

Analysing the role of institutional arrangements: vegetable value chains in East Africa

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Paper / prepared for presentation at the 106th seminar of the EAAE

Pro-poor development in low income countries:

Food, agriculture, trade, and environment

25-27 October 2007 – Montpellier, France

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Abstract

Institutional innovations are increasingly seen as key to achieving not only agricultural growth, by overcoming market failures, but also to ensure that poor smallholders also benefit from this process. This paper analyses institutional arrangements for vegetable marketing in East Africa from a transaction cost perspective. Marketing of vegetables is still dominated by spot markets with some, but still limited, movement towards farmers' engaging collectively in contract farming through producers' organisations. It appears that little is understood concerning how farmers and traders have overcome transaction costs in such situations, and this area deserves increased attention. An understanding of how institutional change occurs is necessary if donor agencies wish to support this process.

1. Introduction

Agriculture is receiving increasing attention as an instrument for growth, especially with the World Development Report 2008 (WDR) titled “Agriculture for Development” (World Bank, 2007). In that report institutional innovations are seen as key to achieve not only agricultural growth, but also to include poor smallholders in this growth. These institutional innovations are expected to be able to overcome various market failures, including missing or incomplete input and output markets, factor markets (including financial markets) and insurance markets. The Report sees a particular important role for the “third sector”—communities, collective action, and NGOs— in overcoming some of the market and state failures, with special attention for producers’ organisations (POs, which can be defined as an agreement among farmers to coordinate some activities, such as jointly purchasing inputs or delivering produce to clients) as fundamental to reducing transaction costs in markets, achieving market power and raising farmers’ voices in national and international policy forums. More pointedly, Dorward et al. (2005) argue that current emphasis in research and policy discussions on the institutional environment (such as property rights, regulations, policies, informal rules, etc.) in Africa is at the expense of sufficient attention to institutional arrangements.¹ They call for more investigation of arrangements, especially for attention to those, such as producers’ organisations, that do not fit the textbook model of competition and exchange among atomised market players.

In this paper we examine the case of institutional arrangements for marketing of farm produce in the vegetable sector of East Africa. Two alternative institutional arrangements for production and marketing of fresh vegetables can now be observed, next to the ‘default’ option for most farmers of spot markets: (i) producers’ organisations (POs) and (ii) contract farming (or combinations of the two), which is important for high value, high quality crops (marketed to supermarkets and export markets). The principal research question addressed is how alternative organizational arrangements for marketing fresh vegetables in Kenya and Tanzania compare in terms

¹ See also Kydd and Dorward (2004). The discussion here follows the same distinction between institutional arrangements (governance structures, formalised agreements, contractual arrangements between specific actors) and the institutional environment (the more general formal and informal rules mediating interaction) best associated with Williamson (2000) and building on the work of North (1990). See Figure 2 in the appendix.

of transaction costs, and how are any differences related to characteristics of the product, market structure, supply chain, quality requirements or farmers. The larger aim is to understand how changes in institutional arrangements come about, particularly in the form of reduced transaction costs, and what is the potential for encouraging this process. Considerable attention of donors is being directed towards support of producers' organisations.

Aside from emphasis on innovations in institutional arrangements, the WDR does also acknowledge that the state is important in confronting the extensive market failures and uncertainties in agriculture, and concludes that an effective agriculture for development requires good governance, or in other words improvements in the institutional environment. In this paper, we are also interested then in how differences in transaction costs are related to the elements of the institutional environment such as property rights, contract law, and even informal norms, such as trust.

