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The Role of Market Institutions in Trade and Economic Development in Africa

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9.1 Introduction

Agricultural products such as coffee and cocoa form a large portion of the export commodities in developing countries. Indeed, It has emerged from the literature that more than half of export earnings of more than 50 developing countries depended on three or fewer leading commodities in 1998 (World Bank International Task Force (ITF) 2000). In many of these countries, commodity production and trade affect the livelihood of millions of people, the government's fiscal revenue and public expenditure, as well as the country's trade balance, foreign reserve and creditworthiness (Xavier 2011; Cashin et al. 1999). Coffee is the developing world's biggest trading commodity, with an annual export quantity in the range of 4.8 million to 5.4 million metric tonnes, and an export value in the range ofUSD 5–12 billion over the period 1997 to 2005 (ICO, 2006

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cited in Gemech et al. 2009 p. 2). In Ethiopia and Rwanda, for example, coffee exports generated about 26% and 22% respectively in export revenue in 2009 (ADB 2010). Coffee accounted for about 12% of global supply and 11% of global exports between 2013 and 2014 (ICO 2014). Ethiopia is the largest producer in the region, with 6.5 million bags, followed by Uganda (3.7 million bags) and Côte d'Ivoire (1.9 million bags) (ICO 2014). The commodity is predominantly produced by smallholder farmers. In Ethiopia for example, smallholder farmers contribute more than 95% of total production, which highlights the important implications of market conditions on growth and poverty reduction in the country (ADB 2010).

Yet the sector suffers various constraints ranging from commodity price volatility, lack of access to financial resources, poor market intelligence and limited export market access. These longstanding constraints prevent countries in the region from fully harnessing the gains of commodity production and trade (UNCTAD 2015).

Coarse (1937, cited in Gabre-Madhin and Goggin 2005) argued that, a fundamental concern of all societies is how the economy is organised and how market exchange is co-ordinated. There are costs of using the market mechanisms, which may be reduced or eliminated by certain types of co-ordination in the market. He further identified two kinds of costs: the costs of discovering what the relevant prices are and the cost that may be saved by making a single long-term contract for the supply of goods and services instead of short-term successive contracts. At its core, then, the problem of economic order can be conceived as essentially a co-ordination problem, depending integrally on both information and on the nature of contracts (Gabre-Madhin and Goggin 2005).

On the one hand, information seems to be at the heart of the institutional problem of order. That is, the transmission of information on prices, quantities supplied, quantities demanded, actors and their actions, product quality and attributes, and processes are key to market co-ordination. The problem of imperfect, asymmetric or incomplete information, which in turn leads to decision-making with "bounded rationality" (Herbert Simon 1955), missing markets and risk (Stiglitz 1982), and high transaction costs (Williamson 1981), has been the focus of much economic literature.

On the other hand, contracts and the costs associated with negotiating and enforcing contracts are also at the heart of the problem of economic order. Fundamentally, as Hicks (1969) noted, even the simplest exchange involves a form of contract, where each party is abandoning rights over the things that he sells in order to acquire rights over the things he buys. Thus, all exchange is trading in promises, which is futile unless there is some reasonable assurance that the promises will be kept. Extending this concept, Douglass North (1990) has forcefully argued that "the inability of societies to develop effective, low-cost enforcement of contracts is the most important source of both historical stagnation and contemporary under-development in the third world". If North is right, then achieving a self-co-ordinated market order in Africa is the way forward to emerge from under-development and stagnation.

Many authors have suggested different ways in which firms organise activities such as commodity chains (Selwyn 2015) and supply chains (Connelly et al. 2013; Priem and Swink 2012). Scholars on commodity chains place the emphasis on industries and the authority and power relationships that have emerged within them to explain the role of a leading firm (Mahutga 2012)—a firm that shapes, controls, co-ordinates and distributes the value along the chain (Azmeh and Nadvi 2014). Thus, deriving from this, two distinct chains have been identified: the buyer-driven commodity chains (in which the leading corporation plays a central role as merchandiser and makes sure that all pieces of the business come together); and producer-driven commodity chains (in which the leading corporation plays a central role in production activities (Gereffi and Korzeniewicz 1994, cited in Hernández and Pedersen 2017).

Other authors have placed their emphasis on the analysis of supply chains, where the supply chain concept explains the firms' relationships with suppliers and customers to deliver product and services at lower costs. However, the value chain concept goes beyond the supply chain concept by explaining that entities may be connected and create a value that is a source of competitive advantage (Al-Mudimigh et al. 2004; Stabell and Fjeldstad 1998). It seems that it is the combination of these two latter concepts that underpins the idea of local commodity exchanges, which primary role as a market institution is to

connect the various actors in the commodity markets and to create value for these actors.

The aim of this chapter, therefore, is to contribute to the supply and value chain literature by examining how local commodity exchanges in Africa have co-ordinated the various actors in the commodity markets and the subsequent impacts of this co-ordination on transaction costs. It also analyses the value added to the agriculture marketing system.

9.2 Development

9.2.1 Background: Market Reforms and Its Impacts on Agricultural Supply Chains

Prior to the market reforms in the mid 1980s, the introduction of international price stabilisation programs and measures and the intervention of governments in the production and marketing of export commodities have meant that producers have benefited from fixed prices for their predetermined production (Akiyama et al. 2003; Gemech and Struthers 2007).

