Nature of Contract Farming

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Abstract

Objective of paper are to review contract farming in term of various types of agricultural contract, benefits for farmers and smallholders, reasons for success in contract farming and governments role on contract farming in Thailand.

There were four types of agricultural contract including physical spot markets or cash markets, marketing contract, production contract and vertical integration. Farmers and smallholders earn some benefit from contract farming including; adoption of new enterprises, access to markets, access to credit, managing risk, access to information and access to insurance.

However, there were some reasons for success in contract farming such as profitable market and a strong market and farm groups. In the long run, farmers and smallholders would be able to collect skill in production and management, consequently improving their bargaining power. When increasing demand makes the market more competitive, contract farming may no longer be farmers' best choice.

Keywords: Contract Farming, Benefit of Contracts, Access to Market, Thailand

Introduction

Nowadays, agricultural productivities have been influenced by market liberalizations which denationalize local and international food markets by shifting agricultural production patterns in terms of the mixture between livestock and on–farm crops, changing food types that enter global markets and increasing total physical volumes and values of production Goodman, D., & Watts, M. (1997). Dramatic economic growth leads to increasing demand for high value products such as processed foods, on the other hand, decreasing raw material. Rural household diversification, such as contract farming, is an important strategy for farmers to achieve higher incomes for this situation in developing countries. Simmons, P. (2003).

Contract farming allows agricultural smallholders to manage inputs, organize farm services, invest in new activities, and transfer their products directly from farms to markets under contract to intermediaries, such as produce packers and processors and livestock integrators who organize and combine agricultural products for shipment to a different place.

In Thailand, contract farming is likely to be an important factor in rural development for a variety of reasons, including: (1) Higher income risk from market price variability and production failure which result from economic liberalization that has increased demand for high value foods especially for export. (2) Since economic liberalization became more important in global trade, agricultural market requirements have shifted. This has resulted in many small farms and small agribusiness firms participating in contracts (Eaton, C., & Shepherd, A. (2001); MacDonald, J.M. et al., (2005). (3) Competitive pressures in the world market have led to more specialized farm enterprises along with increased demand for large–scale farming to obtain economies of scale. From the perspective of farmers, contract farming can reduce the impact of competition from overseas enterprises with higher financial capacity and access to markets (Baumann, P., 2000).

Objectives

To review and summarize contract farming in term of various types of agricultural contract, benefits for farmers and smallholders, reasons for success in contract farming and governments role on contract farming in Thailand.

Contract farming

Contracts and vertical coordination are acknowledged as important characteristic of post–industrial agriculture (Bonnen, J. T., & Schweikhardt, D. B., 1998). These are combinations between vertical coordination of a fully vertically integrated firm and sub–unit competition in spot markets Peterson, H. C., Wysocki, A., & Harsh, S. B. (2001). Contracting is one of five hybrid forms of organization (cooperative bargaining, contracting, franchising, joint venture arrangement and strategic alliances) defined by Sporleder, T. L. (1992). There are three contract types: i) resource providing contracts, ii) production management contracts, and iii) market specification contracts (Key, N., & Runsten, D., 1999).

Table 1 Four ways of managing the sale of agricultural products to consumers

Governance forms	Who controls assets and production decisions?	How is the farm operator paid?
Spot market	Agricultural operators	Farm operator receives incomes from farm's output. The price is negotiated at time of sale just prior to delivery.
Production contract	Contractors have control over some assets and production decisions. Products, quantities and delivery timing are defined by contractors.	Farm operator is paid a fee for farming services rendered from agricultural production.
Marketing contract	Agricultural operators control assets and production. Contracts may specify output, quantities and delivery timing.	Farm operator receives price for farm output and is negotiated before or during production of agricultural products.
Vertical integration	Single firm controls assets and production decisions in adjacent farming and processing stages.	Farm operator–manager is compensated for skills and time.