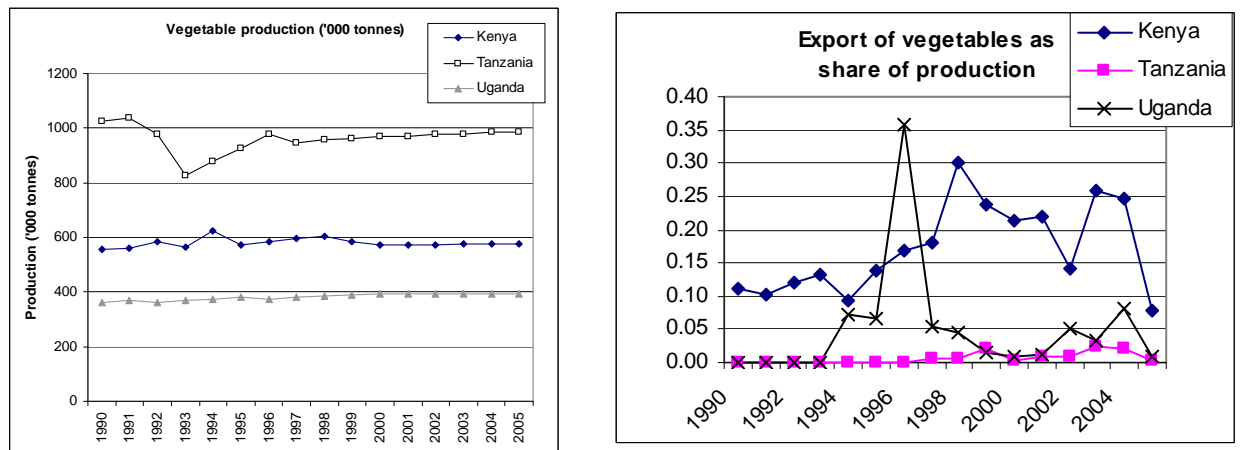
Vegetable production constitutes only a small share of arable land in East Africa. For Kenya this is 3%, Tanzania 6% and Uganda 1%. Over the past decade production has slightly increased according to official statistics, although it is difficult to assess their reliability (see Figure 1). Most of the production is for the local market and only part is exported, although exports seem to vary considerably across year. Export shares are highest for Kenya and rather low for Tanzania (FAOSTAT, 2007). Vegetables include many different crops, with some that are mostly for local consumptions (such as cabbage, onion and tomato) and some that are more geared towards export markets (Scotch Bonnet pepper in Uganda) (Sonko *et al.*, 2005).

The paper is structured as follows. The following section summarises the general rationale for producers' organisations and contract farming (as compared to spot markets), based on insights from transaction cost and supply chain economics. In the subsequent section, this theory is applied to vegetable marketing arrangements in East Africa. The concluding section summarises findings on how institutional change reduces transaction costs in fruits and vegetable chains in East Africa and identifies issues requiring further research.

Our paper can be seen as contributing to the research agenda identified at the most general level for the agricultural sector by Masten (2000), Ménard and Valceschini (2005), and Sykuta and Cook (2001); and in the African context by

Dorward *et al.* (2005). Relevant theoretical developments include those of Swinnen *et al.* (Swinnen *et al.*), as well as Fafchamps (2004) who underlines how little is known about the development of markets in Sub-Saharan Africa.

Figure 1: Production and export of vegetables (as share of total production in quantity terms) 1990-2004



Source: FAOSTAT | © FAO Statistics Division 2007 | 23 April 2007

2. Organisational arrangements in marketing of agricultural products

This section discusses the factors that affect the choice of institutional arrangements for marketing vegetables. Drawing on the insights provided by new institutional economics, these factors can be related to the configuration of transaction costs. We first discuss the circumstances under which producers' organisations (POs) might reduce transaction costs relative to individual selling in spot markets, and then examine a 'hybrid' form of governance (in Williamson's language), contract farming including the combination where POs selling through contracts.

The POs in both developed and developing countries has resulted in a long list of services that a PO may provide to their members: collecting, sorting, grading, processing, logistics; collecting market information; credit; bargaining; innovation and knowledge transfer; establishing a quality assurance system; and risk sharing (see Bijman). Why would farmers set up a PO to carry out those services instead of just

doing business with companies or individuals providing those services? There are a number of answers to these questions:

- Private companies may have an information advantage and are not willing to share this information with producers. In other words, private companies may not be trusted to act in the interest of the farmers. This could be seen as a case where there are high transaction costs due to asymmetric information.
- Private companies may not be willing to make investments that are specific to the relationship with a group of farmers. They are afraid that the farmers will take advantage of the dependency relationship that arises with specific investments. This could be seen as a case where there are high transaction costs due to asset specificity.
- Private companies may use their market power (e.g. when there is an oligopsonistic or monopsonistic market structure) to take a higher share of economic profits.
- Private companies cannot monitor contract compliance by the farmer, thus leaving room for opportunistic behaviour by the farmer. Again, this can be seen as a case where there are high transaction costs (such as risk of moral hazard) due to asymmetric information. Only by reducing these costs through a PO can farmers offer a profitable opportunity to companies.
- Private companies may not be willing to provide insurance against particular risks. Thus farmers can reduce transaction costs by sharing risk.