The rationale for such interventions was that governments accepted their interventions in primary commodity markets as part of the development policy framework (Akiyama et al. 2003). While the instruments of intervention varied across countries and commodities, a dominant architecture based on the marketing board (Deaton 1999; Kaplinsky 2004) emerged. Designed to stabilise producer incomes, they often served as a monopoly distribution network (Kreuger 1990), and administered domestic prices that were normally pan-seasonal, pan-territorial and detached from international prices (Gilbert 1999). Controls were frequently extended to cash crops, which had a strategic value as a source of foreign currency and tax revenues (Akiyama et al. 2003). Commodities were often useful revenue sources, and some policy-makers saw taxing commodity exports as the most convenient and practical way to finance state activities (Bates 1981).

However, in the mid 1980s, many developing countries adopted various economic liberalisation programmes (Akiyama et al. 2003; Gemech

and Struthers 2007). These programmes have meant reducing government involvement in pricing and marketing of export commodities and increasing participation of the private sector in these activities (Akiyama et al. 2003; Gemech and Struthers 2007). As result, there is a growing participation of financial investors in commodity markets, which has been intensely debated as a factor driving price volatility during the recent boom and bust in commodity markets (United Nations Conference on Trade and Development, UNCTAD 2011).

It can be argued that the overall aim of market reforms is to boost the efficiency of an economy. As such, it is expected that the market reforms that took place will enhance the productivity of the export commodities in the developing world and improve efficiency. This in turn is expected to generate growth and improve the lives of producers (Akiyama et al. 2003). Indeed, supporting this, Gemech and Struthers (2007) have argued that liberalisation is expected to bring benefits to producers with the introduction of more efficient markets. Even though they further provided empirical evidence that market reforms have enabled producers to allocate resources more efficiently in the production of coffee, it has emerged from the literature (Gemech and Struthers 2007; Xavier 2011; Akiyama et al. 2003) that the market reforms initiated in developing countries have increased the fluctuations in price and caused a sharp decline in countries' earnings (Khor 2005). In fact, there is evidence that the effects of falling commodity prices have been devastating for many countries. In sub-Saharan Africa, for example, a 28% fall in terms of trade between 1980 and 1989 led to an income loss of USD l6 billion in 1989 alone. In the four years from 1986 to 1989, sub-Saharan Africa suffered a USD 56 billion income loss, or 15–l6% of GDP in 1987–1989 (Khor 1993). For 15 middle-income highly indebted countries, there was a combined terms-of-trade decline of 28% between 1980 and 1989, causing an average of USD 45 billion loss per year in the 1986–1989 period, or 5–6% of GDP (Khor 1993). In the 1990s, the losses were greater. Non-oil primary commodity prices fell by 33.8% from the end of 1996 to February 1999, resulting in a cumulative terms-of-trade loss of more than 4.5% of income during 1997–1998 in developing countries. Income losses were greater in the 1990s than in the 1980s (UNCTAD 1999: p. 85). This evidence supports the arguments of

Castells (1998), Stiglitz (2002), Ismi (2004) and Sachs (2005): that reforms which have limited the governments' interventions and promoted the markets have failed to yield the desired result of sustained growth in most developing countries that implemented them. Moreover, Ismi (2004) noticed that by the late 1990s Latin America had experienced "its worst period of social and economic deprivation in half a century" (Ismi 2004, p. 9) after 15 years of implementing the IMF and the World Bank's imposed policies. Even though Stallings and Peres, and Stiglitz highlighted the success of Chile in the region (Stallings and Peres 2000, p. 204; and Stiglitz 2002, p. 18), Latin America financed USD 145 billion in debt payment between 1982 and 1988 at a cost of economic stagnation, increased unemployment and declined per capita income of 7%. Hence, the economies of American countries adjusted but did not grow (Todaro and Smith 2009, p. 681).

Unfortunately, the heavily reliance of African countries on agricultural commodities has exposed their economies to price risk. Indeed, the most significant problem that has resulted from the liberalisation identified in the literature is the price risk to which producers and intermediaries are exposed and their inability to deal with it (Krivonos 2004; Gilbert 1999 cited in Gemech et al. 2009).

9.2.2 Market Reform and Its Impacts in Côte d'Ivoire, Ghana and Burkina Faso

9.2.2.1 Côte d'Ivoire

As discussed above, the government body that was dealing with the marketing of export commodities such as coffee and cocoa prior to the market reforms was "la Caise de stabilisation" (commonly known as CAISTAB), established in 1960. CAISTAB was under complete control of central government and determined payments for all stages along the marketing chain, including the producers' remuneration. Producers' prices were meant to "reflect production costs" and provide "equal remuneration for all crops" (Akiyama 1988). Consequently, the ratio of producers' prices for both coffee and cocoa has remained

constant since the 1976/1977 season, in spite of divergent world prices. In theory, any surplus obtained by the CAISTAB at the end of a crop year should have been allocated to the price stabilisation reserve, expenditures for rural infrastructure, and agricultural credit schemes (Xavier 2011). Indeed, Ridler confirmed that the CAISTAB at one time, provided between one-half and two-thirds of public sector investment in Côte d'Ivoire. Unfortunately, returns on those investments were at best insufficient (non-existent at worst) to support a stable price after the collapse in the world market during the 1980s.

In 1998, CAISTAB was dismantled as part of the liberalisation process promoted by the World Bank (WB) and the International Monetary Fund (IMF) (Xavier 2011; Agritrade 2012). This led the Ivorian government to abandon price setting commodities such as coffee and cocoa, permitting the private sector to handle marketing and producer prices. Sine then, these commodities prices have fluctuated in response to world market conditions.

However, in 2011, as a precondition for an IMF-backed debt relief deal, the government launched new cocoa reforms (Agritrade 2012). The aim of the reforms is to raise and guarantee minimum farm-gate prices on a sustainable basis in order to ensure sustainable livelihoods to cocoa growers and encourage them to boost output and reinvest in their ageing and sometimes neglected plantations. The reforms are based on three pillars.

