulting from price volatility and in finding a buyer.

Searching costs - The searching costs here related to finding appropriate buyer. That means the seed growers in the central and highland areas should find a buyer (an intermediary or the ware potato growers themselves). Conversely, the ware potato growers should search for quality seed and an appropriate buyer (such as a retailer, wholesaler, processor, or exporter) for their output (ware potato). Our assumption was that members who had the possibility to sell to cooperatives would incur less searching costs at individual level compared to the otherwise similar non-cooperative potato producers. Since search costs are fixed, members of a cooperative reduce that cost by joint action. Accordingly, members of the three seed potato cooperative were able reduce searching costs by selling (on average) about 64 percent of their seed potatoes through their cooperatives in the year 2008/2009; whereas members of the ware producing cooperatives could only manage to sell about 2.5 percent of their total production via their cooperatives. This implies that the performance of seed potato cooperatives was much better, in terms of reducing the searching costs compared to the performance of the ware potato producing cooperatives.

Negotiation costs – the focus was on bargaining power (see Hobbs, 1996; Wen Gong et al., 2007); and the analysis was made on the three seed potato cooperatives because of the other two cooperatives were hardly involved in output marketing. Bargaining power, in the context of this study, was used to refer whether a cooperative that sells members potatoes submissively accepts any price offers from a potential buyer or does negotiate for a better price. Our case study analysis showed that members received an average price of ETB 414 and ETB 320 per sale of 100

⁵ We also learned that demand will be high during the Ethiopian long fasting season - between February and April

⁶ postponed harvesting was by far the widely used storage mechanism by ware potato growers in the study area

kilogram of seed potatoes (having same quality level) when they sold via and outside the seed potato cooperatives, respectively. However, since nearly all seed potatoes sold via the coops were to NGOs and GOs, we can't say that there was a real negotiation took place. From the interview we had with member farmers and the seed coops, it was observed that they were likely to accept lower prices should private traders buy their potatoes due to the large volume produced during 2009/2010.

Monitoring costs - Monitoring costs, in this context, may occur when a cooperative that receives potatoes from members has to arrange transportation to sell to a distant market. In that case an individual grower may encounter spoilage, physical damages, theft, etc during transporting this product. In our case of the seed potato cooperatives, the economies of scale forced seed potato buyers (in this case the NGOs and GOs) to come to where these cooperatives are located to receive the product (potatoes). Hence any potential monitoring costs were avoided. In the absence of cooperatives, many potato farmers could have used their own means to deliver the product to a market of their interest and perhaps incurred monitoring costs in the process.

7. Discussion and conclusion

7.1. Discussion

This result, to a large extent, supplements previous findings by Bernard *et al.*, (2008, 2009) and Francesconi and Ruben (2007) regarding membership in a cooperative in Ethiopia. What distinguishes the potato sector, particularly in the seed sector, is the low level of farmer-trader linkage. This has left seed potato production to be highly risky. When potatoes are kept (up to 6 months) as seed they turn into greenish. Should no buyer turned in, these potatoes are simply discarded as they can't be used as ware anymore.

This leads us to our next discussion point. Is a cooperative an appropriate form of governance for smallholder potato farmers in Ethiopian? Does a CF scheme better solve the problem of the existing marketing arrangement in the potato sector?

Cooperative form of governance doesn't seem working in the potato sector

Due to the problem of elite capture, lack of resources, poor leadership quality, and the low level of literacy coupled with high transaction costs related to high level of uncertainty and search costs in the potato market the cooperative form of governance, largely dominated by livelihood-oriented type of cooperatives (Francesconi and Heerink, 2010), failed to solve the problem of smallholder potato farmers' market access in the Ethiopian potato sector. Moreover, the ware potato sector is characterized by undifferentiated market structure. Berdegué (2002) found that farmers' participation in farmer organizations producing undifferentiated commodities such as potatoes had no significant beneficial impact for farmers albeit provision of other services. This perhaps explains why there are almost no ware potato cooperatives in Ethiopia where there exists nearly 27,000 primary coops.