Taking these reasons for establishing a PO into account, we can address the question why POs may not be popular in the fresh produce industry. There are several explanations for this:

- Farmers may have alternatives that are sufficiently attractive: traders cannot afford to behave opportunistically because if they do, the farmers will no longer do business with them (market entry into the vegetable trading business is very easy).
- There may be large quality differences between growers, which leads to the situation that farmers are unwilling to let others (the PO) do the negotiation for them.
- There are multiple market outlets for fresh produce.
- The scale of supply is not very important: many traders only buy small quantities.

- Because personal relationships between growers and traders continue to be important, farmers do not easily change trading partners (traders may come from the same family, community, village).

Institutional change occurs and POs are established (in the fresh produce industry) when warranted by specific (institutional) circumstances:

- when few alternative market outlets are available and collective bargaining becomes more important;
- when scale *is* important, for instance when the buyer (exporter, retailer, processor) requires large quantities of homogeneous quality. In this case a PO can carry out the collection and sorting function;
- in the case of specialty products that require special handling for specific markets (e.g. branding); here the asset specificity argument becomes relevant;
- in the case of seasonal production in combination with year-round consumption. In this case farmers need to invest in storage, and probably would prefer to share market (i.e., price) risk;
- when there is a large information gap between sellers and buyers, for instance in production for export markets (asymmetric information argument);
- when farmers sell all of their produce in one transaction.

Taking these reasons into account, we can identify what type of POs can be found in the vegetable industries of the developed countries. First of all, POs can function as auction cooperatives when the demand is larger than supply, for instance for high quality perishable seasonal products, like asparagus. Secondly, POs function as bargaining associations in the case of products for the processing industry. And finally POs function as marketing associations, particularly for specialty products.

The institutional arrangements discussed in the cases combine PO and contract farming. Contract farming seems to be growing in developing countries, because of a reduction in government procurement (previously handled by state marketing boards) and market regulation. Also promotion of exports leads to more contract farming, as production for high demanding export markets requires more vertical coordination

between exporter and producers. This coordination, in terms of quantity and quality, cannot be obtained through spot markets.

Contract farming is an institutional arrangement in response to high transaction costs (or put differently: to market failure). Producers have difficulty to access inputs and to market their commodities while purchasers and processors may have difficulty obtaining sufficient, timely and qualitative supplies. For contract farming to work, at least to work efficiently and somewhat equitably, the institutional environment becomes important.

Basically, POs can play two roles in facilitating contract farming. First, they can become part of the supply chain themselves by collecting, sorting, grading, etc of the products. Thus, they are actually organizing part of the supply chain activities. We have seen this in the cases discussed above. Second, they can bargain favourable terms with the contractor. In addition they can lobby the national government, and they can collect information on markets and other opportunities. In industrialised countries, POs that take up the first role are called cooperatives, while the POs that restrict their activities to negotiating are called bargaining associations. In the cases we discussed above, the POs did not take up these roles. The self-help group POs are probably too small and have a limited capacity to fulfil these roles, which can be explained by high search costs for possible alternative clients.

The potential of contract farming is threatened by two main problem areas: farmer default on contracts and the scale of farmer operations. Default can occur because of production failure or simply because farmers have sold the produce to competing buyers, partly to avoid repaying the credit and inputs they received as part of the contract. The weakness of formal institutions (e.g. legal system), the lack of collateral held by smallholders, and weak insurance systems, create considerable risk for companies entering into contracts. The scale of operation in smallholder farming is such that it leads to high transaction cost of ensuring quality and traceability, and auditing and monitoring many dispersed farmers.

Coulter *et al.* (1999) state that POs such as farmer associations and cooperatives can tackle both contract default and the scale of farmer operations. POs are used as an intermediary between farmers and contractor: the provision of inputs to the farmers is organized by the PO. Expensive monitoring of contract compliance is

not necessary because farmer default on contract is reduced through the social mechanisms such as social sanctions, reputation, and common norms, which are present in producer organisations. In other words, these informal institutions reduce transactions costs in the contractual arrangement. The problem of scale of operation is solved as the PO organizes the exchange of information, both the technical advice on production methods as well as other information farmers need to comply with quality requirements.