- A central body, le Conseil du Café-Cacao (CCC) (established in January 2012), with representatives of all stakeholders, is responsible for the management, regulation, development and price stabilisation of cocoa and coffee.
- A new marketing mechanism involves the forward sale of 70–80% of the next year's crop through twice-daily auctions. These forward sales auctions—due to end each year in August just before the new crop starts—allow the establishment of a benchmark price for the next crop year and ensure a guaranteed minimum share of 60% of the CIF (cost, insurance and freight) price to farmers. Forward sales started on 31 January 2012. A committee to monitor implementation of the reform was also created, as initially exporters boycotted the auctions, claiming

that the authorities had under-estimated the real cost of bringing cocoa and coffee to port and thus their reimbursement of handling costs.

- A reserve fund at the Central Bank of West African States (Banque Centrale des États de l'Afrique de l'Ouest—BCEAO) covers the risks beyond the normal operations of the price guarantee scheme in order to support the new marketing arrangements in a fiscally neutral manner. This fund, which could eventually reach FCFA 70 billion (some EUR 106.7 million), is to protect against the possibility of a future major drop in world cocoa prices. By mid September, Côte d'Ivoire had paid more than FCFA 47 billion (EUR 71.7 million) into this fund (Agritrade 2012).

However, the fall in cocoa prices seems to overshadow these reforms as prices declined from a high of USD 2713/tonne in July 2010 to a low of USD 1334/tonne on 7 December 2011. Cocoa finished on the London market at USD 1557/tonne on 7 November 2012. This generated a shortfall of 0.5% of GDP in Côte d'Ivoire's revenue. Farm-gate prices averaged CFA 500–650 per kg (EUR 0.76–0.99) in 2011/2012, compared to CFA 850–900 (EUR 1.3–1.37) in 2010/2011. The price decline had been forecast by many observers, since, as part of the introduction of the forward selling system, Côte d'Ivoire sold both its 2011/2012 and its 2012/2013 crop at the same time. Falling cocoa prices added to high oil prices and a weak European market have put pressure on cocoa planters, who are increasingly attracted by other crops such as rubber, which provides a steady income throughout the year. Falling international cocoa prices and the depreciation of the euro, following the on-going financial crisis in the Eurozone, led to the IMF reviewing its initial forecasts of cocoa revenues in 2012: "initially estimated at CFA 337.6 billion, cocoa revenues are expected to post an overall loss of CFA 55.7 billion" this year (IMF 2013). Moreover, because of falling cocoa bean prices and declining export volumes, cocoa export tax revenues will play a smaller role in the state's financial resources. It is forecast that the cocoa export tax should contribute some 2.3% to total Ivorian tax revenues, compared to 3.5% in 2011 and 2.9% in 2010 (IMF 2013).

9.2.2.2 Ghana

Prior to the reforms, the Ghana Cocoa Board (COCOBOD) fully controlled the internal marketing, exporting, grower prices and marketing margins (Xavier 2011). The Produce Buying Company (PBC), a subsidiary of the COCOBOD, bought coffee from producers and stored it in its warehouses after processing, inspection and grading (Xavier 2011). A different division of the COCOBOD, the Cocoa Marketing Company (CMC), handled external marketing. However, the cocoa sector in Ghana has not been an unmitigated success. Since the introduction of cocoa to Ghana in 1888, the crop has undergone a series of major expansions and contractions. For example, after emerging as one of the world's leading producers of cocoa, Ghana experienced a major decline in production in the 1960s and 1970s, and the sector nearly collapsed in the early 1980s. Unfortunately, unsustainable levels of government expenditure, an increasingly overvalued exchange rate, import licensing, inflation, price controls and heavy state involvement in the running of the economy (Tsikata 1999; Leith and Söderling 2000) led to a collapse in 1983 and the introduction of the Economic Recovery Program (ERP) became necessary. In 1984, COCOBOD underwent institutional reforms aimed at subjecting the cocoa sector to market forces. However, liberalisation was only partial as the government adopted what Ofosu-Asare (2011) called the "meso" or mid-way model to the reforms. Under the "meso model", the state fixed the producer price of cocoa after a recommendation by COCOBOD even though the internal market had been liberalised. COCOBOD played other important roles after the reforms: it regulated the activities of the private licensed buying companies (LBCs); provided seed money to the LBCs for their operations; implemented innovative programmes like Cocoa Disease and Pests Control (CODAPEC), hi-tech fertiliser application, and planting of hybrid cocoa varieties to enhance cocoa farmers output; and controlled the activities of the cocoa value-adding companies for example, by supplying them with cocoa beans (Ofosu-Asare 2011). The main aims of the cocoa sector reforms were to increase producers' prices, reduce COCOBOD's operational costs, and liberalise the internal marketing of cocoa (Toyi 1991, p. 174 cited in

Ofosu-Asare 2011). Here, the state maintained control of exports, but opened up the purchase of cocoa from smallholders, permitting private operators to buy at a price set by the state (Agritrade 2012). The government shifted responsibility for crop transport to the private sector. In addition, there was a measure of privatisation of the processing sector through at least one joint venture (Alderman and Paxson 1992). Following the ERP in 1992, the government liberalised all internal and external marketing of cocoa. Private traders were allowed to enter the market, and fixed prices and trading margins were abolished. The new marketing chain consists of commission agents that buy coffee from farms and registered exporters (LBCs). By 1994 46 companies held export licenses (ICO 2012).

