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February 2012



Contract Farming in Developing Countries - A Review

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[Foreword]

The analyses and conclusions contained in this document are the sole responsibility of the author. They do not necessarily reflect the opinion of the French Development Agency or its partner institutions.

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Summary

Contract farming can be understood as a firm lending “inputs” – such as seed, fertilizer, credit or extension – to a farmer in exchange for exclusive purchasing rights over the specified crop. It is a form of vertical integration within agricultural commodity chains so that the firm has greater control over the production process and final product. Contract farming is attracting considerable academic and policy attention. For example, while academic work in the 1980s and 1990s offered a mixed assessment of the extent to which contract farming engaged with and benefited smallholders, recent literature offers a much more positive interpretation of smallholder participation. Moreover, recent high-level policy reports, such as the *World Development Report 2008 on Agriculture for Development*, and UNCTAD’s *World Investment Report 2009 on Transnational Corporations, Agricultural Production and Development*, offer optimistic appraisals of this form of institutional innovation.

This review screened the Food and Agricultural Organisation’s (FAO) online contract-farming database, conducted bibliographic searches using Agricola, Econlit, JSTOR, the Web of Science and Eldis, to compile 100 papers on contract farming, the majority of which have been published since 2007 (see Appendices 3 - 5); included in this group were 12 additional studies pinpointed by the author and the client (AFD).

Using these studies as a base, this review discusses the global and regional trends that are driving contract farming in developing countries, and describes meso- and micro-level conceptual and theoretical perspectives – from transaction-cost approaches to value-chain governance – that help to explain why contract farming is increasingly preferred to other forms of exchange.

The broad literature on contract farming offers five hypotheses against which this review assesses the most recent empirical studies. Specifically, 35 “successful” cases of contract farming are compared with 9 “failed” cases. The main findings from this exercise are as follows:

- (1) Recent evidence adds some weight to the first hypothesis: that smallholders tend to be excluded in dualistic agrarian economies, but enjoy greater participation rates when inequality in landholding sizes is low.

- (2) The findings presented by this review – from 35 “successful” cases, and nine “failed” initiatives – would appear to lend some weight to support the hypothesis that contract participants display significantly higher incomes than non-participants (as this was a key “success” criterion); however, there is a need to be cautious. While recent econometric work has addressed selection bias at the household level (thus controlling for the observed characteristics of participants and non- participants), there has been no discussion in the literature about controlling for bias when selecting initiatives to evaluate. In other words, there is little surprise that many contact-farming initiatives show increased incomes for participants compared to non-participants (*ceteris paribus*), for if they had *not* raised incomes they may well have collapsed.
- (3) Crops that exhibit a high degree of variation in quality, perish easily, are hard to grow, or command a higher price per kg, may well be *more likely* to be grown on contract terms; however, there is also some evidence to suggest that mundane and standard commodities can also be grown successfully via contract farming.
- (4) This review adds some weight to support the fourth hypothesis – that contract-farming arrangements are usually entered into by large firms.
- (5) This review also finds some evidence to support the fifth hypothesis: that contract-farming initiatives are most likely to supply markets in developed countries, and supermarkets within urban centres in developing and emerging economies.

Interestingly, the comparison of “successful” with “failed” cases indicates that contract farming can operate successfully in a very wide range of socio-economic conditions, including conflict-affected countries, fragile states and Least Developed Countries (as contract farming is one response to overcoming the very high transaction costs in the thin and imperfect markets commonly found in such contexts).

Based on 24 of the “successful” cases, this review then attempts to supplement a typology of contract-farming models derived from the literature. The tentative findings from this section suggest that:

- Centralised models are used for conventional staple crops, in addition to crops with large variations in quality, a high-degree of perishability, technically difficult production, and a high value-bulk ratio. Such arrangements tend to provide the full range of inputs, and serve both domestic urban markets (especially for

livestock and poultry), as well as export markets. This type of contract-farming model can be used successfully in many different country contexts, including conflict-affected countries and fragile states. It does not require good enforcement, regulatory and legal settings to perform well.

- Nucleus-estate models tend to stick to crops with large variations in quality, a high-degree of perishability, technically difficult production, and a high value-bulk ratio. Such arrangements do not appear suited to fair-trade or organic certification, and are often the preferred model for resettlement or transmigration programmes. Nucleus-estate initiatives can be run successfully in many different country contexts, including conflict-affected countries and fragile states.
- Tripartite models take the form of a public-private partnership and tend to focus on crops with a national significance. All models of this type appear to focus on products with lower variations in quality, perishability and value-bulk ratios than the two previous models. It is unclear if this model is suitable for conflict-affected countries and fragile states.
- Informal models of contract farming appear to be best-suited to fruit and vegetable crops that require minimal processing, or which are processed on the farm, have limited variations in quality and rely on standard production techniques. Such arrangements appear to provide a limited range of inputs; since firm size tends to be smaller than with the above models, the informal model partly relies on other providers (such as the state and NGOs) to offer inputs, such as extension and credit. It is unclear if this model is suitable for conflict-affected countries and fragile states.
- Intermediary models appear to be particularly suited to staple food crops, and can be run successfully in many different country contexts, including conflict-affected countries and fragile states. Indeed, this model may be particularly suitable for challenging contract-enforcement contexts. Outsourcing the interaction with farmers allows smaller firms to use this approach. A limited range of inputs are provided, and this model appears popular for production requiring fair-trade and organic certification.

This review then discusses contracts. A close reading of 19 contracts from the FAO's database suggests that firms frequently fail to include basic details in contracts, so that farmers are frequently not fully informed of the nature of the agreement they

are entering into. This review offers some general suggestions that farmers or their representatives could bear in mind when entering into contract-farming arrangements.

The final section of this review presents contractual, technological, financial, institutional, political and legal types of innovation that have helped to overcome the challenges that can undermine contract-farming operations.

The review concludes by arguing that contract-farming initiatives that are mutually beneficial for both firms and smallholders not only require technical expertise by both parties, good contractual design and an appropriate choice of model. They also require the involvement of numerous third parties to act as arbiters and referees, ensuring that goodwill on both sides is not replaced by distrust and grievances.

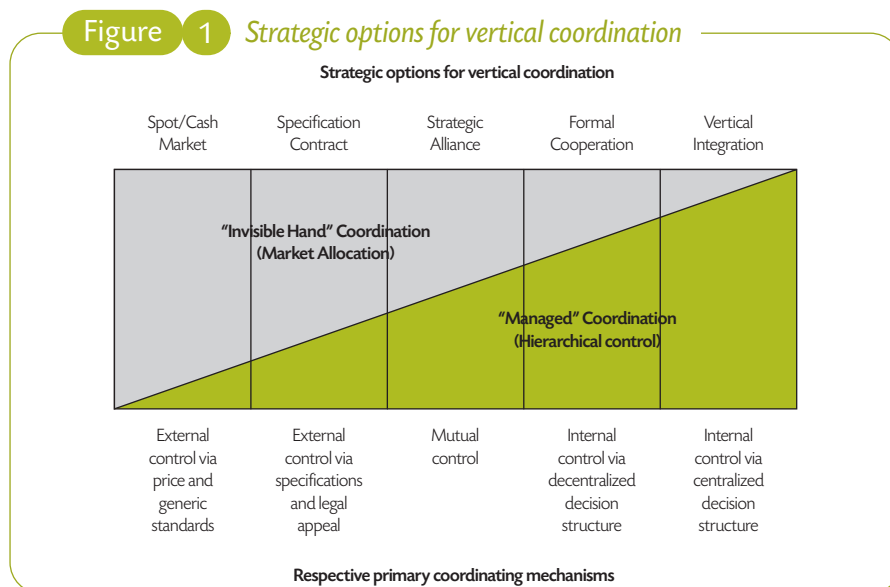
The structure of this review is as follows: the first section discusses how contract farming is defined for the purposes of this review and briefly describes the history and extent of contract farming globally. The second section details the main factors contributing to the increased incidence of contract farming in developing countries, and describes the most common models utilised. Section 3 covers the main conceptual and theoretical perspectives on contract farming. Section 4 offers a tentative typology of contract-farming initiatives based on a comparison of thirty-five “successful” cases and nine “failed” cases. The fifth section summarises the analysis of 19 contracts, outlines the most common threats to contract-farming initiatives, as well as the innovations used to mitigate these threats. Section 6 concludes.

This review also includes numerous appendices, accessible via the AFD website (<http://recherche.afd.fr>), including the following: the terms of reference for this review; the approach and methods employed in this review; the ranking and selection of papers; definitions employed; supplementary references; a summation of forms of innovation introduced in this review; and how current crises (fuel, food and financial crises, as well as climate change) might affect future contract-farming initiatives.

1. What Is Contract Farming?

Contract farming is a form of vertical integration within agricultural commodity chains, such that the firm has greater control over the production process, as well as the quantity, quality, characteristics and the timing of what is produced. The conventional approach to vertical integration has been for firms to invest directly in production through large-scale estates or plantations (especially for traditional tropical commodities such as tea, bananas and sugarcane). Contract farming, in its various forms, allows a degree of control over the production process and the product without the firm directly entering into production.

Thus, a useful starting point is the recognition that contract farming sits somewhere between fully vertically-integrated investments (when a firm is involved in all the nodes of the value chain, from production, through processing to marketing) and spot markets (where price determination is a function of supply and demand) (Kirsten and Sartorius, 2002; Da Silva, 2005; Young and Hobbs, 2002).^[1] This is illustrated in Figure 1, taken from Catelo and Costales (2001).



Source: Catelo and Costales (2001), based on Peterson and Wysocki (1997).

[1] Kirsten and Sartorius (2002) also highlight how contract farming is an intermediate form of agricultural production, somewhere between spot markets and full vertical integration.

But arriving at a precise definition of contract farming is not straightforward. For example, does contract farming include marketing-specification contracts, as well as resource-provision and production-management contracts? These questions, among many others, are discussed in this review based on the sizeable literature on contract farming. We start by defining contract farming precisely, before outlining the history and extent of contract-farming practices in both developed and developing countries.

The literature contains numerous definitions of contract farming. Some of the better definitions include:

“A binding arrangement between a firm (contractor) and an individual producer (contractee) in the form of a ‘forward agreement’ with well-defined obligations and remuneration for tasks done, often with specifications on product properties such as volume, quality, and timing of delivery” (Catelo and Costales, 2008);

“An intermediate mode of coordination, whereby the conditions of exchange are specifically set among transaction partners by some form of legally enforceable, binding agreement. The specifications can be more or less detailed, covering provisions regarding production technology, price discovery, risk-sharing and other product and transaction attributes” (Da Silva, 2005);

“Agricultural production carried out according to a prior agreement in which the farmer commits to producing a given product in a given manner and the buyer commits to purchasing it” (Minot, 2007);

“A contractual arrangement between farmers and other firms, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product” (Roy, 1963, quoted in Rehber, 2007);

“A contractual arrangement between farmers and other firms, whether oral or written, specifying one or more conditions of production, and one or more conditions of marketing, for an agricultural product, which is non-transferable” (Rehber, 2007).

While all these definitions have merits, this review utilises the last definition above, offered by Rehber (2007), which extends Roy’s (1963) classification. As is clear, this excludes pure forward contracts (which can be transferred).

The Rehber (2007) definition helps us place contract farming within two (out of the three) conventional types of agricultural contracts (as originally defined by Mighell and Jones, 1963). The first of these are market-specification contracts, which guarantee a farmer a marketing outlet and time of sale, and possibly a price structure, if some degree of quality is met. Minot (2007) outlines how market-specification contracts reduce co-ordination costs, particularly for perishable products or those with complex quality attributes, through addressing marketing information asymmetries. Clearly, farmers retain full control over production.

The second are resource-providing contracts, where certain physical or technical inputs are provided by a firm, with the requirement that produce is marketed through that same firm. This reduces the farmers' cost of choosing, accessing and purchasing inputs, and the firm is assured quality of produce and (usually) repayment. Resource-providing contracts are often used for crops that require specific inputs or quality standards, and in circumstances when farmers struggle with imperfect input markets.

The third type are production-management contracts, where the firm stipulates and enforces conditions of production and farm-based processing. Farmers thus relinquish a degree of control over the production process on the farm. The costs to the firm for ensuring compliance are recouped from the sale of higher-quality produce.

For the purposes of this review, contract farming is defined to include (1) resource-providing contracts; and (2) production-management contracts (and, of course, contracts that include both resources and production management). We do not include pure marketing contracts (as these do not stipulate at least one production condition). However, if a marketing contract provides specific technical advice regarding the crop-production process (not just a stipulation regarding the quality of the final product), we regard that as a production-management contract and, hence, as a form of contract farming.

Thus, building on Rehber's (2007) definition, we can tentatively define contract farming as:

a contractual arrangement between a farmer and a firm, whether oral or written, which provides resources and/or specifies one or more conditions of production, in addition to one or more marketing conditions, for an agricultural product, which is non-transferable

However, Hamilton (2008) highlights a number of further components of contract farming, which are not fully recognised in the above definition: that the agreement is for a fixed term; that the agreement is signed or entered into before production begins; that the contract calls for production of a crop (or the rearing of animals) on land owned or controlled by the producer; that the producer generally has no legal title to the crop or livestock; that in legal terms, the producer is often an independent contractee rather than an employee or partner of the firm, or in a joint venture.

Incorporation of these elements leads to the final definition utilised in this review:

a contractual arrangement for a fixed term between a farmer and a firm, agreed verbally or in writing before production begins, which provides resources to the farmer and/or specifies one or more conditions of production, in addition to one or more marketing conditions, for agricultural production on land owned or controlled by the farmer, which is non-transferable and gives the firm, not the farmer, exclusive rights and legal title to the crop

Use of this definition suggests that contract farming can be located within the second and third columns in Figure 1 (see Catelo and Costales, 2008). For example, contract farming can take the form of a long-term strategic alliance (the third column), where farms and a firm collaborate closely to produce and market a product, but where each retains its own identity. More commonly, it also takes the form of simple, short-term specification contract, where each party not only retains its identity but also its autonomy.^[2]

1.1. History and extent of contract farming

While sharecropping contracts between tenants and landowners have been a feature of agricultural economies for millennia (such as in ancient Greece and China – see Eaton and Shepherd, 2001), contracts between firms and farmers with tenure by the latter over their *own* land appears to be an innovation of the last 100 years or so. For example, Watts (1994) highlights how the Japanese utilised contract farming in Taiwan in the last decades of the nineteenth century, as did US firms in Central America in the

[2] This strict definition of contract farming suggests the practice cannot be seen to be included in the fourth column of Figure 1 – formal long-term co-operation. Here, farms and a firm enter into a long-term contract where expertise, equity and resources are pooled for the sake of accomplishing a joint project. Within this arrangement, Catelo and Costales (2008) suggest that there is a greater degree of internal control on production by the project itself than by either of the participants. The definition of contract farming used by this review stipulates that the firm maintains exclusive rights and legal title to the crop; therefore, it does not include joint ventures of this type.

early decades of the twentieth. Moreover, contract farming was used for vegetable production in the US, by the seed industry in Europe in the decades before the Second World War (Rehber, 2007), and for pig production in the US immediately afterwards (see Hamilton, 2008).

Since then, contract farming has expanded to become a significant and expanding form of agricultural organisation. Rehber (2007) suggests that it accounts for around 15% of agricultural output in developed countries. For example, contract farming accounted for 39% of the total value of US agricultural production in 2001, a substantial increase over the 31% estimated for 1997 (Young and Hobbs, 2002).^[3] Similar, and in some cases larger, percentages can be observed for sectors in some other developed countries. For instance, contract farming accounts for 38% of the production of dairy, poultry and sugar in Germany (but, on average, only 6% for other commodities). Moreover, contracts cover 75% and 23% of broiler production in Japan and South Korea, respectively (*ibid.*).

Contract farming also plays an important role within transitional economies. For example, Swinnen and Maertens 2007 suggest that the percentage of corporate farms using contracts varies between 60% to 85% in the Czech Republic, Slovakia and Hungary. Further east, in Armenia, Georgia, Moldova, Ukraine and Russia, the percentage of food companies utilising contracts rose from 25% in 1997 to 75% in 2003 (*ibid.*).^[4]

The expansion of contract farming has taken place in all regions of the world. Latin America has seen rapid growth in contract farming since the 1950s (such as for bananas in Honduras, barley in Peru, and vegetables and grain in Mexico). For instance, banana corporations such as Chiquita, Dole, Del Monte and Fyffes all have contract farming operations (UNCTAD, 2009). In Brazil, over 70% of poultry production and 30% of soya production is now through contract farming (*ibid.*).

In Southeast and South Asia contract farming has also increased rapidly in recent decades (Swinnen and Maertens, 2007). For example, since 1956 the Indonesian government has promoted contract farming through the Federal Land Development Agency (FELDA) with considerable success (Rehber, 2007). In Malaysia, contract

[3] These figures are considerably greater than the 12% accounted for in 1969 (Rehber, 2007).

[4] Swinnen and Maertens (2007) argue that the growth of contracting in transitional economies is closely related to pro-market reforms in recent years.

farming is also widespread, mainly based on state-promoted out-grower arrangements (Morrison *et al.*, 2006). In Vietnam, over 90% of cotton and fresh milk, and over 40% of rice and tea comes from contract farming (UNCTAD, 2009).^[5]

In India, contract farming has been used for seed production since the 1960s and is now widely utilised for the production of poultry, dairy products, potatoes, rice and spinach, among other things (Rehber, 2007). In Pakistan, contract farming is most frequently conducted by Nestlé whose local affiliate collects milk from more than 140,000 farmers covering 100,000 square kilometres (UNCTAD, 2009).

In East Asia, contract farming is also widespread. In China, the government has supported contract farming since 1990 with dramatic results: by 2001, over 18 billion hectares were planted under contract-farming arrangements (an increase of around 40% from the previous year) (Guo *et al.* 2005, cited in Rehber, 2007). Examples include contract farming for rice by Japanese firms, as well as for fruit and vegetables by domestic firms.

In sub-Saharan Africa, contract farming is also on the increase. While in the late 1980s many contract-farming arrangements had full or partial government ownership (with the public sector owning some of the largest projects – see Little and Watts, 1994), most projects are now initiated by the private sector. For example, Swinnen and Maertens (2007) point out that in Mozambique almost 12% of the rural population is involved in contract farming (with all cotton grown through contracts). In Kenya, over 50% of tea and sugar is produced under contracts, in addition to the large number of contract growers of horticultural exports. Further, crops with successful contract-farming operations include coffee (for example, Kawacom’s operation in Uganda – see Bolwig *et al.*, 2009) and tobacco (such as Alliance One’s expanding programme in Malawi).^[6]

It is fair to say that the private sector is now the dominant force in contract farming in developing countries: for example, in 2008 Nestlé had contracts with more than half a million farmers in over 80 developing and transitional economies; Olam from

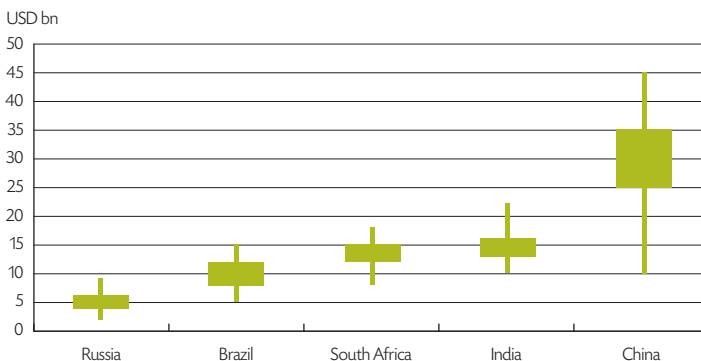
[5] Singh (2002), cited in Rehber (2007), reports that the Thai experience with contract farming has been mixed and that despite active promotion and mediation by government many contract farming initiatives have failed.

