

2. Linking smallholder farmers to high quality food chains: appraising institutional arrangements

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Abstract

Although markets for high quality products might represent an interesting outlet for smallholder farmers from developing countries, access to those markets is challenging, as appropriate institutions helping farmers to comply with quality requirements are often missing. To overcome the institutional constraints and to link smallholders to markets, three types of institutional arrangements are often proposed: contract farming, producer organisations and partnerships. While many publications have explored the merits of each of these arrangements, a systematic comparison and evaluation of all three has not been done, particularly from the perspective of the constraints that smallholders face when seeking to improve product quality. In this chapter, we seek to make such evaluatory comparison. To do so, we first identify the most limiting institutional constraints faced by smallholder farmers related to quality improvement. Second, we provide an overview of each arrangement's ability to address these constraints. Third, we determine how combinations of the three arrangements can be used effectively in quality improvement in smallholder value chains.

Keywords: contract farming, producer organisation, partnerships, institutional environment, quality improvement, developing countries, food chains

2.1 Introduction

In both the development economics and the development practice literature, linking smallholder farmers to formal markets is a widely discussed topic. One of the main challenges for smallholder farmers is that formal markets, both domestic and export, have increasingly strict requirements in terms of quality, certification, traceability, minimum quantity, product uniformity, delivery times and food safety (Hatanaka *et al.*, 2005; Reardon and Barrett, 2000). These can be summarised as increased specifications regarding (1) product attributes, (2) process attributes, and (3) transaction attributes (Jaffee *et al.*, 2011). High quality food chains, such as those for fresh fruit and vegetables, fish and fish products, meat, nuts, spices and floriculture,

make up a rapidly growing share of international trade in agricultural products from developing country suppliers (World Bank, 2007). National and international formal markets have the potential to increase the welfare of those smallholders that succeed in positioning themselves competitively (Jaffee and Henson, 2005; Maertens and Swinnen, 2009). However, several constraints prevent them from actually meeting the quality requirements (Poulton *et al.*, 2010). In addition to a lack of productive assets, low degree of education and poor infrastructure, smallholder farmers face important institutional constraints that prevent them from producing for and transacting in high quality food chains (Dorward *et al.*, 2005; World Bank, 2007).

In order to benefit from high value formal markets, smallholder farmers need to find solutions to the constraints they experience both in upgrading their production and in accessing input and output markets. The development literature generally distinguishes between three types of institutional arrangements that can help smallholder farmers to overcome those constraints: contract farming (CF), producer organisations (PO), and partnerships.

The first arrangement, CF, is not new for traditional cash crops like cotton, tea and tobacco, but has become more important because of the increasing need for vertical coordination in value chains (Swinnen and Maertens, 2007; Jia and Bijman, 2014). CF can support quality upgrading both by providing farmers with the appropriate inputs and credit, and by providing a guaranteed market for the high value products. The second arrangement concerns collective action in POs. By setting up or joining a bargaining association or cooperative, farmers can reduce the transaction costs resulting from a weak bargaining position and a lack of market information. Although cooperatives and other types of POs have a mixed record of supporting smallholder farmers, they have received renewed attention as suitable organisational solutions in a liberalised economy (Bijman *et al.*, 2016; World Bank, 2007). Partnerships, often referred to as public-private partnerships, represent the third institutional arrangement. Partnerships aim to fill institutional voids by improving the division of labour in global food chains based on the complementarity of different actors. Roles that were traditionally played by one actor can benefit from being shared with, or transferred to, other actors (Kolk *et al.*, 2008; Narrod *et al.*, 2009).

Despite their different core characteristics, all three types of institutional arrangements reflect a degree of alignment between farmers and markets. All three arrangements feature prominently in the recent popularity of value chain approaches among scholars (Gereffi, 1999; Gereffi *et al.*, 2005; Kaplinsky, 2000; Trienekens, 2011), development agencies (Altenburg, 2007; Donovan *et al.*, 2015) and international organisations (e.g. FAO, ILO). Value chain approaches focus on the interactions among the economic actors that together constitute the value chain, on the role of so-called lead firms, and on the opportunities and barriers for smallholders to benefit from participation in modern value chains. In addition, all three arrangements mirror an enhanced market orientation in public policies supporting smallholder farmers. Benefitting from the opportunities offered by domestic and export markets presupposes adequate

2. Linking smallholder farmers to high quality food chains

knowledge of and ability to comply with customers' requirements. Thus, value chains are no longer about selling what smallholder farmers produce, but about what customers demand (Humphrey and Navas-Alemán, 2010). Finally, all three types of institutional arrangements reflect the increased attention to closer coordination between different chain actors. Higher levels of explicit coordination, both vertically between different actors along the chain and horizontally among producers or among various actors outside the chain who support those producers, have become a key condition to access high value markets (World Bank, 2007).

From the great wealth of empirical studies found in the literature, we can conclude that one of the most relevant questions is not whether, but how the different institutional arrangements play a role in linking farmers to markets. Moreover, given the high expectations among practitioners about these arrangements, a literature review of their tangible effects on quality would be most appropriate. This chapter thus aims to make three distinct contributions. Firstly, while there is a growing amount of literature on these institutional arrangements more generally, the three types have not yet been systematically evaluated from the perspective of improving product quality in smallholder value chains. By focusing specially on quality constraints, we seek to analyse in how far the current popularity of the three institutional arrangements in development practice matches the supply chain reality, where alignment between quality produced and quality demanded is a key requirement for market access and competitiveness. Secondly, by comparing the three institutional arrangements, we will provide an overview of their ability to address the institutional constraints to quality improvement faced by smallholder farmers. As we focus on institutional instead of individual constraints, we abstract from the lack of individual assets and capabilities and from individual solutions. Thirdly, rather than understanding each of the institutional arrangements in isolation, the paper seeks to determine how and under what conditions combinations of the three arrangements can be used effectively in quality improvement. These findings will help to identify key areas for development interventions in linking smallholder farmers to high quality markets.

The chapter is structured as follows. Section 2.2 presents our conceptual framework, notably the concepts of institutions and the institutional constraints related to quality improvement and coordination. In Section 2.3, we present the institutional arrangements that we study, namely CF, POs, and partnerships. Each arrangement is assessed from the perspectives of alleviating quality constraints and contributing to (smallholder) development. Section 2.4 identifies the interactions among and possible combinations of the three institutional arrangements. Section 2.5 reflects on the key findings of this literature review and concludes with recommendations for development policy and development interventions.