Source: (MacDonald et al., 2005)

Contract farming (CF) is the contract arrangement that allows a firm to have greater control over the production process and provides inputs such as seed, fertilizer, credit, information and technology to the farmers in exchange for exclusive rights of purchase for the products. Contract farming is attracting considerable policy and academic attention. In developed countries, it has expanded to become a significant and growing form of the agricultural food industry (Martinez, S. W., & Reed, A., 1996). To illustrate the growth of CF, 31 per cent of the total value of US agricultural production which related to the CF in 1997 substantially increases to 39 per cent estimated in 2001 (Young, L. M., & Hobbs, J. E., 2002). Similarly, with other countries, CF accounts for 38 per cent of the production from the dairy and poultry sectors in Germany and contracts cover 75 per cent and 23 per cent of broiler production in Japan and South Korea, respectively (Young & Hobbs, 2002). In Southeast and South Asia, CF has also increased in recent decades (Swinnen, J. F. M., & Maertens, M., 2007). For example, CF is prevailing in Malaysia, mainly based on state–promoted out–grower arrangements (Morrison, P. S., Murray, W. E., & Ngidang, D., 2006).

Agricultural contract is the agreement between farmers and farmers, or farmers and processors to organize and transfer agricultural products and it includes agreements on conditions such as inputs, production, purchase, marketing and harvesting (FAO, IFAD and UNIDROIT, 2017). MacDonald, J. M. et al. (2005) suggested that there

are broadly four methods of management in agricultural transactions for farmers (processors, wholesalers, retailers, brokers, shipper and final consumers): spot markets, production contracts, marketing contracts and vertical integration. Based on this classification, CF in this study is mainly about marketing contracts as shown in Table 1.

Physical Spot markets or cash markets are the markets where goods are tendered for immediate delivery (Heilbron, S., et al., 1995, p. 48). Spot markets have been focused most extensively on investigations of pricing systems and performance analysis of any co–ordination mechanism. The shared control between seller and buyer is non–existent in this form of market, and there is significant price uncertainty and risk (Frank, S. D., & Henderson, D. R., 1992). Additionally, the spot market system may suffer from dynamic instability with significant price and production variability within and across market periods, and a lack of information on product quality characteristics (Heilbron, S., et al., 1995). However, modern spot markets for agricultural products have improved, including standards of individual agricultural products, payment systems and accounting, and weighing and grading technologies (Netz, J. S., 1995).

A marketing contract is an agreement to peg the selling price of future deliveries (Harwood, J. L., Heifner, R., Coble, K., Perry, J., & Somwaru, A., 1999). The purpose of this contract is for farmers to avoid the price risks (Musser, W. N., Patrick, G. F., & Eckman, D. T., 1996). Moreover, such a contract can improve access to credit and reduce income risk, especially when used together with crop insurance (Katchova, A. L., & Miranda, M. J., 2004). Often, marketing contracts are for grain. This type of contract sets the price formula or price range for products before or at planting. Farmers continue to bear production risk and make the best management decisions they can. However, some management protocols may be stated in the contract. The marketing contract may shift price risk to the processors or contracted prices may be linked to spot prices (Sriroth, K., Lamchaiyaphum, B., & Piyachomkwan, K., 2007).

A production contract is an agreement between a farmer or producer and a contractor or processor. In this kind of contract, the contractors provide the input, expertise and the feeding procedures for the farmers. On the other hand, the farmers are requested to take care of the livestock and plants until they are ready to sell. The production contract is common in the poultry and livestock industries (Sriroth, K., Lamchaiyaphum, B., & Piyachomkwan, K., 2007). There are at least four types of production contracts, including the simplest type of contract, the production management contract, resource–providing contracts and vertical integration (Kelley, C. R. (1995). There are several possible advantages for production contracted farmers, including: i) guaranteed market, ii) contracts reduce traditional marketing risks, thus farmers get more stable income, iii) increasing the volume of the farm's business with limited funds, and iv) benefits of managerial expertise and access to technological advances (Kunkel, P. L., Peterson, J. A., & Mitchell, J. A. (2009).