[6] While the private sector now leads in contract farming initiatives in sub-Saharan Africa, this is not to say that the state does not play an important role. For example, the state continues to play a important direct role in terms of input supply, finance, extension and processing (see IFAD, 2003, cited in Swinnen and Maertens, 2007), in addition to an indirect role in the provision of public goods, setting a legislative framework and, in some cases, creating an enabling policy environment.

Singapore contracts with around 200,000 farmers in over 50 countries to supply 17 agricultural commodities; Unilever sources over 60% of its raw materials from approximately 100,000 small and large farms in developing countries (as well as third-party suppliers); and Carrefour (France) contracts with farmers in 18 developing countries (UNCTAD, 2009). There are also many smaller-scale initiatives. For instance, SAB Miller (UK) contracts with more than 16,000 farmers in India, South Africa, Uganda, Tanzania and Zambia; in 2008, Grupo Bimbo (Mexico) had over 3,000 contract suppliers throughout Latin America; and Kitoku Shinryo (Japan) contracts with more than 2,000 farmers in Vietnam, Cambodia and Thailand (through a joint venture) (*ibid.*).

As the examples of Olam and Grupo Bimbo make clear, corporate contracting is no longer a North-South affair. UNCTAD (2009) highlights how net South-South cross-border mergers and acquisitions within agriculture accounted for 40% of the world total. Examples include Sime Darby's (Malaysia) investment in Liberia in 2009; Chinese investments in maize, sugar and rubber in Cambodia and Laos; and Zambeef (Zambia) expanding into Ghana and Nigeria (*ibid.*).^[7] This reflects a broader trend in South-South investment. For example, the share of annual foreign direct investment (FDI) flowing into Africa from emerging economies and developing countries has increased from 18% in 1999 to 21% in 2008. Leading the way is China, followed by the other BRICS (see Figure 2).

Figure 2 Estimate of cumulative FDI flows into Africa, 2007 - 2009



Source: Standard Bank, 2010.

[7] There are also some examples of relatively small firms conducting contract farming in developing countries. For example, the Flower Group (Netherlands) sourcing flowers from only 70 growers in Kenya, and Flamingo Holdings (United Kingdom) contracting just 600 smallholders to grow vegetables in Kenya (UNCTAD, 2009).

As contract farming continues to increase around the globe, it is instructive to look at the experience of the country where it is most prevalent: the United States. There, the 31% of total US agricultural production derived through contract-farming arrangements (in 1997) represented an eye-opening figure of more than US\$50 billion (Young and Hobbs, 2002).

1.2. What does the US experience with contract farming tell us?

Contracting became widespread in the US from the 1950s due to changes in technology and the greater requirement for on-farm crop management (Young and Hobbs, 2002). At this time, researchers noted how the injection of new technology increased farmers' capital requirements, how prices in spot markets failed to convey important information on quality characteristics, and that producers appeared willing to relinquish some control over their farms for a perceived reduction in marketing risk. The growth of contract farming also appears to have been partly based on the ability of producer organisations to market farmers' crops collectively (facilitated by the 1929 Marketing Act) and the role of the US Commodity Credit Corporation in financing agricultural contracts (*ibid.*). The potential downsides of contract farming – including oligopsonies depressing prices – only became a matter of concern in the 1980s. Moreover, it was only in the late 1980s and 1990s that researchers noted how perishability and farmer discontent over prices were also key factors in the establishment of contract-farming arrangements.

The US also provides early examples of the types of firms, farms and commodities involved in contract farming. Young and Hobbs (2002) point out that not only were larger firms in the US more likely to engage in contract farming, but that large family farms and corporate farms accounted for 75% of the value of products grown and sold under contract. Moreover, Young and Hobbs (2002) highlight how contracts are most concentrated in the livestock and poultry sectors (especially the latter, where over 60% of value is via contracts).^[8] In contrast, a small share of staple grain crops are sold under contract (with one exception – malting barley), although that share is growing fast. An increasing percentage of fruits and vegetables, such as potatoes, apples and tomatoes are now also grown under contract. But to what extent does the history and prevalence of contract farming in the US reflect the experience of developing countries?

[8] Although poultry and livestock (especially pigs) have a very high degree of contracting, the manner in which this took place in the US differed, with the former being the result of backward linkages by processors and forward linkages by input suppliers, and the latter due to horizontal linkages by firms seeking greater economies of scale (Young and Hobbs, 2002).

2. Why Has Contract Farming in Developing Countries Become so Widespread?

Agricultural commodity chains in emerging economies and developing countries have undergone a period of substantial restructuring since the 1970s. There are significant reasons for this, on both demand and supply sides. Larger populations, greater urbanisation, higher incomes and changing food preferences (towards higher protein and more expensive products) have all played a role in changing demand for agricultural products. On the supply side, the liberalisation of national and international markets, changes in transport and logistics, improvements in information and communication technology, biotechnology, the increasing importance of standards and the “traceability” of products, and greater concentration within agricultural supply chains, have all contributed to the greater prevalence of contracts. Thus, agricultural commodity chains have become more integrated, globalised and consumer driven, referred to as the “industrialisation” of global agriculture. Reardon, *et al.* (2009) outline how this process occurred first in wholesaling, then in processing, and more recently in retailing (as seen in the increasing market power of supermarkets) over the past twenty five years. During this time, agricultural production has evolved from supplying an array of generic, standardised commodities to a much broader series of highly-differentiated food products fulfilling different niche requirements (Kirsten and Sartorius, 2002). We now discuss each of the demand and supply factors in turn.

2.1. Demand side factors

Demand for food and agricultural products increases each year, due to population growth. The United Nations Population Division estimates that the world’s population will increase to 9.2 billion by 2050, an increase of 56 million people per year over the 2010 figure (6.9 billion).^[9] The fastest rate of population growth during this time will continue to be in some of the poorest regions, particularly sub-Saharan Africa (with

[9] Medium variant, Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2008 Revision*, <http://www.un.org/esa/population/>

the annual population growth rate falling from 2% to 1.25% over this time period).^[10] Along with a larger global population, recent decades have also seen a rapid increase in urbanisation, which tends to alter food preferences and diets. Around half of the world's population now resides in urban areas, and this proportion is expected to increase to 69% by 2050.^[11]

Demand for food has also increased due to higher incomes in many developing countries. For example, in the mid-2000s, annual income growth rates were greatest in Africa at 4.2%, Asia at 3.5% and Latin America at 2.3% (Narrod *et al.*, 2007, cited in Catelo and Costales, 2008). Moreover, projected GDP per capita growth rates for emerging and developing economies are much higher than for developed countries, not least due to the former's faster and stronger recovery from the recent global recession (see Addison *et al.*, 2010).

More people, living to a greater extent in urban locations, with higher incomes, has had a profound effect on demand for food and on food preferences, particularly towards greater protein consumption and higher-quality produce. For example, Da Silva (2005) presents FAO forecasts that overall demand will increase from a base figure of 2803 kcal/person/day in 1997/1999 to almost 3000 kcal/person/day in 2015, and will exceed 3000 kcal/person/day by 2030.

Additional factors have also contributed to the changing global-consumption basket: increased female participation in the workforce has increased demand for pre-processed foodstuffs; higher public awareness regarding healthy diets and food safety has altered purchasing patterns; and, particularly in developed countries, environmental and developmental credence factors have altered patterns of demand (see Catelo and Costales, 2008).

Overall, consumers have become increasingly discerning, demanding greater quality, increased differentiation of food products, and, very importantly, greater information not only regarding the nutritional and chemical composition of the products they

[10] This is unsurprising as a rational response by poor households to rural risk and uncertainty, in the context of limited or non-existent social protection measures from the state, is to self-insure through a large family (see CPRC, 2008).

[11] United Nations, Department of Economic and Social Affairs, Population Division (2010). World Urbanization Prospects: The 2009 Revision. CD-ROM Edition - Data in digital form (POP/DB/WUP/Rev.2009). But this is not to say that the greatest percentage of poor people live in urban areas. On the contrary, Chen and Ravallion (2007) note that apart from Latin America and the Caribbean, in 2002 the rural share of the poor was greater than 70% in all regions of the developing world. In other words, despite structural change in East Asia, absolute poverty remains a predominantly rural phenomenon.

buy, but regarding the entire supply chain. Recent food health scares (such as the use of antibiotics in livestock, avian flu, British mad cow disease, E. coli, salmonella, and listeria) have heightened consumers' need for detailed knowledge about their food purchases (see Giovanucci *et al.*, 2008; Young and Hobbs, 2002). This trend has contributed to the buyer-driven nature of many agricultural value chains as "traceability" has become a vital attribute of quality.

Such a change in consumer requirements has caused considerable restructuring within agricultural supply chains. Thus, modern processors and retailers are demanding greater standards and quality controls from their suppliers, and where necessary, they have vertically incorporated production units into their portfolios (Reardon *et al.*, 2009). We now address the supply-side changes within agricultural value chains.

2.2. Supply side factors

As Swinnen and Maertens (2007) note, less than three decades ago the vast majority of agricultural systems in developing, emerging and transitional economies were governed by state-owned enterprises, such as marketing boards and parastatal processing units. Such institutions, often created post-independence and with an implicit mandate to ensure "national" ownership and control over agricultural supply chains, frequently benefitted from mono/oligopsonies in strategic crops.^[12]

Such systems of state control have been radically restructured since the mid-1980s, in the era of liberalisation and globalisation. For example, liberal investment regimes, the privatisation of state-owned assets, and market liberalisation have contributed to an increase in the value of international trade in agricultural commodities, particularly high-value, non-traditional commodities, such as horticulture and seafood (see Swinnen and Maertens, 2007; Da Silva, 2005). Moreover, there has been a substantial increase in the value of processed food exports throughout this time period, especially from Argentina, Brazil, Malaysia, Thailand and Taiwan (Wilkinson, 2004).

The opportunities presented by liberal trade, investment and marketing regimes have favoured large firms with the greatest technical efficiency and the ability to meet public and private standards (in other words, those with modern and cross-border

[12] In some developing countries, this led to producer prices being kept at way below export parity, with the extraction of these "rents" being part of a wider urban bias in development policy (Lipton, 1977; Kydd and Christiansen, 1982). On the other hand, in certain cases such rents helped to cross-subsidise food crop production and consumer grain prices (see Harrigan, 2001).

supply-chain operations – see Da Silva, 2005). Thus, recent decades have seen increasing concentration within agricultural value chains. There are now usually fewer, but larger, firms within supply chains, with a great degree of vertical and horizontal co-ordination (Giovanucci *et al.*, 2008). This has occurred within the input-supply nodes, with forward linkages to production, as well as within the marketing and processing nodes, with backward linkages to production and input supply (see Humphrey and Memedovic, 2006). In addition, retail nodes have seen tremendous concentration (see Reardon *et al.*, 2009).^[13] As we have seen, vertical integration that was previously implemented by the state is now more frequently conducted by the private sector, not least because the finance and extension services previously provided by the state no longer exist in the same form or with the same coverage (Key & Runsten, 1999).^[14]

Alongside economic liberalisation, recent decades have seen changes in transportation, logistics and information and communication technology. Products now tend to move much further from production to consumption than in the 1980s, facilitated by improvements in freight services and cooling technologies (see Da Silva, 2005). In addition, computing and communication technologies (such as global positioning systems and mobile networks) reduce co-ordination costs. Improvements in the systems used by retailers (such as linked sales, inventory and ordering systems) continue to improve efficiencies in procurement.

A further technological innovation that has increased vertical integration has been the use of biotechnology, such as genetically modified (GM) crops. Since such advances hold the promise of substantial gains in productivity, GM crops have been embraced by some key agricultural producers, notably the US. However, their use is contentious. Such controversy ensures that in some countries production is often through vertically integrated arrangements, as there is a need for full traceability (although, in practice, it can be hard to prevent leakage of GM material onto adjacent fields).

This brings us to the vital issue of standards, or, in other words, “the agreed criteria, or ... ‘external points of reference’, by which a product or service’s performance, its technical and physical characteristics, and/or the process and conditions under which it has been produced or delivered can be assessed” (Nadvi and Wältring, 2004, p. 56,

[13] This is not to say, though, that all agricultural value chains have become increasingly concentrated.

[14] Thus, recent decades have seen considerable de-nationalisation of agricultural systems (Wilkinson, 2004).

cited in Humphrey and Memedovic, 2006). In many cases, vertical integration through contract farming is geared to ensure adherence to public or private standards and traceability (Giovanucci *et al.*, 2008).

The manner in which standards influence agricultural systems “is intimately linked with functions of governance within the value chain; that is, how conditions for participation in the chain are set, implemented, monitored, and enforced” (*ibid.*, p. 2). While previously the main determinants in market participation were cost and stability of supply, now standards such as safety assurance, traceability, quality control, and credence factors are, in many cases, significant barriers to entry.

Humphrey and Memodovic (2006, p. 15) outline how agricultural standards have changed considerably in recent decades. Standards are both internal and external to the specific value chain, and can be created by firms, associations, governments, trade blocs, third parties, and non-governmental organisations. Often, public standards form a baseline with an emphasis on public health and safety, while private standards allow for greater product differentiation (with the former now becoming less important than the latter – see Reardon *et al.*, 2009).

These shifts have, in part, been a corporate response to the increasing risk of civil or criminal litigation (Giovanucci *et al.*, 2008). In addition, standards can be seen as a response to the increasingly discerning consumer who demands quality and highly differentiated products. Needless to say, meeting such standards is expensive and time consuming. This is especially the case for smallholder suppliers in developing countries. As Giovanucci *et al.* (2008, p. 2) point out, “smallholders in the supply chain often lack the internal capacity and the economies of scale to establish effective quality assurance and traceability systems...[and] may be marginalized unless they can make standard compliance cost effective and guarantee traceability for the buyers”. Contract farming is one response to this challenge.^[15] The radical changes in recent decades, which continue apace today, have meant that contract farming offers opportunities to firms and farms, including smallholders.

2.3. The opportunities from contract farming

For firms, the opportunities provided by contract farming are clear and convincing: (1) increased reliability in supply quantity and quality (reducing screening and selection

[15] But this is not to say that standards should be seen only as a threat and not as an opportunity. For example, Jaffee and Henson’s (2004) review of standards found that higher requirements had a differential effect on the competitive abilities of countries and firms, with many winners as well as losers within developing countries.

costs); (2) the off-loading of production risk onto farmers, in many cases; (3) greater control over the production process and crop attributes, to meet standards and credence factors; (4) reduced co-ordination costs, as a more regular and stable supply permits greater co-ordination with wider activities; (5) greater flexibility in expanding or reducing production (since there are fewer fixed assets, especially compared to full vertical integration); (6) economies of scale in procurement, via the provision and packaging of inputs. In addition, lower direct-production risk can improve a firm's credit rating, and also allow a firm to maintain intellectual property protection (for example, for new germplasm or genetically modified crops).

There are also less tangible potential benefits. Contract farming can provide greater confidentiality in pricing levels (so that that competitors are less able to access this information). It can also provide status and reputational benefits, through involvement in national development programmes or projects that have state involvement. On a broader note, and especially where access to land is highly politicised, it can overcome land constraints. For example, firms may find it hard to obtain land, or may run the risk of expropriation if they do own it. Overall, contract farming can increase profits from, and improve governance of, the value chain.

Contract farming also offers numerous opportunities for farms: it can allow access to a reliable market; it can provide guaranteed and stable pricing structures; and most importantly, it can provide access to credit, inputs, production and marketing services (seed, fertiliser, training, extension, transport, and even land preparation). On a wider note, contract farming can open doors to new markets for a farm's produce, stimulate technology and skill transfer (particularly for higher-risk crops, which resource-poor farmers might typically avoid), and it can support farmers in meeting vital sanitary and phyto-sanitary standards.

For farms, the main opportunity from contract farming is the promise of higher incomes. But, while important, this is not the sole criterion: for example, both Masakure and Henson (2005) and Guo *et al.* (2006) point out that stability and technical knowledge were, *inter alia*, cited as the most important reasons why farmers join contract-farming initiatives (quoted in Bijman, 2008). Contract farming can also provide many additional benefits and opportunities: it can increase on-farm diversification; technical assistance and knowledge transfer can spill over onto adjacent fields and into nearby villages; by-products from contract farming can be used for other farming activities; it can simplify marketing decisions, thus improving efficiency; it can stimulate the broader commercialisation of smallholder farming; and, finally, contracts can be used as a form of collateral for credit.

Although Swinnen and Maertens (2007) posit that the higher transaction costs and investment constraints would tend to limit smallholder participation in contract farming, a clear rationale for contracting smallholders can be found in the literature on the relative merits of small versus large farm production in sub-Saharan Africa (for example, see Ellis and Biggs, 2001). Small farms are frequently the most efficient agricultural producers, and have advantages over large farms in terms of labour-related transaction costs, in particular supervision and motivation. However, small farms often suffer from capital constraints, and a lack of capacity to adopt technological innovations. Moreover, and as we have seen, smallholders often lack the ability to meet exacting standards from actors further down the value chain. Contract farming can overcome these limitations: it can deliver the scale benefits typically associated with large-farm production systems. Economies of scale through the firm decrease the cost of inputs and transport. In addition, firms have a comparative advantage in marketing and technical knowledge, and product traceability and quality. In terms of poverty reduction, contracting with smallholders can reap large dividends: small farms are generally owned and operated by the poor, often using locally-hired labour, and often spend income within nearby locales, creating multipliers (Hazell *et al.*, 2006). Overall, there are good reasons why contract farming with smallholders can succeed.

Before addressing conceptual and theoretical perspectives on contract farming, we briefly outline five types of contract-farming arrangements, which were used to form the basis for the typology presented later in this review.

2.4. Types of contract-farming arrangements

The literature outlines five different “types” or models of contract farming (for example, see Eaton and Shepherd, 2001; Da Silva, 2005; Bijman, 2008). First, the **centralized model**, where a firm (often a large processor) contracts a large number of farmers, with strict quality requirements and quantity targets. Eaton and Shepherd (2001) suggest that products suited to this contracting model require substantial processing prior to retail – for example, sugarcane, tea, coffee, cotton, milk and poultry. The degree of input provision varies widely. In addition, Bijman (2008) states that the contracts under this model are often entered into with large farms due to the large volumes required to make processing a success.

Second, the **nucleus-estate model**, where the firm (again, often a processor) enters the production node through an estate or plantation but also contracts with independent producers (for greater volumes, or for seed). Eaton and Shepherd (2001)

suggest this model is often used for perennial crops and is often the preferred model utilised with resettlement or transmigration programmes (such as palm-oil production in Indonesia). Thus, this is the contract-farming model that utilises out-growers from a central estate.

Third, the **tripartite model**, where a joint venture (between a public entity and a private firm) enters into a contract with farmers. Eaton and Shepherd (2001) indicate that this model can involve national and/or local government, and Bijman (2008) contends that it is particularly popular in China. Due to government involvement, contracting based on this model could potentially be politicised.

Fourth, the **informal model**, where smaller firms or traders enter into annual agreements, often on a verbal basis, with a limited number of farmers, frequently for fruit and vegetables that require minimal processing. As firm size is usually small, the success of such initiatives partly relies on the extent to which other providers (such as the state and/or NGOs) can offer inputs, such as extension and credit (Eaton and Shepherd, 2001). Due to its non-formal nature, this model often suffers from extra-contractual side-marketing.

And lastly, the **intermediary model**, where the firm sub-contracts interaction with the farmers to an intermediary, such as a farming committee or a trader. Eaton and Shepherd (2001) state that this model is popular in Thailand and Indonesia, and that the increased distance between firm and farm decreases the degree of control that the firm has over the process and the product (one of the main reasons for contract farming).

Having defined contract farming, highlighted how it is an increasingly important form of agricultural organisation, and introduced the main variations that exist, we now turn to the rationale for this review, followed by conceptual and theoretical perspectives.