2.2 Institutional constraints to quality improvement

Although markets for high quality products might represent an interesting outlet for smallholder farmers in developing countries, access to those markets remains challenging, often caused by a lack of appropriate institutions to help farmers comply with quality requirements. Institutions can broadly be understood as the rules of the game in a society; they enable, direct and constrain human behaviour (North, 1990). Institutions create reliability in human interactions and thereby decrease uncertainty in commercial exchange, hence reducing transaction costs¹. Low cost exchange, in turn, supports specialisation and division of labour, which is one of the foundations of economic development. Throughout the chapter, we use the two terms ‘institutional environment’ and ‘institutional arrangement’ (Davis and North, 1971). The institutional environment refers to the macro institutions such as a political order, judicial system, education system, and a certain level of trust in society. Institutional arrangements refer to the modes of organising and coordinating production and exchange activities within a given institutional environment.

In many developing countries, a weak institutional environment entails low information availability, high coordination costs and high risks (Dorward *et al.*, 2003). In addition, many farmers, particularly those in remote areas, face inadequate transport and storage facilities, and poor telecommunication networks. Poor physical infrastructure significantly raises transaction costs and negatively affects the production and marketing options of farmers (Barrett, 2008; Fafchamps and Hill, 2005). This is particularly true for farmers seeking to produce high quality products as these are often perishable products. Poor infrastructure thus leads to problems of quality deterioration and high food losses (World Bank, 2007). Unfortunately, in many developing countries, especially in Africa, government investment in physical infrastructure and other key public goods in rural areas has declined over the past decades (Jayne *et al.*, 2010).

Next to a weak institutional environment, smallholder farmers face constraints that relate to their access to input and output markets, to credit and information, and to technical assistance and innovation options. Such access is severely constrained, as markets do not function well, the quality of extension is low, and necessary (market) information is lacking. Again, farmers seeking to produce for high value markets are more likely to be constrained by the lack of enabling institutions. We use the term ‘institutional constraint’ to emphasise that solutions cannot be expected from individual farmers, but need some form of collective action. Figure 2.1 shows the various institutional constraints experienced by smallholder farmers. On the input side, these constraints relate to the lack of inputs, financial services and extension services. On the output side, lack of market information, quality control and inspection,

¹ Transaction costs are considered as the costs of contracting, of performing an economic exchange. They consist of *ex ante* and *ex post* costs. *Ex ante* costs are basically search, bargaining and contract writing costs. *Ex post* costs are enforcement, monitoring, maladaptation and contract breach costs.

2. Linking smallholder farmers to high quality food chains

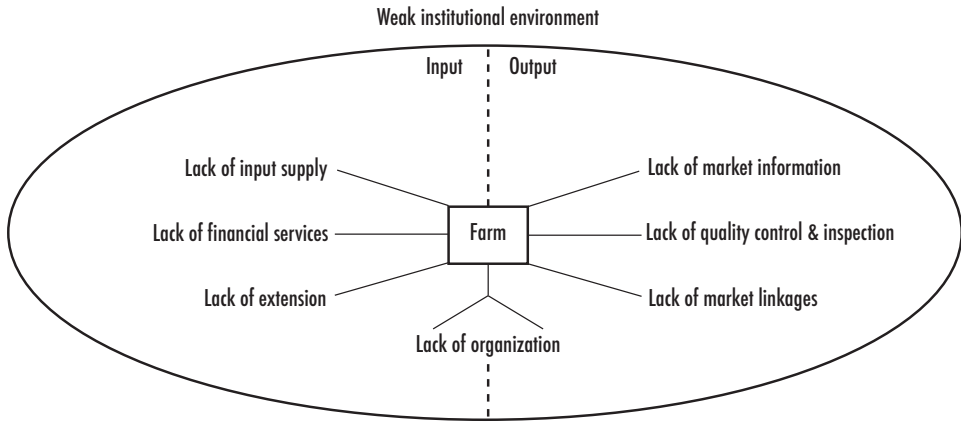


Figure 2.1. Institutional constraints faced by smallholder farmers.

and linkages to output markets constitute the main institutional constraints. The lack of horizontal organisation (i.e. among producers) concerns both input and output markets. We will now discuss each of these seven institutional constraints in more detail.

The first constraint is the lack of financial services, including credit, savings and insurance. Formal credit institutions are usually out of reach for smallholders due to the lack of collateral and the informal nature of most trade arrangements. This makes these producers high risk borrowers, leading to excessively high interest rates, as lenders must substitute costly monitoring for the lack of collateral (World Bank, 2007). In addition, transaction and monitoring costs are particularly high as farmers are geographically dispersed, transactions are small and infrequent, and risks of moral hazard and covariance (e.g. related to weather conditions) are considerable (Kirsten *et al.*, 2009; Poulton *et al.*, 2010).

The consequence of difficult access to finance is a low ability to make the necessary investments for switching to other crops, other varieties or other production methods. Non-traditional high quality crops require significant investments in inputs, improved production and processing technology, and technical expertise (e.g. Jaffee and Masakure, 2005; Key and Runsten, 1999). In a study on fresh vegetable producers in Kenya, Muriithi *et al.* (2011) found that the lack of capital to cover the high costs of certification with GlobalGAP and the high costs of the recommended inputs acted as a major constraint for compliance with customers' demands. This confirms earlier findings that especially for 'risky' products, such as perishable fresh fruit and vegetables, smallholders face great difficulties in making the needed investments by themselves to link up with formal markets (e.g. Berdegue *et al.*, 2005).

A second institutional constraint is the lack of inputs, such as fertilisers, high quality planting material, pesticides, equipment, and growth regulators. High quality input material is a crucial prerequisite for farmers to achieve high product quality. However, there are fundamental problems with supply and demand. Liberalisation of state controlled input supply systems and recent cutbacks in public seed distribution systems have reduced the quality and quantity of inputs offered by state agencies, whilst the private sector has not always stepped in to fill the gap to cater for the needs of smallholder farmers (World Bank, 2007). At the same time, demand for inputs by smallholders is low and uncertain due to farmers' lack of cash liquidity and the small scale of transactions. Furthermore, high input prices combined with uncertain output prices undermine the benefits of high quality inputs (Kydd and Dorward, 2001: 473). Such constraints hinder smallholder farmers from enhancing productivity and improving the quality of their product to meet market requirements.

A third constraint is the lack of (appropriate) extension and technical assistance. Agro-food chains have evolved rapidly in recent years, and demands on suppliers have risen substantially. However, smallholder farmers often lack the knowledge about optimal production, harvesting, processing and storage techniques, especially with regard to high quality crops, as these are often new to farmers. Agricultural extension services have the task to translate knowledge generated at research institutes to the practice of farmers. Accordingly, smallholder farmers with access to extension services have been found to be more likely to adopt new technology and invest in new market trends, such as certification (Asfaw *et al.*, 2010; Muriithi *et al.*, 2011). However, public extension services in developing countries only reach a minority of smallholder farmers and are often not tailored to their needs, strategies and resource constraints (Poulton *et al.*, 2010). In addition, extension agents often lack relevant crop-specific knowledge and have weak incentives to make real impact (Spielman *et al.*, 2010; World Bank, 2007). Thus, public services do not fill the need for technical assistance in a way that is adequate to improve smallholders' production and processing practices to enter high quality product chains (Berdegué *et al.*, 2005).