Alternative form of governance – contract farming scheme (CF)

Contract farming helps resource poor farmers to access inputs, credit, technical advice and reduce marketing risks; and more importantly links them to sustainable market outlets (Hellin et al., 2009; Key and Runsten, 1999). Though traditionally CF arrangements are more focused on high value crops and animal products, recent experience show the interest of international agribusiness firms to engage in other crops. An example is the SolaGrow PLC out growers' scheme with potato growers in Ethiopia. By doing so SolaGrow helped them to remove some of the production risks and uncertainty of input supply for smallholder potato growers. At the same time, SolaGrow was able to overcome the problem of land scarcity (as land is owned by the state) in the country through the CF arrangement.

Since the farmers used to supply potatoes to the local (village) market; they were almost unaware of quality premium. SolaGrow used a combination of market and resource specification contracts with potato growers. Through market specification contracts, potato growers were allowed for greater exchange of information on quality, market demand and price. Similarly, with resource specification contracts, SolaGrow helped potato growers to access improved seeds, fertilizer and periodic technical advices. Hence, SolaGrow helped smallholder potato

farmers reduce the problem of transaction costs related to high credit costs, specialized inputs, high marketing risks using future delivery of potatoes as collateral, and at the same time stabilizing their income from potato sales.

One of the growing criticisms of CF in the literature is the way profits are distributed between agribusiness firms and growers. This is something we hope to investigate further in another paper. So far, SolaGrow employs a form of quasi fixed contracts; i.e., market plus 2 ETB per 1 kg of acceptable quality potatoes. We believe that NGOs and GOs can continue working with agribusiness firms with the former supporting the provision of credit and fertilizer to potato growers and the latter concentrating on technical advice and the provision of improved varieties. SolaGrow imports improved potato varieties from the well-known international seed potato company HZPC Holland⁷. This link with an international agribusiness firm can be considered as an important step towards the development of a sustainable marketing chain in Ethiopia.

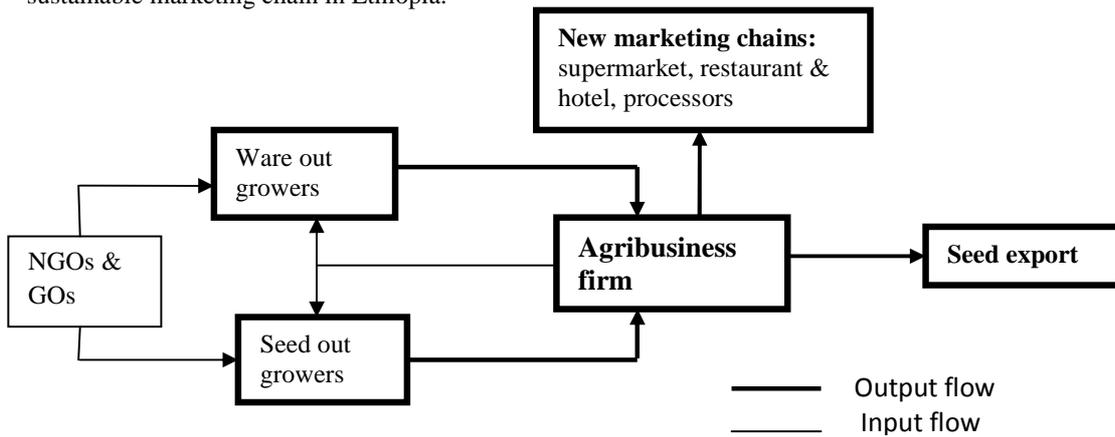


Fig 2 proposed governance structure in the potato sector

So far, the relationship between SolaGrow and the potato out growers can be described as follows. SolaGrow provides seed and fertilizer to out growers on credit, and periodic training and technical assistance on site. Before harvest, growers bring a sample of their potatoes for grading. When the farmers conform to the quality standard, SolaGrow pays them local market plus 2 ETB per 1 kg after deducting the input costs it provided at the beginning of the season. Moreover, SolaGrow used innovative ways to establish itself with the local community in order to avoid cultural barriers that many international agribusiness firms face while going abroad. It constructed water wells and did many community services around Debre-Ziet. Apart from supplying seed potatoes to the export market, SolaGrow established a new marketing chain for high quality ware potatoes – by supplying to Hotels, Restaurants and other high end consumers via establishing shopping centers around Debre-Zeit and the capital (Addis Ababa).