Ghana appears to have done enough to fend off pressures for further liberalisation of the sector. To what extent it will strive to continue to pass on a higher share of prices to farmers without external pressures, and whether there is recognition of the benefits from appropriate management that survives political changes, are not clear (Kolavalli and Vigneri 2010). The affairs of COCOBOD are not as transparent as they should be, and the line between cocoa revenues and government finances remains blurred. Whether COCOBOD will be able to stabilise prices if the world market were to become more volatile than it has been in recent years is not known (Kolavalli and Vigneri 2010).

9.2.2.3 Burkina Faso

Like many other agricultural commodity dependent developing countries (ACDDCs), Burkina Faso was also affected by the market reforms. Prior to these reforms, the marketing of cotton was subject to a heavy government intervention in the 1960s through "contract farming" arrangements. These arrangements involved a state-controlled cotton company providing inputs (such as research on cotton improvement, farmer education services, fertilisers, loans and marketing services) in exchange for the farmers' outputs through exclusive purchase rights (IFPRI 2005).

These arrangements helped the state to protect farmers from free-market perils, including large-scale market fluctuations and difficulties in

accessing credit, which contributed to positive outcomes. However, even though these arrangements helped the producers in terms of faster adoption of modern inputs, high repayment rates and production growth, they were not flawless (Kaminski et al. 2009). The state system had exorbitant operating costs that reduced farmers' earnings, and inefficiencies in the structure of farmers' groups meant that farmers' repayment rates to the state ran only at around 40% (IFPRI 2005). The state was therefore accused of corruption, and by the early 1990s the cotton sector in Burkina Faso was in serious financial difficulties. Even though reforms became necessary, the Burkinabe government was highly systematic in its approach. Reforms were gradually introduced while learning lessons from other cotton producing countries that had implemented reforms, such as Benin (IFPRI 2005). This subtle approach has enabled Burkina Faso to experience a steady growth in the production of cotton, which accounted for about 60% of exports in the 2000s leading to a remarkable growth in the country's GDP per capita rising from USD 214 in 1997 to USD 260 in 2007 (USD 430 in real terms). Burkina Faso became Africa's leading cotton producer in 2006 and its leading exporter in 2007. Since Burkina Faso's reforms began, the number of households cultivating cotton has nearly doubled to more than 175,000 from 1996 to 2006, and cotton-related work has generated an estimated 235,000 new jobs that have directly and indirectly benefited around 1.8 million people.

However, as cotton production in Burkina Faso posted unprecedented growth in the 2000s, the share of cotton earnings in export revenues shot up from less than 40% in 1990 to 85% in 2007. At the same time, increased export dependency on cotton has exacerbated vulnerability to exogenous shocks over the past decade. This was characterised by a pattern of falling world cotton prices and rising input prices; a decline in local profitability and farm productivity; and poorly performing cotton firms that lack the ability, information, and resources to adjust to evolving international markets (Kaminski et al. 2009). Although cotton represents a large proportion of Burkina Faso's exports, its contribution of export earnings to GDP is small (10%) and trade openness is limited. Most of the country's growth is from domestic demand. Limited export earnings highlight the unsustainable growth path that Burkina Faso is currently on. Although the country's terms of trade have recovered since

the early 2000s, structural deficiencies have led to persistent trade deficits (Savadogo 2009).

Hausmann et al. (2007) noted that export sectors are key to economic growth, as they typically have a cascade effect on other sectors. Unfortunately the issue of commodity dependence in most developing countries exposes them to unbalanced growth patterns driven by a restricted number of export commodities traded on highly volatile world markets (Hausmann et al. 2007). Furthermore, these commodity markets are characterised by distortive policies and barriers to entry or participation for farmers in developed countries. Meanwhile commodity production and trade are the primary means of earning a living for millions of households. Commodity sector development is essential for poverty alleviation and overall economic development. Many ACDDCs faced with both high marketing costs and price volatility see commodity exchanges as an alternative way to manage risks and increase efficiency in a liberalised market environment (Gilbert 1996; Morgan 2001; Thurow and Kilman 2009).

9.3 The Place of Local Commodity Exchanges in the Agricultural Supply Chain Using the Principal–Agent Framework

Gemech et al. (2014) using a principal–agent (P–A) framework (application of the agency theory (AT) to the coffee market) have evaluated the efficacy of different interventions within the commodity markets in developing countries. They found that the issues affecting the commodities trading systems can be a multi-layered P–A problem and concluded that local commodity exchanges (LCXs) may resolve some of these P–A problems. The rest of this section analyses the agricultural marketing systems of some African countries before and after the market reforms using the P–A framework. It also discusses how LCXs are in the best position to become intermediaries that can make full use of the available range of modern commodity marketing, price risk and financing instruments to mitigate risks and ensure a transparent and fairer trading system in Africa.

Prior to the market reforms, heavy government intervention within the commodity market gave a monopolistic power to parastatals, such as the marketing boards (MBs), over the agricultural marketing systems. MBs then became the only channel for exports and imports, they controlled the state owned processing centres and administered domestic prices that were normally pan-seasonal, pan-territorial, and detached from international prices (Akiyama et al. 2001).