2.5. Why do we need a further review of contract farming?

Contract farming has always attracted considerable policy and academic interest. While recognising the transfer of technology, higher income opportunities, and improved access to inputs, much literature from the 1980s and 1990s focused on the risks to smallholders from contract farming (see Little and Watts, 1994; Glover, 1984, 1987, 1990; Porter and Phillips-Howard, 1997). For example, how such arrangements can engender a loss of autonomy and increased indebtedness, how contracts were

often manipulated with late and partial payments, and how the intra-household distribution of labour/income was often altered to the detriment of women's interests. Many of these findings were based on case studies written by sociologists, anthropologists and political economists (Grosh, 1994), whose interest was as much in how impacts were distributed across social groups as in the mean effect across participants.

Recently, a series of econometric studies using micro-level survey data (and controlling for selection bias) offer a much more positive assessment of contract farming. This spate of studies focuses on two main issues: the participation of smallholders in vertically-integrated value chains; and the impact of participation, particularly on smallholders' incomes (for a summary of the broader debate on these two issues, see Reardon *et al.*, 2009).

Regarding the first issue, the literature remains mixed. For example, a more pessimistic interpretation is offered by Kirsten and Sartorius (2002), Runsten and Key (1999), Baumann (2000), Singh (2002), Delgado *et al.*, (2008), Da Silva (2005) and Birthal *et al.* (2005), although many of these authors recognise that in certain circumstances smallholders do engage in contract-farming engagements.

In contrast, a more optimistic interpretation is offered by Reardon *et al.* (2009), who outline that although smallholders tend to be excluded in dualistic agrarian economies, there are numerous exceptions to this pattern. Moreover, Reardon *et al.* (2009) argue that where small farms are common, they frequently participate and perform well within vertically integrated chains (although wealthier smallholders, unsurprisingly, tend to dominate). In addition, Swinnen and Maertens (2007) posit that although theory suggests that transaction costs and investment constraints imply that smallholders should be excluded from participating, empirical work suggests a much greater degree of participation.

The literature on the impact of participation shows a much more distinct shift in the last decade. Recent econometric work, for example Birthal *et al.* (2008), Bolwig *et al.* (2009), Miyata *et al.* (2009), Minten *et al.* (2009), Ramaswami *et al.* (2005), and Setboonsarng *et al.* (2008) shows significantly higher incomes for contract growers. The broader agribusiness literature supports these findings, with Reardon *et al.* (2009, p. 1722) stating "that farmers participating in the modern food industry channels, compared to those only in the traditional channels, have greater net earnings per ha or per kg marketed".

In addition, contract farming has also recently attracted significant high-level policy attention. For example, the *World Development Report 2008 on Agriculture for Development* strikes an optimistic note on the potential for reducing poverty through contract farming, especially when linked to producer organisations. This report argues that contract farming can ensure quality premiums on traditional export crops (such as cotton), can address vital standards issues, and can smooth and increase smallholders' incomes (World Bank, 2007). A further example of policy interest is UNCTAD's (2009) *World Investment Report on Transnational Corporations, Agricultural Production and Development*, which argues that contract farming with smallholders eases financial constraints, can act as a form of collateral for lenders, and improves the incomes and investment capabilities of smallholders.

Thus, in general, we find a more sanguine appraisal of contract farming compared with one or two decades ago, even though contract farming remains a highly-contested topic within agricultural policy debates.

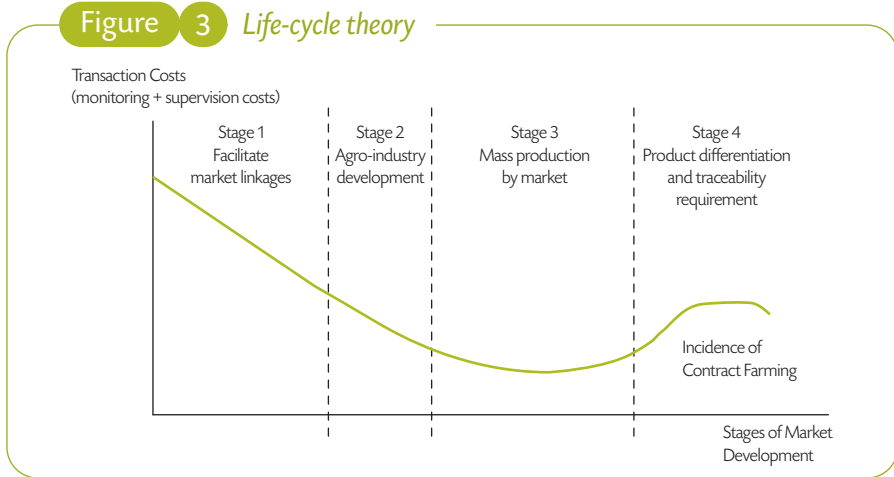
3. Conceptual and Theoretical Perspectives on Contract Farming

We now consider seven theories and conceptual approaches regarding contract farming, before moving on to a comparative review of cases. In addition to the global and regional trends discussed thus far, the meso- and micro-level theories and concepts in this section help to partly explain why contract farming exists, and why it is increasing in frequency. Each conceptual approach or theory helps to shed some light on the contract-farming phenomenon, by abstracting from empirical material. While some approaches are based on well-founded assumptions and can thus be used to test hypotheses and provide foresight, others present parsimonious concepts that offer clarity and insight. Importantly, however, this section does not attempt to rank, reconcile or synthesise the different approaches.

3.1. Life-cycle theory

First, life-cycle theory. Starting with Adam Smith's dictum that "the division of labour is limited by the extent of the market", Stigler's life-cycle theory posits that industries tend to be more vertically integrated in the early stages of their development (since specialisation takes place when the size of the market supports economies of scale – see Rehber, 2007). In addition, after an industry matures, vertical integration may also take place due to product differentiation and traceability requirements (*ibid.*). Thus, vertical integration is predicted to be most frequent in very new and old industries. A good example of the latter are conventional tropical exports – such as coffee and cocoa – previously traded as generic, bulk commodities but now subject to substantial differentiation and traceability requirements. A good example of the former are second-generation biofuel crops – such as jatropha – for which markets do not yet fully exist. The main argument of life-cycle theory is loosely illustrated in Figure 3, with Setboonsarng (2008) highlighting the important role of transaction costs in precipitating contract farming, the issue we turn to now.

Figure 3 Life-cycle theory



Source: Setboonsarng, 2008.

3.2. Transaction-cost approaches^[16]

A more common approach to understanding contract farming focuses on transaction costs. The starting point for this perspective is Coase's (1937) simple question: why do firms exist? Coase's answer is: to minimise the transaction costs of exchange. Thus, if it is cheaper for a firm to produce an input (compared to purchasing it in an uncertain and unreliable market, with the possibility of substantial losses), then it will integrate backwards to do so. Such an approach to understanding firms and markets differs substantially from neo-classical approaches, in which transaction costs are ignored since it is assumed that prices within perfectly competitive spot markets carry all the information that economic actors require to make decisions (see Rehber, 2007).

Transaction-cost approaches suggest that markets are comprised of economic actors who have bounded rationality (in other words, they suffer from severe information deficiencies, and are unable to process all the information available to them) and are opportunistic (they can deceive, lie, cheat and steal). In Williamson's words (1979, p. 234, cited in Young and Hobbs, 2002) such actors seek self-interest with guile.

Thus, market transactions are hazardous and can entail considerable losses. Attempts by a firm to reduce or minimise these losses result in transaction costs. For example,

[16] Principle-agent approaches (also termed agency theories) are closely related to transaction-cost economics, and focus mainly on optimal contractual terms between two parties in light of information asymmetries, transaction costs and degrees of risk aversion (see Young and Hobbs, 2002, for a summary).

Williamson (1979) identified two main forms: *ex ante* (such as the costs of finding a trading partner, negotiating terms, drafting, safeguarding and monitoring an agreement); and *ex post* (the costs incurred to settle a dispute, such as legal fees, as well as the spill-over costs into the firm's activities and pricing levels). Transaction costs are clearly greatest in thin and imperfect markets (such as the agricultural markets in many developing countries). Indeed, they contribute to market failures (where the lack of exchange reduces production and innovation, and increases poverty).

Williamson (1979) posited that the level of transaction costs for a firm are primarily defined by three transaction characteristics:

- *Uncertainty* - incomplete information on current and future conditions, and the probability that the other party will engage in opportunistic behaviour;
- *Asset specificity* - the extent to which the firm's investments have a sole or limited range of practical and economically-useful applications;
- *Frequency of exchange* - the frequency of trade.

Thus, economic institutions and practices have been created to reduce uncertainty, ensure that firms can specialise and invest in specific assets, and increase the frequency of exchange (Williamson, 1979). For example, legal systems, trade associations, grade and standards systems, informal codes of conduct, and certification procedures (see Minot, 2007).

Such institutions do not eliminate the risks associated with market exchange, but they do limit the costs firms face. Vertical integration through contract farming can be understood as a response to these risks. For one, contract farming reduces uncertainty by providing a guaranteed marketing channel for the farmer and reducing the likelihood of deceit and deception. It also provides the firm with greater certainty regarding the quality and quantity of product it will receive. Second, it allows farmers to invest in specific assets, such as perennial shrubs or curing facilities, due to the assured marketing channel, and, perhaps, the provision of credit. Moreover, it allows firms to invest in specific assets, such as more refined processing equipment or refrigerated storage, as they have more certainty regarding the amount and type of product they will receive. And third, it encourages repeated exchange between farms and firms.

A further example of how contract farming decreases uncertainty relates to credence factors or niche characteristics. In this case, retailers need to ensure the integrity of their products. This increases their information costs in sourcing from the right suppliers, and increases monitoring and enforcement costs for these and other upstream actors (Young and Hobbs, 2002). Contract farming offers a way of reducing these costs.

Table 1 attempts to dissect how the three main determinants of transaction costs (uncertainty, asset specificity, and the frequency of transaction) in addition to the complexity of the transaction, are influenced by different product characteristics, regulatory issues, and technological issues.

Table 1 *Transaction characteristics, product characteristics, regulation and technology*

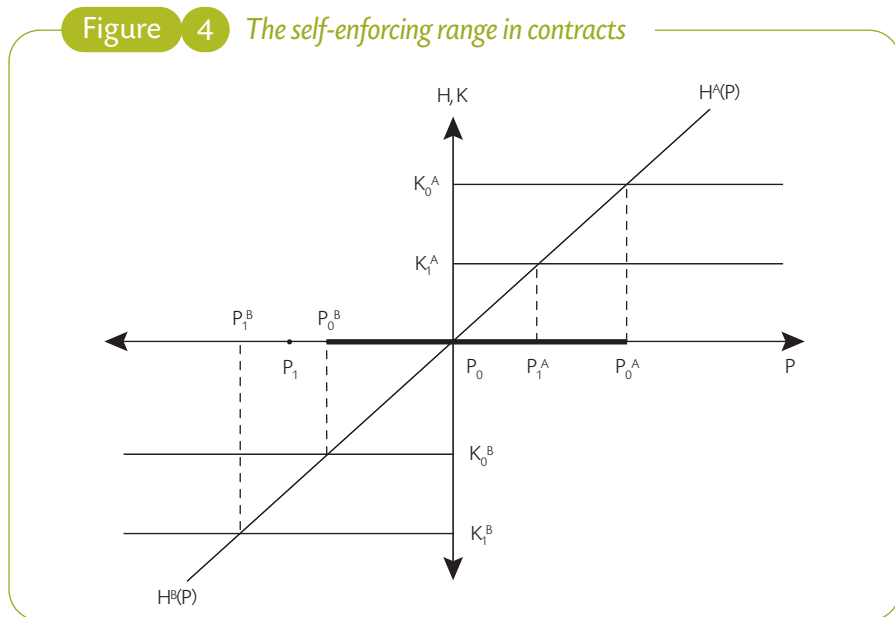
	Transaction characteristics						
	Uncertainty for buyer: quality	Uncertainty for buyer: reliable supply (timeliness and quantity)	Uncertainty for buyer and seller: price	Uncertainty for seller: finding a buyer	Frequency of transaction	Asset-specific investment	complexity of transaction (variety of outcomes)
<i>Product characteristics</i>							
Product perishability	+	+		+	+		+
Product differentiation	+	+	+	+		+	+
Quality variable and visible		+	+	+			+
Quality variable and invisible	+	+	+				+
New characteristics of importance to consumers	+	sometimes	+	+		+	+
<i>Regulatory drivers</i>							
Liability	+			+		sometimes	+
Traceability				+		+	+
Product standards and grades	-			+/-		-	sometimes
<i>Technological drivers</i>							
Company-specific technology						+	sometimes

Source: Young and Hobbs, 2002.

Table 1 suggests that perishability, product differentiation, quality variability and visibility, new consumer preferences, and regulatory drivers tend to increase uncertainty for both buyers and sellers. Table 1 also suggests that some of these trends are likely to increase the need for investment in specific assets. Overall, based on this perspective, contract farming can be seen as a response to the increasing complexity of transactions. The important issue of regulation and standards will be addressed shortly.

3.3. Contract enforcement

Theories of contract enforcement focus on the incentives to honour contracts (see Klein, 1996). These incentives can be public (such as forms of legal redress), private (the match between the contents of the contract and market conditions at the time of exchange), or a mixture of both. Gow *et al.* (2000) posit that at any point in time during a contract, both parties assess the costs and benefits of breaking their deal. If market conditions change unexpectedly, such that the benefits of delaying or breaking the contract are greater than the capital and reputation losses for one party, then this will lead to a “holdup” (in other words, exchange will be delayed and the contract will not be honoured). Conversely, if the benefits estimated from such unexpected changes do not exceed the capital and reputation losses, then the contract will be fulfilled. Gow *et al.* (2000) refer to the range within which the contract will be completed as the “self-enforcement range”. This is illustrated in Figure 4 as between P_0^A and P_0^B .



Source: Gow and Swinnen (2000).

Figure 4 shows the possible gains and losses incurred by Farm A and Firm B, which have entered into a contract for Farm A to supply Firm B with a specified product at price P_0 . If the external market price increases from P_0 , this provides rents to Firm B, as the

price has been fixed in the contract. However, an extreme increase in market prices provides an incentive for Farm A to break the contract (as it can sell the produce for greater profit in spot markets). If prices only move to P_1^A and no further, the greater profits for Farm A from side-selling produce *do not* outweigh the reputation, capital and discounted future-income losses incurred as a result of this contract breach (illustrated as K_1^A), and the contract is honoured. However, above P_0^A the greater profits accrued from side-selling *do* outweigh reputation, capital and discounted future income losses for Farm A (illustrated as above K_0^A), and thus the contract is broken. *Vice versa*, P_0^B illustrates the lower price limit of the self-enforcement range, beyond which it becomes beneficial for Firm B to break the contract and purchase the product on spot markets (with K_0^B being the sum of reputation, capital and discounted future-income losses if the contract was broken). Thus, at P_1^B , it is optimal for Firm B to breach the contract (with losses illustrated as K_1^B).

As is apparent from this example, incentives to honour contracts are not solely based on short-term financial interest, but include longer-term reputation, credibility and income concerns. Three issues stem from this: (1) first, that it is clear that an ability to foster stable and mutually beneficial contract-farming arrangements depends as much on relatively stable market conditions as the precise contract details; (2) second, that smallholder farmers in developing countries generally worry less about reputational losses than instant access to income (not least because their needs are often more pressing than those of the firm and farmers in other countries, and because of greater anonymity); and (3) third, that contracts can be designed to limit the likelihood of default by increasing the self-enforcement range – for example, by requiring increased investment in the contract (through specific assets, or other means). This issue is discussed further in Section 5.

3.4. Convention theory

Convention theory focuses on the quality attributes that products exhibit. In well-established markets with perfect information, prices are assumed to reflect all relevant quality attributes. But if quality requirements are particularly exacting, or product quality is especially uncertain, certain quality conventions help to facilitate exchange (see Young and Hobbs, 2002). Four types of coordination are presented in convention theory (again, see Young and Hobbs, 2002): market coordination (as above); domestic coordination (which relies on long-term relationships and trust); industrial coordination (where an independent party sets thresholds); and civic coordination (where there is a collective agreement among firms to avoid conflict and set standards).

For example, when contract farming takes the form of a long-term strategic alliance (see column 3 in Figure 1) it can be understood as a form of domestic co-ordination, in which long-term relationships and trust ensure particular quality attributes. The two other types of co-ordination in convention theory – industrial and civic – can be seen as mapping loosely onto public and private standards, respectively. Industrial co-ordination mainly relates to public health and safety concerns, but also includes those private standards imposed by non-state third parties (such as certification bodies). Somewhat confusingly, civic co-ordination refers to private standards: firms agreeing to adhere to certain requirements for mutual benefit. Convention theory helps us to understand how particular standards are set, as does the next conceptual domain: value-chain governance.

3.5. Value-chain governance^[17]

Value chain approaches take as their starting point the assertion that “the tacit coordination of markets is being replaced increasingly by ‘explicit coordination’ through direct exchanges of information between firms” (Humphrey and Memedovic, 2006, p. 8). While this is referred to as civic co-ordination in convention theory literature, here it is referred to as value-chain governance.

Humphrey and Memedovic (2006) posit two reasons why such governance is increasingly important: greater demand for non-standard products; and risk reduction. Moreover, they suggest two conditions under which lead firms are able to direct/persuade/coerce other firms to act in particular ways: economies of scale (giving large firms more power to influence other firms); and the availability of sanctions (such as creating, or increasing the height of, a barrier to entry). As we can see, value-chain governance refers to the extent and manner in which firms seek to control a supply chain.

So, what does “governance” look like? Based on the insights of Williamson (1979), the global value chain literature suggests three different forms of co-ordination – *markets*, *networks* and *hierarchies* – defined by the complexity of the information that needs to be transferred; the extent to which this information can be communicated simply and clearly; and supplier competence.

For example, as mentioned earlier, standard products that require no transfer of information are frequently transacted via *markets*. In contrast, niche or highly-

[17] This section draws heavily on Humphrey and Memedovic (2006).

differentiated products are transacted through *networks* or *hierarchies* dependent on the competence of the suppliers and whether information about the quality and attributes of the product can be transmitted easily and clearly. For instance, the communication of tacit knowledge necessitates in-depth and repeated interaction among the actors. *Markets* will not suffice.

Network coordination can take at least three different forms: relational linkages (referred to as strategic partnerships with a degree of inter-reliance); captive linkages (where small upstream suppliers are reliant on larger downstream buyers); and modular linkages (where the customisation of product occurs without substantial interactions or investment in specific assets, thus allowing flexibility in entering and exiting the value chain).^[18] Contract farming is usually an example of captive network co-ordination, where the farms are a captive supplier to the firm. Needless to say, *hierarchies* are when one administrative body – usually a firm – covers and controls numerous nodes in the supply chain (in other words, vertical integration, with internal control coming from a centralised decision-making structure).

More broadly, both convention theory and the literature on value-chain governance remind us that, just as state and non-state actors seek to regulate and control commodity chains, so too do private sector firms (often in collaboration with each other).

In addition to convention theory, and as outlined above, value-chain governance focuses particularly on the increasing role of standards in structuring value chains.

Table 2 Examples of product and process standards

Type of Codification		Legal Codification	International Agreed	Regional Specific	Firm Specific
Type of standard	Product	<ul style="list-style-type: none"> • Food hygiene standards 	<ul style="list-style-type: none"> • Codex Alimentarius • Grades of wheat • Moisture level for coffee beans 	<ul style="list-style-type: none"> • EU MRLs • EU GMO limits 	Chiquita residue and size standards
	Process	<ul style="list-style-type: none"> • Workplace health and safety standards 	<ul style="list-style-type: none"> • ISO9000 (quality) • SA8000 (labor) • Fair Trade 	<ul style="list-style-type: none"> • BRC • ASEAN-GAP 	Starbucks sourcing practices

Source: Giovanucci and Purcell (2008), based on Kaplinsky and Morris (2000).

[18] Naturally, information regarding the quality and attributes of products can change quickly; similarly, supplier competence can also alter quickly.

For example, the “increasing stringency of public, mandatory standards relating to food safety; the shift from product standards to process standards; the increasing scope of standards; and the increasing importance of collective private standards” (Humphrey and Memodovic, 2006, p. 15). Table 2 offers examples of both product and process standards at the international, regional, as well as the firm level.