A fourth constraint is the lack of horizontal organisation among smallholders, due to lack of trust, lack of organising skills and relatively high governance costs of collective organisations. On an individual basis, smallholder access to high quality markets is constrained by small and infrequent transactions, aggravated by generally low bargaining power (Dorward *et al.*, 2003). Hence, some kind of collective action is often needed to benefit from economies of scale and scope and to reduce transaction costs (e.g. Markeleva *et al.*, 2009). POs could reduce the transaction costs associated with accessing inputs, information, technology, and credit, and they can assist with processing and marketing activities. This enables farmers to compete with larger producers of high quality products, and improves their bargaining power vis-à-vis buyers. Section 2.3.2 will further elaborate on the pros and cons of POs.

A fifth constraint is a lack of market information. Transacting in high quality value chains requires having information on customers' demands, prices, grade specifications,

2. Linking smallholder farmers to high quality food chains

storage and transport facilities, etc. However, in many developing countries, market information systems are absent or performing poorly due to inadequate financing and unreliable and inaccurate data (Gabre-Madhin, 2009). Existing services are usually limited to low-value commodities, and are ill-equipped to provide information on high quality products for domestic or export markets (Shepherd, 2007). Lacking market information may prevent smallholders from making investments in specific production techniques to comply with customer demands. Okello and Swinton (2007) report that the lack of knowledge of farmers about their own product quality also leads to problems of price holdup, as buyers are able to reject products based on supposed quality problems, especially during periods of oversupply.

A sixth institutional constraint for farmers producing for high quality markets concerns the lack of quality control and inspection services. In order to participate in these markets, farmers must be able to demonstrate compliance with specific production and harvesting protocols. Access to certification, auditing, quality control and laboratory services might be critical to verify assured compliance with buyers' requirements (Jaffee *et al.*, 2011). However, auditing and certification services are expensive as they have strong economies of scale (Raynolds, 2004). Many countries lack the technical facilities and service providers necessary for quality control. Thus, countries with established quality support services have been found to have a comparative advantage when it comes to complying with changing consumer and retail preferences. Henson *et al.* (2011) found that firms in countries with existing quality control services are more likely to have achieved GlobalGAP certification for horticultural exports as compared to countries that have newly established control services. Similarly, Jaffee *et al.* (2011) state that one of the key problems with efforts to scale up projects promoting the use of private standards in developing countries is the inadequate availability of standards-related services.

The final institutional constraint relates to the lack of market linkages, which is often caused by the remoteness and dispersion of rural production and by low production volumes of individual farmers. Market linkages may also be hindered by monopolistic practices, corruption, and low market trust. Moreover, the quality of smallholders' products is often uneven and uncertain, making private companies reluctant to procure from smallholder producers. Studies suggest that supermarkets' procurement practices are often biased in favour of large and medium scaled suppliers given the lower costs and risks of doing business with them (Berdegué *et al.*, 2005; Weatherspoon and Reardon, 2003).

In conclusion, each of the seven institutional constraints described above has serious implications for the opportunities that smallholders have in benefitting from quality upgrading. Table 2.1 summarises the main institutional constraints and their effect on quality improvement.

It needs to be emphasised that these institutional constraints are interrelated and even interdependent. For instance, credit is often needed to buy inputs, while technical

Table 2.1. Main institutional constraints for quality improvement.

Institutional constraint	Effect on quality improvement (QI)
Lack of financial services	QI requires additional financial investments in inputs, cultivation practices and crop handling
Lack of inputs	QI requires additional and often specialised inputs, e.g. seeds, fertilisers and pesticides
Lack of extension services	QI requires specialised technical advice and training
Lack of organisation	QI requires the reduction of vulnerability of smallholders farmer to transaction risks
Lack of market information	QI requires the availability of information on market demands and on customer requirements
Lack of quality control and inspection services	QI requires effective and affordable quality control systems
Lack of market linkages	QI requires the availability of market linkages to create outlets for smallholders' products

assistance is necessary for effective and efficient use of those inputs. Access to high quality markets requires on-farm investments that only pay back if farmers are able to demonstrate compliance with quality standards through certification. However, obtaining certification may be difficult without support from extension services or other providers of technical assistance, and without access to credit. Hence, the solution to these institutional constraints calls for complementary coordination of market activities (Dorward *et al.*, 2003; Kydd and Dorward, 2004). Input- and output-related services to smallholder producers need to be coordinated 'so that individual investors are assured that their investments will not fail as a result of other investors either failing to make complementary investments or behaving opportunistically' (Poulton *et al.*, 2006: 266). Only when several institutional constraints are solved simultaneously will smallholder farmers be able to improve quality and successfully participate in high quality agrifood chains.

2.3 Evaluating institutional arrangements from a quality improvement perspective

The complementarity of the institutional constraints calls for concerted action to ensure that coordination problems are solved. As Kydd and Dorward (2004) argue, the necessary action will not be achieved by market mechanisms alone, especially not in rural areas with thin markets. Therefore, different institutional arrangements have emerged as solutions. Among these arrangements, CF, POs and partnerships have been used substantially in development practice and have received considerable attention from academics and policy makers. Each of these arrangements may reduce institutional constraints by establishing market linkages (e.g. linking buyers and producers, assisting in negotiation, providing information on quality requirements), setting up training and technical assistance, supporting the development of POs,

providing access to input markets including credit, and facilitating quality assurance and certification. However, a debate among both academics and practitioners persists on the question what type of institutional arrangement is most promising for integrating smallholders in high quality value chains and thereby providing better income opportunities for smallholder farmers. More specifically, the debate centres on the question what institutional arrangement is most appropriate under what technical, social and economic conditions. Based on a review of the literature, we will discuss, in the following subsections, each of the three institutional arrangements, their key characteristics, and their impact on quality improvement.

2.3.1 Contract farming

CF arrangements or outgrower schemes² form one type of institutional arrangement that can be used to improve the quality of farm products. More specifically, CF can be a solution to the various institutional constraints for quality upgrading as listed above. CF has been defined as an agreement between one or more farmer(s) and a contractor for the production and supply of agricultural products under forward agreements, frequently at predetermined prices (Eaton and Shepherd, 2001). The contractor is usually a trading company or a processing company. By contracting with (smallholder) farmers, these buyers make sure they will receive the right quantity and quality for the processing plant or for fulfilling downstream contractual agreements with retailers.

CF arrangements have three distinct functions (Hueth *et al.*, 1999; Sykuta and Cook, 2001; Wolf *et al.*, 2001). First, they serve as a coordination device, allowing each chain actor to make decisions (e.g. on resource allocation) that are aligned with the decisions of the other actors. Coordination is meant to ensure that products of the right quantity and quality are produced and delivered at the right time and place. Second, contracts are used to clarify and agree upon the incentives and penalties that motivate performance. Without proper incentives for each contract partner, no transaction will take place. Particularly when the contractor demands specific investments from the farmer, for instance in the case of high quality, the contract clarifies what compensation the farmer will obtain for this investment. Third, the contract arranges the allocation of risk. As producer and buyer usually have different risk preferences, the contract can shift risk from the risk-averse to the risk-neutral partner. For example, farmers can mitigate the risk of income loss due to poor yield by signing an agreement with a contractor that specifies a portion of compensation independent of the yield realised.