In figure 2, the role of NGOs and GOs is limited to provision of inputs, credit and technical assistance, not on output marketing. The involvement of the private sector in the potato chain can lead to a more sustainable market linkage. The experience of Uganda potato farmers could be used here to highlight the issue of market sustainability. When the Nyabyumba farmer group formed the Uganda National Seed Potato Producers’ Association (UNSPPA) in 1999, their seed production significantly increased but later went into a problem when NGOs and ware potato farmers stopped buying their seed. That required the Nyabyumba farmer group to develop new marketing strategies to promote ware potato sales which eventually helped them to be successful by linking them into high value markets (Kaganzi *et al*, 2009).

7.2. Conclusion

Following Sykuta and Cook (2001) and Cook and Chambers (2007), the seed cooperatives can be categorized as a closed type (with the exception of the women only seed coop) and market-oriented. At the same time, they are characterized by elite capture and high level of member opportunism. However, their marketing activity is very

⁷ HZPC Holland B.V, established in 1999 after merger of two seed potato exporting companies in Holland each having 100 years of experience, is one of the world’s largest private seed potato companies. HZPC operates worldwide through direct deliveries and indirectly via license agreements. The latter type of arrangement is the one HZPC has with SolaGrow PLC.

much limited to institutional buyers (such as donor agencies and public institutions). On the other hand the ware potato producing coops are open type and livelihood-oriented. The ware coops are not specific to potatoes; members grow a variety of other products. But these types of coops are less likely to cope with the ever increasing trend towards greater specialization and segregation in the agrifood chains as put by Sykuta and Cook (2001).

Taking the literature on collective action and transaction cost economics theory, the paper attempted to examine the role of seed/ware potato cooperatives in Ethiopia in improving quality (and thereby enhancing market access) and reducing distribution and transaction costs using a case study approach and suggested alternative form of governance – the CF scheme. The analysis was made based on five seed/ware potato cooperatives.

Our attempt was to answer the following questions: (1) what quality improvement activities do seed/ware potatoes cooperatives offer to their members? (2) What is the role of seed/ware potato cooperatives in improving market access by reducing distribution and transaction costs?

We analyzed quality improvement activities of the five cooperatives by using input supply (improved seed and credit facility) and the level of technical assistances (training and quality control) that members received either from the cooperatives themselves or by linking members to external agents (such as with GO, union or NGO). It was found that seed potato growers had limited access to credit and new seed potato varieties. As a result, they continued to use old varieties (Jalenie and Gudanie) over and over again. The situation in the ware potato producing cooperatives was more or less the same; that is, these inputs were not provided by the cooperatives. The improved seed potato varieties (particularly Jalenie and Gudanie) that are widely produced by seed growers in Jeldu and Welemera area were not commonly found in the ware potato growing areas such as in Shashemene and Arsi Negele. It still remained unanswered in this paper that whether the unavailability of these varieties was due to lack of demand by ware potato growers, poor agronomic quality (disease resistant, storage, and the like), high seed cost, or lack of information about availability of these varieties. Quality control was found to be the most important role of seed potato cooperatives.

Our analysis of market access was based on three dimensions – *percentage sold to or via cooperatives, the price obtained and sustainability of the market*. We found that members of the three seed potato cooperatives were better in the year 2008/2009 in terms of percentage sold via the cooperatives and the price gained as compared to members of the ware potato producing cooperatives. However, most of the seed potatoes were sold to NGOs and GOs. A further analysis revealed that the demand from these institutional buyers was gradually shrinking while the volume of seed potato production was significantly increasing. In the ware potato sector, almost all the potatoes produced by members of the two cooperatives in the 2008/2009 ended up being sold at the local/village market. At the same time, the growers felt that the presence of brokers in the marketing chain further reduced the margin that they could receive. The secondary cooperative (marketing union) in which the two ware potato producing cooperatives belonged wasn't able to solve this problem so far.