When applying AT to the commodity market, under these systems the P–A relationship was much clearer. In producing countries such as those shown in Fig. 9.1, MBs were principals to both farmers and their co-operatives. In consuming countries, however, MBs were agents for the international commodity agreements (ICAs), the role of which was

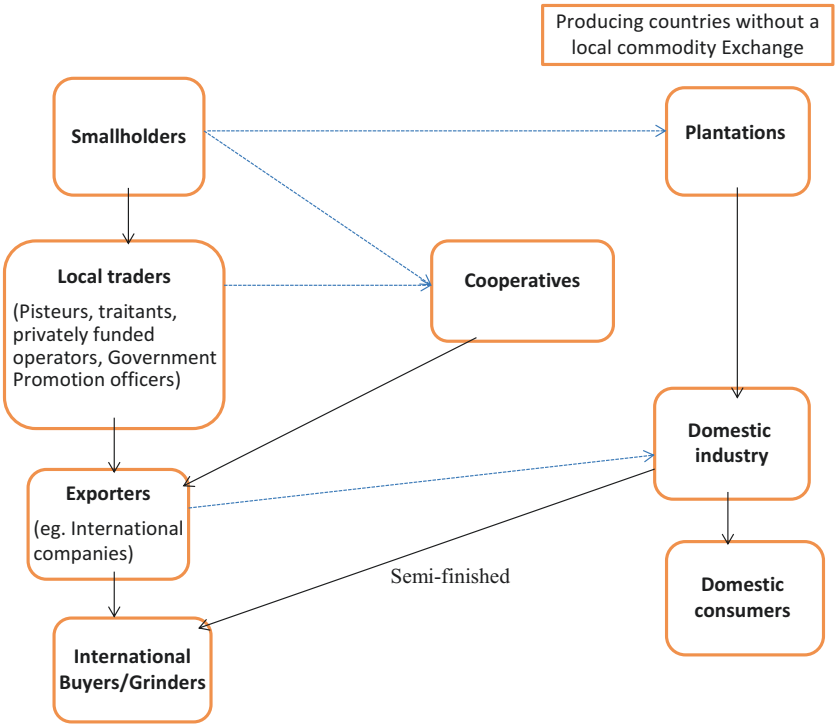

Fig. 9.1 Post-market reform basic cocoa supply chain in a country where there is no LCX. (Source: Authors' own figures)

to monitor the price of coffee through schemes such as buffer stocks, quotas, and so on.

The agricultural commodity marketing systems in Africa were state owned corporations whose relationship with farmers could be viewed as a nexus of contracts between the principals (MBs) and the agents (farmers) (Jensen and Meckling 1976). A typical example is the agricultural marketing system in Burkina Faso, which revolved round "contract farming" arrangements by which a state-controlled cotton company provided inputs (such as research on cotton improvement, farmer education services, fertilisers, loans and marketing services) in exchange for the farmers' output through exclusive purchase rights. A similar system characterised the agricultural marketing system in Côte d'Ivoire where CAISTAB assumed the task of governance without becoming involved in direct production processes.

The underpinning rationale of such governance mechanisms is that outcome-based contracts and information are believed to be effective in shaping the agents' opportunism. Given that humans can be self-interested, risk adverse and rationally bounded, the contract can align the preference of the principal with that of the agent because the rewards for both depend on the same actions. The agent therefore, is more likely to behave in the interests of the principal (Jensen and Meckling 1976). The P–A relationship under these systems is characterised by satisficing behaviour, rent seeking and shirking (Gemech et al. 2014). Governments frequently pursued policies that taxed agriculture in order to promote industrial development (Timmer 1991), and establishing an MB was a common means to achieve that. Commodities were often useful revenue sources, and some policy-makers saw taxing commodity exports as the most convenient and practical way to finance state activities (Bates 1981). Government-controlled systems also provided a source of political patronage. Politicians, for example, could reward supporters with trading licenses or high-level appointments to MBs. Furthermore, state management often provided politicians and government officials with funding for discretionary expenditures. Government control of key commodity markets created opportunities for corruption. Indirect taxes on export commodities provided financial benefits to the urban elite (Bates 1981) who were important political allies. To make planting decisions easier,

prices were frequently fixed for the crop year. To smooth annual price fluctuations, domestic prices were uncoupled from international prices. And to resolve regional disparities, fixed prices were pan-territorial so that all producers received the same purchase price. Governments obtained an economic gain from farmers products without there being any reciprocal benefits to the farmer. This is in line with the advocates of the AT argument that the corporation's primary objective is to maximise the shareholders' wealth, claiming society is best served by companies pursuing self-interest and economic efficiency (Friedman 1970). MBs did not empower farmers; they created the controls necessary to sway farmers to make decisions that are in their best interests (Jensen and Meckling 1976). However, high levels of corruption exacerbated parastatals' financial difficulties. This, combined with governments' fiscal problems made these systems unsustainable and prompted market reforms in many African countries (Akiyama et al. 2001).

Figure 9.1 shows that in a liberalised commodity market, producers have now been given the opportunity for direct trade. In some countries, such as India, producers have three ways of selling their products: they can sell directly to exporters, hold it at a curing factory before selling it, or sell it at voluntary auction (Akiyama et al. 2001). Currently most producers market their coffee directly to exporters. The exporters commission agents and provide them with a range of acceptable daily prices to buy from the growers. These agents, knowing that producers are unaware of the price range given by the exporters, often take advantage of producers by offering them the lowest price possible. Meanwhile, producers with very little information about the prices and unable to store their products have to take the prices offered. Since coffee producers began to trade their products on both the Multi Commodity Exchange and the National Commodity & Derivatives Exchange of India Ltd, their income has increased considerably (MCX 2014).

In other countries such as Ghana where a partial implementation of market reforms was adopted, MBs still play a role in the marketing of commodities, such as cocoa, by setting a minimum price for farmers, providing licences to traders, among other things. There are about 26 LBCs buying cocoa from farmers to sell to Ghana's COCOBOD (USDA 2012), which in turn exports it through its subsidiary, the Cocoa

Marketing Company Limited (CMC). The CMC is the sole exporter of cocoa in Ghana, and although a minimum tonnage criterion was also set for LBCs to export, only nine out of the 26 companies met the requirement, with none of them actually exporting cocoa to date (World Bank 2009). The quality control guaranteed by the government is carried out by the Quality Control Division (QCD), which undertakes grading and sealing of cocoa into export sacks.

