
Introduction

In recent years, product supply chains for agricultural goods have become increasingly globalized.^{1,2} As a result, greater numbers of smallholder farmers in South Asia (SA) and Sub-Saharan Africa (SSA) participate in global supply chains, many of them through contract farming (CF). CF is an arrangement between a farmer and a processing or marketing firm for the production and supply of agricultural products, often at predetermined prices.³ Farmers typically produce specific quantities of a good at a certain level of quality for pre-arranged sale to agricultural firms. Firms also often support farmers by providing inputs and technical assistance.⁴

The empirical evidence demonstrates that the economic and social benefits of CF for smallholder farmers are mixed.⁵ A number of studies (Eaton and Shepherd, 2001; Bijman, 2008; Simmons, 2002; Little and Watts, 1994) suggest that CF may improve farmer productivity, reduce production risk and transaction costs, and increase farmer incomes. Critics such as Singh (2002) and Sofranko et al. (2000), however, caution that CF may undermine farmers' relative bargaining power and increase health, environmental, and financial risk through exposure to monopsonistic markets, weak contract environments, and unfamiliar agricultural technologies.⁶ Contract arrangements may also further marginalize poor farmers who are likely to be excluded from these new markets.⁷ Despite the potential drawbacks, international organizations such as the World Bank have promoted CF as a poverty reduction tool.^{8,9,10}

There is a consensus across the literature that CF has the best outcomes for farmers when they have more bargaining power to negotiate the terms of the contract. In reviewing the literature on contract farming, we found a number of challenges comparing studies and evaluating outcomes across contracts. Detailed descriptions of the contract specifications were rarely elaborated but data on the type of contract model in use were sometimes available. Study methodologies varied greatly; the most common was a comparative case study approach. Empirical evidence for this review is drawn from 14 studies published since 1999, 11 of

¹ Swinnen, J. & Maertens, M., 2007, p. 1–2

² Swinnen, J., 2007, p. 1

³ Eaton, C. & Shepherd, A., 2001, p. 2

⁴ Little, P. & Watts, M., 1994, Introduction

⁵ Bijman, J., 2008, p.1

⁶ In Kirsten, J., & Sartorius, K., 2002, p. 516

⁷ Swinnen, J., 2007, p. 1

⁸ World Bank, 2007, p. 118–134

⁹ Little, P. & Watts, M., 1994, p. 3–20

¹⁰ World Bank Development Indicators Database, accessed January 25, 2010

which are peer-reviewed. This literature review summarizes these empirical findings and analyses regarding contract models and best practices to increase farmers' bargaining power and decrease contract default.

Contract Farming Models

While few data exist on the prevalence of contract types in SSA and SA, a number of comprehensive case studies (Swinnen, 2007; Little and Watts, 1994) suggest the centralized, multipartite, and intermediary contract models are increasingly prevalent. In a centralized model, an agricultural company purchases a predetermined quantity of crops from a large number of farmers under specified quality standards. The firm may or may not provide inputs to the farmers. Primarily associated with commodities requiring a high degree of processing, this centralized model can also be used in dairy and livestock operations.¹¹ In SSA this is often referred to as an *outgrower* scheme, though some reserve that term for operations involving public or parastatal entities.¹² A similar arrangement is sometimes made informally, usually through verbal agreement, especially for crops requiring little or no processing such as fruits and vegetables.¹³ The multipartite and intermediary models involve other actors in addition to the farmer and firm. A multipartite contract involves a joint venture between a government body and a private enterprise and often consists of many organizations responsible for different aspects of the supply chain. This model was particularly common in the 1980s and 1990s when governments in developing countries were investing heavily in CF.¹⁴ In the intermediary model, a processor or large agricultural trader creates a formal contract with an intermediary or "middle-man" who then forms an informal contract with smallholder farmers further down the supply chain. This model is common throughout Southeast Asia (SEA) for a variety of crops.¹⁵

Types of Contracts¹⁶

Contracts are designed to overcome market imperfections along the agricultural supply chain.¹⁷ According to Bogetoft and Olesen (2002), farming contracts ensure that the right products are produced at the right time and place, that there are incentives for all parties to coordinate, and those incentives are provided at the lowest possible costs.¹⁸ In order to accomplish this, contracts consist of terms designed to overcome particular market failures and distribute risk and control differently among contract participants. They may or may not specify a final sale price.¹⁹

Bijman (2008) outlines three broad categories of contracts. In *market-specification* contracts, there is a pre-harvest agreement between the farmer and the firm specifying time and location of sale, as well as quality of the product. Farmers retain production and management control and bear most of the production risk.²⁰ Market-specification reduces information and coordination costs, which are particularly important for perishable, export markets or new markets. In contrast, *production-management* contracts shift more control to the contractor who specifies and oversees the cultivation process, including specific input regimes. The