3.6 Competency / capability theories^[19]

While transaction-cost approaches and the value-chain-governance perspective focus on the interactions between firms, a different set of literature focuses on the intrinsic qualities and attributes that firms possess. In other words, “from the competence perspective, the existence, structure and boundaries of the firm are explained in some way by individual or team competencies skills and tacit knowledge that are in some way fostered and maintained by that organization.” (Hodgson 1998, p. 180, cited in Young and Hobbs, 2002).

Clearly, the ability to create and sustain contract-farming operations relies to a large extent on the skills and experience of staff and the ability of the organisation to maximise these. For example, the tacit knowledge of some staff, honed over decades, will increase productivity and profitability only if management is able to elicit and utilise the knowledge in an efficient manner.

Moreover, advocates of this approach posit that firm-based knowledge is necessarily superior to that within the marketplace as “practical knowledge in the form of competencies can [only] exist in the body of an organized group of individuals ...it would not survive in a world of contracting and re-contracting individual agents” (Hodgson 1998, p. 192, cited in Young and Hobbs, 2002). This is an often-neglected topic within the contract-farming literature: clearly, successful contract farming operations rely heavily on the expertise of those managing the operations.

3.7. Political economy of agrarian change

The “political economy of agrarian change” was a relatively influential school of thought in the 1970s and 1980s. Based on the control of land, labour and capital, this Marxist and neo-Marxist body of work mapped the deepening capitalist relations of

[19] A further body of literature on vertical integration not summarised here, which exhibits elements of both the value-chain governance approach and a focus on firms’ capabilities, is termed Strategic Management Theory (see Young and Hobbs, 2002).

production within agrarian societies, mainly in terms of changes in class, but also in terms of gender, kinship and household reproduction (for example, see Shanin 1987, Hartmann and Boyce 1983, Mackintosh 1989, Murray 1987).

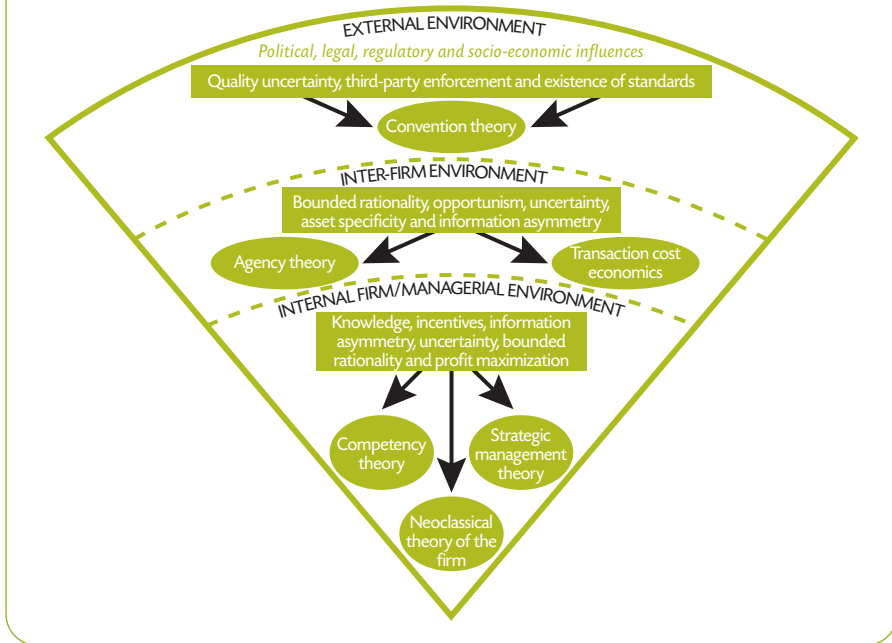
Contract farming was generally viewed as a means through which capital could extract surplus value from the peasantry through exploitative terms. Singh (2002) summarises the main tenets of this school's interpretation of contract farming (see also Little and Watts, 1994; Glover, 1984, 1987, 1990), as follows: (1) that contract farming develops only when the state's role in agricultural input and output markets is limited and when markets shows signs of failure; (2) that contracting often relies on monopsonies to be efficient; (3) that it leads to self-exploitation as farmers choose to relinquish control of their land and labour, but fail to receive payment that equals the value they've added to the product; (4) despite their limited resilience, farms usually bear all production risk and losses from *force majeure* calamities; (5) farmers neither benefit from a stable wage labour contract, nor the ability to manage their own farms for their own benefit; instead they become semi-proletarianised peasants or pauperised labourers; (6) contract farming frequently alters the intra-household distribution of labour/income to the detriment of women, and frequently involves child labour; (7) that, when successful, contract farming creates a class of peasant-capitalist farmers, which accelerates the proletarianisation of poorer peasants, with peasant capitalists acquiring their land; and (8) contract farming can have substantial spill-over effects into local communities and markets: reduced food crop production can lead to higher food prices in local markets; the provision of inputs for contract farmers can lead to thinner spot markets and higher prices for non-participants. Clearly, some of the findings from this body of work still resonate within current contract-farming debates – for example, the shifting of risk onto peasants, intra-household issues, and spill-over effects. But it is also interesting to note within this body of work the lack of attention to the inter- and intra-firm aspects of contract farming, the characteristics of particular commodities, and the role of regulation and standards.

3.8. Comparative review of theories

As already mentioned, this review does not attempt to reconcile the above theories and concepts, nor place them in a hierarchy.^[20] Instead, it simply presents them and

[20] Young and Hobbs (2002) posit that the strongest approaches are transaction-cost economics and agency theory as they have well-defined behavioural and informational assumptions and thus can be used to test hypothesis and build predictive models.

Figure 5 Synthesis of theoretical and conceptual approaches to contract farming



Source: Young and Hobbs (2002).

then considers an attempt at synthesising the economics- and management-based bodies of work (in other words, all the above approaches with the exception of value-chain governance and the “political economy of agrarian change”). The synthesis was conducted by Young and Hobbs (2002) and is illustrated in Figure 5.

Thus, starting from the top, Figure 5 shows how convention theory sets some of the external context, in which vertical integration and contract farming takes place. One notable omission here is the role of the state in addressing market failures, providing public goods such as promoting research and development. The central segment consists of the inter-firm environment, home to the influential transaction-cost perspective (and the associated principal-agent/agency approach). Although not included in Figure 5, the insights from value-chain approaches could be added to both the top segment (on standards) and the central segment (on the governance and co-ordination of commodity chains). The bottom segment consists of the

intra-firm/managerial environment. Here we find competency/capability theories, strategic management approaches, as well as the neo-classical theory of the firm.^[21]

But to what extent do these theories and concepts help us to expand upon the simple typology of contract-farming models presented in Section 2?

The most developed body of work in this regard is transaction-cost economics. A good starting point here is the assertion by Minot (2007, p. 1) that:

Transaction cost economics, a branch of new institutional economics, suggests that, because contracting involves costs, it is economically justifiable only (1) when the buyer is a large firm (a processor, exporter, or supermarket chain); (2) when the product is characterized by large quality variations, perishability, technically difficult production, and/or a high value-bulk ratio; (3) when the destination market is willing to pay a premium for certain product or production attributes that can be ensured only by close coordination between farmers and buyers; and (4) when the policy environment is conducive.

A fair amount of the contract-farming literature, which is often couched in terms of transaction-cost economics, is in agreement with the above statement.

Regarding products, we've seen that standard crops that have uniform quality and are not perishable are usually traded in spot markets (since the transaction costs are low). Firms need to have greater control over crops that have more variation in quality, perish easily, and are hard to grow. The higher costs suggest that contracting will be most common for crops that command a higher price per kg (as all of these aspects increase transaction costs). Thus, Minot (2007) suggests contract farming is mainly used for "high-quality fruits and vegetables, organic products, spices, flowers, tea, tobacco, seed crops...dairy products and poultry". Importantly, if products exhibit substantial economies of scale (such as banana or sugarcane), then large-scale plantation or estate production can be more efficient (although these often contract out-growers too).

[21] What is also missing from this attempt at synthesising theoretical and conceptual approaches to contract farming is greater attention to the farm side of the partnership. While all the above theories do pertain to farms in developing countries (as they are, of course, firms themselves), farms, and especially small farms, also display considerable differences (not least a co-operative conflict model of governance, social embeddedness, relatively predictable supplies of labour, etc.). Thus, a mirror diamond shape that illustrates, – in order from the apex – the most appropriate intra-household theories and concepts, the theories that help explain inter-household community interactions (for example, kinship and ethnicity), as well as the external political, legal, regulatory and socio-economic influences, would help to rebalance Figure 5 and increase its appropriateness for specific developing countries.

Minot (2007) also provides a convincing argument as to why contract-farming arrangements are usually conducted by large firms. First, such arrangements require substantial fixed costs, in particular a team of extension agents to engage, liaise and monitor farmers. Obviously, such fixed costs are easier for large firms to absorb. Second, firms with large processing plants that require a steady flow of raw materials tend to engage in contract-farming operations (sugarcane is a good example here, where out-growers supplement plantation production).^[22]

However, Minot (2007) is more circumspect regarding the size of farms. As indicated above, this is a contentious issue with many sceptics who doubt the ability of smallholders to participate in contract farming in a globalised world. Such arguments reflect deep concern that smallholder farmers are being marginalised by the radical restructuring of global food chains (for example, see Maxwell and Slater, 2003; Vorley and Fox, 2004). On the other hand, optimists highlight the numerous cases in which smallholders do participate and succeed in such arrangements (particularly where the landholding structure is extremely even, such as in China). Suffice to say that, on balance, the evidence in the literature is mixed (with examples of firms shifting from large to small farms, and *vice versa*).

Regarding markets, Minot (2007) states that greater demand for quality as well as credence factors tend to increase the likelihood that a crop is grown under contract. The markets that are most likely to pay a premium for quality attributes are those of developed countries, and supermarkets within urban centres in developing and emerging economies.

This review adds the insights provided by transaction-cost economics in agribusiness and globalisation literature to the two key issues discussed previously: the participation of smallholders in vertically integrated value chains; and the impact of participation on smallholders' incomes (see Reardon *et al.*, 2009). The five observations will be used as hypotheses against which to assess recent empirical literature on contract farming, and to improve on the typology of contract farming models.

[22] There is little detailed discussion in the literature about whether processors, exporters or retailers are most likely to engage in contract farming initiatives.

The five hypotheses are:

- (A) That smallholders tend to be excluded in dualistic agrarian economies, but enjoy greater participation rates where inequality in landholding size is low;
- (B) That contract participants show significantly higher incomes than non-participants;
- (C) That crops exhibiting a high degree of variation in quality, that perish easily, that are hard to grow, or command a higher price per kg – high-quality fruits and vegetables, spices, flowers, tea, tobacco, seed crops, dairy products, poultry and organic crops – are more likely to be grown through contract farming;
- (D) That contract-farming initiatives are usually undertaken by large firms;
- (E) That contract-farming arrangements are most likely to supply markets in developed countries, and supermarkets within urban centres in other countries.

We now turn to a comparison of “successful” and “failed” contracting-farming initiatives in developing countries.

4. Analysis of “Successful” and “Failed” Contract-Farming Initiatives in Developing Countries

In a comparison of “successful” versus “failed” contract-farming initiatives, the definition of success and failure is paramount. As this is a review of literature that offers varying degrees of information and many different foci, it is hard to use objective, strict criteria to adjudicate whether an initiative is a success or a failure. Instead, this review evaluates studies on their own terms. Thus, in most cases, success is defined in terms of the initiative increasing the productivity or incomes of the participants (in the best cases through a rigorous comparison to non-participants). *Vice versa*, failure is usually a reduction in productivity or income for the farms.

This review compares “successful” and “failed” cases in terms of the country and regional setting, the governance regime and country characteristics (conflict, fragility, poverty status), a contract enforcement indicator, regulatory quality, the rule of law, what type of resources are provided to the farmer (seed, agrochemicals, credit, extension), the role of the state/third parties in the partnership, as well as any contextual factors that have contributed to success or failure. See Appendice 4 (on the website: <http://recherche.afd.fr>) for a full list of sources and definitions.

From the hundred articles selected for this review, 44 cases of contract farming were deemed appropriate and contained sufficient information for analysis. Naturally, the findings from a small comparison of secondary material can only be treated as suggestive. Nevertheless, the findings illustrate useful avenues for further research and analysis. Thirty-five cases were assessed as “successful”, five showed “mixed” results, and four were assessed as “failed”. “Mixed” and “failed” initiatives are reported together. The comparison of “successful” and “failed” cases of contract farming enables us to revisit the five working hypotheses regarding contract farming in developing countries. Naturally, the cases included in this review are not able to prove or disprove a hypothesis. Instead, the findings should be seen as adding weight, either

pro or con, to the debate in question. Highlighting “successful” cases also allows us to develop a typology of successful contract farming initiatives.

At first glance, the findings presented by this review – 35 successful cases, five mixed cases, and four failed initiatives – might appear to lend some weight to the hypothesis that contract participants display significantly higher incomes or productivity than non-participants (as these were the key criteria used).

However, there is a need to be cautious here. For while recent econometric work has addressed selection bias at the household level (thus controlling for the observed characteristics of participants and non-participants), there has been no discussion in the literature about controlling for selection bias at the initiative level. In other words, there is little surprise that almost all of the arrangements studied, including those using quasi-experimental methods, show increased incomes for participants compared to non-participants (*ceteris paribus*), for if these arrangements had *not* raised incomes they might well have collapsed.

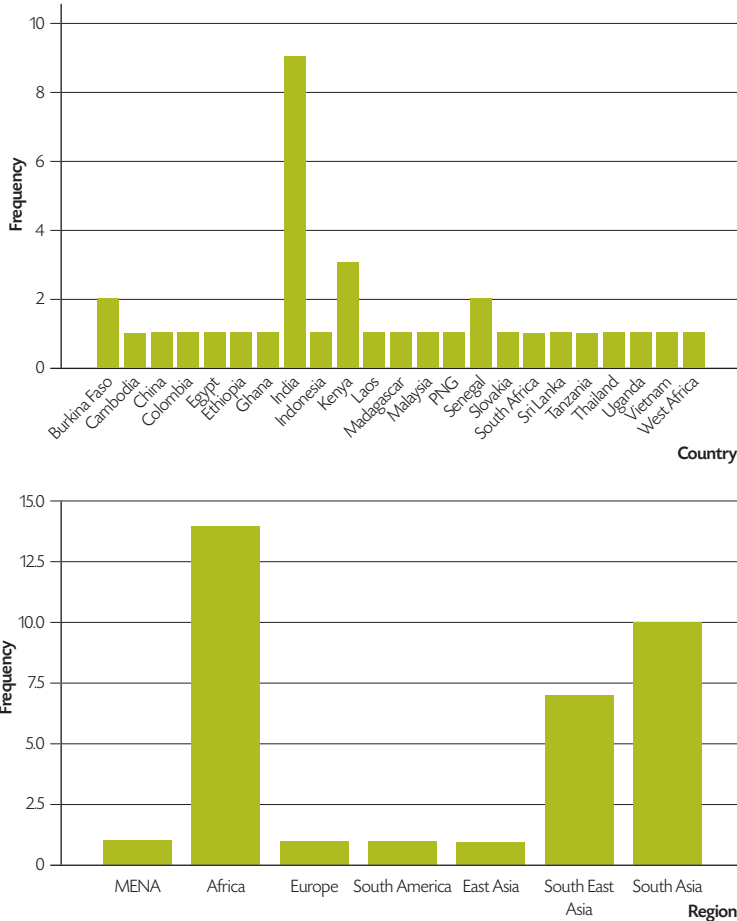
In this respect, we need to be cautious about claims that contract farming necessarily improves the incomes of participants, even on the basis of quasi-experimental evidence, without recognising the almost unavoidable initiative-selection bias that occurs when researchers select highly visible projects that have been in existence for some time, implying that farmers *are* benefitting from the initiative (or that participation entails a low opportunity cost). We now turn to the comparison of cases, starting with country context.

4.1. Comparison of “successful” and “failed” cases of contract farming

As Figure 6 illustrates, “successful” cases are spread over a wide range of countries. Indeed, the only countries to register more than one instance of “success” in this review are India (9), Kenya (3), Senegal (2) and Burkina Faso (2).

The regional breakdown (Figure 7) of these 35 “successful” cases shows 14 cases in Africa, 10 in South Asia and 7 cases in Southeast Asia. Other regions contain one case each. The successful cases of contract farming occur within a broad range of governance regimes, including republics (13 cases), federal republics (10), parliamentary democracies and constitutional monarchies and communist states (3 cases each).

Figures 6,7 Distribution of “successful” cases of contract farming (by country and region)



Source: Author.

In a similar fashion to the successful initiatives, the “failed” cases come from a wide range of countries: Bangladesh; China; Ghana; Guinea; Indonesia; Laos; Mexico; the Philippines; and Zimbabwe. Again, Africa and Southeast Asia are well represented, and the cases are situated within a broad range of governance regimes including communist states, republics and democracies. There is little difference between the successful and failed cases in terms of the geographical distribution and governance regime.

4.1.1. Country context

Interestingly, almost half the cases of “success” (49%) occur within a country that has one or more armed conflicts, according to the Uppsala Conflict Data Program. However, nine of these 17 instances are in India (which skews this result). Even when Indian cases are excluded, we find that one quarter of successful cases are in conflict-affected countries. Similarly, we find that 23% of cases (8) are in states that are deemed “fragile”, according to a recent DfID (Department for International Development) categorisation. Moreover, 29% (10) of the successful cases are in Least Developed Countries (according to UNCTAD’s *Least Developed Countries Report 2004*).

Indicators for contract enforcement, regulatory quality and the rule of law (covering only 34 cases, as one case covered more than one country) also show an interesting story: namely, that successful cases of contract farming occur in the full range of enforcement, regulatory and legal settings. The range of contract enforcement values (where a rank of 1 is excellent and 183 is terrible) for the successful cases stretches from 18 to 182, with the nine cases in India registering the lowest value (based on World Bank, 2009). Indeed, this helps to explain the low mean figure of 124. The standard deviation was 54.

Regulatory quality (based on percentile ranks provided in *World Governance Indicators 2009*) for the successful cases also shows a very wide range: 15 to 90 (with Laos at 90 coming in at the bottom). The mean figure of 54 (with a standard deviation of 13) shows a more balanced spread than the contract enforcement indicator. Similarly, the rule of law indicator (again from *World Governance Indicators 2009*, and presented in percentile rankings) shows a wide spread (33 to 86), but again a more balanced distribution (with a mean of 56 and standard deviation of 15).

The indicators for “failed” cases differ slightly, but not in a uniform fashion. Although the range of figures for contract enforcement show a similarly wide spread, the mean figure is higher, at 101 compared with 124 (remember, the high incidence of Indian cases pulled this latter figure down). In contrast, the figures for regulatory quality and rule of law are worse than for the “success” stories: 67 and 73, respectively. Overall, we see that contract farming can operate successfully in a very wide range of socio-economic conditions, and that success is not contingent on a country’s stability or the development of market institutions. This is not too surprising since contract farming is one response to overcoming the very high transaction costs in the thin and imperfect markets commonly found in conflict-affected and “fragile” countries. Nevertheless, it is an interesting finding of this review.