3. Institutional arrangements for vegetable chains in Uganda, Kenya and Tanzania

This section analyses institutional arrangements for marketing of fresh vegetables in East Africa. The approach consists of applying the transaction cost framework to the growing literature on this sector, as well as from our own observations in the field in the course of related field research (including an interview held with a producers' group in Maragua, Kenya in October 2006)². We proceed by first discussing spot market arrangements which are the most commonly observed and then move on to POs and their involvement in contract farming. In both cases, we discuss the likely configuration of transaction costs, as well as how these might be influenced by the external environment.

Spot markets

For many farmers, spot markets constitute the default option for marketing their fruits and vegetables. Such market transactions remain the dominant allocation mechanism in Sub-Saharan Africa, not only for agricultural produce but for most commodities, and they are much more important than allocations through hierarchies such as governmental organisations or within firms. In fact, the absence or weakness of those hierarchies may well be the reason why markets play such an important role in SSA (Fafchamps, 2004, p. 9). There is a difference between the theoretical definition of spot markets and spot markets that exist in many developing countries (Jaffee and Gordon, 1992). Evidence collected in Africa and elsewhere suggests that input and output markets, as well as factor markets (e.g. for labour or credit) are beset with

² This is being complemented by ongoing fieldwork (September 2007) in Tanzania which will be added to this paper.

problems of moral hazard, adverse selection, and contract enforcement problems that shape economic exchange and determine how efficient markets are (Bigsten *et al.*, 1999).

The main actors in the vegetable chain are very similar for the three countries. Here the focus is on small-scale farmers who sell their surplus produce to rural traders (or collectors). Three different output markets can be discerned (Eskola, 2005)³:

- Local village markets: the farmers themselves bring the produce to nearby informal markets, which are often located near roads. The produce is often sold by women or children, who sell produce to an established circle of customers. These small roadside markets usually have little or no link to larger markets in the region.
- Regional markets: these have an important function for consumers as they are often the largest markets available to consumers in that region. Although some farmers may bring their produce to these markets, they are mostly dominated by traders, which can be divided into collectors, wholesalers and retailers.
- National markets: these are usually located in the capital city and can be characterised by a large number of small-scale producers and local traders (wholesalers and retailers), a few large-scale traders who are able to finance transport and marketing costs. The national market provides traders with an opportunity to expand their business. However, to do so, financial resources are required to buy and transport large quantities of goods. The export market for non-traditional cashcrops (e.g. cashew) operates separately from the national markets for food crops. The traders operating in export markets are large-scale and usually foreign, have large financial resources, and considerable bargaining power relative to producers.

Collectors purchase produce from farms and in some cases they help with harvesting the produce in order to meet targeted volumes (e.g. in Uganda (Sonko *et al.*, 2005)). Farmers have little influence in setting prices and usually accept the price the rural traders offer. As was outlined above, relational contracting makes it difficult to switch partners (e.g. due to search costs) and for farmers to have a more or less

³ The export market is usually limited to non-traditional crops which have a limited market. The cross-border trade with neighbouring countries can be an important source of livelihood for communities living near border, but the traditional exports constitute only a small amount of total export earnings in the country.

assured outlet for their produce is apparently more important than obtaining a higher price. Or, put differently, the transaction costs of obtaining a higher price are too high. The rural traders fulfil various functions. The most important function that we found was that they transport the collected produce and bring it to various (local) markets. But they may also be involved in grading, financing, or selling consumer goods. At the market, they either fulfil the function of wholesaler or sell it to wholesalers in the market. Transporters sometimes come in when rural traders cannot organise the transport themselves. Rural traders may be small-scale operations and have no means to use trucks, instead either using other means (bicycles or motorcycles) or hiring transporters.