¹¹ Eaton, C. & Shepherd, A., 2001, p. 47–49

¹² Glover and Kusterer, 1990

¹³ Bijman, J., 2008, p. 4

¹⁴ Bijman, J., 2008, p. 4

¹⁵ Bijman, J., 2008, p. 4

¹⁶ These typologies are based on Bijman (2008), Eaton and Shepard (2001) and Minot (1986) and take the farmer perspective. A typology based on contractor perspectives is presented in Singh (2002)

¹⁷ Minot, N., 1986, p. 4

¹⁸ Guo, H., & Jolly, R., 2008, p. 571

¹⁹ Bijman, J., 2008, p. 5

²⁰ Bijman, J., 2008, p. 5

contractor bears a greater share of the market risk in exchange for greater production control.²¹ This contract economizes on coordination costs and may promote farmer skills development. Finally, under a *resource-providing agreement*, the contractor ensures a market for the farmer and provides inputs for production. This contract is more prevalent where quality of output varies greatly with inputs and where input provision reduces costs for the farmer. The distribution of risk between the farmer and contractor may vary significantly, depending on the level of production management undertaken by the contractor.²²

Benefits and Drawbacks of Contract Farming

CF has the potential to provide institutional arrangements that help to overcome market constraints and failures, including poor access to markets, underprovision of credit and agricultural technology; high transaction costs; asymmetric or missing information; price and production risk; and land and productive resource constraints. Empirical evidence demonstrates, however, that CF does not always achieve these objectives and that drawbacks to its use can include increased transaction costs or the creation of other contracting problems, including unsustainable levels of farmer debt and contract default. Farmers and firms have different motivations and willingness to engage in contract farming based on the benefits and drawbacks they face in CF arrangements; these are elaborated below and summarized in Appendix 1.²³

Access to Markets and Productive Resources

From the farmer perspective, CF can provide access to new markets that would otherwise be unavailable.²⁴ In the case of organic coffee CF schemes in Uganda, Bolwig et al. (2009) demonstrate that access to the organic market and its guaranteed price premiums increased contract farmers' net coffee revenue by an average of 75 percent.²⁵ The authors found that nearly all organic coffee production in Uganda was farmed on a contract basis, most subsidized by one or more donors. The Export Promotion of Organic Products from Africa program, funded by Sida, is the most important contributor to the development of the sector.²⁶ In the particular scheme studied, location was the only barrier to entry; the certification process was free to farmers and as a result, 62 percent of coffee farmers in the area participated.²⁷ From the contracting firm perspective, CF can overcome the land constraints facing large-scale production strategies, opening access to productive resources.²⁸ CF also allows firms indirect access to unpaid family labor, such as was observed by White (1997) in produce schemes in upland Java.²⁹

Production and Marketing Costs

Smallholder farmers often lack sufficient resources or access to credit to be able to purchase inputs at the beginning of the growing season.³⁰ CF can overcome this constraint by providing farmers with access to inputs on credit, or improved inputs that they otherwise could not access because of information or cost constraints. In addition, firms often provide production and extension services offering information and

²¹ Bijman, J., 2008, p. 5

²² Bijman, J., 2008, p. 5

²³ Setboonsarng, S., 2008, p. 4–8

²⁴ Eaton, C. & Sheperd, A., 2001, p. 8

²⁵ Bolwig, S., Gibbon, P. & Jones, S., 2009, p. 1102

²⁶ Bolwig, S., Gibbon, P. & Jones, S., 2009, p. 1103

²⁷ Bolwig, S., Gibbon, P. & Jones, S., 2009, p. 1095

²⁸ Eaton, C., & Sheperd, A., 2001, p. 9

²⁹ White, B., 1997, p. 105

³⁰ Eaton, C., & Sheperd, A., 2001, p. 11

training that farmers could not otherwise acquire.³¹ In the case of cotton outgrower schemes in Zambia, participating farmers gained access to improved inputs, including higher-yield seeds and more effective pesticides and fertilizers.³² Masakure and Henson (2005) found that “reliable supply of inputs” and “no need to transport crops to market” were both important motivating factors for farmer participation in CF schemes in Zimbabwe.³³ The contracting firm, Hortico Agrisystems, provided fixed amount of inputs in measured quantities on credit.³⁴ In the Lecofruit scheme in Madagascar, the company distributed inputs on credit as part of the contract and the value of inputs was paid back with the first harvest. Sometimes good performing farmers were given additional inputs that they did not need to pay back; however, the study did not elaborate on specifics.³⁵