Compared to the ware coops, the case study analysis showed that seed potato cooperatives were better in economizing logistic related costs and minimizing member producers' (potential) transaction costs related to searching for a buyer, negotiation, and monitoring. However, all in all, cooperatives form of governance in the potato sector failed to solve smallholder potato farmers' transaction risks associated to market access. Rather, a contract farming arrangement recently started by SolaGrow seems more promising. But it requires a coordinated effort by both external agents and agribusiness firms with the former providing inputs (such as credit, fertilizer, etc) necessary for potato production and the latter engaging in solving technical assistance and market access problems.

References

- Agrawal, A. 2001, 'Common property institutions and sustainable governance of resources', *World development*, vol. 29, no. 10, pp 1649-1672.
- Akwabi-Ameyaw, K. 1997, 'Producer cooperative resettlement projects in Zimbabwe: lessons from a failed agricultural development strategy', *World development*, vol. 25, no. 3, pp 437-456.
- Anderson, E. 1985, 'The salesperson as outside agent or employee: a transaction cost analysis', *Marketing Science*, vol. 4, no. 3, pp 234-254.
- Arcas-Lario, N. and Hernandez-Espallardo, M. 2003, 'Co-ordination and performance of Spanish second level agricultural cooperatives: the impact of relationship characteristics', *European Review of Agricultural Economics*, vol. 30, no. 4, pp 487.
- Arie Kuyvenhoven, 2004. Creating an enabling environment: policy conditions for less-favored areas. *Food Policy* 29 (2004) 407-429
- Arrow, K J (1962) 'Economic welfare and the allocation of resources for invention' *The Rate and Direction of Inventive Activity*, Princeton University Press, Princeton, pp 609-625
- Balakrishnan, S. and Wernerfelt, B. 1986, 'Technical change, competition and vertical integration', *Strategic Management Journal*, vol. 7, no. 4, pp 347-359.
- Banerjee, A., D. Mookherjee, K. Munshi, and D. Ray. 2001. Inequality, control rights, and rent seeking: Sugar cooperatives in Maharashtra. *Journal of Political Economy* 109 (1): 138-190.
- Barham, J. and Chitemi, C., 2009. Collective action initiatives to improve marketing performance: Lessons from farmer groups in Tanzania
- Barton, D. 2000, 'Principles, Legal Forms and Public Policy', *Cooperatives: An Economic and Management Perspective. Online edition.*
- Barzel, Y. 1982, 'Measurement cost and the organization of markets', *Journal of law and economics*, pp 27-48.
- Bebbington, Anthony, "Sharecropping agricultural development, The potential for GSO government cooperation," *Grassroots Development*, Vol. 15, No. 2 (1991), pp. 21-30.
- Bebbington, A., 1996. Organizations and intensifications: Campesino federations, rural livelihoods and agricultural technology in the Andes and Amazonia. *World Development* 24 (7), 1161-1177.
- Bhuyan, S., 2007. The "People" Factor in Cooperatives: An Analysis of Members' Attitudes and Behavior *Canadian Journal of Agricultural Economics* 55 (2007) 275-298
- Berlin and Eriksson, 2007. A Comparison Of Characteristics Of Forest and Farm Cooperative Members
- Berdegúe, J. 2001, 'Cooperating to compete: associative peasant business firms in Chile', *Universidad de Wageningen*, Holanda.
- Bernard, T., Gabre-Madhin, E. and Taffesse, A. 2007, 'Smallholders' commercialization through cooperatives: A diagnostic for Ethiopia', *IFPRI discussion papers*.
- Bernard, T. and Spielman, D. 2009, 'Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia', *Food Policy*, vol. 34, no. 1, pp 60-69.
- Bernard, T., Taffesse, A. and Gabre-Madhin, E. 2008, 'Impact of cooperatives on smallholders' commercialization behavior: evidence from Ethiopia', *Agricultural Economics*, vol. 39, no. 2, pp 147-162.
- Bijman, J. and Wollni, M. 2008, 'Producer organizations and vertical coordination: an economic organization theory perspective'. *International Conference on Cooperative Studies (ICCS)*, 7-9 Oct., Köln, Germany
- Blandon, J., Henson, S. and Cranfield, J. 2009, 'Small-scale farmer participation in new agri-food supply chains: Case of the supermarket supply chain for fruit and vegetables in Honduras', *Journal of International Development*, vol. 21, no. 7, pp 971-984.
- Cain J. L., Toensmeyer U. C., and Ramsey S. (1989). Co-operative and Proprietary Firm Performance as Viewed by their Customers. *Journal of Agricultural Co-operation*, 4, pp81 - 89.
- Carson, S., Madhok, A., & Wu, T.(2006). Uncertainty, opportunism, and governance: The effects of volatility and ambiguity on formal and relational contracting', *The Academy of Management Journal*, 49 (5), pp 1058-1077.
- Chirwa, E., Dorward, A., Kachule, R., Kumwenda, I., Kydd, J., Poole, N., Poulton, C. and Stockbridge, S. 2005, 'Walking tightropes: Supporting farmer organisations for market access'.
- Colin Thirtle and Ruben G. Echeverria, 1994. Privatization and the roles of public and private institutions in agricultural research in sub-Saharan Africa. *Food Policy* 19 (1) 31-44
- Cook, M.L. and M. Chambers (2007) 'Role of Agricultural Cooperatives in Global Netchains', Working Paper for the Montpellier Workshop organised by INRA-MOISA and Wageningen University. Montpellier, France: INRA-MOISA.
- Cook, M. 1995, 'The future of US agricultural cooperatives: A neo-institutional approach', *American Journal of Agricultural Economics*, pp 1153-1159.
- DAVID KAIMOWITZ, 1993. The Role of Nongovernmental Organizations in Agricultural Research and Technology Transfer in Latin America. *World Development*, Vol. 21, No. 7, pp. 1139 - 1150,1993