Wholesalers buy produce from the rural traders and directly sometimes from the producers and sell it on to retailers who stock small quantities mainly due to the limited demand among consumers. Wholesalers have a right to a certain market spot⁴. This right can be formal when they are assigned a spot by the market authority and pay for it or informally when no such arrangement is made with official market authorities, although an informal agreement may have been struck with other traders to share space in an unauthorized location (e.g. next to the market facilities). In Tanzania, the traders must register to be granted permission to trade at the markets. They pay a daily fee to the market authority for cleaning and security. There is a variety of traders with respect to size of business (from small-scale to large). In Tanzania, large traders have a wider geographical reach and a higher turnover (US\$ 30-90 per day). Medium-scale traders buy their produce mainly from local producers and trade a limited number of goods. Turnover is around US\$ 20 per day. Their working capital is sufficient to run the business but is not sufficient to finance the transport cost or purchase large quantities of goods from other regions. Their business knowledge is weaker than the large-scale traders (e.g. they are unable to carry out bookkeeping). Small-scale traders are often very poor and have no other means of income. They are often landless, have no means of transport and are unable to give credit or receive it (due to their difficulties of paying back). Trading gives them a very small income (their turnover is around US\$ 4.5 per day) (Eskola, 2005).

⁴ These are usually open air markets operated under license of local municipal governments and sometimes referred to as “wet markets” (Bear *et al.*, 2005).

Wholesalers also have (established) contacts with rural collectors and traders and retailers. Eskola (2005) reports that even large traders are unlikely to move from the regional markets into national markets even for marginally higher profit because they are committed to serving the existing base of customers. This commitment is usually social rather than economic, and the loyalty to customers, friends and relatives is more important than the “short-term opportunistic profits available in other markets”.

Traders sometimes receive credit from producers (i.e. pay for the produce later) and give credit to their customers (i.e. receive payments for produce later) (Eskola, 2005; Sonko *et al.*, 2005). This is interesting, as in other regions such as Java, the traders give credit to producers to buy inputs and collect the credit plus interest when the farmer sells the produce (Meijerink, 2002). It seems that especially the small traders are financially constrained. All market participants have difficulties in overcoming problems related to fluctuating prices and supply of fruits and vegetables. During the season there is oversupply and prices drop. Consumers profit from this situation, but especially the farmers and to some extent the traders are disadvantaged. Outside the season there is hardly any supply and prices rise. Consumers are disadvantaged by this as well as traders, who are unable to specialise in a few products. Traders are disadvantaged also by transport problems, which can be irregular. For fruits and vegetables it is important to transport the produce quickly. Transport problems affect especially large traders who transport produce over large distances.

Brokers are traders who do not have a place on the physical market (i.e. do not own a stall). Nyoro *et al.* (2004) find for Kenya that supermarkets, hotels and hospitals prefer increasingly to buy from brokers instead of from wholesale markets. These wholesale markets are often characterised by poor hygiene and sanitation, safety and lack of traceability of commodities. Brokers source their produce from various sources including farmers, wholesale markets and sometimes imports.

Transaction costs

The price that farmers can get in the wholesale markets is (much) higher than they get from the collector. Farmers are price takers and have little bargaining power. This

begs the question what they can do to get a higher price. What we find is that their options are limited due to high transaction costs. The possibility of selling their produce to wholesalers or even retailers encounters various problems, in the first instance, transport. Contacts are a second problem: their only contact is often with the collectors/rural trader. Markets in SSA are characterised by relational exchange: firms economize on screening incompetent partners by establishing long-term relationships with other firms they have learnt to trust. However, relational contracting makes it costly for firms to switch partners. If one of the partners is temporarily unable to perform, this will not lead to harsh punishment or breach of contract (ending the relationship) because the search costs for a new partner are too high. It is therefore in the interest of the two parties to work things out until the difficulty is over (Fafchamps, 1996). Finding another trading partner involves transaction costs and may not lead to obtaining a higher price: other collectors/rural traders will probably offer the same price. We found anecdotal evidence in Java that wholesalers will recognise inexperienced farmers in the market, then offering them prices that are much lower (Meijerink, 2002). Becoming an “experienced” seller takes time, and it is necessary to build up relationships. Selling to the collector with whom the farmer has an established contact, leads at least to a more or less assured output market. “Shopping around” for other traders may jeopardise this, as supply often outstrips demand.

Although most of the fruits and vegetables trade is executed through spot markets, the transaction costs in these markets are very high. Transaction costs are also high because fruits and vegetables are perishable products, and therefore cannot be stored until sufficient information on qualitative and quantitative demand has been obtained. Various institutional arrangements could potentially lower these transaction costs, although finding the right model is not easy. The Business Services Market Development project has tried to introduce formal contract templates to facilitate business in various fruits and vegetables in Uganda (AT Uganda Ltd *et al.*, 2005). They found that for small-scale using contracts will not always lower transaction costs. In general, the markets are thin and prices are volatile and uncertain. Farmer supply only very small quantities and have no market power and can therefore not determine the terms of the contract. Traders on the other hand, are generally unable or unwilling to commit to prices and quantities in advance. Furthermore contracts were

seen as complicated and costly; neither traders nor farmers understand the language used in contracts, and both thus lack the knowledge of how to formulate one.

