
## Research on Poverty Alleviation

## 17th ANNUAL RESEARCH WORKSHOP

# Competitiveness of Smallholders in Bifurcated Coffee Markets

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[1] This paper is part of three case studies extracted from the author's PhD thesis

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# 1.0 INTRODUCTION

## 1.1

Coffee is a globally traded commodity originating from about 50 developing countries. To some of these countries, coffee is of major economic importance, generating foreign exchange, tax revenues and employment. In most of these countries, coffee is produced by numerous smallholders on less than 2.5 acres of land (Bacon 2005, World Bank 2004). In Tanzania the coffee sector involves between 400,000 and 500,000 smallholders in production (Baffes 2003, Tanzania Coffee Association 2009, Itika 2005 and Mahdi 2008).[1] It is also estimated that about two million people are engaged in ancillary sectoral activities such as research, extension, processing, input and output trading, and transportation (Tanzania Coffee Association 2009). The consumption of coffee, however, is located within markets in developed countries. Global coffee trade has evolved over time in relation to supply and consumption patterns, and policies and regulations both within producing countries and at international market arena.

This study analyses domestic response to changes in the coffee market configuration and the roles of institutions and organizations in the context of smallholder coffee production. It follows a multidisciplinary approach, and data was sourced through visits and interviews with a range of actors in the domestic coffee value chain, ranging from coffee growers, producer organizations at various levels, industry regulatory institutions, processors, input stockists, to coffee traders and coffee research institutes. Individual explanations to the observed conditions and patterns of secondary data drawn from the published and unpublished materials from visited institutions and from elsewhere provided supplementary sources of information for this study. Secondary data was also obtained from international sources such as the International Food and Agriculture Organization (FAO) and International Coffee Organization (ICO).

In addition, the study benefited, albeit in a limited degree, from a panel survey of agricultural households carried out in 2003 and 2009. Some data limitations relate mainly to the difficulties of obtaining detailed price and cost data on coffee production and export from private companies, and even from the Tanzania Coffee Board (TCB), and inconsistencies of data obtained from different sources. While it was possible to verify and validate the accuracy of some data during follow-up discussions with source institutions, some inconsistencies remained unresolved. Sources for each data are, however, acknowledged accordingly. The vulnerability survey is limited with respect to the analysis of variations attributable to organizational affiliation of coffee growers. Indeed, the initial focus of the survey was not on organizational aspects.

The key proposition in this case study is that while the evolution in the patterns of global consumption and production of coffee have led to bifurcation of markets, there has not been a clear response from Tanzania producers of Mild Arabica, who are then stuck in the middle. The collapse of the International Coffee Agreement (ICA), concentration of high value chain activities among leading coffee roasters and retailers, and innovation in blending technology are among major changes that have led to instability in prices and bifurcation of coffee markets into two broad segments: mainstream and differentiated high quality niches. This bifurcation stands in juxtaposition with the evolution of policy and production organization within Tanzania to squeeze Tanzanian coffee producers in the middle position between the two segments. The study also observes some attempts that have been made to relocate within the high quality coffee for the high-end markets, attributed to industrial policy and a variety of strategies implemented by non-state intermediary organizations working with market institutions.

The remainder of this study elaborates its key proposition, first by discussing the global coffee market dynamics. This is followed by the discussion of the domestic structure of coffee production and its value chain in section three. Section four discusses the institutional evolution in relation to trends in quality of Tanzanian coffee, showing how the absence of targeted policy interventions contributed to quality deterioration, reinforcing decline in prices and output. Section five discusses the different forms of intermediary institutions and how they have attempted to broker the revival of quality and to relocate within high-end markets. The last section concludes and draws implications for the policy and institutions.

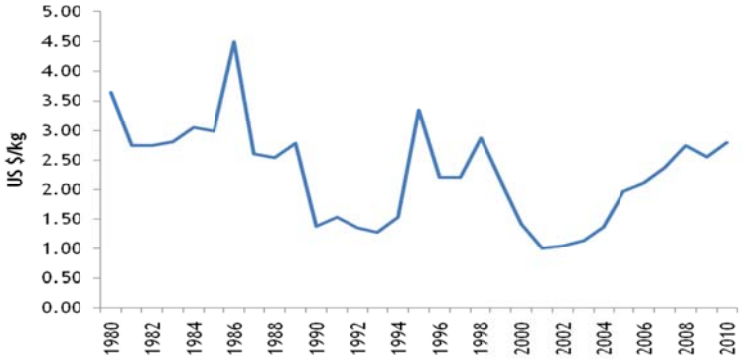
## 1.2 Global market dynamics and bifurcation of markets

There are two broad categories of coffee produced in the world, namely Arabica and Robusta. Arabica grows on high altitude, it is generally of higher quality than Robusta, and contributes a higher proportion of global production and consumption. It constitutes approximately two thirds of the total coffee traded. Arabica is subdivided into Mild Arabica and Natural Arabica, distinguished by their processing method. Mild Arabica uses the washed processing method, while Natural Arabica, also known as Hard Arabica, is not washed. The Mild Arabica is considered of higher quality than the Hard Arabica. The Mild Arabicas are further subdivided into Colombian mild and other milds. Colombian mild is ranked highest in quality.