Vertical integration occurs when a single firm undertakes successive stages in the chain of production and these stages are under general control and ownership (Black, J., Hashimzade, N., & Myles, G. (2012). According to transaction cost theory, ownership internalizes the exchange or transaction process. The scope of vertical integration is influenced by the appropriateness of alternative exchange mechanisms external to the firm (Kilmer, R. L. (1986). These incidences of vertical integration are seen as a mechanism to both lower procurement costs

and reduce the risk of supply (Sporleder, T. L. (1992). That is, through vertical integration, the opportunity of one independent party obtaining excessive profits in the short–term through exploiting an advantage in a contractual relationship with another party is minimized where the two parties are owned by the same firm (Heilbron, S. et al., 1995). As with contracting, vertical integration is more prevalent in bigger agribusiness firms. Non–farm firms which venture into farming are more likely to do it on a large scale. In markets where there are vertically integrated firms, their activities could be to the disadvantage of non–integrated competitors. Also, vertical integration may deter further market entrants and raise barriers to entry (Casson, M. (2012).

Smallholders motivation in contract farming

According to the model of CF which allows the firms and the farmers to reduce the profit uncertainty by the supply diversification and increase their profit by organization expansions, there are many reasons that motivate the firms and the farmers to engage in CF and their motivations will be reflected in the types of contracts they select.

Adoption of new enterprises. There are three factors which may substantially change the way an activity is pursued: cost implications, profit implications and exposure to risk that might ensue from a new enterprise. For cost implications, input costs and opportunity costs are two types of farm costs relevant to adoption. Farm input costs include seeds, labor and machinery, fertilizers, chemicals, and marketing costs. The second type of cost is opportunity cost, which occurs with a new enterprise because other off–farm or on–farm activities may need to be restricted. The second factor is revenue implications. If income losses are more than fully offset by cost savings, a contract does not need to raise income to be attractive. The third factor is farm risks; how farm risks effect new enterprises may be captured in the safety–first theory where farmers will not expose themselves to the risk of profits falling below some level (Anderson, J. R., & Dillon, J. L. (1992).

Access to Markets. Since the 1970s, there has been a period of considerable reorganization for the value chains of agricultural products in developing countries. There are important reasons for this reorganization on both the demand and supply sides. On the supply side, the market liberalization, greater concentration within agricultural supply chains, transportation and logistics improvement, information technology and communication improvements and increasing importance of standards and the traceability of products have all contributed to the greater prevailing of contracts. Larger populations, greater urbanization, higher incomes and changing food preferences played an important role in changing demand for agricultural products on the demand side. Thus, agricultural commodity chains have become more integrated, globalized and consumer driven. This is referred to as global agricultural industrialization (Prowse, M., & Thirion, M.–C. (2012) In the demand side, agricultural production has evolved from supplying an array of generic, standardized commodities to a much broader series of highly–differentiated food products, fulfilling different niche requirements (Kirsten & Sartorius, 2002). According to the capability of agricultural business firms, these are influential in opening markets for smallholders because they have advantages over farmers in terms of market experience and knowledge, transportation resources, economies

of scale for efficient processing, and may have strong relationships with financial providers and authorities (Simmons, P. (2003).

Access to credit. This may be important in CF because the production costs per hectare of non–traditional crops or high value food (HVF) are higher than traditional crops and credit and finance requirements for farm production are often relatively high (Key, N., & Runsten, D. (1999). This is because non–traditional crops require special inputs, labor, chemicals and technology. Therefore, smallholders are faced with credit constraints and higher financial costs because they have to seek financial aid from local moneylenders if access to credit is available. These high costs are approved for smallholders in the form of high interest rates (Simmons, 2003).