Organising themselves into a producers' organisation (PO) may help to overcome some of these problems. Looking at the lack of access to the different kinds of capital (see **Error! Reference source not found.**), POs can provide solutions. Jointly farmers can organize activities/investments that they cannot do alone, e.g. jointly own logistic assets (trucks, warehouses); set up a credit cooperative; hire a technical assistant; and set up an irrigation system. In addition, the PO can lobby local, regional and national governments to improve public services (thus reducing government failure) or to enact favourable regulations. Another important function of the PO is collecting market information and sharing this information with the members. Thus, POs can reduce transaction costs in the farmer-customer relationship.

However, organising themselves into a PO also involves transaction costs. Becoming a member of a PO introduces some kind of dependency on the group; if a member of the group behaves opportunistically, all other members are negatively affected. Social capital can alleviate this problem. Also, becoming a member of a PO, with its compulsory trade, may exclude more attractive market opportunities. Thus members have to consider short term and long term benefits/costs.

Brokers exist because of informational transaction costs in the markets – they bring together supply and demand from various sources. By doing so they reduce transaction costs. They might also facilitate transport, but not necessarily.

Institutional environment

As indicated above, the spot market is the default marketing option for farmers. The spot market is characterised by the absence or weakness of the institutional environment in various areas. One of the formal institutions that may be functioning is a physical market place, such as a building, and an organisation setting the rules of participation (such as allocating vendor permits and lots, perhaps including limitations on the specific products). It may also be the case that this kind of formal market organisation enforces other formal rules, such as those concerning sanitary standards, or quality grading.

Transport costs consisting of fuel, hiring a truck etc. are not part of transaction costs (although they are often mentioned as such). In Tanzania, for instance, there are transaction costs attached to transport emanating from road blocks that consist of weigh stations to control trucks for permitted limits to the load they are carrying as well as illegitimate controls by police for bribes. A third effect is the presence of armed robbers along transport routes. Sometimes transporters will take along guards, adding to the transport costs (Eskola, 2005). The delays emanating from these problems can cause the produce to deteriorate, adding to the costs of transport.

The lack of a well-functioning legal system also affects the agreements between buyers and sellers. As was identified above, this is why informal rules play such an important role in spot markets. If there is a dispute, the parties usually do not take recourse to legal action, because the transaction costs of this are too high. However, it is reported that in Uganda there were a few cases where farmers and or traders did pursue legal options and turned to the Local Council Courts. The law permits these courts to handle only cases where the value of the subject matter does not exceed USh 5000 or around US\$ 3, while the sums involved in disputes are usually higher (AT Uganda Ltd *et al.*, 2005).

Missing markets for financial services constrain farmers from investing in profitable fruits and vegetable production. Minot and Ngigi (2004) report in their Kenyan study that several farmers indicated that without adequate working capital they are not able to plant crops on a weekly basis, which is essential for a continuous flow of produce. And they often lack the capital to invest in irrigation (e.g. pumps) which is usually necessary to grow fruits and vegetables.

Informal rules play an important role in spot markets. Spot markets may function in the absence of a well-established institutional environment of formal rules. Contracts between farmers and rural traders are informal, based on verbal agreements. In the case of a conflict, the transaction costs of resorting to formal institutions (such as the police, courts) are usually higher than the costs involved in the dispute, because the transactions are usually small. And as observed above, the loss of a trade relationship involves high costs because investing in a new one takes a long time. Introducing formal contract as a way to decrease transaction costs in Uganda did not fit into the informal rules based on trust. The researchers found that there was little initial felt need for contracts because farmers and traders felt that exchange without

contracts was the norm: “this is the way it has always been done” (AT Uganda Ltd *et al.*, 2005, p. 1). In the Ugandan setting, asking for a contract is interpreted to mean that you do not trust the other party and can be taken as an insult. The informal rules based on trust and reciprocity thus override the potential gain of using formal rules such as contracts.