4.1.2. Firm characteristics

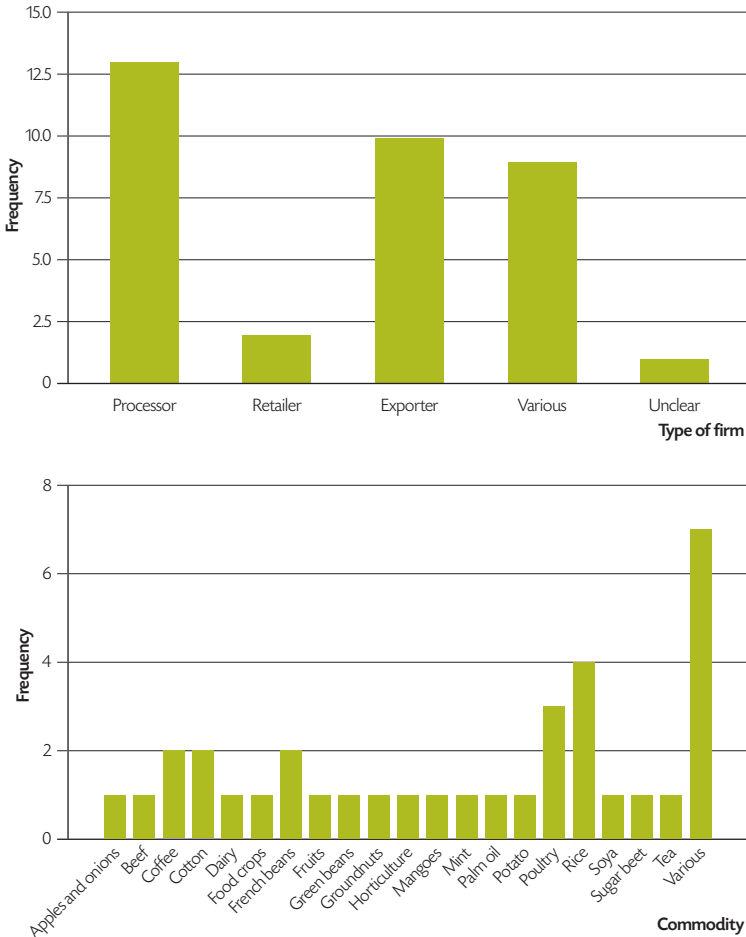
Turning to the characteristics of firms, 80% of “successful” cases (28) were with private firms. Three cases involved public institutions, a further three involved both private firms and a public sector institution, and one was with a formal public-private partnership. However, if we restrict the successful cases only to those studies that offered medium or high levels of evidence (and attempted to address attribution and selection bias issues at the household level), we find that nine of the 10 cases involved private firms (with the remaining case being the public-private partnership).

The findings on the size of the firm are also interesting. Thirty one of the 35 cases (89%) involved large firms. One case included a medium-sized firm, with the three remaining cases either being unclear or involving a range of sizes. Again, if we restrict ourselves to the 10 cases with medium or high levels of evidence, we find that all 10 involved large firms. Thirteen of the cases involved processors, 10 exporters, and two retailers (see Figure 8). Nine cases involved firms with a variety of functions. In one case, the activity of the firm was unclear. If we focus just on the 10 medium- and high-evidence cases, six of these were exporters and four processors.

The characteristics of firms in the failed cases differ in some respects. Of the nine cases, five involved private-sector firms, two public-sector institutions, one case involved both, and in one case the status of the firm was unclear. Thus, there is a higher percentage of public-sector firms among the failed cases (although, of course, the sample is far too small to read anything into this). Two of the firms were processors, one was a retailer, and one an exporter. The remaining four firms had a variety of operations. This breakdown is pretty similar to that of the successful initiatives.

Just as with the “successful” initiatives, the majority of these “failed” initiatives involved large firms. Thus, this review adds some weight in support of the fourth hypothesis – that contract farming initiatives are usually undertaken by large firms. However, and as was stated earlier, we should also be cautious regarding the possibility of selection bias at the initiative level. Clearly, it is easier for researchers to find and work with firms that are larger. For example, there are examples of cases where small firms do engage successfully in contract farming (for example, UNCTAD 2009). That said, the weight of evidence presented here tends to support the fourth hypothesis.

Figures 8,9 Types of firms and commodities produced in “successful” contract-farming initiatives



Source: Author.

4.1.3. Farm characteristics

Regarding the size of the farms contracted in the successful cases, 54% (19 total) of the contracts were with small farms, 26% (9 total) were with a combination of both small and large farms. There were also four cases with large farms, and three with medium-sized farms. Importantly, we also found that 10 of the 19 instances of success with small farms (53%) were through a producer organisation. When we focused just

on the medium- and high-evidence cases, we found that six were with small farms, three with a combination of small and large farms, and one with a medium-sized farm.

Among the “failed” cases, the most common farm size was small (4 total), followed by a combination of small and large farms (3 total). Of the four initiatives that engaged smallholders, two partnered with a producer organisation, and one partnered with both smallholders and a producer organisation. These percentages are pretty similar to those found in the “successful” cases.

The evidence presented here is that smallholders can participate successfully in contract farming in a wide range of agrarian contexts, especially where landholding inequality rates are not very high. For example, this review found instances of successful smallholder participation in Burkina Faso (0.42), China, Colombia (0.79), Egypt (0.65), Ethiopia (0.47), Ghana, India (0.58), Indonesia (0.46), Kenya, Laos, Madagascar, Malaysia, Papua New Guinea, Senegal, Tanzania, Uganda (0.48) and Vietnam (figures in parentheses indicate the Landholding Gini Index, where this was available, as provided by the Food and Agricultural Organisation). This adds some weight to the first hypothesis: that smallholders tend to be excluded from contract farming in dualistic agrarian economies, but enjoy greater participation rates where inequality in landholding sizes is low. It is striking that the cases of successful smallholder participation include only two instances – Colombia (0.79) and, arguably, Kenya – where landholding inequality is high. The other cases appear to have a more equal distribution of land.

This finding offers some support for the more optimistic interpretation of smallholder involvement in radically restructured global agricultural value chains (for example, see Reardon *et al.*, 2009; and Swinnen and Maertens, 2007). In other words, the cases presented here suggest that the exclusion hypothesis may be too pessimistic regarding smallholder participation, but it may hold once land-holding inequality reaches a certain level.

4.1.4. Products

Turning to the type of product, Figure 9 shows a very wide range of products produced by the “successful” contract-farming arrangements. These include high-quality fruits and vegetables (green beans, French beans, horticulture), herbs (mint), conventional export crops (tea, coffee, cotton, palm oil), seed production (rice), dairy products and poultry. But they also include more mundane and ordinary crops, such as apples, onions, potatoes, rice and soya. Importantly, only 12 of the 35 cases involved

“highly perishable” products.^[23] This percentage is similar when we restrict ourselves to the medium- and high-evidence cases: six of the 10 cases involved crops with normal levels of perishability. The crops produced by “failed” initiatives include asparagus, broccoli, palm oil, poultry, seed rice, sorghum as well as cases with a variety of crops. Three of these crops are highly perishable (asparagus, broccoli and poultry), a lower percentage than among the successful cases.

These findings shed some light on the third hypothesis: crops that exhibit a high degree of variation in quality, perish easily, are hard to grow, or command a higher price per kg are more likely to be grown through contract farming. This review certainly found cases of high-quality fruit and vegetable production, but it also found indications that conventional fruit and vegetable crops and staple grains can also be successfully grown using contract farming.

Thus, this review suggests that while crops that exhibit a high degree of variation in quality, perish easily, are hard to grow, or command a higher price per kg, may well be *more likely* to be grown on contract terms, there is also some evidence to suggest that mundane and standard commodities can also be grown successfully on this basis. The extent to which high-value, perishable crops are more likely to be grown by particular models of contract farming will be discussed shortly.

4.1.5. Resource provision

Only 28 of the 35 “successful” cases provided sufficient detail regarding the extent of resource provision and production management (in other words, the provision of seed, agrochemicals, credit and extension). Table 3 summarises these findings. It shows that in 11 of the cases, the full range of resources were provided. In the other cases, firms combined one or more of these resources. Of interest is the presence of extension in all 28 cases, suggesting the increased importance of production management and quality standards within contract farming initiatives.

The majority of “failed” cases offered the full package of seed, agrochemicals, credit and extension. One initiative just provided seed and extension. Three cases did not provide enough information on this issue. Although the sample is extremely small, this points towards the possibility that firms offering the full package of inputs may be exposing themselves to greater losses, thus increasing the likelihood of the initiative collapsing.

[23] See Appendix 8 for a definition of “very perishable”.

Table 3 Resources provided to farms in “successful” cases

Seed, Agrochemicals, Credit, Extension	11
Seed, Agrochemicals, Extension	1
Seed, Credit, Extension	2
Seed, Extension	4
Agrochemicals, Credit, Extension	1
Credit, Extension	4
Extension	3
None	2

4.1.6. Markets and quality attributes

The “successful” cases suggest the importance of export markets for contract-farming initiatives: of the 35 initiatives, 19 targeted export markets, nine the local urban markets, with the remaining seven cases utilising a variety of markets, or not clearly stating the end market. Focusing just on the medium- and high-evidence cases, we found that eight out of these 10 initiatives were providing product for export markets (see Box 1 for one example).

The type of market is largely reflected in the quality standards, with 19 of the initiatives striving to attain export quality, eight striving to meet national quality standards, and one aiming for local spot market quality (see Figure 10). Again, seven cases either had a mix of standards or did not present enough information on this issue. Interestingly, seven of the 35 cases met certain credence factors: five met organic standards, and two met fair-trade standards. Of the medium- and high-evidence cases, three produced organic products.

The markets in the “failed” cases differed somewhat from those of “successful” cases. Three of the cases marketed to local urban spheres and only two targeted export markets. In addition, it appears that these export markets were in nearby countries as opposed to global markets. In four of the cases, markets were either mixed or unclear.

The greater domestic orientation of the “failed” cases was reflected in the quality standards sought: four cases aimed for national quality standards, two for export quality, with the remaining three cases being mixed or remaining unclear. None of

Box 1 Spillovers from French Bean Contract-Farming in Madagascar

Recent literature has suggested that the more stringent quality standards required in high-value food and vegetable trade with developed country retailers marginalises smallholder producers (who struggle to meet stringent requirements). Minten *et al.* (2009) assess this issue through a study of smallholder French bean contract-farming in Madagascar. Using preferential access to European markets through the Lome and Everything but Arms initiatives, the Madagascar government created export-processing zones to encourage foreign direct investment and exports. Minten *et al.* (2009) report on the experiences of Lecofruit, the dominant firm in high-value vegetable exports to supermarkets in France, Belgium and the Netherlands, to which the firm has supplied fresh French bean, mangetout and processed beans. The company contracts over 9,000 smallholders who grow, on average, only 0.01 hectares. The company sets very high quality-control requirements within contracts: for land preparation, compost preparation, one extension agent per 30 farmers, and five or six assistant agents per extension agent who reside in the villages during the crop production cycle. On average, each smallholder is visited more than once per week by one of the firm’s representatives. Moreover, the firm also applies pesticides in about one third of cases. In addition to the extension agents and assistants, around 200 additional people are employed at the processing plant in Antananarivo to ensure product quality. The reason for the meticulous approach to quality is that Lecofruit is obliged to meet the private protocols stipulated in its contracts with European supermarkets, including credence issues, labour practices and health concerns. The supermarkets frequently send auditors to ensure these protocols are adhered to.

In addition to reporting increased income for farmers from French bean production, as well as the useful off-season income this provides, Minten *et al.* (2009) find that the surveillance of smallholders and the terms of the contract have led to unexpected benefits for farmers. Almost all farmers now apply the compost-making skills learned through the contract-farming initiative to other crops during the off-season. Moreover, by comparing rice production on plots with, and without, a contracted French bean crop in the off season, Minten *et al.* (2009) find that rice productivity is 64% higher on the plots with a contract, compared to those plots without a contract: an increase from 3.6 to 6.0 tons per hectare. Minten *et al.* (2009) attribute this difference to increased composting and fertiliser application in the off-season (although it is not clear how the study controlled for smallholders naturally selecting their most fertile, productive plots for the French bean production). Overall, the paper provides a detailed examination of how poor smallholders in a Least Developed Country can benefit from contract farming, even with a firm in a monopsonistic position.

these initiatives produced crops with credence factors, such as organic or fair-trade standards.

These findings relate to the fifth hypothesis: that contract farming initiatives are most likely to supply markets in developed countries, and supermarkets within urban centres in developing, emerging and transitional economies. The greater representation of export markets in “successful” cases does offer some support for this contention, especially as the difference in market orientation is also reflected in the quality standards sought.

4.1.7. Price determination

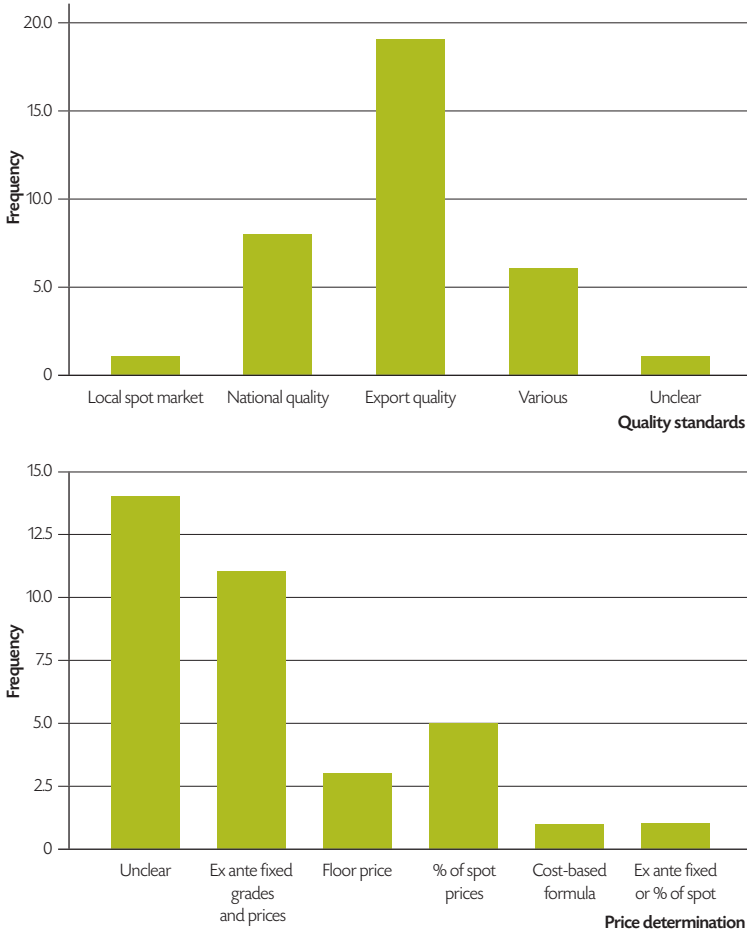
While 40% of the “successful” cases did not offer clear information on how prices were determined, the remaining cases suggest that the use of *ex ante* fixed grades and prices is the most common pricing mechanism for such initiatives (see Figure 11): 11 cases used this fixed-price mechanism, compared to three cases with floor prices, five cases relying on a percentage of spot prices, and one case using a cost-based formula. One initiative offered farms a choice between *ex ante* fixed grades/prices or a percentage of spot prices. Unfortunately, price determination within the nine “failed” cases was clear in only two instances, both of which used *ex ante* fixed grades and prices.

4.1.8. Risk-sharing mechanisms

The “successful” cases illustrate a range of risk-sharing mechanisms within contract-farming initiatives. One obvious example is the use of producer organisations to reduce the transaction costs for firms and to act as a forum for farmer enquiries and complaints. Miyata *et al.* (2009) and Herlehy (2007) describe a variation on this approach, whereby a firm engages village leaders or agricultural extension agents to identify farmers who may be able to meet the required production and quality standards. A more formal version of this approach are *intermediate contracts*, as described by Birthal *et al.* (2008), for dairy products in India, where a selected villager supplies dairy products from small farmers to the firm, in this case Nestle. A further example of an *intermediate contract* is described by Cai *et al.* (2008) for rice production in Cambodia. Here, the firm established a commune association whose primary task is to provide surveillance of the contracted farmers.

There are also plenty of other useful examples above and beyond producer organisations and rural associations. Ramaswami *et al.* (2005) describe risk-sharing in poultry production in India. Here, although firms provide up to 90% of the costs of production, they still offer farms insurance that covers up to 5% mortality for the chicks supplied (mortality above 5% is priced by the firm at a favourable rate). Moreover, at the end of the production cycle, farmers receive a net price by weight

Figures 10,11 Quality standards and price determination in the “successful” cases of contract farming



Source: Author.

that is pegged to a stable industry price index (not spot market rates, which tend to be volatile), and this ensures that farmers are insulated from price drops. Moreover, farmers receive a bonus if prices rise substantially above the industry index. Birtal *et al.* (2008a) also highlight two additional risk-sharing mechanisms within the poultry sector in India: first, bonus payments when the firm’s profits expand; and second, the more mundane task of prompt and timely delivery of inputs, collection of outputs, and accurate and prompt payment.

In a further example from India, this time from the dairy industry in Rajasthan, BIRTHAL *et al.* (2008) describe how, within *informal contracts*, problems with assets installed by the firm (for example, machine failure) are borne by the firm. On the other hand, problems arising because of the lack of compliance with specified quality standards are borne by the farmer.

The “successful” cases also illustrate various roles that the state or third parties can play. Barrentes (2007) describes a Colombian case where the state provides financial incentives for farmers to adapt to the production and marketing requirements of the firm. This incentive programme focuses on establishing quality evaluation systems and certification processes, and it is administered through a trust company to ensure that all partners are on board.

The state can also play a more direct role in encouraging smallholder participation. Herath and Weersink (2009) highlight how the government-set floor price for black tea in Sri Lanka raised prices offered to green tea outgrowers, reducing conflicts and holdups associated with the lack of transparency in the pricing mechanism. In Madagascar, Minten *et al.* (2009) highlight how government-created Export Processing Zones, which offer tax incentives to foreign investors, facilitated a successful contract-farming initiative for exporting green beans (see Box 1). Similarly, KIT/IIRR (2008) report that a firm exporting green beans from Ethiopia to European markets enjoys, thanks to government concessions, tax-free profits for five years and cheap land rent (in addition, the producer organisation it partners with pays no taxes and can access cheap loans).^[24]

The “failed” cases also illustrate a range of risk-sharing mechanisms, although clearly less beneficial. Again we find the use of producer organisations and intermediaries as a way of managing risk. For example, Kudadjie-Freeman *et al.* (2008) describe how a firm contracting farmers in Ghana to grow sorghum utilised a non-governmental organisation as a go-between. Unfortunately, as this NGO did not have sufficient technical knowledge about sorghum production, and lacked negotiating skills, the contract failed to deliver benefits to the farmers and the initiative collapsed.

Moving to broader risk-sharing mechanisms, Jabbar *et al.* (2007) describe how, in a poultry initiative in Bangladesh, a firm operated a contributions-based security fund

[24] If contract-farming arrangements necessitate substantial investments for firms (such as processors), there is a good case for the state to provide some security for that investment to ensure a long-term relationship between the producers and the firm. For example, this could take the form of granting firms with substantial investments a monopsony for a particular district or region for a limited period of time.

to insure farmers against serious outbreaks of disease. Farmers contributed a standard amount to the fund (per chick received), and could claim against this fund. A U-shaped compensation schedule was used, since mortality up to 15% is considered common. Despite this mechanism, Jabbar *et al.* (2007) present mixed results from this contract-farming initiative, since the mean profitability of the broiler farms did not differ significantly from that of the non-contract producers. A further example comes from Delarue and Cochet (2008) who describe how a palm-oil-and-rubber initiative in Guinea financed lowland rice production to ensure household-level and community-level food security (thus limiting the side-selling of produce).

4.1.9. Contextual factors

In addition to profitability, one factor in the creation and maintenance of successful contract farming initiatives is the role of non-price factors in creating trust and reciprocity between the firm and the farm. For example, Birthal (2008) suggests that *intermediate contracts* and producer organisations play an important role here by increasing the political and social palatability of such agreements, as do Cai (2008), in the case of rice contract farming in Cambodia. In addition, Birthal *et al.* (2008) outline how the selection of intermediaries needs to ensure that the actor is apolitical and uncontroversial. A further example is from Warning and Key (2002) who highlight the role of village intermediaries in making a groundnut initiative more accessible to poor households through the use of their social capital.

M4P (2005) highlight two more factors determining the success of contract farming via producer organisations. First, some form of cross-ownership between the producer organisation and the firm can act as incentive for long-term co-operation. Second, that the capacities of the leadership of the farmers’ organisation is paramount.