As with many primary commodities, the balance between production and consumption of coffee is difficult to mediate. Production is carried out by diverse groups of developing countries of Latin America, Africa, and Asia. Consumption, on the other hand, is concentrated in the industrialized countries of North America, Europe, and Asia. Coffee is produced and exported largely in its raw form as green coffee from producing countries. It reaches consumers in roasted form or in the cup in the industrialized countries. Roasting and branding takes place in the consuming countries. The global market has undergone radical changes, which have led to instability and overall decline in coffee prices.

Figure 1 shows the trend in the ICO indicator prices of Mild Arabica coffee in US$ per kg, showing that in fact, the prices have generally declined over the period, with worst declines having occurred at the end of 1990s and in the early 2000s. Prices have since then shown an upward trend, but still below the latest peak of 1986.

***Figure 1: The ICO indicator price of coffee, 1980-2010***




*Source:* ICO 2010, http://www.ico.org/new_historical.asp[2]

Three factors have been advanced to account for the instability and decline in coffee prices. The first relates to changes in the regulatory framework of coffee trade, including the collapse of the International Coffee Agreements (ICA) quota system in 1989 (Ponte 2002, Oxfam International 2002, Brandt 1991). The first ICA was signed in 1963 as an intergovernmental effort to curtail further declines in coffee prices of the late 1950s and early 1960s and their economic consequences to the producing countries (ICO 2010b). ICO was also established by this agreement in 1963. Although stability in prices was achieved under the 1963 ICA, surplus production continued to characterize international coffee market. Another ICA was entered into in 1968, granting selective annual increases of quotas in proportion to the coffee produced and introducing bag markings rules to help with the monitoring of coffee origins. The agreement also introduced a diversification fund aimed at helping surplus-producing countries to reduce their coffee output. Structural changes in supply conditions, however – including Brazilian frosts in 1969, Angola's civil war in the 1970s, the oil price shock in 1973, and the depreciation of US dollar during the same period – led to the suspension of economic provisions of ICA, including the quota system (ICO 2010b, Brandt 1991).

With free market prevailing after the collapse of quota system in 1973, new ICA was established in 1976. This agreement was marked with a period of high coffee prices, caused by the 1975 frost that affected Brazilian production. It reintroduced quota systems pegged to the relative shares of exports and stocks held by exporting member countries.[3] These arrangements stabilized world prices to a large extent until 1985 (Mwandha et al. 1985). In 1983, a new ICA was reached, although its quota provisions became operational starting only in 1987 when prices began to fall. However, this agreement was radically different from its predecessors. The small exporters lost their preferential automatic annual quota growth,

replaced with a fixed allotment of the shares of quota of 4.2% compared with 95.8% of the large exporting countries (ibid.). This agreement was formerly revoked in 1989, marking an end to institutionalized efforts to stabilize global coffee prices. By and large, up to the mid-1980s, the ICAs managed to stabilize price swings and to keep producers from devastatingly low prices.

A new ICA came into effect in 1994, without provisions for regulating coffee prices. It concentrated, instead, on providing a forum for discussion and exchange, promoting market transparency, and supporting research and studies on the coffee industry. It was extended to 1999, and another agreement was reached in 2001. The 2001 ICA (which was extended three times) did not differ much from its predecessor, but added provisions for members to promote coffee consumption, quality improvement, to facilitate the transfer of technology, to encourage sustainable coffee production, and private sector collaboration. Ponte (2001) correctly characterizes the direction of the coffee industry:

> … this indicates that the institutional framework is moving away from a formal and relatively stable system where producers had established a 'voice' towards one that is more informal, inherently unstable and buyer-dominated. (Ponte 2001: 7)

Indeed, this seems to be the direction in which global coffee market regulation is going. The latest ICA came in force in 2007 and lasted for the duration of ten years. Like the 2001 ICA, its role remains facilitative, seeking to strengthen the global coffee sector and to promote a market-based environment (see ICO 2010b).