Contract farming through producer organisations

Contract farming refers to a range of initiatives taken by private agribusiness firms to secure access to produce. Companies provide services to farmers and in return receive access to some or all of the farmers’ produce. Schemes typically involve the provision of inputs (seed, fertilisers, pesticides) on credit, often with extension advice, but may also include a range of other services such as ploughing and crop spraying. Costs are recouped when the produce is sold.

It is interesting to note that POs are only observed for vegetable marketing in combination with contract farming. Although POs could potentially exist without contract farming, i.e. marketing fruits and vegetables for the local, regional or national markets, we have not found examples of these. Similarly, contract farming could be on the basis on individual farmers, without PO, but apparently, the combination is preferred by both producers and contractors. The reasons for this will be discussed below.

In Kenya various “self-help” groups exist, with varying (economic) goals⁵, but contract farming is one of these. These self help groups are encouraged by the District Departments of Social Services (DSS) and are formed by farmers themselves by registering at the DSS. Some such groups are formed to establish a type of PO to pool their produce and establish contractual market arrangements with an exporter, thereby eliminating brokers. This will offer a reliable market outlet and higher prices. The contract specifies the quantity and type (including quality, grading and packaging requirements) of produce that the self-help group will supply weekly to the exporter. The degree of support the exporter provides differs. In Kathiriti-Kanjau the exporter supplied the seed on credit and guarantees to buy the entire production. The exporter also provided training to a supervisor, while the group paid for transport and

⁵ This section is based on the cases described by Minot and Ngigi for Kathiriti-Kanjau, in Kenya (Minot and Ngigi, 2004) and research (semi-structured interviewing) undertaken in October 2006 by Gerdien Meijerink in Maragua.

subsistence. The supervisor was involved to supervise and monitor production practices of group members to ensure that they would adhere to production methods prescribed by the exporter (including chemical use and sanitary conditions). In Maragua, The exporter paid for a farmer to be trained in sorting, weighing, grading and packaging so that the graded produce could be transported to the exporter. The exporter did not however provide credit. The group in Maragua had difficulty in meeting the quota set by the exporter and tried to interest farmers in neighbouring villages to join their group. A group member who consistently fails to fulfil the quantity and quality standards risks being excluded, thus losing the substantial income. The farmers complained about the lack of working capital to buy seeds to keep up a continuous flow of produce.

The group in Maragua reported that they had organised themselves formally. The group had voted in a steering committee consisting of a group leader, secretary and treasurer. The group leader was the one who had initiated the group and had contacted the exporter. All members had agreed to the terms of the self-help group, which included agreements on supplying produce by and payments to each member. The generally higher level of social capital observed among Kenyan POs that are participating in contract farming arrangements may imply challenges for initiatives that seek to facilitate the participation of poorer smallholders in higher-value market segments, such as cultivation of vegetables for supermarkets or export markets.

We have less information on the exporters, but Temu & Temu (2005) indicate that the long-term market linkages between exporters and importers indicate a high degree of social capital. Sometimes exporters and importers work closely to ensure quality and reliable production.

Transaction costs

The self-help groups have overcome specific transaction costs that exist in spot markets. By collectively agreeing to fulfil a purchasers' orders, members of a PO reduce the costs of transacting for both themselves (sharing the costs of contact, contract and control) and the contractor, for whom many smaller contracts would incur too many costs and who is not able to adopt measures that would reduce the risk

that individual producers might not meet quantity or quality requirements. Contracting with a PO therefore reduces the risk of moral hazard due to asymmetric information.

Furthermore, by pooling produce PO members can engage in contract farming and bypass traders. The exporter is the source of information on prices, grades and standards. For the exporter, the transaction costs of contracting a group are clearly lower (on a per unit purchased basis) than for contracting individual farmers. The farmers' group in Kathiriti-Kanjau complained though that the exporter did not conduct grading in the field and they were concerned that the exporter may be using the grading to pass market risk and uncertainty to the farmer. There is thus information asymmetry (which can be seen in Table 2).