CF is often presented as an institutional arrangement for organising vertical coordination in the value chain, notably between producers and their buyers (Jia and Bijman, 2014; Swinnen and Maertens, 2007). Vertical coordination means that

² In most of the literature, 'outgrower schemes' and 'contract farming arrangement' are used interchangeably; we will also use these terms as synonyms.

the activities of producers and buyers are closely aligned. As food value chains are characterised by sequential transactions, vertical coordination implies that the transaction upstream (e.g. between producer and processor) is aligned with the transaction downstream (e.g. between processor and distributor). In food chains, upstream and downstream transactions have become increasingly interdependent because processors and distributors use consumer brands to strengthen their competitiveness. To protect a brand from devaluation, processors and distributors seek to control those transactions upstream in the value chain that can affect the value of the brand. Thus, CF is a tool for vertical coordination, not only between farmers and their primary customers, but for the whole food chain.

More vertical coordination between seller and buyers is particularly needed for high-value products, highly perishable products and for technically difficult products (Goldsmith, 1985; Minot, 1986). First, for products with high value, variation in quality has important economic implications. Customers of these products are often willing to pay a premium for a specific product, variety or attribute, as well as for consistent quality. This premium covers the additional cost of producing and the cost of the CF arrangement. Often, farm-level investments in human and physical capital, or specialised inputs are needed to obtain the desired quality level. CF can then provide farmers the incentives and the means to make these specific investments. Second, highly perishable products require intense coordination between production, harvesting and processing/marketing. In addition, perishable products entail high transaction risks. Without some contractually guaranteed outlet, the farmer is not likely to produce such perishable products. Third, farmers are not likely to enter into the production of technically difficult crops when they do not have the technical skills, the inputs and the credit needed. As part of a CF arrangement, buyers can provide technical assistance, specialised inputs and credit.

Thus, the need for vertical coordination in the producer/contractor relationship is highest when products are highly perishable, when the production requires specific investments, and when the production involves special skills and inputs. These conditions are most likely to be present when the buyers are large-scale processing companies, exporting firms, and suppliers of modern supermarkets. In general, foreign markets, particularly those in developed countries, demand products to comply with high quality and food safety standards, thus providing an incentive for traders to closely monitor production processes. CF is the arrangement commonly used to be able to guarantee the quality of the products.

In sum, customer demand for higher quality and for quality assurance leads to more vertical coordination in value chains. CF has become a popular arrangement to organise the strict coordination needed. We now move to answering the question how CF arrangements can solve the institutional constraints that are often inhibiting quality improvements by smallholder farmers:

- *Financial services.* Contracts can provide smallholders with access to credit. Being more costly to produce, high value crops often require credit to purchase additional

2. Linking smallholder farmers to high quality food chains

and specialised inputs, to hire additional labour for planting and harvesting, and to buy or rent specialised equipment. Since contracting firms generally have more financial capacities than smallholders, they often provide their contractees with the necessary credit. Reardon *et al.* (2003) note that even if the contracting firm does not provide credit directly, banks will generally accept the contractual commitment as collateral for granting loans.

Key and Runsten (1999) argue that contracting firms are well suited to act as lenders to growers, because they have a superior ability to monitor and enforce credit contracts and have lower default costs than banks. Contractors can extract a grower's debt directly from the crop revenue before the grower receives his payment. Because alternative markets for high value products are often thin, growers have no choice as to sell to the contractor. At the same time, the contractor can be assured that the loan will be spent on production because loans are usually distributed in kind or in the form of vouchers and the contractor often monitors the use of inputs.

- *Input supply.* One of the key elements of CF in developing countries is the interlinkage of inputs and output markets (Dorward *et al.*, 1998). CF can provide smallholder farmers with inputs that might otherwise be too costly or unavailable (Key and Runsten, 1999). High-value products cannot be produced without using proper seeds and planting material, without applying the proper inputs (fertilisers and crop protection chemicals) at the right time, and without deploying the proper planting, spraying and harvesting machinery. The contracting firm, such as a processor, can make these inputs available directly or can contract with one or more input supplying firms. Boselie *et al.* (2003) found that even supermarkets may provide their supplying producers with inputs in order to obtain the right quality.

Provision of inputs by the contractor reduces the transaction costs related to grower uncertainty about the availability and quality of inputs. Failures in input markets are circumvented by such direct provision, and the economies of scale allowed by the large volume purchase of inputs by the contractor can be passed on to farmers, which may lead to a reduction in the price the contractor has to pay for the farm products.

- *Extension services.* CF schemes commonly include provisions on technical assistance and advisory services. As high-value crops generally need more and newer skills than the grower has at hand, technical advice is crucial for inducing smallholder farmers to grow these crops. Most contracts described in Glover and Kusterer (1990) included visits by firm extension officers to either individual farmers or farm groups several times during the first year of the contract but often less in later years. Boselie *et al.* (2003) reported that some contracting firms apply all pesticides and hire extension officers that give advice on production practices. Often, contractors communicate product and technology information to growers by firm-employed extension agents. These agents not only give technical advice to the growers, but can also monitor their behaviour (Hueth *et al.*, 1999).

By providing technical assistance to farmers, contractors can obtain more uniform products, which is important in their quality-oriented marketing strategies.

Without such assistance, farmers may not be willing or able to venture into innovative crop and livestock enterprises as these involve higher risks. At the same time, this technical assistance can enhance the management skills of the farmer and there may be spill-over effects to non-contracted crop and livestock activities.

- *Organisation.* CF as such does not solve the constraint of lacking organisation. However, contractors may require their suppliers to form groups, so they can economise on transaction costs in dealing with farmers. Such groups can also be existing collective action groups. Still, most contractors are not eager to support the formation of groups among their suppliers. The benefits of dealing with a group instead of with many individuals may be offset by the disadvantage of the group becoming a bargaining organisation, demanding higher prices or better delivery conditions for the growers.

Several studies claim that farm groups, such as formal or informal POs, may support the efficiency and equity of CF (Glover, 1984; Coulter *et al.*, 1999; Key and Runsten, 1999). POs can improve the power balance between producers and contractors, thereby strengthening the incentives for both parties to continue bilateral contracting. In addition, POs can reduce the transaction costs in the contract arrangement, as the contractor does not have to deal with numerous smallholder farmers but with only one organisation of smallholders. Finally, POs may support CF by channelling and supporting (e.g. by providing legitimacy to) the technical assistance needed to help producers increase product quality and uniformity.