Credit

CF can provide farmers with access to credit, usually through provision of inputs on credit with the debt deducted from the payment for output at the end of the harvest.^{36,37*} Evidence from the cotton CF schemes in Zambia demonstrate that the collapse of an outgrower scheme made credit more expensive for farmers and when an improved scheme was later reinstated, credit became cheaper and yields increased.³⁸

Improved Technology

A farming contract can provide farmers with access to new and improved technologies.³⁹ New technology presents both a motivating factor and a risk for farmers, however, and the data are mixed as to whether contract farming actually accomplishes technology transfer to farmers. While Masakure and Henson (2005) found access to information, new technology, and new crops to be a significant motivation for CF participation, Eaton and Shepherd (2001) note that small-scale farmers are often reluctant to adopt new technologies because of possible risks and costs involved.^{40,41} Baumann (2000) shows that because production techniques are often crop specific, the rate of technology adoption depends largely on the type of crop being grown and whether the smallholder has had previous experience growing the particular crop.⁴² From the perspective of the firm, Anim et al. (2008) found that in the sunflower sector of South Africa supplier reluctance to expand and improve contract farming was significantly affected by farmers’ limited application of new technology.⁴³

In their examination of the Lecofruit CF scheme in Madagascar, Minten and Swinnen (2009), indicated that many of the approximately 10,000 smallholder farmers initially joined in order to learn new technologies, with 55% stating it was a “very important” reason. Standardized contracts by crop mandated land preparation

³¹ Eaton, C. & Sheperd, A., 2001, p. 8

³² Brambilla, I., & Porto, G., 2005, P. 11

³³ Masakure, O., & Henson, S., 2005, p. 1727

³⁴ Masakure, O., & Henson, S., 2005, p. 1724

³⁵ Minten, B., Randrianarison, L., & Swinnen, J. F., 2009, p. 1733

³⁶ Eaton, C. & Sheperd, A., 2001, p. 8

³⁷ Strohm, K. & Hoeffler, H., 2006, p. 7

* Study based on a small non-random sample

³⁸ Brambilla, I., & Porto, G., 2005, p. 11

³⁹ Eaton, C. & Sheperd, A., 2001, p. 8

⁴⁰ Masakure, O., & Henson, S., 2005, p. 1728

⁴¹ Eaton, C. & Sheperd, A., 2001, p. 12

⁴² Baumann, p., 2000, p. 19–20

⁴³ Anim, F., Raphala, S. B., & Mandleni, B., 2008, p. 196

timing and compost application. Company-provided extension services taught farmers to compost and 93% of smallholders later reported using compost on other crops, representing a significant spillover effect.⁴⁴

Price and Contract Risk

Risk Reduction

CF can reduce the price risk farmers' face through guaranteed prices.⁴⁵ Masakure and Henson (2005) found that in ranking the ten most significant farmer motivations for CF participation in the Zimbabwean vegetable sector, the strongest motivation was to increase income, followed by reducing risk and uncertainty. The middle to bottom ranks of reasons included the desire to gain skills, knowledge, and prestige.⁴⁶ In this scheme, Hortico Agrisystems sourced high-value produce from 4,000 smallholder farmers through unwritten contracts. They established a minimum price before planting and provided each farmer with a farm budget and information showing input costs and breakeven yields. When export prices surpassed the contracted price, the firm would often pay a higher price in order to avoid "side-selling" to rival exporters.⁴⁷

Firms can minimize their risk through CF if smallholder contracting provides a more reliable source than open-market purchases and minimizes the firm's risk by eliminating responsibility for production. Contracting with smallholders often provides more consistent quality than purchasing on the open market.⁴⁸ Furthermore, when contracts are undertaken with producer groups, production risk sharing across farmers can reduce idiosyncratic risk to firms.⁴⁹

Farmer and Producer Risks

CF involves the risk of contract default on the part of both the farmers and firms. Farmers face the risk of output market collapse and production problems, especially when growing new crops (or varieties) or using new technology.⁵⁰ Growers face the risk that firms may exploit their monopsony status by extracting rents from farmers or requiring the use of risky new technology or crops.⁵¹ In the case of the Guinness Ghana Brewery (GGB) sorghum CF scheme (profiled in Appendix 2), inappropriate seed variety contributed to far lower yields than expected and most farmers were unable to repay their loans after selling all of their harvest at the end of the season.^{52*} Farmers can also be at risk if the firm does not fully comply with contractual provisions, which may result from corrupt staff that misallocate quotas or communication that is insufficient or inappropriate.⁵³

From the firm's perspective, CF poses the risk of farmer default and selling outside the contract (side-selling).⁵⁴ In addition, social or cultural constraints may affect farmers' ability to produce to managers'