The second factor relates to technological innovations in coffee roasting and blending. As Ponte (2002) observes, owing to coffee trade volatility and price declines, roasters have strengthened their market position against other actors, with increased concentration giving the top five roasters a market control of 69%.[4] This concentration has enabled roasters to control the market and to reap higher values from the coffee chain by focusing on marketing, branding and differentiation, and by lowering inventory-holding costs through the adoption of just-in-time supplier-managed inventories (World Bank 2004, Ponte 2002). Technological advances have enabled these coffee roasters to adjust their blending such that there is more use of lower cost coffee, mostly natural Arabica and Robusta, whose supply has increased dramatically. These blending techniques have enabled roasters to improve quality by substituting poorer Arabicas with premium-graded Robusta (Mwandha et al. 1985, Oxfam International 2002, Ponte 2002). This flexibility and substitutability at the downstream end of the value chain has translated into declining prices of Arabica coffee upstream, particularly that of low quality.

The third factor is the increase in supply of coffee and the changing structure of production (Bacon 2005, Ponte 2002, World Bank 2004, Muradian and Pelupessy 2005). Over the last three decades, global supply of coffee has increased from 80 million bags[5] in 1980 to 119

million bags in 2009.[6] This represents approximately a 47% increase over this period. While global consumption of coffee also increased,[7] the increase was only 15%, from 112 million bags in 1980 to 130 million bags in 2009.[8] Bacon (2005) points to a rise in inventories in consumer countries owing to increase in supply, coinciding with slowing demand and the concentration of trading and roasting activities. The increase in coffee supply is attributed to the boost of production in Brazil and the entrance of Vietnam as a leading coffee producer, resulting in structural changes in supply and a shift in bargaining power of agents in the coffee chain (Muradian and Pellupessy 2005). This shift is visible through production data summarized in table 1.

***Table 1: The structure of global coffee production, 1980 and 2009***

| Countries | 1980 | | 2009 | |
|---|---|---|---|---|
| | 000' bags | % of total | 000' bags | % of total |
| Brazil | 17,307 | 21 | 39,470 | 33 |
| Vietnam | 73 | 0 | 18,000 | 15 |
| Columbia | 13,069 | 16 | 8,500 | 7 |
| Indonesia | 5,045 | 6 | 11,380 | 10 |
| All others | 45,236 | 56 | 41,789 | 35 |
| Total | 80,730 | 100 | 119,139 | 100 |

*Source:* ICO 2010a < http://www.ico.org/new_historical.asp>

In 1980, the four largest producing countries – namely, Brazil, Vietnam, Indonesia, and Columbia – supplied 44% of the total, but by 2009 they supplied 65%. Brazil, Vietnam, and Indonesia are the major producers of Robusta, also produced in Cote d'Ivoire, Uganda, and western parts of Tanzania. Colombia is the main producer of Mild Arabica, which is also grown in Kenya and Tanzania. The entry of Vietnam in the global coffee scene deserves special attention in comparison with Tanzania. In 1980, Vietnam produced only 73,000 bags, as compared to Tanzania's 1.062 million bags for the same year. By 2009, Vietnam produced 18 million bags, while Tanzania produced only 709,000 bags (data from ICO 2010). The explosive growth of production in Vietnam is explained by active involvement of state institutions in promoting the industry through expansion of irrigated land and provision of subsidies (Oxfam International 2002). The world supply of low-cost Robusta and Hard Arabica has also increased relative to that of more expensive and higher quality Mild Arabica coffee. This has led to bifurcation of coffee markets into what can be categorized as mainstream markets on one hand, and differentiated niche markets on the other.

The totality of these three factors has a significant implication for Tanzania's coffee industry. The restoration of globally managed coffee market is very unlikely, so that Tanzanian Mild Arabica coffee is fully exposed to stiff competition from both small and large producers, exacerbated by the changing structure of supply and blending technologies. This global competition on the mainstream coffee market notwithstanding, in practice Tanzania remained "stuck in the middle". According to Porter (1985), to be successful over the long run, firms must choose and build competitive advantage based on one of three generic strategies, namely: cost leadership, quality differentiation, or focus on a narrow segment based on either cost or differentiation. If a firm lacks one of these strategies, it often gets stuck in the middle

and does not achieve any competitive advantage. Tanzania was trapped into supplying low quality Mild Arabica, which is easily squeezed out by high quality Robusta and gives it no advantage over other suppliers of Mild Arabica.

The emergence of niche markets for high quality organic and specialty coffee and the emergence of trade movements such as Fair Trade are most indicative of bifurcation of coffee markets.[9] Bacon (2005), for example, observes that the specialty coffee market was growing at between 5–10% annually, with its share accounting for 17% of the U.S. coffee imports by volume and 40% of retail market value. According to Murray and Reynolds (2007), Fair Trade products represent one of the fastest growing segments of the global food market. Fair Trade certification is among many other standards and certifications on global food products. Fair Trade have benefited producers of volatile tropical commodities such as coffee through higher prices, enhanced organizational capacity for producer groups of smallholders and their production and marketing skills, and social premiums for financing community projects (ibid.).