The cocoa is transported from the producing areas to metal roofed sheds where it is weighed on certified scales. A thorough check of quality and moisture content is made by the manager of the storage facility, who usually provides a cheque to the farmer and keeps a detailed payment record. The marketing system in Ghana ensures a form of traceability of the product, which is founded on the requirement that cocoa bags are officially graded and sealed by the QCD as close to the farm as possible in the village buying sheds. Cocoa can then remain in villages for some weeks until an adequate quantity of sealed cocoa is gathered and transport is available. The buyer will then move the sealed bags to the "hand over point" where the cocoa is sold to the government-owned CMC at a fixed price. The cocoa is purchased by CMC through the LBCs, which means that the competition among LBCs is for the quantity purchased rather than the price, since the price is pre-determined by the government. Cocoa marketing costs in Ghana are relatively high at 15%, and the costs and margins of profit of the COCOBOD and its subsidiaries account for around 5% of the price of cocoa (Traoré 2009) in comparison to other Western and Central Africa regions. The margins paid by the government to traders is said to be among the lowest in the subregion due to the large exporter margins and taxes the industry has to pay to the government (Vigneri and Santos 2007). The cocoa value chain in Ghana can also be more costly due to the increased attention paid to quality. As such, the handling cost is increased due to the intensive quality assessment. One important objective of market reforms was to submit the commodity trade to market forces, providing producers with direct trade opportunities. This does not seem to be the case in Ghana where cocoa producers are still receiving pre-determined prices for their products. Even though these prices are amended according to the changes in the international prices, figures show that producers' share prices are

still low in Ghana. As identified by Gemech et al., (2014), one of the challenges brought by market reforms is that the P–A relationship has become multi-layered thereby making the supply chain more complex and ambiguous.

Furthermore, the direct trade system has brought profound changes in the way price risks are allocated and managed in commodity sub-sectors. Price risks are increasingly allocated to private traders and farmers rather than absorbed by the government. Unfortunately poor market information exchanges combined with farmers' lack of knowledge make price risk management on their part difficult, thereby exposing them to increased price volatility.

The old marketing systems in most African countries were designed to stabilise producers' incomes. Under these marketing systems, producers did not receive a large share of the export prices because of heavy government intervention and high marketing and processing costs. Government regulation of the domestic commodity markets, coffee for example, in the form of fixed producer prices and the monopoly of the MBs in Africa put a substantial wedge between the producer price and the world price of coffee by imposing an implicit tax on producers (Xavier 2011). However, these systems provided a certain degree of certainty to the producers because producers did not have to face the increased price volatility. In a post-reform market, producers have to acquire price information themselves and decide whether the prices that traders offer are adequate. Unfortunately, this has not been an easy task for producers because of the asymmetries of information within the commodity trading system. The problem is that imperfect, asymmetric, or incomplete information can lead to decision-making with "bounded rationality" (Herbert Simon 1982). Private traders are neither willing to invest in farmers' education nor disseminate market information to farmers and their co-operatives because asymmetries of information give traders an advantage over the farmers. Poor information exchange on market and price can lead to farmers getting a lower price than they deserve. In fact, there is a growing concern that private traders cheat farmers, concern that Akyama, et al. believe is unfounded. Yet, in Rwanda, farmers were happier to sell coffee cherries rather than parchment coffee because they felt "cheated" by coffee traders, some of whom used to penalise them by

unfairly lowering the assessed quality of parchment coffee (Murekezi 2009). Traders provide asymmetrical information in their favour, and downgrading the quality of coffee to justify paying a price below the Government of Rwanda (GOR) mandated price is one way of doing this in Rwanda (Murekezi 2009).

The overall objective of direct trade is to eliminate the power imbalances that exists in traditional supply chains. However, this does not seem to play out. Agricultural marketing systems in Africa continue to have difficulty coping with the competitive marketing situation introduced by liberalisation, whereas under the old system parastatals played a key role in marketing.

Furthermore, in many countries parastatals provided credit to producers, making access to credit much easier. Given the monopoly power that parastatals had over marketing, credit recovery was straightforward because repayments could often be deducted from the sums paid to producers. In a post-reform market environment, it is very difficult for small producers with no collateral to obtain credit from commercial banks. In many countries land is not properly registered and thus is not available as collateral, which exacerbates the problem (Akiyama et al. 2001).

Market reforms have established a link between domestic and world prices, thereby exposing producers to increased price volatility. These risks were absorbed by the government under the old system. With liberalisation, price risks are increasingly allocated to private traders and farmers who are ill prepared to manage them. Cocoa and coffee farmers, for example, face other difficult challenges such as rising production and high marketing costs, risks such as pests and diseases, and occasional inclement weather (Traoré 2009).

The success of market reforms depends on the ability of the emerging private sector to make full use of the available range of modern commodity marketing, price risk management (such as futures, options, swaps commodity bonds, and so on), and financing instruments. Because farmers do not generally have direct access to these instruments, intermediaries must be developed. LCXs seem to be in the best position to become these intermediaries because their interventions in the commodity market can yield significant economic benefits to all parties.

9.4 Local Commodity Exchanges Necessary Complement to Market Reforms

The market reforms in most African countries have resulted in improvement in performance of the agricultural markets in terms of significant re-engagement of the private sector in trade, improved market integration, and the reduction of marketing margins (Dadi et al. 1992; Lirenso 1993; Dercon 1995; Negassa and Jayne 1997; Dessalegn et al. 1998; Gabre-Madhin 2001). Nonetheless, these studies also point out that the reforms did not have the envisaged impact on agricultural growth and poverty reduction. This is mainly associated with the presence of prohibitively high transaction costs, evidenced by the lack of sufficient market co-ordination between buyers and sellers, the lack of market information, the lack of trust among market actors, the lack of contract enforcement, and the lack of grades and standards (Alemu and Meijerink, development co-operation, UK Ministry of Foreign Affairs 2010).