⁴⁴ Minten, B., Randrianarison, L., & Swinnen, J. F., 2009, p. 1733

⁴⁵ Eaton, C. & Sheperd, A., 2001, p. 8

⁴⁶ Reardon, T., Barrett, C.B., Berdegue, J. A., & Swinnen, J., 2009, p. 1722

⁴⁷ Masakure, O., & Henson, S., 2005, p. 1724

⁴⁸ Eaton, C., & Sheperd, A., 2001, p. 9

⁴⁹ Birthal, P., Joshi, P., & Gulati, A., 2005, p. 21

⁵⁰ Eaton, C. & Sheperd, A., 2001, p. 8

⁵¹ Eaton, C. & Sheperd, A., 2001, p. 8

⁵² Kudadjie-Freeman, C., Richards, P., & Struik, P., 2008, p. 7

* Sample size unknown, qualitative methodology

⁵³ Eaton, C. & Sheperd, A., 2001, p. 8

⁵⁴ Coulter, J. et al., 1999, p. 1

specifications. Inputs provided on credit could be misused or diverted for other purposes.⁵⁵ Furthermore, insecure land tenure, poor management, and lack of consultation with farmers may jeopardize the long-term sustainability of a scheme.⁵⁶ Contracting firms must ensure that access to land is secure for at least the duration of the contract and that other stipulations such as prescribed sowing time or new technology do not conflict with traditional norms. For example, harvesting activities should not coincide with festivals or celebrations; contract stipulations incompatible with social norms and traditional practices can incite farmer dissatisfaction and withdrawal from the project.⁵⁷

Transaction Costs

Integrating input and output markets through CF can decrease transaction costs for both farmers and firms. In addition to raising grower income, it can also have positive multiplier effects for employment, infrastructure, and market development in the local economy, thereby potentially reducing transaction costs in input, product, and exchange markets.⁵⁸ However, contracting with many smallholders can be costly for firms and time consuming to organize.⁵⁹

Best Practices to Improve Farmers' Bargaining Power

The CF literature emphasizes the importance of bargaining power in contract negotiation to generate positive outcomes for farmers.⁶⁰ Baumann (2000) demonstrates that contracts tend to be more favorable for smallholders when the processor is heavily dependent on the grower for a constant flow of a raw material because it increases farmers' bargaining power, such as in the case of sugar in Kenya or the oil palm sector in Côte d'Ivoire.⁶¹ The objectives of a scheme determine the level of private versus public sector management, and thereby the desired division of value added between growers and firms.⁶² Several factors contribute to the extent that farmers and firms each gain from farming on a contract basis. Dependence on a particular crop and few alternative markets for outputs decrease growers' ability to gain from a CF arrangement by decreasing bargaining power and thereby increasing potential for exploitation by the firm.⁶³ Several case studies highlight the importance of access to information, alternative production opportunities, implementation through local intermediaries and farmer organizations, and farmer input in the scheme design as key mechanisms that increase farmers' bargaining power and contribute to favorable farmer outcomes.

Vermeulen et al. (2006) conducted a literature review of over 60 case studies assessing the impact of African contract forestry on poverty outcomes. Schemes in the study generally showed positive impacts for communities by providing opportunities for income diversification, access to new skills, and upgraded local infrastructure. The authors conclude that in the case of South Africa, outgrower schemes for wood fiber delivered significant financial returns to participants, but that these returns only contributed between 15 and 45 percent of the necessary income to remain above the poverty line.⁶⁴ They argue that strategies moving forward should center on raising community bargaining power, fostering the role of third parties and brokers

⁵⁵ Eaton, C. & Sheperd, A., 2001, p. 8

⁵⁶ Eaton, C., & Sheperd, A., 2001, p. 9

⁵⁷ Eaton, C., & Sheperd, A., 2001, p. 23

⁵⁸ Singh, S., 2002, p. 1624

⁵⁹ Baumann, P., 2000, p. 30

⁶⁰ Singh, S., 2002, p. 1624

⁶¹ Baumann, P., 2000, p. 14

⁶² Baumann, P., 2000, p. 14

⁶³ Andri, K. & Shiratake, Y., 2003, p. 46

⁶⁴ Vermeulen, S., Nawir, A. A., & Mayers, J., 2006, p. 13

(between farmers and firms) and developing equitable, efficient and accountable governance frameworks so that contracts benefit both parties.⁶⁵