Grodnik and Conroy (2007) observed that, by the year 2000, Fair Trade certified coffee had grown at rates in excess of 60% per year. This growth is attributed to product differentiation strategy of roasters and retailers, pressure from activist NGOs, and is the corporate response to social, environmental and accountability drives. It is also widely accepted in European markets, capturing consumer appeal and making it considered to be a viable market entity and not merely a network of ideological solidarity (World Bank 2004). Although the movement has its benefits for the producing countries, constraints related to its adoption and expansion to a wider scale is also documented. For example, in the study on Fair Trade in Mexico, Renard and Pérez-Grovas (2007) identified constraints related to competitive pressures from exporting TNCs, precariousness of livelihoods for smallholders, diversion of coffee to local traders by members of producer organizations, and by complexity of regulations and processes from certification organizations.

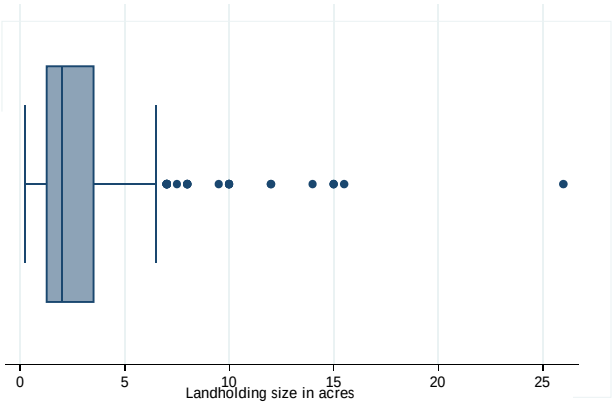
## 1.3 The structure of coffee production in Tanzania

### 1.3.1 The significance of smallholder coffee production

Within Tanzania, coffee production is concentrated in the northern zone, the southern highlands zone, and the western lake zone. Mild Arabica, which constituted 64% in 2009/10 crop year, is grown in the northern and southern highland zones (data from Tanzania Coffee Board). Robusta is produced in the western parts of Tanzania, and it accounted for about 33% of Tanzanian coffee. Hard Arabica accounted for just about 3%. The volcanic soil around the slope of Mount Kilimanjaro in the northern zone is known to produce high quality Colombian Mild Arabica. The northern zone constitutes the regions Kilimanjaro, Arusha, Manyara, and Tanga, of which Kilimanjaro contributes more than 70% of the total coffee produced in the zone.

A large proportion of coffee is grown by a large number of smallholders. It should be noted that, the notion of "small" in relation to agricultural producers changes in relation to different crops, contexts, and regions (see Narayan and Gulat 2002). As Cousins (2010) and Bernstein (2010) point out, such differences have an important bearing on the dynamics of differentiation within the population of small farmers and within households, which needs to be understood in the context of social conditions of production emanating from them. This study characterizes smallholders in the broad local context as adapted from the National Bureau of Statistics.[10] Because a large proportion of coffee-producing households depend primarily on agriculture in an environment of rudimentary production technology, land is a reasonable proxy for resource endowment. In this context, this category of growers can be contrasted with large-scale estate growers. The vulnerability survey for Kilimanjaro 2009 shows that among the vast majority of coffee growers, about 75% hold less than 3.5 acres (1.4 hectares) of land, and half of them hold 2 acres and less. Figure 2 shows that there are very few large coffee farmers, as only 25% hold more than 3.5 acres. Under this distribution, polarization based on individual landholding endowment cannot be generalized among coffee growers.

***Figure 2: Distribution of landholding for coffee-producing households in 2009***




*Source:* Vulnerability survey 2009.

By 2004/05, the smallholders produced 93% of all coffee produced in Tanzania. As table 2 indicates the contribution of estate coffee declined dramatically since 1972/73.

***Table 2: The structure of coffee production by type of producer,1972/73 and 2004/05***

| Producer category | 1972/73 | | 2004/05 | |
|---|---|---|---|---|
| | Production (tons) | Share % | Production(tons) | Share % |
| Smallholders | 36,300 | 76 | 36,955 | 93 |
| Estates | 11,200 | 24 | 2,908 | 7 |
| Total | 47,500 | 100 | 39,863 | 100 |

*Sources:* World Bank (1994), table 4.5 pg 122, Tanzania Coffee Board, author's computation

The dominance of smallholders in coffee contrasts sharply with production of sisal and tea, established almost during the same time due to a historical process.[11] In the early periods of commercial production of coffee, white settlers tried to prevent the smallholders from producing coffee altogether, for fear of labour shortage for their estates. Unlike the situation in the sisal production, where the colonial government supported the establishment of plantations, it did not support the settler's initiatives to prevent indigenous people from growing coffee. In some areas, indigenous people resisted relinquishing their land and vowed to cultivate both food and cash crops. In such circumstances, the colonial authorities encouraged peasant production of cash crops as Rodney writes:

> … the most decisive historical episode which modified planter power took place in 1906, when the German authorities decided that East Africa was to function not merely as a plantation or labour reserve but as a supplier of raw materials which came from peasant production. (Rodney 1983: 14)

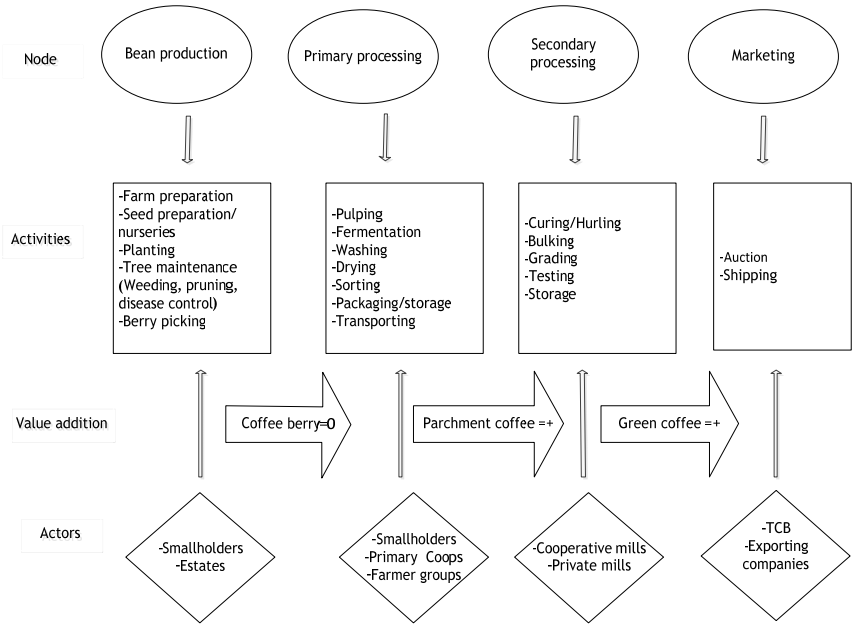
Under this policy, smallholder coffee production grew in importance among the Haya community in Kagera, and in Kilimanjaro after the Chagga community resisted efforts of the white settlers to prevent them from growing coffee, leading to their official recognition in the 1930s.

After taking the reign of Tanganyika from the Germans, the British colonial government did not encourage further settler farming besides those existing, mainly in Kilimanjaro and Arusha, and very few in the southern highlands. The central province covering regions of Dodoma and Singida provided most labour to the settler farming in Kilimanjaro and Arusha, organized through a government-backed Northern Province Labour Utilization Board formed in 1947 (ibid.). The natives in Kilimanjaro did not see themselves as labourers.[12] Although some worked on white settler coffee farms, they also worked on their own plots of land producing both coffee and food crops, mainly bananas, maize and beans. This history explains the co-existence of smallholder and estate coffee farming present today, the former commanding a significantly larger share of production.

### 1.3.2 Key elements of the domestic coffee value chain

The Mild Arabica coffee value chain in Tanzania consists of four main stages, or chain nodes. These are: the production of coffee beans, primary processing or pulping, secondary processing or curing, and marketing. The organization of activities in the value chain is summarized schematically in figure 3.

***Figure 3: The Mild Arabica coffee value chain in Tanzania***




The first node is more labour intensive and, for the majority of smallholders, it is largely dependent on family labour. Unlike estate growers, in most cases coffee is intercropped with other crops. The most common crops grown along with coffee are bananas, beans and vegetables. The spacing at which coffee trees are planted depends on the nature of farming. Under intercropping system typical of smallholders, coffee is spaced between three to four meters, to allow for banana and other food crops, and trees for shading. According to the agronomist from Kilimanjaro Native Cooperative Union (KNCU) and to experienced growers, the optimal coffee population per acre under this system is around 510 trees. This contrasts with a population of about 1,300 trees per acre for the estates, since they do not intercrop.

Field maintenance is important for the healthy growth of coffee. The cleaned fields are sometimes mulched with dry banana and other leaves as a method of reducing evaporation, especially so where no sufficient shade is provided by trees and banana plants. It was observed that in many coffee-growing areas of Kilimanjaro, growers have cut down many trees that provided shading to coffee trees. In the environment of changing climate, where shorter periods of rains are experienced, reduced shading retards the growth of both coffee

trees and banana from which mulching materials are obtained. Pruning is carried out annually to remove unwanted shoots, to control growth, and to facilitate berry production. It also reduces the amount of pesticides required for spraying coffee trees. The original varieties of coffee trees begin to produce between three and four years from planting and produces for more than 50 years, although yields decline as the trees begin to age. Graaf (1986) points out that Arabica coffee has higher productivity when they are between 5–15 years old. The Tanzania Coffee Association (2009) estimates that a large proportion of coffee trees in Kilimanjaro are older than 50 years.