- *Market information.* Information is a key element for achieving higher quality. In order to meet market requirements, farmers must be aware of the chemicals permitted, residue levels allowed, desired product characteristics (texture, shape, flavour, colour, etc.) and ideal timing of the harvest (Key and Runsten, 1999). Markets can transfer information about supply and demand via prices, but prices usually cannot rapidly communicate complex and changing quality demands. Contracts generally include provisions on the transmission of information about final market demands from contractor to farmers.
- *Quality control and inspection services.* Some form of quality control is always part of the contracted transaction. Depending on the provisions in the contract, this control is more or less strict. Strict quality control may disadvantage growers, as the products supplied may vary in quality and the grower still want to sell all harvested products (Jaffee *et al.*, 2011). However, transparent quality control linked to quality-dependent pricing may induce farmers to produce better quality, and is particularly in the interest of those farmers that are able to produce the highest quality. Ideally, quality control and inspection are carried out by independent third parties, but in reality this is often not the case due to the high cost of third party involvement.
- *Market linkages.* CF arrangements are particularly about market linkages, at they provide growers with guaranteed market access and it provides contractors with guaranteed supply. If market linkages are weak because of underdeveloped physical infrastructure, CF cannot solve the constraint. Often, the market linkages established by CF are conditional on producers being able to comply with various

2. Linking smallholder farmers to high quality food chains

quality requirements. Thus, CF cannot solve the lack of market linkages for all smallholder farmers, particularly not for those in remote areas.

Several studies have empirically investigated the direct impact of CF on the improvement of quality. In a study on the contracting practices of smallholder vegetable farmers in Madagascar, Minten *et al.* (2009) observe that given the right incentives and contracting system, small farmers can participate successfully in emerging high-value markets. Farmers fulfilled the complex quality requirements of an exporter to foreign supermarkets through the use of micro-contracts combined with extensive farm assistance and supervision programmes. The exporter employs 300 extension agents to supervise the production of almost 10,000 suppliers. The authors conclude that farmers participating in these contracts have higher welfare, more income stability and shorter lean periods than before they started contracts.

Another success story was reported from Mexico by Key and Runsten (1999). A processing firm succeeded in achieving the required quality with smallholders because it was able to offer contracts that provided for credit, specialised inputs and extension assistance at low transaction costs. Boselie *et al.* (2003) examined five cases of supply chains for fresh horticultural products sold to African, Asian and European supermarkets. These cases show that small producers were generally able to comply with supermarket requirements by using contracts that supplemented for weak public institutions. Henson and Reardon (2005) affirm that small-scale producers are able to achieve supermarket quality levels of at least equal to those of large-scale producers through contracts on the condition that well-coordinated systems of control of smallholders are in place. These systems need to include measures that facilitate compliance, incentives to reward good performance, and penalties to punish non-compliance.

Although improving smallholders' access to quality markets, CF should not be considered a cure-all for smallholders. Some scholars mention that by providing credit, CF makes farmers dependent on their contracting partners that could keep them in perpetual indebtedness (Little and Watts, 1994; Singh, 2002). It has been also argued that contracts give rise to uneven bargaining power between partners (Glover, 1984; Little and Watts, 1994). Also, contracts may not be renewed for the next season, which might lead to the loss of value of farmer investments specifically made for the contracted transaction.

2.3.2 Producer organisations

A PO is a private collective action organisation established by agricultural producers (often with third party support) in order to support their economic well-being (Bijman *et al.*, 2016). Broadly, POs may fulfil three functions for their members: provide services when markets fail, provide club goods or local public goods when states fail, and provide a voice in political affairs (Rondot and Collion, 2001). Taking the public good and voice functions together, Thorp *et al.* (2005) have made the distinction

between claims groups and efficiency groups. Claims groups typically operate vis-à-vis public authorities as they seek to get favourable conditions from policy makers and administrators, such as subsidies, enabling legislation or other public benefits for group members. Claims groups are lobby organisations and advocacy organisations. Efficiency groups seek to increase the efficiency of the production and marketing processes of farmers, for instance by reducing transaction costs and improving bargaining power. In this chapter, as in the rest of the book, we focus on POs that have primarily an economic function, by providing inputs to the farmer-members and/or selling the products of the farmer-members. While efficiency groups often also engage in lobbying, it is not their primary function.

The difficulties of small farmers in accessing high-value markets has prompted a renewed interest for the role of POs in helping producers to improve the quality of their products (World Bank, 2007). Many authors have mentioned the potential role of collective action organisations in helping farmers to face challenges imposed by high-demanding markets (Brester and Penn, 1999; Hellin *et al.*, 2009; Markelova *et al.*, 2009). In order to understand how exactly POs solve the institutional constraints identified in the previous section, we now identify the functions that POs can and often do perform to help alleviate them.

A strong justification for the existence of POs is their capacity to facilitate access to inputs. First, POs facilitate input access for farmers through bulk purchase, which lowers prices, or affiliation with larger group members (Kaganzi *et al.*, 2009). Second, the resources of POs are especially beneficial to smallholder when high investment costs are required to enter specific markets such as irrigation, storage, or cold chain, often necessary inputs to the production of high-quality products. Third, observing that physical availability of inputs is often an important constraint to access, with thin and unreliable rural distribution networks in most African countries, Kindness and Gordon (2001) claim that POs can act as a vehicle for input distribution. Dorward *et al.* (2004) emphasise the effectiveness of POs in coordinating the provision of various services to smallholder producers.

POs can facilitate access to finance in various ways. Farmers may become members of a dedicated Savings and Credit Cooperative, or their own supply or marketing cooperative provides them with credit. Kaganzi *et al.* (2009) reported on a case study of potato farmers in Uganda who pooled their financial resources from personal savings and loans to establish a savings and credit cooperative so as to save and access loans to invest in production of high quality potatoes.

POs can hire technical experts and develop their own extension services. Moreover, when supplied adequately, these services can be better tailored to members' needs than public extension services. For instance, cooperatives often provide technical assistance together with the inputs (such as seeds and pesticides) that they provide to their members (Markelova *et al.*, 2009). However, the literature on the impact of POs on access to extension services is mixed as to the outcomes. The infant stage of services

2. Linking smallholder farmers to high quality food chains

provided by POs may not be adequate for farmers that adopt quality-enhancing techniques. In a study on Ethiopian dairy marketing cooperatives, Francesconi (2009) found that cooperative membership had a negative impact on milk quality compared to non-members because members adopted productive crossbred cows that were more sensitive to mastitis than the local breeds. Crossbred cows require more sophisticated feeding and husbandry techniques than the indigenous cattle and require support that the cooperative services had difficulty to provide.