- Deininger, K. 1995. Collective agriculture production: A solution for transition economies? *World Development* 23 (8): 1317–1334.
- De Janvry, A., Fafchamps, M., Sadoulet, E., 1991. Peasant household behavior with missing markets: Some paradoxes explained. *The Economic Journal* 101, 1400–1417.
- Devaux, A., Horton, D., Velasco, C., Thiele, G., López, G., Bernet, T., Reinoso, I. and Ordinola, M. 2009, 'Collective action for market chain innovation in the Andes', *Food Policy*, vol. 34, no. 1, pp 31-38.
- Develtere, P., Pollet, I. and Wanyama, F. 2008, 'Cooperating out of poverty', *The renaissance of the African cooperative movement*. Geneva: *ILO*.
- EIAR (Ethiopian Institute of Agricultural Research) 2008, 'Root and Tuber Crops: The Untapped Resources', *Addis Ababa*, Ethiopia.
- Endale, G., W. Gebremedhin, K. Bekele, and B. Lemaga. 2008b. Post harvest management. In *Root and tuber crops: The untapped resources*, ed. W. Gebremedhin, G. Endale, and B. Lemaga, 113–130. Addis Abeba: Ethiopian Institute of Agricultural Research.
- FAO. 2008. Potato World: Africa—International Year of the Potato 2008. <http://www.potato2008.org/en/world/africa.html>. Date of accession: 1/1/2009.
- FDRE (Federal Democratic Republic of Ethiopia) 1998, 'Co-operative Societies Proclamation No.147', *Negarit Gazeta* 29th December, 1998, *Addis Ababa*, Ethiopia.
- Francesconi, G. and Ruben, R. 2007, 'Impacts of Collective Action on Smallholders' Commercialisation: Evidence from Dairy in Ethiopia', *European Association of Agricultural Economists*.
- Gabre-Madhin, E. 2001, Market institutions, transaction costs, and social capital in the Ethiopian grain market, *Intl Food Policy Research Inst*.
- Gächter, S. and Fehr, E. 1999, 'Collective action as a social exchange', *Journal of Economic Behavior and Organization*, vol. 39, no. 4, pp 341-369.
- Galbraith John, K. 1956, 'American Capitalism: The Concept of Countervailing Power', Boston: *Houghton Mifflin*.
- Gebremedhin, W., G. Endale, and B. Lemaga. 2008. Potato variety development. In *Root and tuber crops: The untapped resources*, ed. W. Gebremedhin, G. Endale, and B. Lemaga, 15–32. Addis Abeba: Ethiopian Institute of Agricultural Research
- Geyskens, I., Steenkamp, J. and Kumar, N. 2006, 'Make, buy, or ally: a transaction cost theory meta-analysis', *Academy of management journal*, vol. 49, no. 3, pp 519.
- Gildemacher, P., W. Kaguongo, O. Ortiz, A. Tesfaye, W. Gebremedhin, W.W. Wagoire, R. Kakuhenzire, P. Kinyae, M. Nyongesa, P.C.