The persistence of these market constraints in Africa indicates that market reforms alone, defined as the removal of policy distortions, are necessary but not sufficient to enhance market performance. This suggests that the new development agenda, throughout post-reformed Africa, is to move beyond market reform to market development. In addition to policy incentives, key interventions are required to develop appropriate incentives, market institutions and build needed infrastructure, defined together as the "three Is of market development" (Gabre-Madhin and Goggin 2005) and that can be achieved through commodity exchanges.

There is no doubt that market liberalisation, the dismantling or weakening of MBs and the breakdown of ICAs have left the agricultural marketing systems in Africa weak and exposed. The LCXs seem to be a potential alternative to these organisations. Successful agricultural commodity exchanges, though by no means a panacea for all the weaknesses in the agricultural sectors in Africa, are seen as having the potential to improve the functioning of agricultural markets by improving price formation, market transparency and regional trade, thereby raising farm

output and rural incomes as well as enhancing food security (Onumah, UNCTAD 2012). A well-organised and successful LCX can reduce transaction costs because trading through a centralised exchange can reduce the costs associated with identifying market outlets, physically inspecting product quality and finding buyers and sellers. Successful agricultural LCXs hold the potential to reduce asymmetric information in favour of buyers/traders and may prevent the rise of oligopsonistic or monopsonistic power in some commodities purchasing. By reducing transactions costs and enhancing the flow of information, an exchange can improve returns to market agents while reducing short-term price variability and spatial price dispersion (Rashid et al. 2010) thereby increasing the income of farmers.

9.5 Have Local Commodity Exchanges Added Value to the Agricultural Marketing System? ECX as an Example

Prior to the establishment of the ECX, Ethiopia did not have a broad and co-ordinated market for the trade of agricultural products. Transaction costs were high, prices were not transparent and smallholder farmers often did not have market information on prices. These farmers net only a small profit because they lack storage facilities and telecommunications and transportation infrastructure. Moreover, multiple middlemen at every stage of the market chain further erode farmers' profits (ECX 2015). Indeed, these middlemen (intermediaries) were involved in many aspects of the supply chain and there could be as many as five of them in the supply chain. Thus the Ethiopian market, like most African countries' markets, lacked information, efficiency, transparency, order and integrity. There was an urgent need therefore for an improved mechanism to co-ordinate the various market actors, to help farmers earn more and ensure that Ethiopia gains more benefits from its agriculture sector. This led to the establishment of the ECX, which provides an integrated system of central trading, warehousing, product grade certification, clearing, settlement and market information and dissemination. The goal of the ECX is

to provide a marketplace where buyers and sellers can come together to trade and be assured of quality, quantity and payment. Figure 9.2 shows a more centralised trading system, connecting various actors in the value chain to the global value network.

Gereffi and Fernandez-Stark (2011) have defined the global value chain as a full range of activities that firms and workers perform to bring a product from its conception to end use and beyond, that are carried out on a global scale and that can be undertaken by one or more firms. Although each member in the Ethiopian coffee value chain adds value to the product—for example, some co-operative unions may process the coffee before selling it to the ECX or exporters—the focus here is on the ECX value addition. Rashid (2015) have argued that "a new institution should add value, and I struggle to find that value with African commodity exchanges". However, according to Porter's (1985) value chain analysis, it may be that through linking separate activities more effectively than competitors, a firm can gain a competitive advantage. Firms' organisation can add value, for example, centralised buying could result in cost savings. Thus, one can argue that the ECX plays an important role in co-ordinating the various actors in the Ethiopian commodity

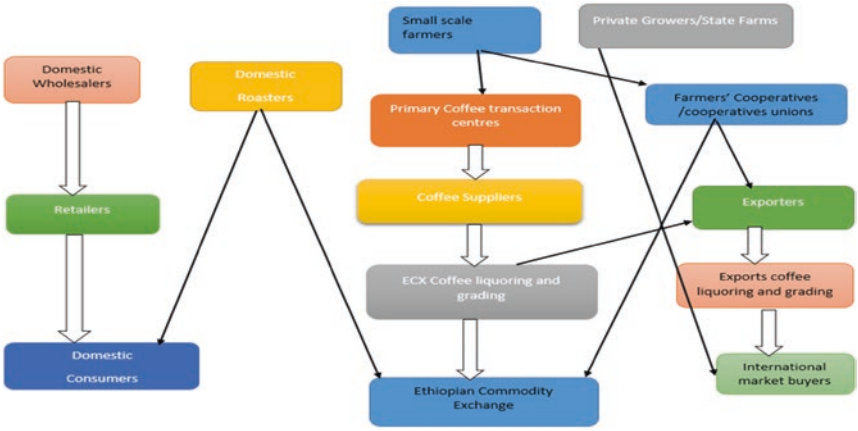

Fig. 9.2 Centralised trading system connecting various actors in a value chain to the global value network. (Source: Ethiopian value chain, adapted from Ethiopia Ministry of Trade, coffee opportunities in Ethiopia, (2012))

market as well as connecting local activities to international ones as shown in the Fig. 9.2. Therefore, reflecting on Porter (1985), it can be argued that the ECX has added value to the agricultural sector by centralising trade and reducing middlemen, which has resulted in lower transaction costs. Indeed, results from a comparison of transaction costs for the period before and after the ECX between Ethiopia, Côte d'Ivoire and Kenya using the percentage change analysis confirm this.