Managing risk. There are three basic approaches to the management of risk in developed countries: i) diversification over off–farm and on–farm activities, ii) adjusting savings and borrowings to smooth income over time to offset high and low income years, and iii) reducing risk by using forward or future markets or crop insurance policies to cover yield and price variability (Simmons, P. (2003). Smallholders in developing countries have limitations in managing risk. A means of managing risk for such farmers may be to balance the risk between farmers and contracting firms. It may also be possible to distribute credit risk between farmers and contracting firms. A price surcharge can be explicitly linked to it when default is low and contracted prices go up.

Access to information. Most developing countries provide government extension services to distribute new information and technologies about both traditional and non–traditional crops. However, private agricultural business firms may offer new information better than agricultural extension services from the government because they have a direct economic interest in improving smallholders' production (Eaton, C., & Shepherd, A. (2001). They have advantages over smaller scale farmers because they have higher income to offset information costs (Bivings, L. & D. Runsten (1992). Small–scale farmers are likely to accept new practices when they can rely on external resources for material and technological inputs.

Access to insurance is important for CF because the higher costs and greater income risk of using non–traditional crops make them a riskier proposition for farmers than traditional crops, especially in developing countries that have more variable profits because they have more variable yields (greater susceptibility to pests and climate variations) and more variable prices (market supply, market infrastructure, price swing and price fluctuation) (Key, N., & Runsten, D. (1999). However, contracting firms may provide period insurance for contractors against yield and price fluctuations because they can diversify their production sources geographically, and they may have access to low borrowing rates and be able to provide low cost insurance for contractors in the production process. Moreover, by requiring farmers to bear a significant share of the production risk, contracting firms can decrease monitoring costs and result in increasing firm's incentive to contract with larger farmers (Key, N., & Runsten, D. (1999). Thus, CF is a way of distributing risk between the farmers and contracting firms. While farmers assume most of the production risks, the contracting firms assume the marketing risk, resulting in total risk reduction relative to a non–contracting situation for the product.

Reasons for success in contract farming

Successful CF can be measured by considering how contracts work. The successful contract is the contract with freedom to enter and exit the contract, and both parties, firms and farmers are satisfied with the results of the contract. There are some reasons for the successfulness of the contract as follows;

A profitable market and a strong market. The environment of the market is important for the success of a contract. Long–term capacity to remain profitable is crucial. For example, in case of competitive markets such as US, Japan and Western Europe, the firm using CF needs to ensure the quality standards and deal with possible future conditions to avoid loss of the market capacities.

Macro institutional policies which influence contract farming could be i) land ownership rules, especially the limitation of land–holding by foreigners or plantation development from multinational corporations; ii) tax and exchange rates which might affect the costs and income for the contracts that rely on the international markets; and iii) food security policy to ensure that local people in developing countries have good quality food for living.

Contracted crops commonly require **sophisticated technology** (Key, N., & Runsten, D. (1999). Complex technology require intensive use of capital. However, farmers have difficulties in accessing information and credit, thus there are interactions between farmers and contracting firms under CF providing special extension support and capital.

Contractors need to have clear access to **land ownership** from a legal perspective because an explicit land ownership is crucial as a collateral for loan guarantee. With land ownership, there can be many differences in land certificates, such as formal lease of state land, informal seasonal arrangements with landlords, leases from contracting firms that own estates and freehold title. Porter, G., & Phillips–Howard, K. (1997) suggest that contracting with lower capital favor the short leases in land or other types of government land reforms. The success of CF requires conditions of the management environment: management quality and types of actions taken by management (Simmons, P. (2003). Porter, G., & Phillips–Howard, K. (1997) illustrate that inappropriate use of cultural value in management roles of expat workers in Africa leads to failure of contract management such as miscommunications.

Farm groups may play a significant role as lobbyist to deal with political change as well as by adjustment to changed market conditions and encouraging adoption of new technology to achieve the goal of the contract (Coulter, J., Goodland, A., Tallontire, A., & Stringfellow, R. (1999). Successful farm groups are often built on pre–existing groups, are independent rather than “top down” and have both implicit or explicit protocols and organization (Bingen, J. (2000).