Organise individual producers is by definition the objective of POs. For quality improvement, organising farmers in POs can reduce the risks that individual farmers face when engaging in high-value products (Shiferaw *et al.*, 2006). Verhaegen and Van Huylbroeck (2002) argue that collective action is an important institutional arrangement for smallholders since it reduces the risks of individual farmers to invest in the costly assets that are needed to improve quality and that are often specific to a particular value chain. Raynaud and Sauvée (2000) mention that only cooperation among producers can sufficiently reduce costs of the necessary investments in specific skills and assets to improve quality. POs can also create economies of scale necessary for smallholders to be competitive in accessing high-quality markets (Biénabe and Sautier, 2005). Collective marketing allows farmers to spread the higher costs of marketing high-value products.

POs could reduce transaction costs by collecting market information, processing it and sharing it among its members (Markelova *et al.*, 2009). Although most POs do collect and process information about the demands and requirements of their customers, there is little evidence that POs are a central vector for the provision of more general market information. A reliable market information system requires substantially more resources than an individual PO has available. Market information is a typical public good, and individual POs are not likely to invest in setting up a system that other (non-member) farmers will also benefit from.

POs often play a role in quality control and inspection. By checking the quality of the products that members deliver and sorting them in various quality classes, POs reduce the information asymmetry between seller and buyer and thus increase the efficiency of the sales process. The literature provides many examples of cooperatives involved in quality control (e.g. Francesconi *et al.*, 2010; Moustier *et al.*, 2010). Cechin *et al.* (2013) even found that cooperatives in Brazil maintain higher quality standards than their non-cooperative competitors. However, quality control in POs in developing countries is a challenging task. Often, POs do not have the resources and skills to do quality control properly, or members delivering below-standard quality are not sanctioned due to internal politics. Finally, many cooperatives, for instance in dairy, work with delivery groups, and all members of a group receive the same price for the average quality of the group. This group system allows for opportunistic behaviour of members.

Facilitating market access is perhaps the most important function of POs, suggested by this often-used definition of a PO: 'A producer organisation is a rural business that is generally owned and controlled by small-scale producers and engages in collective marketing activities' (Penrose-Buckley, 2007). Holloway *et al.* (2000) found that POs of smallholders in India were able to increase smallholder access to higher value markets by reducing transaction costs. Several authors have found that the rise of supermarkets in developing countries entails an incentive for smallholders to set up joint marketing organisations (Narrod *et al.*, 2009; Vorley *et al.*, 2007; Weatherspoon and Reardon, 2003). The quality standards that supermarkets apply not only induce farmers to raise product quality, but also to supply large quantities of uniform product. POs, by gathering products of a large number of dispersed smallholders, can respond to these customers' needs. POs may also shorten the supply chain by not only selling the product, but also transporting, sorting and packaging the product. A shorter chain means a lower probability of quality deterioration, but also a larger share of the total chain added value for the producer.

The use of POs for producing and marketing agricultural products does not automatically lead to enhanced quality. The decentralised decision-making process within POs can lead to free-riding in quality upgrading as recognised by numerous scholars (e.g. Cook, 1995; Winfree and McCluskey, 2005). POs are also subject to internal organisational transaction costs, notably the costs of communicating the benefits of collective action and coordinating smallholders along these precepts. Besides these organisational problems, POs in developing countries face other challenges, such as poor management by their leaders, low financial means and a rigid institutional environment. Regarding the low financial means, the study of Roy and Thorat (2008) on an Indian cooperative assistance organisation shows that POs, similar to individual producers, often lack human capital and financial means to assist smallholders. They often rely on support from the state or from NGOs. This support, in turn, can create a dependence of POs on outside assistance that can lead to organisational failure when the support is withdrawn.

2.3.3 Partnerships

The key feature of partnerships is the complementarity of actors. Since no single organisation has the capacity (in terms of necessary financial, technical and human resources) to address all institutional constraints unilaterally, partnerships create a structure so that different actors compensate for different institutional constraints. This also suggests that the more numerous the institutional constraints, the higher the need for partners from multiple backgrounds (Rivera-Santos *et al.*, 2002). In addition, partnerships facilitate the spreading of risks among different actors. For instance, in a situation where exporting companies are unwilling to procure from a large number of smallholders, other actors may be able to safeguard companies' investments (Narrod *et al.*, 2009). Especially NGOs and donor agencies are able to fulfil important activities and compensate for institutional gaps (Rivera-Santos *et al.*, 2002). Instead of becoming chain actors, they rather act as facilitators providing advice and mitigating risk.

2. Linking smallholder farmers to high quality food chains

Partnerships have emerged since the late 1990s as important mechanisms for addressing rural development challenges, promoting capacity building and market access for smallholder farmers, and developing sustainable economies (Glasbergen, 2007; Kolk *et al.*, 2008). Particularly traditional export chains, including coffee, cocoa and palm oil, and more recently high value chains, such as fresh fruit and vegetables, have experienced a considerable proliferation of partnerships (Fuchs *et al.*, 2011; Schouten and Glasbergen, 2011). These can be defined as collaborative, institutionalised arrangements between actors from two or more sectors of society – market, state and civil society – which aim at the provision and/or protection of collective goods (Schäferhoff *et al.*, 2009). Partnerships can take a variety of forms, including public-private partnerships, business-NGO alliances, or multi-stakeholder initiatives.

The development literature examines partnerships in the context of a paradigm shift in the political economy of international development (Van Tulder and Fortanier, 2009). Firstly, partnerships are approached as institutional arrangements to overcome the inability of individual actors to solve the challenges faced by smallholder farmers (Kolk *et al.*, 2008). The solution to single-actor failures is seen to lie with multi-actor collaboration where different resources and knowledge can be coordinated 'to increase the effectiveness of each partner's effort' (Van Tulder and Fortanier, 2009: 229). Secondly, businesses are increasingly called upon to make a positive contribution to international development and poverty alleviation given their key position and resources in global chains. This is most pronounced in global food chains, where the dominant market position of multinational companies makes them 'obvious candidates for collaboration' (Springer-Heinze, 2007: 10) to implement chain-wide innovations and connect smallholder farmers to global markets (Altenburg, 2007).

Hence, strategies to improve smallholder market access increasingly involve partnerships between public and private stakeholders (Boselie *et al.*, 2003). While the donor discourse tends to emphasise the potential of partnerships to improve the position of farmers in global food chains through supporting the application of quality standards and certification (Springer-Heinze, 2007; World Bank, 2007), there are only few studies on the impact of partnerships as institutional arrangements for quality improvement. Those studies reveal considerable differences in the extent to which partnerships address the institutional constraints.

For instance, with regard to improving access to inputs, no meaningful conclusion can be drawn on the performance of partnerships. Although there are cases where partnerships have ensured that farmers receive better access to inputs, for instance seeds or seedlings (Perez-Aleman and Sandilands, 2008; Van Wijk and Kwakkenbos, 2012), most of the literature does not mention partnerships as important providers of inputs.