Alternative Income Opportunities

The existence of alternative income opportunities can strengthen farmers' ability to bargain with contracting firms and negotiate favorable terms. Glover and Kusterer (1990) found that in the case of Guatemalan farmers engaged in vegetable production, alternative income generation was one of the most important preconditions for positive farmer experience in a CF arrangement.⁶⁶ Evidence from Nigeria and South Africa demonstrates that growing crops other than the one under contract as well as having alternate production opportunities outside of the contract decrease farmers' dependence on a single buyer. This increases their bargaining power, mitigates potential for firm abuse, limits market volatility, and reduces production risk.^{67,68}

Implementation through Local Intermediaries and Farmer Organizations

Firms may exclude smallholder farmers from CF schemes contracting with larger farmers in order to minimize transaction costs. In response, many farmers throughout SSA and SA have organized farmer associations (also known as producer organizations or farmer groups).⁶⁹ The formation of organizations can improve farmer collective bargaining power, facilitate communication among the parties involved in a contract, and decrease credit default rates (thereby improving access to credit).^{70,71} In their study of a farmer organization mobilization intervention in Tanzania, Barham and Chitemi (2008) conclude that farmer groups who successfully increased their market access by acquiring farming contracts were able to mobilize group assets such as reliable water sources and appropriate soil conditions for a particular crop that were attracted to the contracting firm.⁷² In Nigeria and South Africa, Porter and Phillips-Howard (1997) found that staffing and decentralized management structures were necessary for contract schemes to work. The appointment of managers indigenous to the area facilitated communication between the company and farmers and improved trust between the parties.⁷³

Farmer Willingness to Participate

The willingness of smallholders to participate in CF and adopt new agricultural technologies is strongly influenced by the history between smallholders and the firm/organization managing the contract. Farmers are more likely to participate in a contract scheme if they have had positive prior experience with such arrangements. Porter and Phillips-Howard (1997) found that it was difficult for the Jos International Brewery in Nigeria to recruit farmers into their CF scheme. Farmers were reluctant to engage with the brewery due to poor experiences in the past with large companies and employment contracts.⁷⁴ By comparison, the GGB scheme (Appendix 2) did not encounter the same constraints because there was a positive history between the contract management organization (PAS) and the community; "farmers agreed to produce based on their

⁶⁵ Vermeulen, S., Nawir, A. A., & Mayers, J., 2006, p. 1

⁶⁶ Glover and Kusterer, 1990, p. 156

⁶⁷ Porter, G. & Phillips-Howard, K., 1997, p. 231–232

⁶⁸ BIRTHAL, P., JOSHI, P., & GULATI, A., 2005, p. 2

⁶⁹ World Bank, 2007, p. 154

⁷⁰ Coulter, J., Goodland, A., Tallontire, A. & Stringfellow, R., 1999, p. 2

⁷¹ Setboonsarng, S., 2008, p. 9–10

⁷² Barham, J., & Chitemi, C., 2008, p. 26

⁷³ Porter, G. & Phillips-Howard, K., 1997, p. 229–230

⁷⁴ Porter, G. & Phillips-Howard, K., 1997, p. 232

trust in PAS after several years of receiving its support.⁷⁵ Other empirical evidence also suggests that CF schemes are more likely to succeed when farmers already have familiarity with the crop under contract. For example, in the Arachide de Bouche program in Senegal, farmer familiarity with growing peanuts contributed to lower risk in contract participation and meant that poorer households were more willing to participate than in programs involving less familiar crops.⁷⁶

Transaction Costs and Economies of Scale

Farmer organizations can decrease transaction costs for producers and firms and improve economies of scale. In their study of milk, poultry, and vegetable production in India, Birthal, Joshi, and Gulati (2005) found that producer groups helped firms overcome the transaction costs faced in approaching many scattered smallholders individually and spread farmers' transaction costs among all members in the group.⁷⁷ Contracted farmers paid only a fraction of the transaction costs associated with production and marketing of milk and vegetables (two to four percent each) whereas non-contract farmers absorbed nearly 25 percent of production and marketing transaction costs.⁷⁸ As a result, contract farmers were able to capture higher profits than similar non-contract farmers.⁷⁹ Similarly, Warning, and Soo Hoo (2000) found that in contracting confectionary peanut production in Senegal, local intermediaries (usually growers themselves) helped lower firm transaction costs by screening potential growers, monitoring production techniques and enforcing repayment.⁸⁰

Best Practices and Lessons to Improve Contract Farming

The sorghum cultivation case study from Ghana (Appendix 2) illustrates many of the typical problems that can lead to the failure of a CF scheme: inappropriate technology, farmer's lack of information, unfavorable farmer contract conditions, and inability to negotiate contract provisions. Several best practices and lessons emerge from the empirical literature to counteract these potential problems.