Indeed the 2009 survey data also show that the mean number of trees older than 30 years was 190 per household compared to only 59 for trees younger than ten years. Although it was not possible to establish how many households planted the new hybrid variety using the 2009 survey data, the 2003 survey data shows that only 2% of coffee-growing households reported to have used improved coffee seeds. Overall, the data suggest that the rate of replacement of older coffee trees is rather slow, which can slow down future growth of coffee output even when prices continue to rise. Unlike annual crops such as maize and beans, short-term response to price changes is difficult to attain. On the ground, many farmers appear to be responding very slowly to adapting the new hybrid coffee variety developed by Tanzania Coffee Research Institute (TACRI). The new variety is much more resistant to diseases and its yield rate and profitability are higher than the traditional variety. An agronomist from KNCU attributes the low uptake of the new hybrid variety by smallholders to deteriorating quality of soils, decline in moisture levels, and the high cost of inorganic fertilizer, which are essential for the hybrid variety. An official of Amkeni FBG in Mwika village in the Moshi rural district observed that coffee growers in the Mwika area were adamant to adapting the new variety of hybrid from TACRI despite its high yield because of its high initial costs, water needs and the intercropping practice of smallholders in Kilimanjaro.

Control of diseases and pests is also crucial for increasing coffee yield. The most common diseases in the area are the coffee berry disease (CBD) and leaf rust. These impair the quality of coffee cherry and reduce productivity of coffee trees by killing the leaves. The coffee borer is a main pest in the area. Both pests and diseases require chemicals, applied twice or thrice a year. However, in recent years, application of chemical inputs among coffee producers has been low. The final activity in the production node is harvesting. Coffee harvesting season begins after the long rains between May and June and lasts four to five months. Coffee picking involves hired labour when yields are high or where growers have relatively large fields. In coffee picking, red-ripe cherry are selected, leaving behind unripe cherry for subsequent rounds commonly spaced between two weeks.

The primary processing, a second node in the chain, is an important stage because it is central to the quality of Mild Arabica coffee. There are two methods of pulping currently practised. The first is the use of hand-pulping mills owned by individual farmers. The second is the use power-operated central pulpery units (CPUs), also known as wet mills. The former is more

widespread among growers today. The latter is the method commonly used by coffee estates. CPU-processed coffee is of higher quality than that processed individually using hand pulps. The basic process underlying the two methods is the same, except for the scale of pulping, pre-pulp selection of cherry, and quality of after-pulp care. CPU coffee is carefully sorted to ensure that only red-ripe coffee is processed, and washing and drying processes are properly handled to remove impurities and to achieve uniform moisture content.

Processing begins with pulping, which takes place within 24 hours after picking the cherry. In pulping, coffee cherry is mixed with water and fed into pulping machine where the red pulps are removed. The pulped coffee, known as parchment, is drained into tanks and left to ferment for two to three days, depending on the weather conditions.[13] The fermented coffee is washed with clean water and then dried on drying tables. Naturally sun-dried coffee is most common in Tanzania, and it takes one week or slightly more to dry, depending on the weather. Parchment coffee is required to dry to a moisture content of between 11 and 12%. For most growers, moisture is measured crudely by crushing or biting the parchment, drawing from experience of growers themselves or officials of the primary cooperative societies (PCSs). The dried parchment is then sorted to remove impurities, pieces of pulp, and damaged beans. Thereafter the parchment is graded according to size, cleanliness and homogeneity. Three grades of parchment are common: special parchment (SP), parchment one (PC1), and parchment two (PC2), in a descending order of quality. In the past, prices advanced to coffee growers by PCSs were differentiated at this level based on these grades, but it is rarely practised in many locations in the present market environment.

Secondary processing, a third node in the chain, is carried out far away from the fields by curing mills. The value addition under secondary processing is hurling, known also as curing, where the top dry husk is removed, and the silver skin underneath the husk polished away. The resulting product is the green coffee.[14] Green coffee is also graded, tasted for the quality of its flavour, and bulked ready for trading. This process is done in two stages. Grading is first based on the size, shape, density and the degree of homogeneity of coffee beans. Larger beans of even size receive a higher grade and vice-versa. The grades from this stage are classified as shown in table 3.

***Table 3: Coffee grades by size and shape of beans***

| **Grade** | **Description** |
|---|---|
| AA, A, B, C | Heavy solid beans graded by size, AA being the largest |
| PB | Pea-berry, meaning a small but fully formed cherry containing a single bean rather than two beans. |
| E | Elephant, meaning a large but low grade malformed part of the two parts of the beans merged |
| AF, TT,T, F | Light beans removed through air blowing process from higher grades of coffee (AF from AA and A, TT from B, T from C, and F from re-blasting) |
| HP | Defective beans removed by hand sorting or electronic sorting |
| Tex | Final residuals in small pieces |

*Source:* Tanganyika Coffee Curing Company Limited.