The best examples of cases where strong production-chain relationships were formed and sustained comes from KIT/IIRR (2008). For example, a case study of mangoes in Burkina Faso, where the negotiated inclusion of harvesting traders helped iron out previous problems in the chain. Also, a case study of livestock in Kenya shows how producers and traders collaborated to solve common problems and acquire preferential terms from a wholesaler.

The nine “failed” cases offer a variety of contextual reasons why these contract-farming arrangements did not succeed. For example, Sriboonchitta *et al.* (2008) highlights how a cashew nut initiative in Thailand failed due to poor planning and the

lack of region-specific research, such that the cashew crop was blighted by pests. In addition, Kudadjie-Freeman *et al.* (2008) highlight two main reasons for the failure of the sorghum contract-farming initiative in Ghana: first, the use of a new and sensitive variety in a marginal environment; and second, instead of renegotiating the contract based on objective data, the parties blamed each other for the failure (thus suggesting a lack of appropriate dispute-resolution mechanisms – see Box 2).

Box 2 Guinness and Sorghum in Ghana: Lessons from a Failed Contract-Farming Initiative

Kudadjie-Freeman *et al.* (2008) describe how in 2001 the Guinness Ghana Brewery sought to replace some of the imported barley malt in its beers with an improved variety of sorghum – kapaala – by contracting with poor smallholders in the Northern Region. A number of institutions were involved in this initiative: the brewery itself (which required 500 tonnes of sorghum per year); a producer organisation, whose role was to support land preparation, input supply, extension, transport, and delivery; a church-based agricultural station, which was sub-contracted to act as the nucleus from which out-growers could be engaged; farming clubs with 6-15 members (with average landholdings of 2.5 hectares); and the agricultural research body that developed Kapaala.

The initiative was set up by the producer organisation based on the cost of production, which offered smallholder clubs a higher price than prevailing market levels. However, the eventual location for the initiative was different than that envisaged by the agricultural research body, which had stipulated that only two of Ghana’s regions were suitable for this crop. The producer organisation felt that a third region was also suitable, sub-contracted an agricultural station there to register and manage the farming groups, and provided seed and fertiliser at a low interest rate. The producer organisation and agricultural station then ran a series of training workshops for farmers, and instructed farmers how and when to grow kapaala. This included disseminating and monitoring extension advice.

However, planting dates were later than farmers were used to and germination rates were very low – between 0 and 30%. While farmers replanted with new seed, yields were barely a sixth of the projected levels, not least as kapaala was afflicted by pests and diseases. Not surprisingly, farmers resisted repaying the loans they had received for the inputs. As many farmers were in debt, they were forced to continue production for an additional year to attempt to recoup their losses. However, many farmers were skeptical about the suitability of kapaala, and suggested switching to another variety – dorado – which they were more familiar with. In the second year, most farmers switched to dorado (although no inputs apart from locally-sourced seed were provided



●●●

this time). Yields improved slightly, but many farmers sold their crop through spot markets to avoid loan repayment, signaling the collapse of this initiative.

While it would be easy to attribute the failure of this initiative in contract farming to the producer organization for failing to heed technical advice, Kudadjie-Freeman *et al.* (2008) suggest that numerous institutional issues also contributed to the failure. First, there is no evidence that farmers negotiated terms before signing up to produce kapaala for the Guinness Ghana Brewery. For example, they were not aware of how pricing had been determined, collection and payment schedules, penalties for defaulting or crop losses. In this respect, farmers agreed to terms based on their familiarity with the agricultural research station, not the details of the contract. Second, the Guinness Ghana Brewery used two intermediate organisations to reach producers – the producer organisation and the agricultural research station. Such distance between the principal and the agent led to a lack of control and oversight regarding production.

Clearly, contracting for new germplasm carries additional risks that producers must factor into their negotiations with firms. Moreover, Kudadjie-Freeman *et al.* (2008) suggest that the failure of this initiative could have been avoided by proper dialogue between the parties and local experimentation regarding the suitability of the crop prior to contracting with smallholder producers.

Moreover, Jabbar *et al.* (2007), in their study of poultry farming in Bangladesh, show how contract farming aimed at landless and poor women worked well as a development project with NGO support, but lacked profitability when such support ended. And lastly, Delarue and Cochet’s (2009) study of contract farming for palm oil and rubber in Guinea highlights how the overall effect of an initiative can hide highly differentiated experiences: while former civil servants or landlords received large areas to farm, poorer households were dispossessed or received landholdings too small to farm profitably. From these cases, we can surmise that agronomic suitability, open communication channels, a market-oriented approach, and an awareness that the rural elite tend to dominate contract arrangements, are among the preconditions for creating sustainable contract-farming initiatives.^[25]

[25] From an implementation perspective, Eaton and Shepherd (2001, p.29) detail a range of pre-conditions for contract farming initiatives. For example, they argue that sponsors must have identified a market for the planned production and must be sure that such a market can be supplied profitably on a long-term basis. Alternatively, farmers must find potential returns more attractive than returns from alternative activities, must find the level of risk acceptable, and must have potential returns demonstrated on the basis of realistic yield estimates. Governments should play an enabling and regulatory role, and bring farms and firms together.

Table 4 Towards a typology of contract farming initiatives

Type of contract farming arrangement	Definition	Typical crops	Product characteristics	Country context	Firm characteristics	Size of farm
Centralized model	Where a firm (often a processor) contracts a large number of farmers based on strict quality requirements, quantity targets and overall control over the production process	Products suited to this model require substantial processing prior to retail (for example, sugar cane, tea, coffee, cotton, milk and poultry)	Often have large variations in quality, high degree of perishability, technically difficult production, high value-bulk ratio. Can also be used for conventional and staple crops such as groundnuts, rice and soya	Can be run successfully in many country contexts, including conflict-affected, fragile and Least Developed Countries. Does not require good enforcement, regulatory and legal settings to perform well	Large private firms - initiatives require substantial fixed costs (incl. extension agents) which are easier for large firms to absorb	Small, medium and large farms (due to high volumes required to make processing profitable). Can use farmers' organisations
Nucleus-estate model	Where the firm (again, often a processor) also enters the production node through an estate or plantation but also contracts independent producers, too (for greater volumes, or for seed)	Perennial crops, and others that display considerable economies of scale (banana, sugarcane). Is often used for processing plants that require a steady flow of raw materials (sugar cane, palm oil)	Again, tend to exhibit large variations in quality, a high degree of perishability, technically difficult production, and a high value-bulk ratio	Can be run successfully in many country contexts, including conflict-affected, fragile and Least Developed Countries	Large private firms - initiatives require substantial fixed costs (incl. extension agents) which are easier for large firms to absorb	Small and medium farms to complement estate production (due to high volumes required to make processing profitable). Can use farmers' organisations
Tripartite model	A joint venture between a public body and a private firm, two firms, or a firm and an NGO, which contracts farmers	Public-private partnerships tend to focus on strategic crops with national significance (eg cotton in West Africa)	Some variation in quality, perishability, standard production difficulty and variable value-bulk ratio	Can be run successfully in Least Developed Countries, unclear whether this model is suitable for conflict-affected or fragile countries	Large/medium partnerships - initiatives require substantial fixed costs (incl. extension agents) which are easier for partnerships to absorb if other actors are able to provide some of the inputs	Appears to use small farms to the greatest extent. Can use farmers' organisations.

Table 4 Towards a typology of contract farming initiatives

Type of contract farming arrangement	Definition	Typical crops	Product characteristics	Country context	Firm characteristics	Size of farm
Informal model	Where smaller firms or traders enter into annual agreements, often on a verbal basis, with a limited number of farmers	Frequently for fruit and vegetables that require minimal processing, or which are processed on the farm	Limited variation in quality standard production difficulty, variable value-bulk ratio	Can be run successfully in Least Developed Countries, unclear whether this model is suitable for conflict-affected or fragile countries	Smaller private firms - limited processing requirements and limited inputs allow smaller firms to use this model	Appears to use small farms to the greatest extent
Intermediary model	Where a firm sub-contracts interaction with farmers to an intermediary, such as a village leader, farming committee or a trader, who then becomes the main contact point for farmers	Staple food crops such as potatoes, rice and mangoes	Limited variation in quality and low value-bulk ratio. Varied perishability	Can be run successfully in many country contexts, including conflict-affected, fragile and Least Developed Countries. May be particularly suited to challenging contract enforcement contexts. Especially common in South and Southeast Asia	Smaller private firms - outsourcing interaction with farmers allows smaller firms to use this model	Appears to use small, medium and large farms. Can use farmers' organisations.

Sources: References used in this review, especially Eaton and Shepherd (2001), Minot (2007), and Bijman (2008).

4.2. Towards a typology of contract-farming initiatives

Highlighting the “successful” cases allows us to develop a tentative typology of successful contract-farming initiatives. However, as the precise type of contract farming could be ascertained in only 24 instances (10 cases covered more than one type of initiative, and in one situation the initiative type could not be determined), this exercise is necessarily provisional. Table 4 uses the tentative insights that could be gleaned from the literature to supplement the conventional wisdom regarding contract farming as found in the literature (particularly important resources in this regard were Eaton and Shepherd, 2001; Minot, 2007; and Bijman, 2008).^[26]

In addition to the finding that all models, apart from informal contracts, use producer organisations, the most interesting aspects of the Table 4 matrix are that:

- Centralised models are used for conventional staple crops, in addition to crops with large variations in quality, a high-degree of perishability, technically difficult production, and a high value-bulk ratio. Such initiatives tend to provide the full range of inputs, and serve domestic urban markets (especially for livestock and poultry), as well as export markets. These initiatives can be run successfully in many country contexts, including conflict-affected countries and fragile states. They do not require good enforcement, regulatory and legal settings to perform well.
- Nucleus-estate models tend to stick to crops with large variations in quality, a high-degree of perishability, technically difficult production, and a high value-bulk ratio. Such initiatives do not appear well-suited to fair-trade or organic certification, and are often the preferred model for resettlement of transmigration programmes. These initiatives can be run successfully in many country contexts, including conflict-affected countries and fragile states.
- Tripartite models that take the form of a public-private partnership tend to focus on crops with national significance. All models of this type appear to focus on products with lower variations in quality, lower perishability and lower value-bulk ratio than the above two models. It is unclear if this model is suitable for conflict-affected countries or fragile states.

[26] Appendix 6 offers a description of how the five types of initiative fare in terms of region, governance regime, country context, the development of market institutions, types of firm, farm and crop as well as inputs and contract details. This section should be treated as a draft work in progress.

- Informal models of contract farming appear to be best-suited to fruit and vegetable crops that require minimal processing, or that are processed on the farm, have limited variability in quality and rely on standard production techniques. Such initiatives appear to include a limited range of inputs, and as firm size tends to be smaller than with the above models, this model partly relies on other providers (such as the state and NGOs) to offer inputs such as extension and credit. It is unclear if this model is suitable for conflict-affected countries or fragile states.
- Intermediary models appear to be especially suited to staple food crops, and can be run successfully in many country contexts, including conflict-affected countries and fragile states. Indeed, this model may be particularly suited to challenging contract-enforcement contexts. Outsourcing the interaction with farmers allows smaller firms to use this approach. A limited range of inputs is provided, and, surprisingly, this model appears suited to fair-trade and organic certification.

We now turn our attention to the core question for the issue at hand: the contracts.

5. What Can Contracts Tell Us?

Bogetoft and Oleson (2002) outline how contracts play a tripartite role in contract farming: they ensure co-ordination of actions (that the right agricultural products are produced at the right time); they ensure motivation (in other words, that the farm and firm have incentives to make co-ordinated decisions); and they ensure that both of these roles are enacted at the lowest possible cost (by reducing transaction costs). For example, co-ordination allows actors to ensure that their actions are aligned with those of the other partner: farms know the quantity and quality of product to be delivered; and firms know how much processing capacity will be required. Co-ordination is achieved through the specific details provided in the contract, outlining the requirements for both farm and firm, as well as the price points (Bijman, 2008).

For farms, the motivation to adhere to the contract is driven by resource provision and price incentives. It is also enhanced by farms' ability to make as many decisions about the crop as possible (when farmers have the best information), thus increasing ownership over the crop (see Bogetoft and Oleson, 2002). The motivation for firms is a guarantee about the quantity and quality of the contracted product, to be delivered at the specified time and price. Motivation for both actors is also created through any risk-sharing mechanisms provided in the contract and the duration of the contract. Long-term contracts foster stable relationships, which provide incentives to invest in specific assets (Bijman, 2008).

Efficiency in contracts is attained by trying to ensure that the relationship between farm and firm is as smooth as possible (avoiding hold-ups and moral hazard) without either party (but especially the firm) enjoying excessive rents (Saes, 2005).

Bijman (2008) highlights how the co-ordination and motivational aspects of contracts differ according to product or production characteristics. For example, co-ordination is the key concern when crops are highly perishable, such that harvesting and processing need to be tightly linked. Motivational concerns are more significant when production requires specific assets beyond the reach of many potential producers (thus the provision of resources and appropriate pricing structures are required). Co-ordination, motivation and efficiency depend on the content, logistical arrangements and format of the contract (see Eaton and Shepherd, 2001).

First, the contents of the contract include the assignment of tasks, technical specifications, pricing, and risk-sharing. The assignment of tasks specifies the provision of inputs and stipulations regarding the production process. Technical specifications detail the quality attributes of the product. Pricing outlines the basis on which the repayment of resources will be conducted and the schedule by which farmers will be remunerated.

There are a number of common pricing arrangements. As we've seen, one common approach is fixed grades and prices (which are usually set by the firm at the higher end of the range of probable spot prices). This offers firms some certainty regarding planning and budgeting, but leaves room for substantial side-selling by farmers if market prices rise significantly (such that they exceed the self-enforcement range of the contract – see Gow *et al.*, 2000).

Another approach is a flexible-pricing schedule linked to global or national markets. Thus, farmers are paid on the basis of a formula that incorporates the costs and profit margins of processing firms. Eaton and Shepherd (2001) outline that such a mechanism is common in sugar and palm oil production. Herath and Weersink (2009) outline that smallholder participation and profits in tea production in Sri Lanka increased when this form of pricing mechanism was introduced. Thus, it appears that this type of pricing arrangement is common in the nucleus-estate type of contract farming arrangements (perhaps because out-growers require transparency in pricing due to their dependency on the central estate).

Prices can also be calculated based on a percentage of spot market values (including, of course, a premium above spot rates). Eaton and Shepherd (2001) suggest that this mode of price setting can frequently lead to disputes, not least because it is hard to come to an agreed upon understanding of the price premium that needs to be paid for the higher quality of contracted produce. Indeed, they go as far as to state that “in most cases the open market pricing system is unsatisfactory, as the farmers do not have control over the price they receive or knowledge of how it is calculated” (p. 78).^[27]

An important pricing technique is split pricing, in which farmers receive a base price upon delivery of the produce to be followed by a premium later, when the commodity has been sold or the precise quality has been ascertained. Each of the

[27] One form of spot-market pricing is payment “on consignment”, where farmers are paid only when the produce has been delivered to a final market.

three common forms of pricing (fixed grades and prices, flexible pricing schedule, percentage of spot value) can utilise a split-pricing schedule.

Risk sharing pertains to how the costs of unpredictable fluctuations caused by environmental, market, health or institutional risks will be shared by farms and firms. This is partly determined by the pricing schedule. For example, fixed grades and prices remove some price risk for producers without affecting their incentives.

Risk sharing is also influenced by the type of relationship that is formed. For example, one common approach to reduce risk for firms is through group lending, such that associations of farmers are jointly and severally liable for the inputs and services received, and the delivery of the required products. Here, members are screened more carefully by their peers, and social pressure from neighbours and community members acts as an enforcement mechanism for repayment. Bulk delivery of inputs can also reduce transaction costs for firms (see Coulter *et al.*, 1999).

A further method used to reduce farmers' covariate risk is to use relative performance measures for all farmers within a particular ward or district (in other words, competitive league tables or tournaments). However, such "tournaments" can easily reduce co-operation among producers, leading to sub-optimal outcomes. The most extreme example of risk are "Acts of God" or *force majeure* events, and some contracts do apportion losses in such instances.

The second element of a contract is specification of how the contract is to be implemented, in other words, the logistical details. For example, procedures for payment are rarely discussed in the literature, but are extremely important. Eaton and Shepherd (2001) highlight how some contract-farming initiatives arrange for payment two to four times throughout the crop-marketing season, with the repayment of farmer loans deducted from the last harvest. In other arrangements, loans are repaid in equal instalments over a number of years. Payment can be in cash or through bank accounts. Moreover, issues such as delivery and collection schedules, the specification and provision of containers, the technology that will ascertain quantity and quality, can (and perhaps should) all be specified in the contract.

The third element to a contract is the format in which it is presented. Verbal contracts are usually used in the informal model of contract farming. These frequently suffer from misunderstandings and confusion (Eaton and Shepherd, 2001). Formal contracts can either take the form of simple registration with a firm, to detailed agreements

signed by both parties. Simple registrations are commonly found in the centralized model and in the informal model (*ibid.*).

But this is not to say that contracts contain all the necessary information. They often remain incomplete for three main reasons. The limited current knowledge of the actors, the impossibility of forecasting future phenomena, and possible institutional failures (Saes, 2005). Thus, complete contracts are a misnomer (not least because it is impossible to catalogue all relevant information).

Instead, contracts range on a continuum – from tight to loose – depending on whether they were agreed upon prior to the investment decisions, and the extent to which key criteria can be ascertained and judged by a neutral party. Thus informal verbal contracts could be the most appropriate form if variables pertaining to quality cannot be judged by a third party, and if any formalisation of the contract would result in punitive transaction costs (Kvaloy, 2010). Informal contracts (and many formal contracts, for that matter) thus rely on self-enforcement.

Contracts need to adhere to the legislation on contract farming at the national or regional level, and heed the implementation of those laws (Eaton and Shepherd, 2001). Contracts should also include guidelines for arbitration in case of a dispute, or procedures for the “naming and shaming” of parties who fail to meet their obligations. Rehber (2007) outlines the key tenets of the US 2006 Competitive and Fair Agricultural Markets Act, as an example of how contract farming can be regulated. This act includes provisions that:

The firm must provide contracts that contain honest and accurate information, are easy to read and understand, and clearly outline the responsibilities of both parties. Contracts must allow the farmer a period of time after signing the contract to cancel the agreement without penalty. Confidential provisions are prohibited. Contracts need to state the compensation paid to farmers if the firm breaches the contract. The contract needs to outline dispute resolution mechanisms.

It is important to recognise that contracts evolve, being refined through a process of trial and error, renegotiation, in line with changing market conditions (see Bogetoft and Oleson, 2002; Shepherd, 2008). While there is a danger that contracts that are too easily renegotiated reduce commitment, the blocking of any form of renegotiation reduces the trust and shared responsibility vital in sustaining contract-

farming initiatives. A case can be made for penalties to be included as a disincentive for excessive renegotiation.

5.1. Assessment of contracts

Nineteen contracts from the FAO database yielded sufficient information for a comparative assessment. As suggested above, the detail included in contracts varies widely, making a precise and specific comparison difficult (not least because leaving details out of a contract is one strategy for trying to obtain as much power as possible in the relationship). Nevertheless, as much information as possible was extracted so we could assess the extent to which contracts (of a meaningful size) included certain implicit elements of contract-farming relationships, namely:

- The length;
- Whether the fact that farmers forfeit their rights to the crop;
- Whether exclusivity is defined;
- The agreed method for determining prices and terms of payment;
- Explicit risk-sharing mechanisms (especially in the case of *force majeure*);
- Any notable innovations in the contract.

Nine of the 19 eligible contracts came from Brazil, with the others originating in Afghanistan, China, Honduras, South Africa, Thailand, Uganda and Zambia. Most of the commodities were fresh fruit and vegetables (tomatoes, melons, sugar bean seed, paprika, guava, asparagus, passion fruit, grapes and oranges). Other products included poultry, pepper, hibiscus, seed cotton, silk, honey products and sugar beet. Thus, most of the commodities were “very perishable”. The contracts all came from private firms. Nine were partnerships with individuals, three contracted with producer organisations, and one with both individuals and producer organisations (in six cases the status of the farm was unclear).