Improve Contract Structure and Enforcement

Farming contracts play two critical roles for the firm: quality assurance and risk management.⁸¹ Baumann (2000) argues that contracts should specify both the rights and responsibilities between the growers and firms, including the penalties for breach of contract on either side.⁸² Vermeulen et al. (2006) note specifically that outgrower schemes often fail when productivity is overestimated and that lower than predicted harvest prices can prompt early termination or default. Where institutional structures for contract enforcement are weak, firms absorb more of the risk and cost of contract default because they are often unlikely to pursue growers who breach their contract.⁸³

Lack of contractual enforcement in many developing countries, particularly in SSA, is often cited as hampering private investment and economic growth. However, as Chow (1997) found in China, contract

⁷⁵ Kudadjie-Freeman, C., Richards, P., & Struik, P., 2008, p. 11

⁷⁶ Warning, M. & Key, N., 2002, p. 261

⁷⁷ Birthal, P., Joshi, P., & Gulati, A., 2005, p. 16

⁷⁸ Birthal, P., Joshi, P., & Gulati, A., 2005, p. 19

⁷⁹ Birthal, P., Joshi, P., & Gulati, A., 2005, p. 15

⁸⁰ Warning, M. & Soo Hoo, W., 2000, p. 19

⁸¹ Masakure, O. & Henson, S., 2005, p. 1722

⁸² Baumann, P., 2000, p. 14

⁸³ Vermeulen, S., Nawir, A. A., & Mayers, J., 2006, p. 7

farming agreements do not necessarily require a robust legal system. Such contracts thrived before public enforcement mechanisms developed because in small communities, social norms and pressure functioned as an enforcement mechanism to ensure that contracts were honored.⁸⁴ Similarly, in a survey of 100 agribusiness firms engaging in CF in China, Guo (2008) found that when public enforcement mechanisms are weak or missing, private or self-enforcement mechanisms such as price floors and specific grower investment requirements significantly improve growers' contract fulfillment rates.⁸⁵ Gow et al. (2000) note that the major causes of contract breaches are "hold-ups," which occur "when unanticipated changes in the external environment affect the cost/benefit ratio sufficiently to make contractual breach optimal for one party."⁸⁶ This is illustrated in the GGB case where several farmers were forced to sell sorghum on the open market in the second year because they could not wait for payment from PAS.

Gow and Swinnen (2001) found that firms could minimize the probability of contract breach by smallholders by providing conditional bonuses. If farmers delivered their products on time, the firm could offer inputs, investments, or loan guarantees. Furthermore, to ensure that farmers use conditional inputs on company related production, firms have also tied bonuses and/or sanctions to quality and volume requirements.⁸⁷ Technical assistance and extension services that firms provide to farmers also serve as enforcement and monitoring mechanisms; in the course of provision, the service agent can verify input and loan use for contract purposes as well as commitment to quality.⁸⁸

Access to Information and Participatory Contract Negotiation

Engaging with smallholder farmers throughout the entire negotiation and planning process can improve farmer outcomes.⁸⁹ In the GGB case study (Appendix 2), Kudadjie-Freemen et al. found that smallholder farmers signed-up to participate in the CF scheme without completely understanding the terms of the agreement. Farmer attrition and breach of contract during the second year were largely a result of incomplete information about the terms of the contract. Ensuring that all parties were aware of the risks and uncertainties involved in the CF scheme might have mitigated these problems.⁹⁰ In addition, successful dissemination and uptake of agricultural technologies required thorough testing and farmer input.^{91,92} The sorghum cultivars introduced in the scheme largely failed because their adaption to local conditions was not well understood by the contractors who failed to consult farmers.⁹³ This case highlights that the technical aspects of production arrangements for sharing risk should be given as much attention as those for sharing profit.⁹⁴

Equity

CF schemes can have negative consequences for non-participating farmers by concentrating public resources