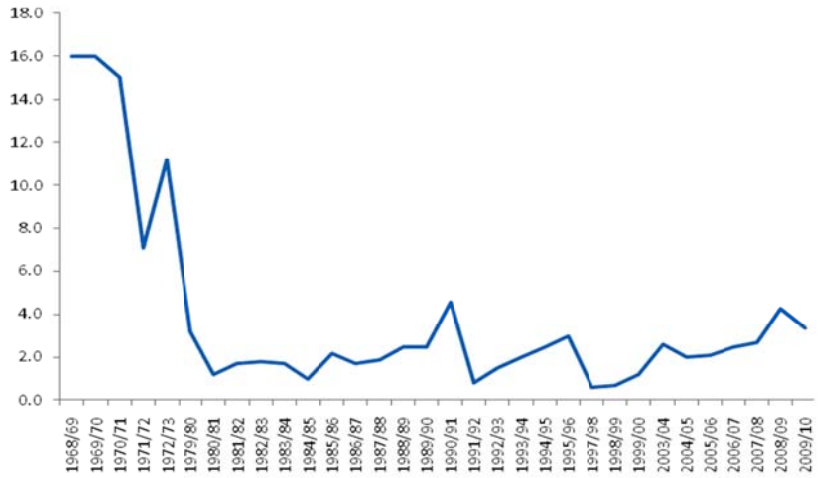
While the above grades are important in influencing price, further grading is done on the basis of colour of the beans, flavour and cleanliness. This quality assessment is carried out by the TCB liquorers through a process known as cupping. In this process, samples of coffee are classified in the range of 1 to 17, class 1 being the highest. The curing factories bulk each coffee quality category by source, so that each coffee can be traced to the supplying PCS, farmer group or estate.

At the final node, an export activity for green coffee is initiated by the TCB which furnishes information pertinent to the subsequent auction to all licensed traders. It includes the auction date and available coffee by grade, class and warehouse location. The Moshi auction takes place at the TCB auction hall every Thursday from 10 a.m. to 4 p.m. between August and February. It is an automated electronic system with bid gargets fitted into the tables for each licensed trader. Bid results display on the screen showing the highest bidder, the price, amount, the grade and the producer. Payments are made through the TCB within seven days of the date of auction. After the government allowed direct exports in 2003, some growers currently export coffee directly without having to go through the auction. This applies only to high quality coffee, which the TCB must first certify and satisfy itself that the negotiated price is higher than the prevailing price for the same quality sold at the auction. This is done to prevent distortionary, non-competitive practices.

## 1.4 Institutional deconstruction and historical decline in quality

The decline in the quality and output of coffee occurred in an environment of weakening intermediary institutions, in particular the cooperative unions and primary cooperative societies. These grassroots institutions were central for integrating production and marketing. In the Mild Arabica-producing area of Kilimanjaro, KNCU played a leading role in promoting high quality coffee production. It was pivotal to the development of agriculture and commercial skills in Kilimanjaro and Tanzania in general. It was first established in 1925 as Kilimanjaro Native Planters Association (KNPA). In 1932, when KNPA was transformed into KNCU, a union of PCSs was then established. The union was the first of its kind in East Africa (Hyden 1980). The number of PCSs grew gradually, and the union continued to grow in membership. KNCU strived to expand coffee production by providing extension support to its members, providing physical input credits through PCSs, and providing cash for crop purchase at the beginning of a season. This process was easily coordinated under the cooperative monopoly, which helped PCSs to recover input credits from coffee proceeds.

***Figure 4: Trend in the share of coffee exported in grades 1-5, 1968-2009***




*Sources:* Ponte (2001) table 10, pp 37 (1968/69-1999/00) and author's computation from Tanzania Coffee Board data (2000/01-2009/10)
*Note:* Data missing for 1973/74–1978/79, 1996/97 and 2000/01–2002/03.

KNCU also established a Commercial College in Moshi to provide training to personnel providing a wide range of services to the coffee industry, including extension, accounting and trade services.[15] In a bid to improve coffee quality, KNCU supported its members to invest in CPUs that provided pulping services to a large number of coffee growers in the region, and to administer quality control at primary level through centralized pulping and stringent quality control on parchment collection. In the region, seven large-scale CPUs with a processing capacity of between 2,000 and 5,000 kilogrammes of cherry per hour operated under the PCSs affiliated with KNCU. These CPUs were stationed in central locations and served growers from multiple villages surrounding the CPUs. According to the official of KNCU, 75% of coffee it collected before KNCU was abolished was processed in these wet mills. Prices were paid according to the major primary grades. In 1935, KNCU established the first coffee curing mill in Moshi, the Tanganyika Coffee Curing Company Limited (TCCCO).[16]

Investment in both centralized primary processing and secondary processing through the mill contributed to the high quality of Mild Arabica coffee exported from Tanzania. These were maintained after independence in 1961. The decline in coffee quality started in the early 1970s and accelerated in the mid-1970s and early 1980s. Figure 4 shows a trend in the quality coffee, measured by the share of exported coffee from Tanzania in the top grades of 1-5 between 1968/69 and 2009/10 crop seasons.