- Gulati, A., Minot, N., Delgado, C. and Bora, S. 2007, 'Growth in high-value agriculture in Asia and the emergence of vertical links with farmers', *Global Supply chains, standards and the poor: how the globalization of food systems and standards affects rural development and poverty*, pp 91-108.
- Hakelius K. (1996). *Cooperative Values – Farmers' Cooperatives in the Minds of the Farmers*. Department of Economics, Swedish University of Agricultural Sciences, Dissertation no. 23.
- Harris, A., Stefanson, B. and Fulton, M. 1996, 'New generation cooperatives and cooperative theory', *Journal of Cooperatives*, vol. 11, pp 15-28.
- Heide, J. and John, G. 1990, 'Alliances in industrial purchasing: the determinants of joint action in buyer-supplier relationships', *Journal of marketing Research*, vol. 27, no. 1, pp 24-36.
- Hellin, J., Lundy, M. and Meijer, M. 2009, 'Farmer organization, collective action and market access in Meso-America', *Food Policy*, vol. 34, no. 1, pp 16-22.
- Holloway, G., Nicholson, C., Delgado, C., Staal, S. and Ehui, S. 2000, 'Agroindustrialization through institutional innovation Transaction costs, cooperatives and milk-market development in the east-African highlands', *Agricultural Economics*, vol. 23, no. 3, pp 279-288.
- Horton, D. and Fano, H. 1985, *Potato atlas*, *International Potato Center*.
- Hueth, B. and Marcoul, P. 2003, 'An essay on cooperative bargaining in us agricultural markets', *Journal of Agricultural and Food Industrial Organization*, vol. 1, no. 1.
- IGEMP (Imperial Government of Ethiopia Ministry of Pen) 1966, 'Co-operative Societies Proclamation No.241', *Negarit Gazeta* 3rd September, 1966, *Addis Ababa*, Ethiopia.
- Iliopoulos, C. and Cook, M. 1999, 'The Internal Organization of the Cooperative Firm: *An Extension of a New Institutional Digest*'.
- Jaffee, S. and Morton, J., 'Transaction costs, risk and the organization of private sector food commodity systems'. John Farrington, 1995. The changing public role in agricultural extension. *Food Policy*, Vol. 20, No. 6, pp. 537-544
- John Farrington and Stephen D. Biggs, 1990. NGOs, agricultural technology and the rural poor. *FOOD POLICY*
- Jones, E. 2004, 'Wealth-based trust and the development of collective action', *World development*, vol. 32, no. 4, pp 691-711.
- Jayne, T. S., and S. Jones. 1997. Food marketing and pricing policy in eastern and southern Africa: A survey. *World Development* 25 (9): 1505–1527.
- Kaganzi, E., Ferris, S., Barham, J., Abenakyo, A., Sanginga, P. and Njuki, J. 2009, 'Sustaining linkages to high value markets through collective action in Uganda', *Food Policy*, vol. 34, no. 1, pp 23-30.
- Key, N., Sadoulet, E., de Janvry, A., 2000. Transactions costs and agricultural household supply response. *Am. J. Agric. Econ.*