Table 9.1 shows a statistics summary of transaction costs for Ethiopia, Côte d'Ivoire and Kenya. Weekly data were converted into monthly data from November 2007 to December 2014

The mean values show that the average monthly transaction costs in Kenya (243.21 US cents) and Ethiopia (138.93 US cents) are high, Côte d'Ivoire has the lowest mean value (0.96 US cents). The standard deviations also show a wider dispersion in transaction costs in all three countries, Kenya shows the largest standard deviation (85.93) followed by Ethiopia (27.57) and Côte d'Ivoire (0.10).

The transaction cost in Ethiopia prior to the establishment of the ECX was as high as 226.67 US cents, this fell to 109.39 US cents after the establishment of the ECX with a mean of 138.93 US cents. The transaction cost in Kenya was even higher during the period before the ECX at 684.64 US cents, falling to 181.91 US cents after ECX. In Côte d'Ivoire, the transaction cost was also higher in the pre-ECX period (1.08 US cents) and fell to 0.40 US cents after ECX. Looking at the mean data, it seems that Côte d'Ivoire, without a commodity exchange, has the lowest transaction cost. In order to verify this further, the percentage change

Table 9.1 Statistic summary for transaction costs

Côte d'Ivoire		Ethiopia		Kenya	
Mean	0.96	Mean	138.93	Mean	243.21
Standard Deviation	0.10	Standard Deviation	27.57	Standard Deviation	85.93
Minimum	0.40	Minimum	109.39	Minimum	181.91
Maximum	1.08	Maximum	226.67	Maximum	684.64
Sum	66.19	Sum	9586.50	Sum	16781.55
Count	69.00	Count	69.00	Count	69.00

Source: Authors' own calculations

analysis is used to examine changes in transaction costs over the 7-year period (2007–2014).

In Ethiopia the maximum figure was 226.67 and the minimum 109.39.

$$\Delta = \frac{(226.67 - 109.39)}{226.67} = \frac{117.28}{226.67} \times 100 = 51.74\% \tag{9.1}$$

The percentage change in transaction cost in Ethiopia is **52%** (rounded up).

Côte d'Ivoire

$$\Delta = \frac{(1.08 - 0.40)}{1.08} = \frac{0.68}{1.08} \times 100 = 62.96\% \tag{9.2}$$

The percentage change in transaction cost in Côte d'Ivoire is **63%** (rounded up).

Kenya

$$\Delta = \frac{(684.64 - 181.91)}{684.64} = \frac{502.73}{684.64} \times 100 = 73.42\% \tag{9.3}$$

The percentage change in transaction costs in Kenya is **73.42%**.

The results of the percentage change analysis, indicate that transaction costs in Kenya and Côte d'Ivoire have increased by 73% and 63% respectively, whereas the increase in Ethiopia is only 52% over the 7-year period. Thus transaction costs in Kenya have increased by 20% more than in Ethiopia and 10% more in Côte d'Ivoire than in Ethiopia over the 7-year period. This finding confirms the results of the paired comparison t-test and is consistent with that of Andersson, et al. (2015), that the warehouse facility provided by the exchange reduces price dispersion and transaction costs. The finding is also consistent with the results of Meijerink (2014), showing a decrease in transaction costs for sesame traded on the ECX platform.

One of the major theoretical benefits of a commodity exchange is its ability to reduce the transaction costs of exchange (Jayne et al. 2014). Based on these results, one can argue that the ECX has added value to the Ethiopian trading system in contrast to the opinion of Rashid (2015). Indeed, the World Bank (2015) report on world development indicators shows that annual growth in agricultural value-added between 2005 and 2012 for Ethiopia is 8%, –1.75% for Côte d'Ivoire and 2.72% for Kenya.

9.6 Value Addition by Reducing Middlemen/ Intermediaries

Masters (2007 and 2008) has provided evidence that the presence of middlemen can reduce the efficiency of markets and that intermediaries are purely exploitative. One of the key objectives for establishing the ECX, therefore, was to reduce the number of these middlemen and make the trading system more efficient. According to the African Development Bank (2013), the results of an analysis of the ECX have confirmed that there was a reduction in transaction costs. Specifically, the results show that transaction costs have decreased in terms of (i) the average number of intermediaries each trader used (buying agents, brokers etc.); (ii) the average number of people consulted and involved to make a transaction per market day; (iii) the method or means of verification for sesame quality assurance; and (iv) time required per transaction (Meijerink et al. 2010). Paul (2011) argues that an exchange reduces transaction costs by facilitating contact between buyers and sellers, and enables centralised grading of products ensuring that contracts are enforceable. Similarly, Ngemenipuo and Issah (2015) have examined the challenges and economic prospects of establishing an organised commodity exchange in Ghana. They found that such a market will result in a reduction in post-harvest losses through price stability, provision of a transparent and competitive price discovery mechanism and reduction in transaction and marketing costs.

Furthermore, the authors have used an ordered logit approach to analyse 100 questionnaires from Ethiopian smallholder farmers. The results suggest that with one unit increase in reducing the middlemen variable, the ordered log odds of reducing transaction costs and improving profit increases by 2.38 if all other variables in the model remain constant.

9.7 Conclusions

Local commodity exchanges play an important role in the global value chain. Their primary role is to act as a market institution, connecting the various actors in the commodity markets and creating value for those actors. The ECX has shown that commodity exchanges can help to reduce transaction costs and improve farmers' profits by reducing the number of intermediaries involved in coffee trading. Results from the percentage analysis and the ordered logit all confirm that the ECX has had a positive impact on the Ethiopian trading system, thereby adding value to the agricultural marketing system.

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