Only seven of the 19 contracts stipulated the duration of the partnership, with one case (asparagus in Thailand) lasting for three years and one (passion fruit in Brazil) lasting for two years. All others were for one year. Only five contracts stated that the farmer had to have legal ownership of the land on which production would take place.

Moreover, only six contracts explicitly stated that the farmer would relinquish ownership rights over the crop in question. Firms were more careful to ensure that their exclusive right to the crop was included in the contract, as 12 contracts stated this clearly.

The contracts contained few details on the specific inputs provided to farmers. When these were mentioned, technical advice and extension were the most common input provided to growers – often leading to a variation of a marketing contract, but with some technical expertise and extension added.

Pricing details were unclear in only four cases. Of the remaining contracts, *ex ante* fixed grades and prices were included in 11 contracts, floor prices in three, and a percentage of spot price in one case. Three contracts offered details of a split-payment schedule. The most extreme example was the silk cocoon contract from China, which offered the following split-price terms:

During the contracted period, 5% will be paid immediately upon delivery while the rest 95% will serve as quality guarantee and only be paid in lump sum at the end of the year.

Ten contracts clearly outlined how costs would be apportioned in the instance of *force majeure*. The degree to which these clauses apportioned risks to farms and firms varied. For instance, the Brazilian contract for oranges details a less than fair response to an “Act of God”:

The risks of fruit spoilage due to natural factors, including hailstorm, fruit fall or precocious and/or irregular ripeness are borne by the SELLER(S). The same holds in the case of force majeure, in which the PURCHASER may choose to either cancel the present contract or to proceed with the execution of the present agreement in respect of the non-damaged fruits.

Other contracts were more measured. For example, the silk cocoon contract in China offered a more balanced response to an “Act of God”:

If the contract could not be carried out as a result of force majeure, the two parties shall modify or terminate the contract after a consensus is reached.

From this brief assessment, we can surmise that firms frequently fail to include basic details in contracts, so that farmers are frequently not fully informed about the nature

of the agreement they are entering into. For example, farmers are only sometimes aware of their lack of rights over the crop they are growing, that they are required to hold tenure over the land on which the crop is grown, whom they may sell the crop to, and that they may well carry much of the production risk on their and their families' shoulders.

Bearing this in mind, and based on US experience, Hamilton (2008) outlines 12 principles that farms should bear in mind when negotiating a contract-farming arrangement:

1. The firm that wrote the contract ensured that its own interests would be fully covered. In other words, that there is no reason to assume that the terms are fair or even advantageous to the farmer.
2. Farmers need to read and understand the terms of the contract, and the meaning of all the terms within it.
3. Farmers need to understand the repercussions of not fulfilling their requirements in the contract. For example, they may be subject to lower prices or penalties.
4. Farmers should never assume that failure to meet these requirements will not be penalised. If a farmer is not likely to meet her/his obligations, s/he should communicate this to the firm as early as possible.
5. Farmers should try to know as much as possible about the firm they are dealing with to ensure that the firm has the ability to pay them.
6. Farmers should try to evaluate the opportunity costs of entering into a contract, particularly for novelty or speciality crops.
7. Contracts can be renegotiated. The ability to do this is increased if the farmer is part of a producer organisation, and just before signing the deal.
8. Farmers should ensure that any changes to the contract are in writing.
9. Farmers should not rely on any oral communication with the firm.
10. Farmers should keep notes of as many details about the contract as possible, including communications with the firm and all resources and activities related to the crop in question.
11. If there is anything farmers do not understand regarding the terms of a contract, they should ask the firm for clarification.

12. Farmers should keep communication channels open to prevent misunderstandings from arising.

Clearly, there is plenty that farms, and the organisations representing farms, can do to ensure better contractual terms. We now turn to the reasons why contract farming initiatives frequently fail.

5.2. Overcoming threats to successful contract farming arrangements

Just as there are numerous opportunities in contract farming for both farms and firms, there are also numerous risks, particularly for small-scale producers and the firms contracting with smallholders. Five risks are particularly important for smallholders:

(1) Contract farming can contribute to a loss of autonomy and control over farm enterprises and a form of dependency on the contracting firm; (2) there is substantial production risk if the technology or the company's forecast is inappropriate; (3) the firm's exclusive purchase rights can depress producer prices, or lead to late and/or partial payments; (4) contracts can be verbal, and even if they are written, it is not always in the vernacular – this can result in manipulation of conditions, with smallholders in a weak position to challenge alleged discrepancies; (5) the intra-household distribution of labour/income can be altered to the detriment of women's interests.

The literature also suggests a number of broader risks from contract farming. For example, equilibrium effects, where the withdrawal from input and output markets by a large number of farmers can reduce the liquidity of markets, possibly altering prices to the detriment of other farmers, or reducing the number of actors in these markets (Bijman, 2008). Increased mono-cropping can be detrimental for the environment. And complex procedures for ascertaining a product's quality leave farmers open to manipulation (as they rarely have sufficient information to challenge the firm's decision).

Hamilton (2008) and Wu (2006) suggest that some of the risks to smallholders can be deduced from clauses within contracts. For example, contracts that require long-term investments or the acquisition of specialised equipment, but offer short-term contracts; for example, planting shrubs/trees with long maturity periods, but entering

into contracts with a much shorter time period. Additional problem areas include flexible definitions of quality, non-existent or less than transparent procedures by firms for adjudicating quality, or a lack of detail regarding how producers will be compensated if the firm goes bankrupt during the production cycle.

The risks for firms are also significant. There is a large risk of smallholders side-marketing both inputs and produce: fertiliser can be sold to increase financial liquidity; and post harvest, produce can be side-marketed to facilitate faster access to capital, to seek higher producer prices, or just to avoid repayment. The limited literacy and education of some small farmers may increase risks for the firm, and a widely-dispersed smallholder population certainly increases transaction costs (compared to contracting with large farms). As with farms, contract farming locks firms into a particular channel which, if the economic climate changes, might not be optimal. Moreover, supplying inputs entails considerable cost for the firms.

Clearly, the power balance in these partnerships is tilted toward the firm, more often than not. This is the baseline from which we need to consider threats to contract farming with smallholders in developing countries. In other words, it is more likely that firms will have greater leverage and power in many developing country settings. This is especially the case since enforcing a contract through legal procedures is often too costly, time consuming and too uncertain. Thus, the only leverage farms and firms have is the threat of a holdup or discontinuing the contract.

We now take an in-depth look at the ways in which the threats to contract farming have been addressed. This covers forms of contractual, technological, financial, institutional, political and legal innovation that have been used to reduce the threats to contract farming initiatives. The following approaches echo some of the risk-sharing mechanisms described earlier, in the comparison of “successful” and “failed” initiatives.

5.2.1. Contract-design innovation

Contracts are supposed to ensure co-ordination and motivation at the lowest possible cost. Farmers and producer organisations need to negotiate hard to ensure they derive benefits. Below, we detail 17 innovations in contract design that can help mitigate the failures that contract-farming initiatives often suffer from.

First, longer-term contracts help to overcome holdups and moral hazard problems. Farms can be rewarded for agreeing to longer-term contracts through more favourable repayment terms (such as cheaper inputs or reduced rates of interest) Gow and Swinnen (2001). Moreover, contracts that require specific assets need to be of a sufficiently long duration so that farms can pay off and profit from the assets they've acquired.

Second, pricing details are particularly important in contexts where public contract enforcement is unlikely, or prohibitively expensive. For example, Guo and Jolly (2008) point out that in China, high litigation costs, poor contract law, and a lack of third-party verification mean that private-contract enforcement (through floor-pricing mechanisms in contracts and bonus payments) is more cost effective than turning to the courts. Moreover, Bogetoft and Oleson (2002) advocate that producers receive a penalty or bonus at the end of the season for the degree to which their production was higher or lower than the mean quality for all growers (or a bonus for produce that is exported).

Third, as Wu (2006) highlights, a common complaint and source of conflict is the lack of transparency associated with measuring the quantity and quality of produce (see KIT *et al.*, 2006, and KIT/IIRR, 2008, for numerous examples). One solution is to stipulate a third party to measure the produce, such as in the California tomato industry where an advisory board performs this role.

Fourth, a further complaint is the ability of the firm to alter the terms of payment *ex post* through provisions in the contract. Such clauses need to be regulated by law.

Fifth, there are particular contractual concerns when firms are in a position of monopoly/monopsony power. Such circumstances reduce the incentive for farmers to carefully study the terms of the agreement (as there is nothing to compare this against). Thus, Wu (2006) highlights how this can lead to firms inserting clauses in contracts that increase farmers' risks while increasing their own benefits. One solution is to implement a national policy that all contracts must disclose the risks in plain language. Moreover, an indirect concern here are the benefits that monopsonists accrue when farms are required to invest in specific assets. With such sunk costs, farmers are vulnerable to exploitative contractual terms. Again, Wu (2006) suggests that such scenarios should be discouraged through legislation.

Sixth, unfairness in performance-related farmer competitions. The rationale for such "tournaments" is not only that they seek to increase productivity through

competition, by that they control for covariate shocks in a particular district or region. However, Wu (2006) reports that growers have found such practices can be used as a cover for dishonesty. For example, certain disfavoured growers might be provided with poorer-quality inputs. Thus, if such competitions among farmers are to be conducted, there is a need for third-party verification of produce measurement, and transparency in the comparisons. Moreover, splitting farms into groups for “tournament” contracts can reduce the sharing of information and incentive to succeed (Bogetoft and Oleson, 2002).

Seventh, Koczberski (2007) highlights how a palm-oil processor in Papua New Guinea overcame intra-household conflict regarding the income from produce, which is controlled by men, by offering separate tools and payment cards to wives to collect the produce that had fallen to the ground (see Box 3). The initiative has been extremely popular as wives earn their own income from palm oil (previously their husbands did not remunerate them sufficiently for their labour). Importantly, this initiative adhered to conventional gender-based labour roles in agricultural production and marketing, so that women collecting fallen bunches did not challenge men’s control over the harvesting and weighing of fresh bunches.

Box 3 *Loose Fruit Mamas: Overcoming Household Conflict in Palm Oil Contracts in Papua New Guinea*

Palm oil production has long been a feature of Papua New Guinea’s economy, first on plantations, and later through outgrower initiatives. Such arrangements typically involve large outgrower blocks divided two-thirds for palm oil and one-third for food-crop production. Koczberski (2007) describes a contractual innovation within one nucleus-outgrower initiative that improved the efficiency of palm-oil production and reduced intra-household conflict over palm oil income.

Since male household heads were allotted 99-year leases over the 6.5 hectare blocks, contracts with the firm – New Britain Palm Oil Limited – were controlled by men, as was agricultural production. Moreover, as is usual within many developing and developed countries, men dominated control over cash-crop income, despite the labour inputs provided by wives (and children). Unsurprisingly, and in line with many other cases, women’s response was to withdraw labour from palm-oil production, reducing their husbands’ income, and focus instead on food crop and non-farm income sources.

Koczberski (2007) notes that palm-oil harvesting entails a clear gender- and age-based division of labour. While the cutting and carrying of heavy fresh-fruit bunches down





to the ground is male work, the collection of loose fallen fruit is defined locally as women's and children's work. Due to this, and the increased wastage from the non-collection of fallen bunches, New Britain Palm Oil Limited introduced the Mama Lus Frut Initiative. Here, women were issued with personal harvest cards, which enabled them to sell loose fallen fruit directly to the firm, and receive their own income. The initiative has been successful as evidenced by participation rates of 90%, and it has provided participants with double the national minimum weekly wage. Koczberski (2007) states that while fallen loose fruit constitutes only 14% of the total crop, around 26% of smallholder palm-oil income is paid directly to women (for fruit that is of lower quality). The answer to this puzzle is that instead of a lack of collaboration between husbands and wives, because the collection of loose fruit is locally defined as female work, men have not been threatened by the initiative, and instead support it by adding to their wives' harvests. It appears that adding to their wives' incomes -- in kind as opposed to in cash -- reduces conflict within the household and also circumvents wider claims on cash crop income by kin and neighbours. Such a contractual innovation offers a useful example for other perennial crops that rely strongly on the gendered division of labour and may suffer from a breakdown in co-operation between household members.

Eighth, firms should be able to penalise producers if there is a substantial production shortfall (not least because this discourages the side-selling of produce) (Bogetoft and Oleson, 2002).

Bogetoft and Oleson (2002) suggest nine additional contractual measures that can reduce the threat of contract farming failure:

- As agricultural production is always variable, allow delivery schedules to vary by 20% to 30% over a 4-to-6 week period;
- Contracts should include instructions on reducing losses from perishable products;
- Extra production rights should be able to be traded by farmers (to increase efficiency);
- Products should only be delivered in firm-distributed boxes or bags, and firms should only distribute these according to processing capacity (to reduce delays and loss of quality);

- For crops that are extremely sensitive to agronomic conditions, are extremely perishable and require instant processing (such as peas), producers can be grouped according to their planting date, and payment can be based on area planted – and not production or yield; thus, payment is independent of planting date, and the factory receives a steady supply of produce;
- Producers of new varieties of germplasm should contribute to a mutual insurance fund that smoothes shocks if the technology fails;
- For products that require very specific production regimes, spot checks can ensure compliance with quality standards (failure to comply with standards should be penalised);
- Offering different types of contracts, such as contracts linked to spot prices and those with minimum prices, allows producers to indicate their risk preference;
- Firms should clearly report the profits of the initiative to all farmers who participated.

5.2.2. Technological innovation

Surprisingly, the literature on contract farming yielded very few technological innovations supporting the longevity of contract-farming initiatives. There was only one example, and even that was not particularly clear.^[28] Young and Hobbs (2002) highlight how technology could play an important role in assessing quality attributes at the point of delivery to a firm (instead of later on, or further down the value chain). This would be for taste and texture quality (so-called experience attributes) as opposed to process-based attributes (such as the use of organic methods). Using

[28] Instead, the literature focuses mainly on how contract farming can disseminate technological advances within smallholder populations. For example, Glover (1987) and Bijman (2008) recognise that contract farming may be one of the only channels through which technological advances can be passed on to smallholder populations (with appropriate support). Jain (2008) add to this line of argument when they suggest that firms should be compensated for the dissemination of technology and technical knowledge among smallholders. For example, they highlight the Punjab Model of reimbursing firms for a proportion of their extension expenditures (via firms registering the technology they are introducing with the authorities).

The public sector also has an important role to play in technological dissemination. For example, Sriboonchitta et al. (2008) highlights how academia can play a role in biotechnological research to improve the quality or characteristics of specific crops. However, Bijman (2008) also suggests that smallholders are most likely to gain from contract farming when growing standard crops that *do not* involve technological innovation. To support his argument, he quotes Glover's (1987) study which suggested that small farmers are technologically averse due to poor quality information, greater risk aversion and lower levels of savings.

technology at this earlier stage would enable firms to pay farms a greater percentage of income earlier (when a split-price schedule is utilised), and reduce the risk of conflict due to disagreement over subjective quality standards. However, Young and Hobbs (2002) do not offer any examples of where this has been successfully conducted.^[29]

5.2.3 *Financial innovation*

Above and beyond the pricing mechanisms already discussed so far in this review (such as group lending, split payments, bonus payments, etc.), the contract-farming literature offers very few examples of financial innovations that can potentially mitigate the threats to contract-farming arrangements.^[30] Here are the four best examples.

First, Woodend (2003) highlights how a firm engaging out-growers to rear ostriches stipulated that farmers needed to reinvest 20% of their profit in the partnership (it is not clear if profits included imputed labour costs) if they wished to continue with the contract the following season. This reinvestment allegedly nurtures a sense of ownership in the contract.

[29] Although not suggested in the literature, it is not hard to envisage technology playing a role in reducing the threats to contract farming; for example, through the use of mobile phones and the Internet. First, by distributing cheap mobile phones to farmers (with the costs recouped at a later stage), firms can create an instant communication channel with producers. On a basic level, this enables easy communication through text messages regarding the delivery of inputs, collection of production, and dates for extension and training for particular farmers (reducing transaction and co-ordination costs). But such technology could also play an important role in improving agronomic practices. For example, details on the application of fertiliser, banking, weeding and the application of agrochemicals could be sent to farmers depending on their planting date.

Moreover, such an approach could be used to improve quality standards. For example, the literature on contract farming contains examples of extension agents needing to visit individual farms in order to apply the appropriate level of agrochemicals required to meet export standards (see Woodend, 2003, or Key and Runsten, 1999). In addition, the literature highlights cases where increased direct action by firms on farmers' land reduces farmers' control over production and can lead to increased resentment and conflict. In contrast to the rather paternalistic approach to direct firm involvement in production, the use of precise text message instructions would foster a relationship on more equal footing that recognises the skills and experience of the farmers.

Second, the Internet could also be utilised by the national or regional government to develop a clearinghouse for linking producer organisations with firms for the purpose of contract farming. This would take the form of a match-making service where producer organisations (perhaps through partnerships with NGOs) would detail their characteristics, experience and desired crop preferences, and firms would detail their requirements and plans. Such a setup would be very easy to create and could provide both parties with a wealth of information on potential partners, transport and export, contract negotiation, dispute resolution services, and partnerships in extension and credit provision.

[30] For example, Woodend (2003) details how Cottco in Zimbabwe uses contracts that ensure that all group members are jointly and severally liable for loans. The firm also pays the chairpersons of each farming club, thus making them pseudo employees who monitor other group members.

Second, the Vietnamese experience recounted in M4P (2005) takes this one step further, suggesting that cross-ownership between firms and farms helps to create mutual interest and benefits. Singh (2008) also suggests that farms taking an equity interest in the firm, and receiving dividends, increases the longevity of contracting initiatives.

Third, Jain (2008) outlines how involving third-party financial institutions improves contract-farming arrangements. For example, an Indian firm's collaboration with the State Bank of India and Union Bank of India allows farmers to receive one-year and longer-term loans for irrigation systems. In this model, the firm was liable for loan repayment, the amount of which was later deducted from farmers' payments. Moreover, Gow and Swinnen (2001) suggest that including third-party providers of credit can reduce the likelihood of firm holdup or breach of contract due to the greater reputational losses suffered by the firm (which cares more about how other urban-based firms view it than rural peasants).

Fourth, and importantly, Da Silva (2005) highlights how mutual asset specificity, such as that found in livestock and horticultural production, reduces the likelihood of holdups, as both farms and firms incur costs should this occur (an example of how an investment interest in contracts increases the self-enforcement range).^[31]

5.2.4. Institutional innovation

This brings us to the major institutional innovation for overcoming threats to contract farming - producer organisations. Penrose Buckley (2007) details how the number of producer organisations has grown in many developing countries in recent years. For example, between 1990 and 2005, the number of producer organisations increased from 1,000 to 2,850 in Ghana, from 4,000 to 7,000 in Kenya, and from 29,000 to 50,000 in Nigeria. In addition, Penrose Buckley (2007) outlines how recent decades have seen the emergence of producer-owned, market-orientated producer organisations, which are distinct in origin and outlook from the old state-owned co-operatives. The term producer organisation (PO) thus refers to member-owned, market-oriented cooperatives (see Rivera, 2008).

[31] While this actual practice may not be directly transferable to other commodities, the principle could be: namely, that firms and producer organisations could create trust fund accounts that tie up a certain amount of capital for a fixed time period (the release of these funds would be penalised on a sliding scale, and would require both parties' signatures). This could act as insurance against holdup and moral hazard.

From a farmer's perspective, POs can help to rebalance the power relationship between firms and farms: collective bargaining, and the creation of relationships with rural credit and transport providers, can help reduce the risks farmers face. Moreover, POs provide a forum for farmer dissatisfaction (on prices, timing and extension), and it is more likely in such cases that a firm will recognise its social and environmental responsibilities.