- 82 (1), 245–259.
- Klein K. K., Richards T. J., and Walburger A. (1997). Determinants of Cooperative Patronage in Alberta. *Canadian Journal of Agricultural Economics*, 45, 2, pp 93-110, July 1997.
- Kodama, Y. 2007, 'New role of cooperatives in Ethiopia: the case of Ethiopian coffee farmers cooperatives', *African Study Monographs*, vol. 35, pp 87-108.
- Kohls, R.L. and Uhl, J.N. (2002). *Marketing of Agricultural Products*. New York: Macmillan.
- Macher, J. and Richman, B. 2008, 'Transaction cost economics: An assessment of empirical research in the social sciences', *Business and Politics*, vol. 10, no. 1, pp 1-63.
- Machethe, C.L. (1990). Factors contributing to poor performance of agricultural co-operatives in less developed areas. *Agrekon* 29(4):305-309.
- Masten, S. E. and Saussier, S. 2000, 'Econometrics of contracts: an assessment of developments in the empirical literature on contracting', *REVUE D ECONOMIE INDUSTRIELLE-PARIS-EDITIONS TECHNIQUES ET ECONOMIQUES*-, pp 215-236.
- Ménard, C. 2004, 'The economics of hybrid organizations', *Journal of Institutional and Theoretical Economics*, vol. 160, pp 345-376.
- Mulatu, E., Ibrahim, O. and Bekele, E. 2005, 'Improving Potato Seed Tuber Quality and Producers' Livelihoods in Hararghe, Eastern Ethiopia', *Journal of New Seeds*, vol. 7, no. 3, pp 31-56.
- Myers, A. 2004, 'Old Concepts Revisited: Are Cooperatives the Way Forward for Smallholder Farmers to Engage in International Trade?', *London School of Economics and Political Science*, University of London. unpublished dissertation.
- Narayanan, S. and Gulati, A. 2002, 'Globalization and the smallholders', *MTID discussion papers*.
- Narrod, C., Roy, D., Okello, J., Avendaño, B., Rich, K. and Thorat, A. 2009, 'Public-private partnerships and collective action in high value fruit and vegetable supply chains', *Food Policy*, vol. 34, no. 1, pp 8-15.
- Neven, D., Reardon, T. and Hopkins, R. 2005, 'Case studies of farmer linking to dynamic markets in Southern Africa: The Fort Hare farmers group', *Michigan State University*.
- Noordewier, T., John, G. and Nevin, J. 1990, 'Performance outcomes of purchasing arrangements in industrial buyer-vendor relationships', *The Journal of Marketing*, vol. 54, no. 4, pp 80-93.
- Ortmann, G. and King, R. 2007, 'Agricultural cooperatives II: Can they facilitate access of small-scale farmers in South Africa to input and product markets?', *Agrekon*, vol. 46, no. 2, pp 219-244.
- Ostrom, E., 1990. *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge, UK.
- PMAC (Provisional Military Administrative Council) 1978, 'Co-operative Societies Proclamation No. 138', *Negarit Gazeta* 3rd March, 1978, *Addis Ababa*, Ethiopia.
- Poulton, C., Dorward, A. and Kydd, J. 2005, 'The future of small farms: New directions for services, institutions and intermediation'.
- Rindfleisch, A. and Heide, J. 1997, 'Transaction cost analysis: past, present, and future applications', *The Journal of Marketing*, vol. 61, no. 4, pp 30-54.
- Royer, J. 1999, 'Cooperative organizational strategies: a neo-institutional digest'.
- Runsten, D. and Key, N. 1996, 'Contract farming in developing countries: theoretical aspects and analysis of some Mexican cases', Report prepared for the United Nations Economic Commission for Latin America and the Caribbean, *Santiago*, Chile.
- Sandler, T. 1992, *Collective action: Theory and applications*, *Univ of Michigan Pr.*
- Sexton, R. and J. Iskow 1988. *Factors Critical to the Success or Failure of Emerging Agricultural Cooperatives*. Giannini Foundation Information Series No. 88-3, Department of Agricultural Economics, University of California – Davis, CA.
- Simon, H. 1957, 'Administrative Behavior: A Study of Decision-Making Processes', *Administrative Organization*, vol. 2.
- Staal, S., Delgado, C. and Nicholson, C. 1997, 'Smallholder dairying under transactions costs in East Africa', *World development*, vol. 25, no. 5, pp 779-794.
- Staatz, J. 1987, 'Farmers' incentives to take collective action via cooperatives: A transaction cost approach', *Cooperative theory: New approaches*, vol. 18, pp 87–107.
- Stockbridge, M., Dorward, A., Kydd, J., 2003. *Farmer Organizations for Market Access: Learning from Success*. Briefing Paper. Wye College, University of London, UK
- Stockbridge, M., Dorward, A., Kydd, J., Morrison, J. and Poole, N. 2003, 'Farmer organization for market access: *International review*', *Briefing paper*.
- Stump, R. and Heide, J. 1996, 'Controlling supplier opportunism in industrial relationships', *Journal of marketing Research*, vol. 33, no. 4, pp 431-441.
- Struik, and C. Leewis. 2009a. Improving potato production in Kenya, Uganda and Ethiopia. *Potato Research* 52: 173–205.
- Struik, PC and SG Wiersema. 1999. *Seed potato technology*: Wageningen Pers.
- Sykuta, M.E. and M.L. Cook (2001) 'Cooperative and Membership Commitment: A New Institutional Economics Approach to Contracts and Cooperatives', *American Journal of Agricultural Economics*, 83: 1273–79.