⁸⁴ Chow, G., 1997, p. 322

⁸⁵ Guo, H., & Jolly, R., 2008, p. 570

⁸⁶ Gow, H., Streeter, D., & Swinnen, J., 2000, p. 255

⁸⁷ Gow, H., Streeter, D., & Swinnen, J., 2000, p. 265

⁸⁸ Gow, H. & Swinnen, J., 2001, p. 687–688

⁸⁹ Kudadjie-Freemen, C., Richards, P., & Struik, P., 2008, p. 9

⁹⁰ Kudadjie-Freemen, C., Richards, P., & Struik, P., 2008, p. 9

⁹¹ Kudadjie-Freemen, C., Richards, P., & Struik, P., 2008, p. 9

⁹² Monyo, E. S., Ipinge, S. A., Heinrich, G. M., & Chinhema, E., 2001, p. 199

⁹³ Kudadjie-Freemen, C., Richards, P., & Struik, P., 2008, p. 11

⁹⁴ Kudadjie-Freemen, C., Richards, P., & Struik, P., 2008, p. 11

on small groups of farmers.⁹⁵ However, Glover and Kusterer (1990) found that CF schemes were equally likely to prevent social differentiation as they were to promote it; CF can act as a leveler by reducing risks, creating access to inputs, markets and technology but it can also favor the already relatively better off farmers in selection into the scheme.⁹⁶ Furthermore, while CF often involves smallholder farmers, evidence shows that it generally requires a title to land, thereby excluding the poorest farmers, tenants, and the landless. Apart from secure land tenure, contracts often stipulate minimum land size, health status, ability to provide or hire labor and sometimes even marital or education status, further narrowing the subset of smallholders able to participate.⁹⁷

The dominant finding throughout the CF literature suggests that women are generally not involved in contracting with agro-industrial firms and are disadvantaged in contract schemes.⁹⁸ In their study of the growth of modern horticultural supply chains in Senegal, Maertens, and Swinnen (2009) demonstrate that women benefit more directly from employment opportunities in large-scale production and agro-industrial processing than from smallholder CF.⁹⁹ They note further that poorer households benefit from these rural employment opportunities more so than from CF.¹⁰⁰ EPAR Research Request 67 prepared for the Bill & Melinda Gates Foundation, *Gender and Contract Farming in Sub-Saharan Africa*, specifically reviews the empirical literature regarding the challenges and potential benefits of CF for women.

Conclusion

Evidence on the economic and social benefits of CF for smallholders is mixed. The impact of contract innovations to improve farmer outcomes is difficult to evaluate because several factors can affect production output simultaneously. In addition, rapidly changing economic environments require continuous contract enforcement and frequent fine-tuning. Much of the current empirical evidence evaluates young CF schemes, which may show large profits and farmer incomes in the first years with evidence of farmer exploitation (lower payments, dependency on firm) emerging later once the firm is assured that farmers cannot or will not leave the scheme.¹⁰¹ Further field research is needed to better understand enforcement mechanisms and to compare CF schemes in terms of their incentive effects for smallholders.^{102,103} Very limited data are available on specific contract structures or pricing, making comparisons across projects and the identification of best practices challenging.

The empirical evidence demonstrates that risk of contract default in weak enforcement environments strongly influences contract structure in CF arrangements. The literature suggests that contracting through producer groups is a favorable mechanism to reduce risk and transaction costs for both growers and producers; however, it did not address the timing of producer group formation as an important factor in CF outcomes. The strongest mechanisms to counteract firm risk include using local intermediaries in negotiation and enforcement and setting minimum but flexible prices so farmers do not have a strong incentive to sell outside of the contract if other local buyers offer a higher price. Increased bargaining power and access to

⁹⁵ Baumann, P., 2000, p. 30

⁹⁶ In Baumann, P., 2000, p. 32

⁹⁷ Baumann, P., 2000, p. 31

⁹⁸ Porter, G. & Philips-Howard, K., 1997, p. 233

⁹⁹ Maertens, M. & Swinnen, J., 2009b, p. 1

¹⁰⁰ Maertens, M. & Swinnen, J., 2009a, p. 174

¹⁰¹ Baumann, P., 2000, p. 32

¹⁰² Gow, H. & Swinnen, J., 2001, p. 690

¹⁰³ Bolwig, S., Gibbon, P., & Jones, S., 2009, p. 1103

information support the most favorable outcomes for farmers.

Literature Review Methodology

This review was conducted using Google Scholar and Web of Science search engines, as well as several academic subject databases. Search terms included (among others): contract farming, outgrower schemes, vertical integration, agricultural supply chains, adoption/uptake agricultural technology, agricultural contracts, and contract enforcement in SSA and SA. In addition, numerous NGO and government websites were searched including the FAO Contract Farming Resource Center, the World Bank Study on Competitive Commercial Agriculture in Africa (CCAA), the World Bank, FAO, and IFPRI.