For example, Bijman (2008) and Bijman *et al.* (2007) outline a number of ways in which POs redress the power imbalance implicit in many contract-farming initiatives (also see Little and Watts, 1994; Glover, 1987; Porter and Phillips-Howard, 1997). For example, POs facilitate higher producer prices by being able to supply bulk quantities that have some quality assurance, and have been graded and packed professionally; they are more able to seek alternative market outlets if the firm reneges on the agreement, and can negotiate more effectively with prospective firms; they can channel outside actors and assistance (such as NGOs or extension workers) to the farmers who need the assistance; and they are more able to access market information (thus helping smallholders adapt better to changing market conditions) and financial markets.

From a firm's perspective, the costs of screening, contracting, supplying, supervising and paying a dispersed population of smallholders increases transaction costs compared to working with large farms. POs reduce transaction costs per farmer and address information and communication blockages. They are also an important channel for fostering trust and good farmer-company relations, and, as we have seen, can provide peer-embedded incentives for members to repay loans.

Importantly, such organisations play a dual role: they act as a bonding mechanism within communities, but also provide a more important bridging function between that community and outside actors (such as firms and development agencies). As Mercoiret *et al.*, (2006, p. 28) state, while POs are partially aimed at regulating "internal relationships in the groups concerned...their essential function is to organize relationships with the outside".

One example in the literature is the Fresh Produce Exporters' Association of Kenya (FPEAK) (see Coulter *et al.*, 1999). FPEAK offers smallholder farming clubs market information, extension and training, and small grants so that smallholders can invest in infrastructure, and obtain annual loans for inputs. It also matches clubs with particular exporters, depending on product quality and standards, thus facilitating access to UK supermarkets.

However, not all producer organisations are the same as FPEAK. Bijman *et al.* (2007) outline how producer organisations can be categorised according to each of the following six criteria: (1) formal or informal (defined by whether the organisation is incorporated under existing legislation and has a legal status); (2) co-operative or association (individuals own a co-operative, but they are members of an association); (3) community-based or member-based (the extent to which the whole community directly benefits, or just the members); (4) the reach of the organisation (whether local, regional or national); (5) whether the PO works with single or multiple commodities; and (6) whether it is specialised or multi-functional (providing access to single services, such as credit only, or facilitating a wide range of input, production and output services).

There is a degree of agreement in the literature that focusing on market-orientated, member-based POs that provide benefits only to members is more likely to foster successful contract-farming arrangements as opposed to community-orientated participatory POs (which mainly focus on providing public goods to an entire community). For example, Bernard *et al.* (2006) find that producer organisations have a hard time balancing the provision of public goods to an entire community (or creating a sphere for participatory governance) with market-orientated activities to increase and stabilise smallholder incomes; thus, “market-oriented RPOs may be appropriate in certain contexts, while community-oriented groups may be more appropriate in others” (p. 3). In this respect, any donor support for POs needs to be very clear about the priority outcome it is working towards: increasing and stabilising smallholder incomes *or* providing a sphere for participatory governance and empowerment.

There is also an important distinction to be made based on the type of commodity. Barrett (2007) highlights how producer organisations appear to have improved the terms on which smallholders engage with contracting firms for cash crops, especially dairy and horticulture, but there is much less evidence of this for staple-food crops. UNCTAD (2009) also highlights how the promotion of contract farming for staple crops remains a challenge.

However, there are signs that POs may be able to perform a similar function for certain staple food crops. On a non-contract basis, Bernard *et al.* (2010) found that producer organisations obtained a 7% premium for their members when marketing staple-food produce (by utilising better market information, timing the sales of produce effectively, and selling directly into markets).

In essence, producer organisations work because local social networks and reputations are important in many rural settings in developing countries (Kirsten and Sartorius, 2002). For example, ESFIM (2007) highlights that if members are unmotivated and include free riders then not only does this put a drag on the motivation of the group and potentially cause conflict, but the costs of coordination fall disproportionately on the motivated members (see also Mercoiret *et al.* 2006). This supports arguments for group-based lending and repayment practices.^[32]

However, it is also important not to romanticise POs. Bernard *et al.* (2006) highlight the frequent finding that poor, small farmers are not well-represented in staple-food producer organisations as the costs of membership are prohibitive. For example, Bernard *et al.* (2006) report the findings from a large-scale review of POs by Thorp *et al.* (2005): that the chronically poor are rarely members of producer organisations (due to their lack of assets, time, cash, and reputation for unreliability).

Moving away from producer organisations, the contract-farming literature highlights four additional institutional forms and practices that can reduce the threats inherent in contract-farming arrangements.

First, dispute-resolution agencies. UNCTAD (2009) suggests that government or non-state agencies can reduce the likelihood of disputes between farms and firms by providing arbitration procedures and spaces for reconciliation. Jain (2008) suggests that local magistrates can play an important role in resolving disputes. Although there is no consensus in the literature regarding who should play this role, there is general agreement that it needs to be provided and should be referenced within contracts.

Second, intermediary organisations. Jain (2008) argues that intermediary bodies should be integral to all contracts. For example, such organisations can play an active role in brokering the contract between farms and firms, verifying the pricing structure and delivery schedules at the start of the season, advising farmers on crop development and harvesting part way through the season, and reviewing the quality of produce delivered to firms and the payment to farmers at the end of the season. There is clearly a role for donors here in supporting such intermediary organisations.

Third, other actors can be included in the terms of the contracts (such as traders or other farms). For example, Woodend (2003) highlights how nearby large-scale farms

[32] M4P (2005) also suggest that group leadership is a vital factor in sustaining contract-farming partnerships. Of particular importance here is that they are farmers themselves, and thus understand and will respond to farmers' needs.

provide tillage services to smallholders. The fee for this service is paid by the firm and recovered from smallholders' gross profits.

Fourth, Hayami (2006) suggests that the threats to contract-farming arrangements between farms and firms can be mitigated by firms (or traders) attending local community functions, such as weddings, funerals and sports events. Hayami (2006) highlights how in rural Indonesia, weak judicial systems mean that contract enforcement occurs through community and kinship-based social networks, so that traders who engage with these communities are well-known within a farming community (even if they live in town). These social relationships are a form of social insurance. For example, Hayami (2006) highlights how ethnic Chinese traders from the towns are shunned in rural communities in Indonesia since they lack this social collateral. Thus, firms that are willing to undertake such practices will gain social status and trust, and thus increase their chances of successful contracting arrangements. As it is hard to distinguish between political and legal approaches to overcoming threats to contract farming, these two spheres of action are now considered together.

5.2.5 Political and legal innovation

The focus of this section is the potential role of the state beyond the provision of public goods (such as infrastructure, research and development, etc.).^[33] This section is split into two parts: first, political and legal measures to support producer organisations; and second, broader measures the state can take to ameliorate the threats to contract-farming initiatives.

Bijman *et al.* (2007) suggest that good arguments can be made for the state supporting the formalisation of producer organisations. For example, formal legal status allows access to credit, provides instant recognition by outside actors, allows some protection against internal fraud, makes clear the liability of the organisation and its members, and offers the potential for co-operation with other similar bodies (leading to a federation, perhaps). Thus, formalisation can be seen as an important factor for POs engaging in long-term, contract-farming arrangements. Legislation can modify general laws on the incorporation of companies, non-governmental organisations and co-operatives, how they are taxed, and provisions regarding the

[33] The case for state involvement in research and development is usually based on the premise that firms will not be able to recoup or profit from investment in R&D (such as breeding new crop varieties) due to competitors free riding on innovation in the following years (by simply breeding the crop themselves). However, Young and Hobbs (2002) outline how biotechnology now allows firms to sell seeds with no reproductive capabilities, thus allowing the firms to ring-fence profits from innovation. Thus, there may be a need to reconsider the role of the state in regard to certain R&D functions.

marketing of agricultural production (such as the role of state marketing boards) (*ibid.*).

However, there is a need for caution here, as there are good reasons why formalisation may not always be beneficial to smallholders: for example, when the legislation is extremely strict and constraining, when the costs of formalisation are excessive, or when formalisation exposes members to punitive taxation rates.

Importantly, Bijman *et al.* (2007) offer three reasonable arguments as to why producer organisations should be subject to special legislation separate from that designed for co-operatives: first, that such targeted legislation provides legitimacy and an enabling environment; second, that it distinguishes POs from other forms of association and clarifies that they are member-owned institutions; and third, such legislation allows exemption from tax regimes or competition laws (see Bijman *et al.*, 2007). A good example here is from Vietnam, where the state has supported the development of new producer organisations (which often still provide inputs for their members – see M4P, 2005).

Turning to broader measures that the state can undertake, the literature suggests 10 possibilities.^[34]

(1) Enactment of antitrust legislation and market regulation that reduce the market power and uncompetitive behaviour of firms and can bring substantial benefits to smallholders (see Setboonsarng, 2008; Simmons, 2002; and Young and Hobbs, 2002). For example, Minot (2007) suggests that while monopsonies can decrease the rate of

[34] States can also play a broader national role in limiting market price risk (particularly important in countries reliant on a single commodity, such as Malawi with tobacco), especially when the institutions in developed countries, such as insurance markets, are not fully formed (see Bijman *et al.*, 2007). One example is market-management approaches that prevent price fluctuations through the control of stocks and exports. Such *dirigiste* approaches have fallen distinctly out of favour in the previous decades of liberalisation and globalisation. At the international level, UNCTAD previously co-ordinated the supply and stocking of 18 commodities through international commodity agreements, until these collapsed in the 1980s. At the national level, state marketing boards used to stabilise prices (although producers were often penalised as prices for export crops were often kept at below export parity). One approach which is continuing is the use of price bands to set variable import tariffs to smooth price fluctuations so as to protect domestic production of key commodities (for example, the Andean Price Band System) (*ibid.*). Another example is market compensation approaches. In such arrangements, participants are offered various forms of compensation should certain circumstances arise. Included here are safety nets or social protection measures offered by the state, as well as various other types of insurance mechanisms, such as crop insurance or the hedging of price risk via commodity exchanges by trading futures positions or call options. Market compensation approaches influence commodity markets less and do not distort trade or price signals as much as direct intervention in the markets. However, the extent to which crop-insurance mechanisms can benefit more than the rural elite in developing countries, and whether hedging in international commodity exchanges is an appropriate strategy for crops of vital significance, are still matters of debate.

side-selling and defaults among smallholders (and allow firms with large investments in specific assets the time horizon to generate a return), this may not be the most effective way of enforcing contracts (and the lack of competition can reduce prices paid to producers).

(2) Facilitation of contracts through the provision of information and acting as a broker between farms and firms. For example, UNCTAD (2009) highlights how in Brazil the government supports a television programme to educate farmers on contract-farming issues. Moreover, in Shandong, China, the local government produces a catalogue that details market potential and investment levels for various commodities in an attempt to attract investment in organic agricultural production and processing. In this respect, government provides a clearinghouse service to link producer organisations and firms (although not an internet-based initiative as proposed in endnote 29 – see also Setboonsarng, 2008). Importantly, this role does not need to be restricted to farms and firms. The state can play an important role in integrating traders and middlemen within contract-farming arrangements (see KIT/IIRR, 2008, for plenty of detail on this).

Government can also provide better information about farms and firms through “naming and shaming” persistent defaulters. Minot (2007) offers the example of Benin where a government-created clearinghouse offers information on cotton growers who default on inputs received for cotton. Naturally, such a clearinghouse would need to include cases of firm default as well.^[35]

Of particular importance here is that the state offers clear direction on food safety and standards, which can have a strong impact on supply chains and actors further up the value chain; for example, the development of consistent grades and standards based on consumer and trade requirements (Minot, 2007). This decreases the risk of confusion and conflict between farms and firms, and can be a first step toward promoting compliance with important export standards. One way of doing this is to facilitate certification programmes to provide quality assurance (such as for credence attributes). A different approach is to provide information and support on the standards required for the different supply chains.

(3) The promotion of unconventional forms of training and extension, such as collaboration with the field officers of the firms contracting with smallholders (Minot,

[35] In the US, there is some concern that mandatory arbitration procedures included within contracts can limit the extent to which producers are able to seek a court ruling on the issue at stake. However, such concerns are not as relevant in developing countries (as enforcement is often internal to the contract and relationship).

2007). For example, in Tanzania local government encouraged one firm to take over extension services for all smallholders near a sisal estate, in addition to the outgrowers it was contracting (UNCTAD, 2009).

(4) The provision of direct start-up subsidies to smallholders or certain growers to facilitate better participation in contract-farming initiatives (such as preferential rates of interest via nationalised banks, or subsidies on inputs lent to farms). This form of positive discrimination can be justified when there are substantial market failures that are not being overcome by contract-farming arrangements, or when a legacy of discrimination has disenfranchised and disempowered a particular group in society (for example, the Black Empowerment Programme in Agriculture in South Africa supports contract-farming initiatives).

(5) The establishment of public-private partnerships to encourage technology transfer, and demonstration communities that adhere to the most exacting quality standards.

(6) Fostering a favourable investment climate (such as reducing high capital thresholds for the incorporation of firms), simplifying registration procedures for firms, limiting licensing requirements, and simplifying the tax and trade requirements (Minot, 2007). Woodend (2003) highlights how the state in Zimbabwe created Export Processing Zones and concomitant grant and tax incentives to support contract-farming initiatives. A first step in this regard is that direct transactions between companies and farms need to be liberalised. For example, Jain (2008) outlines how agricultural marketing act in many Indian states still requires that produce be channelled through wholesale markets, thus restricting the extent to which firms can instigate contract-farming arrangements with smallholders. In other cases, the prohibition of direct purchase from farmers has the negative impact of increasing marketing costs given the utilisation of a third-party intermediary (see Minot, 2007).

(7) Making it more difficult to establish or expand estate agriculture, thus encouraging the longevity of contract-farming arrangements (Grosch, 1994).

(8) Promoting corporate social responsibility, such as through the provision of local public goods or the use of beneficial technologies within communities that are participating in contract arrangements, thus maximising the benefits of contract farming (Setboonsarng, 2008).

(9) Promoting dispute-resolution services to overcome conflict, such as through an intermediary organisation, an agricultural extension office or a third-party reconciliation service. Most important here is the ability to offer innovative ways for enforcing contracts above and beyond the judicial system.^[36]

(10) Providing a clear legal framework. Wu (2006) highlights how courts and legislation can play a role in ensuring the clarity and completeness of contracts. For example, legislation can ensure that a common vocabulary is used across all contracts within an industry, and can supply default clauses for issues not specified in a contract. A good example here is when farmers' produce is ruined due to an accident en route to the delivery point. Wu (2006) suggests that legislation could ensure that "the party who is "in the best position to bear the risk should bear it". In other words, the firm should cover the losses suffered by the farmers in question. A further enhancement can be that all contracts are to be written on the "implied promise of good faith". This can help farmers reduce dishonesty by firms.^[37]

But while such legal frameworks are a step in the right direction, they need to be enforced. For example, Singh (2008) details how the regulation of contract farming in India under the Agricultural Produce Marketing (Development and Regulation) Act (2003), has been enacted by a number of states. This Act ensures that certain provisions are included in contracts (such as the duration of the contract, quality specifications, transport arrangements, pricing and credit agreements, compulsory registration with the local authority, and procedures for dispute resolution). Additional aspects are optional, such as joint crop insurance, the establishment of farmer-management forums, and the monitoring of quality and yields. Singh (2008) comments that the Act is a positive move, but still leaves farmers bearing unnecessary risks, such as from delayed payments and deliveries. Moreover, Singh (2008) highlights how the Act has been diluted in a number of states in India, such as Gujarat, and

[36] For example, Jain (2008) highlights how judicial dispute resolution procedures in India are prohibitively expensive.

[37] Hamilton (2008) also outlines three important issues in relation to legal frameworks. First, that contracts are, of course, subject to conventional contract and commercial legislation (which may apply at the regional but not the national level). Second, that while in many contracts farmers are "independent contractors", they may also be described as employees, agencies or franchises, thus altering their legal status. And third, that law on contracting (in the US) is split into:

- (i) laws that establish the rights of farmers, which can be enforced through private court actions; examples include establishing minimum requirements for both farms and firms, ensuring that a contract template with specific provisions is used for a particular commodity, and that producers have a specified window of time to consider whether they want to sign the contract offered; and
- (ii) laws designed to regulate the creation and execution of contracts so that bargaining power is more balanced; examples include detailing various types of contract resolution and ensuring that farmers have the right to organise and bargain collectively.

abolished in others (such as Bihar). In addition, UNCTAD (2009) highlights how Thailand and Vietnam have also implemented special regulations regarding contract farming in the recent past. This legislation includes, among other things, the creation of registers for contract farming initiatives, dispute resolution mechanisms, compensation if firms breach the contract and clauses to address the issue of *force majeure*.^[38]

[38] Here, UNCTAD (2009) refers to India's State Agricultural Produce Marketing (Development and Regulation) Act (APMA Model Act) of 2003, Chapter VIII, No. 38; Vietnam's Decision No. 80/2002/Qd-TTg of 24 June 2002; and Thailand's Standard Contract Farming Agreements of 1999.

Conclusion

Contract-farming initiatives can engage smallholders successfully, especially through producer organisations and when land-holding inequality is relatively low. Such initiatives can increase smallholders' incomes (although this is by no means certain). They can be used to produce standard, generic commodities (especially via centralised or intermediate models), although high-value perishable crops with a high value-bulk ratio are more common. They can be entered into by small firms, although most initiatives usually involve large firms. They can operate successfully in a very wide range of socioeconomic conditions, including conflict-affected countries, fragile states and Least Developed Countries. Moreover, the various types of contract-farming initiatives are each clearly suited to particular crops, firm sizes, types of input provision, contextual factors and contractual arrangements. Table 4 is an initial attempt to supplement a typology of initiatives (based mainly on Eaton and Shepherd, 2001; Minot, 2007; and Bijman, 2008), which further research would no doubt improve upon.

However, the main point this review wishes to convey is this: the explicit involvement of numerous third parties is a key factor in successful contract-farming arrangements, in addition to technical expertise by both parties, an appropriate contract-farming model, and good contract design. Producer organisations have a vital bridging and negotiation role to play. Government (regional and/or national) also has a role to play beyond providing conventional public goods and an enabling environment. Neutral third parties that are mutually agreeable to all, such as civil society organisations or non-governmental organisations, can also arbitrate contract design, implementation schedules, provide quality assurance of inputs, and ensure that product characteristics, and payment schedules are appropriate. In essence, contract farming is a relationship that can be improved and enhanced through open, frank dialogue, and through advice, encouragement, and, in some cases, oversight by authorised third parties. Trust and goodwill in a relationship can easily be replaced by doubt and distrust (especially if either party has had negative prior experiences). Third parties can provide services and support to make a breakdown in communication and co-operation less likely, can provide an outlet for tensions or misunderstandings to be aired, and can allow both firms and farms to benefit from long-term stable and mutually advantageous contracts.

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Contract Farming in Developing Countries - A Review

Contract farming can be defined as a firm providing farmers with particular “input” – such as seed, fertilizer, credit, extension – in exchange for exclusive purchasing rights over a specified crop. This form of vertical integration within agricultural commodity chains has attracted considerable academic and policy attention. This review tries, through the analysis of academic, institutional and technical literature and through the study of some documented contract farming cases, to give some answers to the most frequently raised questions concerning contract farming practices:

Are smallholders excluded from contract farming? Do contract participants display significantly higher incomes than nonparticipants? Are some crops more concerned by this practice than others and if so, which ones? What firms usually enter into contract farming arrangements? Are some markets more targeted by contract-farming initiatives than others, and, according to the value chain, are there different practices? What are the roles of producer organisations and NGOs?

Although this document cannot pretend to give a general recipe for good contract farming and since the elements are based only on cases that have been documented and represent therefore only a small part of the practices, our ambition is to offer some general suggestions that farmers or their representatives could bear in mind when entering into contract-farming arrangements. It also presents contractual, technological, financial, institutional, political and legal types of innovation that have helped to overcome the challenges that can undermine contract-farming operations.

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