- Tanguy Bernard, David J. Spielman, Alemayehu Seyoum Taffesse, and Eleni Z. Gabre-Madhin (2010). Cooperatives for Staple Crop Marketing: *Evidence from Ethiopia*. RESEARCHMONOGRAPH 164. Washington D.C.: International Food Policy Research Institute.
- Tesfaye, A.B., K. Bedane, C. Yirga, and W. Gebremedhin. 2008. Socioeconomics and technology transfer. In Root and tuber crops: The untapped resources, ed. W. Gebremedhin, G. Endale, and B. Lemaga, 131–152. Addis Abeba: Ethiopian Institute of Agricultural Research.
- Thorp, R., Stewart, F., Heyer, A., 2005. When and how far is group formation a route out of chronic poverty? *World Development* 33 (6), 907–920.
- Valentinov, V. 2007, 'Why are cooperatives important in agriculture? An organizational economics perspective', *Journal of Institutional Economics*, vol. 3, no. 01, pp 55-69.
- Vermillion, D. 1999, 'Property rights and collective action in the devolution of irrigation system management', *Collective Action, Property Rights and Devolution of Natural Resources Management*. Food and Agriculture Development Center.
- Vorley, W., Vorley, B., Fearn, A. and Ray, D. 2007, Regoverning markets: a place for small-scale producers in modern agrifood chains? *Gower Publishing Company, Limited*.
- Walker, G. and Weber, D. 1987, 'Supplier competition, uncertainty, and make-or-buy decisions', *Academy of management journal*, pp 589-596.
- Wadsworth, J. 2001. Keep the co-op candle burning. *Rural Cooperatives* 68 (2): 19–20, 30.
- Walta Information Center (WIC), August 2009 report.
- Williamson, O. 1985, 'The Economic Institutions of Capitalism: Firms', Markets, Relational Contracting, *New York*.
- Williamson, O. 2003, 'Examining economic organization through the lens of contract', *Industrial and Corporate Change*, vol. 12, no. 4, pp 917.
- Williamson, O. E. 2002, 'The theory of the firm as governance structure: from choice to contract', *Journal of Economic Perspectives*, vol. 16, no. 3, pp 171-195.
- Winters, P., Simmons, P. and Patrick, I. 2005, 'Evaluation of a hybrid seed contract between smallholders and a multinational company in East Java, Indonesia', *Journal of Development Studies*, vol. 41, no. 1, pp 62-89.
- World Bank, 2007. World Development Report 2008. World Bank, Washington, DC