Similarly, the track record of partnerships to provide access to finance is mixed. Three ways of arranging financial services by partnerships can be distinguished (Bitzer *et*

al., 2011). Partnerships can provide direct credit to farmers, mostly through donor sources, they can establish interlocking credit arrangements between farmers and (micro) finance institutes, or they can promote chain internal credit provision by commercial buyers. The majority of the literature confirms that partnerships provide direct financial support to farmers for the duration of the partnership. This is often done in order to cover the certification fees (Boselie *et al.*, 2003; Narrod *et al.*, 2009). Regarding any longer-term provision of finance, the evidence appears contradictory. Whilst credit facilitation through arrangements with external actors, such as banks or social lending institutes, is rarely documented in the literature, some studies find that partnerships frequently ensure the provision of finance through participating buyers (Ferroni and Castle, 2011; Van Wijk and Kwakkenbos, 2012). Other authors conclude that long-term access to credit is one of the aspects that partnerships seem to be paying little attention to (Bitzer *et al.*, 2008).

The literature clearly indicates that the provision of extension services, i.e. training and technical assistance, constitutes the key focus of partnerships. In most cases, this serves the purpose of supporting smallholder farmers to comply with the product and process standards required to gain access to high quality agrifood chains (Kersting and Wollni, 2011; Okello and Swinton, 2007). Partnerships also help farmers to apply good agricultural practices, enhance production efficiency, raise product quality, and overcome adoption constraints to new technology (Bitzer *et al.*, 2008; Van Wijk and Kwakkenbos, 2012). Several studies report that partnerships can train service providers to serve smallholders (Narrod *et al.*, 2009; Perez-Aleman and Sandilands, 2008; Van Wijk and Kwakkenbos, 2012). Hence, partnerships present a new source of technological change in agrifood chains, thereby fulfilling a task that is generally thought to be the responsibility of governments and public extension services (Bitzer *et al.*, 2011). Especially NGOs assume an active role within partnerships as the main providers of technical assistance (Boselie *et al.*, 2003; Jaffee *et al.*, 2011).

By providing technical assistance and focusing on meeting stringent quality requirements and certification demands, partnerships create strong incentives for the organisation of individual producers into formal groups. Case studies show that partnerships promote group structures to serve as basic training and certification units (Bitzer *et al.*, 2011) and to gain economies of scale in purchasing inputs and in marketing (Narrod *et al.*, 2009; Perez-Aleman and Sandilands, 2008). Thus, partnerships reflect the increased importance of POs in development cooperation as instruments to promote rural development and facilitate smallholder inclusion into markets.

Closely related to technical assistance to smallholder producers is the provision of market information by partnerships. Information focuses on market requirements, such as certification, quality demands, volumes and delivery schedules (Narrod *et al.*, 2009). However, it remains unclear to what extent partnerships also transmit information on prices. Whilst some studies suggest that partnerships may well be able to distribute price-related information (e.g. Thiele *et al.*, 2011), other research does

2. Linking smallholder farmers to high quality food chains

not find partnerships to be distributing information on prices due to the participation of private sector actors reluctant to share this kind of information with producers (Haantuba and de Graaf, 2008).

Given the importance of quality control and inspection services, several partnerships are active to train farm advisors, consultants and group leaders in export requirements and standards, so that they can offer advice and training to smallholder producers (Kersting and Wollni, 2011; Narrod *et al.*, 2009). Other partnerships have created local business services for quality assurance (Perez-Aleman and Sandilands, 2008). Most well-known in this regard is the case of AfriCert in Kenya, which was set up jointly by donors and NGOs as Africa's first indigenous certification company. Finally, there are several examples of partnerships that have developed collective private standards, including certification procedures and quality control systems (Bitzer and Glasbergen, 2010; Schouten and Glasbergen, 2011).

In addition to channeling support and information to producers, partnerships take on a transactional function to increase market access and create new market opportunities for smallholder farmers. The idea is to link farmers to participating companies, often through NGO facilitation and coordination, based on the premise that these companies are interested in developing a stable supply base (Perez-Aleman and Sandilands, 2008). Due to the active participation of large MNCs in partnerships compared to businesses from developing countries partnerships are generally aimed at high value export markets, particularly at certified markets under sustainability schemes or specialty markets. There are, however, also cases of partnerships establishing direct linkages to retailers in developing countries in order to supply the domestic market (Boselie *et al.*, 2003; Haantuba and De Graaf, 2008). Whilst most studies mention the increased market access as one of the key outcomes of partnerships, experiences reveal several hindrances to the establishment of long-term business relations. Firstly, purchase agreements facilitated by partnerships are mostly on an annual basis only (Bitzer *et al.*, 2011). Secondly, market linkages can only be maintained when sufficient quantities and quality are guaranteed, otherwise they collapse. Finally, a lack of trust between public and private parties or between producers and buyers may complicate the development of long-term purchase commitments (Chitundu *et al.*, 2009; Haantuba and De Graaf, 2008).

2.3.4 Comparative analysis

Based on the comprehensive literature review presented above, we have compiled an overview of the evidence of the three institutional arrangements' competences in addressing the institutional constraints faced by smallholder farmers related to quality improvement (Table 2.2). Evidence is here interpreted in terms of whether or not we found substantive evidence in the empirical literature.

Table 2.2 clearly shows that all three arrangements have different competences in addressing institutional constraints. The literature shows strong evidence that CF

Table 2.2. Empirical evidence that the institutional arrangement addresses the institutional constraints related to quality improvement.¹

Institutional constraints	Contract farming	Producer organisations	Partnerships
Lack of inputs	++	++	-
Lack of financial services	++	+	+/-
Lack of extension services	+	+/-	++
Lack of organisation	-	++	+
Lack of market information	-	-	+/-
Lack of quality control and inspection	++	+	+
Lack of access to market linkages	++	++	+

¹ ++ strong evidence found in the literature; + some evidence found in the literature; +/- inconclusive or contradictory evidence found in the literature; - little or no evidence found in the literature.

addresses the lack of inputs and lack of credit. Also extension (or technical assistance) is often provided as an element of the contractual arrangements. Finally, the contract provides the farmer with a market, and buyers are keen on inspecting the quality of the products delivered by the farmers (although this inspection is not always done in a transparent way). The literature on CF shows contradictory evidence related to the lack of organisation, some results demonstrating a positive effect of contracts on smallholders' organisation while others are more critical. In sum, the key benefits of a CF arrangement is that it provides smallholders with access to inputs, access to credit and access to a market.

As for POs, the literature clearly indicates their role in addressing the lack of inputs, smallholder organisation and access to markets. Some evidence was found of POs addressing the lack of credit. POs also often provide quality control and grading services, although the resources needed for this task often go beyond what the PO can bear. Extension services are inconclusive. One would expect technical assistance to become more important, particularly when quality requirements of final customers increase, however, POs often do not have the personnel and other resources to provide all members with good extension service.

Finally, we found strong evidence that partnerships address the lack of extension services and some evidence for the lack of organisation, quality control and inspection, and market linkages. The literature was inconclusive on the competences of partnerships in addressing the lack of financial services and market information. Moreover, we did not find empirical evidence that partnerships help smallholders overcome the lack of inputs.