Additionally, for **selection of farmers**, in general, contracting firms select farmers for contracts and the opportunity of self–selection by farmers is referred to only indirectly. This reflects that contracting firms are generally supposed to hold the power in relationships with farmers. The difference between selection by contracting firms and self–selection is important because with self–selection farmers with most to gain would be the ones most likely to participate in contracts. That is, smaller, more constrained enterprises that were not doing well in the spot market system would have strong incentives to negotiate contracts. On the other hand, if the selection is

made by firms, the firms would choose larger farmers; less constrained farmers with less risk exposure and lower unit costs are likely to be the most attractive partners (Simmons, P. (2003).

Profit for the farmer. The contract will fail if either contracted farmers or contracting firms fail to maintain attractive and consistent financial benefits. The contractors are attracted to the contract if the contract provides higher returns with the lower risks compared to other options.

An important problem for contract success is **contract default**. Contract default should be minimized to avoid diversion of the provided inputs to produce other crops or sell contracted products to other purchasers. The main factor in contract agreement is providing the farmers with credible desire and prospects for contract renewal.

Utilities and communication systems are major requirements for agricultural investment in developing countries including transportation and telecommunication services. Water supplies and reliable power are mainly essential for agricultural processing and exporting of fresh products. The accessibility of medical services and education is also important for contract farming smallholders, whether they are directly employed by the contracting firms or the farmers themselves.

Thai government policy and implications for contract farming

CF in some form had been practiced before the government chose it as a policy objective in the Sixth National Economic and Social Development Plan of Thailand (1987–1991); for example, CF was used in producing processed foods such as tomato, pineapple and canned fish targeted for export markets. The Sixth Plan included strategies for expansion of agricultural industries. The goal was to support the export of value-added products and import substitute commodities. Government improved the guidelines called the "Fourth-sector co-operation plan to develop agriculture and agro-industry" (Fourth-sector plan) in which farmers, agricultural firms and financial organizations, such as the Bank for Agriculture and Agricultural Cooperatives (BAAC), and government agencies worked together.

In the Eleventh-sector plan (2012–2016), government aims to create jobs and an income security for farmers using an income insurance system together with crop insurance. The government will encourage CF to promote fairness and better quality of life, enabling small farmers who may be negatively affected by free trade agreements to be strengthened so as to sustain their living situation. To support fairness in the system of CF, government will ensure that raw materials are supplied to the manufacturing sector and also guarantee farmers' incomes. Firms and other agricultural businesses are encouraged to cooperate with each other in the development of information and knowledge-sharing organizations so as to participate in creating equity, transparency and fairness.

In 2018, Thai government released a new law to support contract farming called "Contract Farming Promotion and Development Act" would come into force in September 2018 and provide particular guidelines on the formulation of contracts as well argument resolution and mediation mechanisms. The act further clarifies the determining factors for contract farming agreements as well as rules and procedures related.

Conclusion

There are many good reasons for CF expansion. Following the liberalization of national markets and the collapse of international commodity agreements, agricultural value chains have become increasingly vertically integrated and buyer driven. From an environmental perspective, CF proposes the best solution for both large and small farm production systems. Smallholder farmers are frequently the most efficient agricultural producers and they have benefits over large farms in terms of reduced labor costs associated with transaction costs, particularly in terms of motivating and supervising workers. However, smallholders often lack the capacity to adopt technological innovations and suffer from capital constraints. CF can bring advantages, usually related to large–farm production systems, including increased output with reduced input costs. Additionally, agricultural firms have comparative benefits in technical knowledge and in marketing, as well as ensuring product quality and traceability.

Contract decisions are determined by three expectations: revenue, costs and risks. These expectations are likely to be determined by levels and characteristics of transaction costs that might occur with different forms of farm enterprises. CF exists for the purpose of reducing transaction costs for both farmers and agricultural firms, including all the participants in the production, processing and marketing of the farm products, including farm suppliers, farmers, storage operators, processors, and credit and information providers who are involved in the production flow from primary inputs to the end consumer.

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