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Appendix 1

Table 2: Major Benefits and Drawbacks of Contract Farming from the Farmer Perspective

	Benefits	Drawbacks
Access to Markets	<u>Access to High Value Markets</u> CF can link smallholder farmers to high value markets where they can sell crops under favorable terms.	<u>Monopsonistic Markets</u> Firms may exploit smallholder farmers who are tied to a single purchaser (i.e., extract increasing rents from farmers, charge high interest rates for input loans). Firms can also specify characteristics of contractors and exploit marginal producers.
Production & Marketing Costs	Farmers can receive inputs at lower costs and extension services. It may ease transportation costs.	Depending on contracted price, input and marketing costs may reduce farmer profit; farmers may have low bargaining power with contractors.
Improved Technology	<u>Access to Agricultural Technology</u> Firms engaged in CF often provide necessary inputs, technical assistance, and training to their smallholder partners in a timely fashion. Learning by doing may have spillover effects that increase productivity of non-contract crops.	<u>Production Risk and Farmers Investment</u> New agricultural technologies may be riskier and risk may be borne by farmer With input intensive (fertilizer, pesticide, herbicide, etc.) agriculture, serious health conditions and environmental pollution may result.
Price and Contract Risk	<u>Reduce Price Fluctuation Risk</u> CF lowers the risk of price fluctuations if contract prices are pre-set. Furthermore, CF spreads production risk among the parties involved.	<u>Contract Enforcement</u> Lack of contract enforcement in many developing environments makes it easier for either party, farmers or firms, to break the terms of the agreement. <ul style="list-style-type: none"> • Side-selling • Delays in payment or changes in contract terms
Transactions Costs		<u>Preference for Large Farms</u> Agricultural firms may prefer to arrange contracts with large farms to minimize transaction costs. Thus, CF could marginalize extremely poor smallholder farmers.
Credit	<u>Access to Credit</u> CF offers smallholder farmers the opportunity to access capital from contracting firms.	

Source: Author's adaptation from Setboonsarng (2008)

Appendix 2

Case Study: Sorghum in Ghana

In 2001, the Guinness Ghana Brewery (GGB) initiated a project to increase the supply of high quality sorghum as a partial replacement for barley. A centralized CF scheme was established among 5 key stakeholders, each serving a different role along the supply chain: smallholder farmer groups in northern Ghana, an agricultural station (Presbyterian Agricultural Station or PAS), a local NGO that managed the entire scheme (Technoserve-Ghana), scientists from a research organization (SARI), and GGB.

GGB selected the improved variety of sorghum for the program and signed a contract with Technoserve-Ghana to ensure 500 tons of sorghum during the 2003 growing season. GGB did not have direct contact with farmers, but rather communicated directly with Technoserve-Ghana, which was responsible for coordinating with farmers groups, helping them with land preparation, conducting training sessions, procuring inputs, providing overall supervision and collection of the sorghum, and delivering grain to GGB. PAS recruited farmers for the program and provided a range of agricultural extension services, such as registering farmers to produce sorghum for GGB, delivering inputs, overseeing production methods, and organizing initial collection of the sorghum. The farmer groups, which ranged in size from 6 to 15 members and had an average make-up of 80 percent men, were responsible for harvesting the grain on an individual or group basis and making it available at the end of the season. SARI and the Ministry of Food and Agriculture had a relatively minor role in the scheme by developing the varietal used in the program and setting the price GGB paid for the grain (\$0.30 per kg, an amount higher than the prevailing market price).¹⁰⁴

During the first year of the program, farmer groups failed to produce the 500 tons requested by GGB, leaving nearly all participants in debt to PAS for inputs received. Through group and individual interviews, documents and records, and meeting minutes Kudadjie-Freeman et al. (2008) found that the program failed for “technical” and “contractual” reason.¹⁰⁵ Technical issues included pest infestation, particularly from the sorghum midge (*Contarinia sorghicola*) and head bugs (*Eurystylus oldi* Poppius), adverse environmental conditions in northern Ghana for that particular sorghum varietal, and a late planting and harvesting schedule.

Researchers found three major contractual problems. First, farmer groups were not able to negotiate the terms of their contract prior to signing-up. Second, farmers did not know the schedule for collection and payment after harvesting, penalties for breaching the agreement, or arrangements in the event of crop failure. Last, PAS did not effectively create fair terms for the farmer group due to the organization’s lack of technical knowledge about the potential risk of producing that particular variety of sorghum in northern Ghana.¹⁰⁶

Following the failed first attempt, indebted farmer groups suggested that Technoserve-Ghana accept another variety of sorghum that the farmers were already accustomed to. “Dorado” had similar characteristics and agronomic requirements as the variety suggested by GGB but it was better suited to local environmental conditions and less susceptible to pests. Following approval from TNS and GGB, most farmers switched to “Dorado” in the second season. Without inputs or technical assistance, farmers increased overall yields. However, several were forced to sell on the open market because they could not wait for PAS to pay them for their grain.

¹⁰⁴ Kudadjie-Freeman, C., Richards, P., & Struik, P., 2008, p. 3–8

¹⁰⁵ Kudadjie-Freeman, C., Richards, P., & Struik, P., 2008, p. 9

¹⁰⁶ Kudadjie-Freeman, C., Richards, P., & Struik, P., 2008, p. 3–8