When comparing the various institutional arrangements (by looking at the rows in the table), it appears that they often complement each other in terms of competences. Given these results, an investigation of how and under what conditions combinations of the three arrangements can be used effectively in quality improvement could bring interesting insights. The next section analyses more thoroughly that issue.

2.4 Interactions among and combinations of the different institutional arrangements

From Table 2.2 we can deduct, at least theoretically, that a combination of different institutional arrangements should be used to address all institutional constraints smallholder face when seeking to improve product quality. But what about empirical evidence? In the field, many institutional arrangements co-exist in coordinating activities along food chains. While reviewing the literature, we found evidence of interactions and combinations. Although not always directly linked to quality improvement, this section reports the main evidence of interactions found.

2.4.1 Contract farming combined with producer organisations

POs may engage in CF in order to support the efficiency and equity of the CF arrangement (Bijman and Wollni, 2009; Coulter *et al.*, 1999; Jia and Huang, 2011; Key and Runsten, 1999). At the efficiency level, Saenz-Segura *et al.* (2009) observe that POs can reduce the transaction costs in the contracting arrangement, as the contractor does not have to deal with numerous smallholder farmers but with only one organisation of smallholders. Okello and Swinton (2007) mention that exporters prefer to work with POs because they rationalise the costs of training and monitoring a multitude of small farmers. POs can also undertake the collection of products on behalf of the contractor. However, to justify group contracts, the costs of organising collection and transport and the costs of group membership need to be lower than the gains reached from lower rejection rates (Saenz-Segura *et al.*, 2009). At the equity level, POs can improve the power balance between producers and contractors, thereby strengthening the incentives for both parties to continue bilateral contracting. POs can also serve as an enforcement mechanism between farmers and contracting firms by engaging their expertise in conflict resolution or by using common resources to hire such expertise. Finally, POs can participate in the elaboration of fair contract terms, for instance by designing standard contracts.

2.4.2 Contract farming combined with partnerships

Ensuring that production of smallholder farmers is aligned with market demand is easiest if leading exporters and purchasing firms are included in the institutional arrangement. In this manner, both partnerships and CF recognise the key role played by downstream market actors in integrating smallholders into high quality agrifood chains. Therefore, some partnerships have facilitated the establishment of CF relations

or outgrower schemes between agribusiness and smallholder producers, which include the provision of extension services and credit to support the certification of smallholders (Bitzer and Glasbergen, 2010; Jaffee *et al.*, 2011). Boselie *et al.* (2003) note that there are effectively two roles of partnerships in CF. Firstly, partnerships may be essential to get a CF scheme off the ground, as donors can temporarily provide services, expertise and credit to farmers. In this way, partnerships can address the threshold transaction cost problem. Secondly, partnerships can improve the efficiency and/or counteract the potential negative effect of CF, for instance, by training farmers to bargain more effectively.

2.4.3 Partnerships combined with producer organisations

POs have a positive role to play in alleviating institutional constraints faced by smallholders farmers, but they seldom self-organise on a formal basis. Also, as mentioned earlier, they often lack financial as well as human resources. Therefore, external input is often needed to initiate POs and make them operational. The literature broadly distinguishes between three roles of partnerships in strengthening POs. Firstly, partnerships can provide capacity building by training group leaders and ensure that POs have sufficient marketing knowledge, management expertise and business skills (Narrod *et al.*, 2009; Perez-Aleman and Sandilands, 2008). Secondly, partnerships can induce changes in inter-farmer relationships and the forms of collective action. For instance, quality standards may require more strictly controlled membership and reduced group size to facilitate monitoring and training of farmers, which partnerships can support (Narrod *et al.*, 2009). Thirdly, partnerships can act as linking organisations, i.e. as (temporary) facilitators linking POs with other actors in the food chain (Bitzer *et al.*, 2011). For this role partnerships are better suited than government, given the wide evidence of rent seeking and elite capture in those farmer groups that have strong political affiliations (Narrod *et al.*, 2009).

An example of a successful collaboration of a PO with a partnership is given by Roy and Thorat (2008). The authors have reported on a public/private partnership marketing organisation that assists Indian grape farmer cooperatives. The marketing partner had two main roles: it acted as a facilitator to provide marketing expertise (negotiation of contracts, provision of information and supply certification) and it provided technical assistance and inputs to member farmers through the cooperatives.

2.5 Conclusions and policy implications

Recent trends in globalising markets, consumer demands, and retail strategies have made product quality one of the most important challenges for market access for smallholder farmers in developing countries. These farmers face a lack of appropriate resources and institutions both for helping them to improve quality and for connecting them to high-value markets. Farmers, therefore, still widely rely on cash-and-carry type of transactions or on informal institutions that only allow for inefficient trade

2. Linking smallholder farmers to high quality food chains

practices. Institutional arrangements such as contracts, POs and public/private partnerships are increasingly being adopted in response to market and institutional failures. These institutional arrangements reduce the transaction costs that result from the need to strengthen coordination and to make specific investments in high-quality food chains.

The working and key success factors of these institutional arrangements have been reported in an increasing number of academic publications. Moreover, as these arrangements are gaining importance in practice, there are also high expectations among practitioners about their effectiveness. The objective of this paper was therefore to find evidence in the empirical literature that these arrangements indeed help smallholders overcome institutional constraints related to quality improvement, to compare the competences of each arrangement in addressing these constraints, and to discuss options for combining these arrangements.

After we identified the main institutional constraints faced by smallholders who seek to improve product quality, we compiled the empirical evidence on how the three institutional arrangements address those constraints. Our literature review demonstrates that the various institutional arrangements are often complementary. For instance, POs can be particularly useful to support the efficiency and equity of contracts. However, they often need an external promotor to become operational and effective. Partnerships can be complementary to POs in providing for human, technical and financial resources. More generally, partnerships seem to be especially well suited in the initial phase of setting up collective action or CF schemes, especially for financial support, technical assistance and training.

Although our knowledge of the effect of innovative institutional arrangements on quality is increasing with the publication of enlightening studies, this chapter shows that there are still many knowledge gaps. We first need to deepen our understanding of the potential interaction between each institutional arrangement. For instance, Arinloye *et al.* (2012) showed that farmers involved in outgrowing (CF) schemes are less likely to be involved in other institutional arrangements, showing the specificity and exclusivity of this type of institutional arrangement. Another gap concerns the role of POs and partnerships in mitigating the drawbacks of CF. The functioning and impact of this 'double hybrid' institutional arrangement on quality outcomes, although increasingly used in developed countries, has hardly been addressed. Finally, from a more macro-level perspective, we need to assess the effect of the formal institutional environment on quality upgrading and on the development and efficiency of institutional arrangements. Studies comparing the same crop among different countries having different institutions could shed lights on that issue.

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