Institutional environment

For the farmers, the overall institutional environment is similar as the one described under spot markets, but there do appear to be differences between the three countries. In Kenya, the Department of Social Services has played an encouraging role by allowing self-help groups to form and register. The DSS also gives training to form credit associations ("merry-go-round") to enable farmers to pool savings and derive credit from these. Many gaps in the institutional environment are overcome by the exporter, such as grading and standards. Farmers have information on the quantity and quality requirements they need to meet. However, information asymmetries may put farmers at a disadvantage in the bargaining relationship with the exporter, allowing the latter to capture a larger share of any economic rents.

For the exporters, in Kenya the marketing of vegetables has been generally free of direct government interventions, and confined to regulatory and facilitative functions which has enabled the remarkable success of the industry (Minot and Ngigi, 2004). The Horticultural Crop Development Authority (HCDA)⁶, established in 1967, has played a facilitating role. The HCDA is a governmental parastatal which in the first years was actively involved in marketing. Nowadays, however, it has withdrawn from marketing activities and leaves this to the private sector, aiming instead to facilitate the development of horticultural crops, partly by licensing exporters and disseminating information on horticultural marketing and production practices (e.g. by

⁶ Information available at <http://www.hcda.or.ke/>

providing a list of banned pesticides). The HCDA also provides code of conduct (i.e. contractual specifications) to be adhered to by the exporter and outgrowers' groups (such as the self-help groups). There is no legal enforcement mechanism for this code of conduct, but with Euregap requirement of the EU as of January 2005, it is likely that exporters will adhere to the standards (Nyoro *et al.*, 2004).

While the Ugandan fruit and vegetable sector has also been freed of government interventions, as the government has liberalised agricultural input and output markets in general over the past two decades (Sonko *et al.*, 2005), the type of supportive role played by the HCDA has generally been absent. Tanzania appears, on the other hand, to have maintained a more prescriptive or dirigiste regulatory environment for POs and agricultural marketing in general. These differences in the institutional environment (in particular, government regulations, as well as specific initiatives) may partly explain the relative scarcity of POs in contract farming for vegetables and fruits in those two countries, but more detailed research is necessary.

In the cases discussed above, the contractor and members of the PO invested in training so that the PO could assume the functions of exchanging information on quality requirements. Coulter *et al.* (1999) also provide an interesting example of the informational link between PO and contract farming: "In the outgrower schemes promoted by the Fresh Produce Exporters' Association of Kenya (FPEAK), farmers are organised in small groups of 15 to 20 to obtain information, inputs, and technical and quality assistance."

The combination of POs and contract farming seems to be found especially in Kenya. Kenya has experienced a long and sustained growth of its horticultural sector since independence (Minot and Ngigi, 2004). One of the reasons for this has been the fact that the institutional environment in Kenya has enabled the private sector to undertake investments without fear of regulation (Wiersinga and De Jager, 2007). This, in combination with the support from the Kenyan Department of Social Services to facilitate the establishment and registration of "self-help groups" has led to the formation of producers' organisations for fruits and vegetable marketing, which are conspicuously lacking in Tanzania and Uganda.

4. Conclusion

The analysis contributes to understanding why certain institutional arrangements exist and why alternatives (fail to) develop. In the examples we highlighted, the framework enabled us to develop some understanding of the prevalence of spot markets (as predicted by Swinnen et al. 2007), and the failure of producers' organisations to arise in the fresh fruits and vegetable value chains, without complementary institutional arrangements such as contract farming. These institutional arrangements lower transaction costs and it appears that the institutional environment may also play a key role in determining the potential for this economising to take place.

The dominance of spot markets to sell vegetables (and fruits) begs the question why no other institutional arrangements are used by small-scale farmers to lower transaction costs or to command a higher price. For instance, why do we do not find many POs in the fresh produce industry of developing countries? The premise used in this paper is that the transaction costs of other institutional arrangements are apparently higher than those of the spot market. But which factors seem to play a key role in this?

This paper constitutes a first attempt at understanding institutional arrangements in the vegetable sector in East Africa. Several questions are still open for further investigation. For instance, there is little information on how farmers in contract farming have overcome transaction costs related to contact. How were the relations with the exporters established? What role did social capital and trust play in this? Are poorer farmers likely to be excluded from participation in such schemes? What is the potential to stimulate the development of these new institutional arrangements? With the illustrative material presented here, we have only scratched the surface of what can be done. The next step is to apply the framework to specific in-depth case studies, in a comparative fashion, in order to develop more sophisticated and robust insights into these issues.

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Appendix

Figure 2: Different levels and components of institutions