It is clear from figure 4 that production of high quality coffee in Tanzania has declined dramatically and remained low over the last 30 years. A sharp deterioration in quality observed in the early 1970s is attributed to two factors. The first relates to government interventionist policies and futile measures to control activities of cooperatives. A few years after independence, the government had found it imperative to spread the cooperative model

of production to other parts of the country. However, this process was more politically motivated, implemented without regard to economic grounds for an effective collective model of cooperative production, leading to losses and failures (Hyden 1974, Banturaki 2000, Maghimbi 2010). This move coincided with other state initiatives aiming to expand agricultural output and productivity through improvement and transformation programmes as part of its first five-year plan. Under the improvement plan, the smallholders were to be supported through use of modern equipment, inputs and adoption of new crop husbandry practices. The transformation programme, perhaps the intervention with far reaching impact on the cooperative system, involved reorganization of the production system by resettling smallholders in modern villages where they were to be provided with modern agricultural equipment and support services for collective large-scale farming.

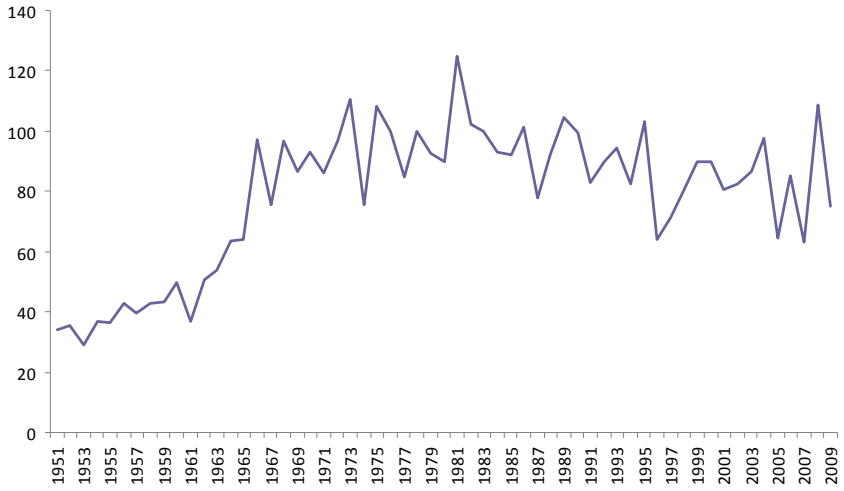
In 1974, villagization was officially adapted as a state policy. Although forceful relocation and resettlement of farmers did not take place in the coffee-growing areas, it was the imposition of village governance structures combined with the abolition of cooperative unions in 1976 that had far-reaching consequences on the quality of coffee. The functions of already established PCSs were disrupted, as each village was registered as a cooperative society. Conflicts emerged in the functioning of village governments and officials of PCSs, the former seeking to prevail over cooperative interests for political purposes. Since the majority of PCSs were multi-village, their replacement with village authorities created confusions and marked the beginning of maladministration of the assets and functions of PCSs. The functions of the dissolved coffee cooperatives were transferred to Tanganyika Coffee Board. In 1977, the state consolidated its control of the industry by enacting the Coffee Industry Act No. 5 of 1977, which established Tanzania Coffee Authority (TCA) to replace the Board. The 1977 Act gave the TCA mandate for all activities in the coffee chain, including coffee trade.

The key point here is that these institutional changes led to the collapse of the system of central primary processing using wet-mills managed by PCSs. As PCSs were established in every village, each was responsible for collecting coffee and other crops under the coordination of TCA. During the reign of KNCU, CPUs were established in central locations to serve multiple villages forming PCSs. The CPUs were managed by individuals trained by the cooperative union and were maintained by funds deducted for each unit of coffee processed. Under the TCA, management and maintenance of the CPUs became a problem. Many were left without proper care, and others were vandalized. At the time of fieldwork, for example, only remains of parts of the CPU were seen on the site at Kibong'oto PCS. One grower and member of Kibong'oto PCS observed that the CPU collapsed with the abolition of cooperative union, and it was difficult to explain how parts of the CPU disappeared.

With the decline in global coffee prices in the early 1980s as observed in figure 1, coffee output began to fall, and so the amount of coffee available for each village PCS declined. This did not only reduce the operating capacity of CPUs, but also the unit charges were increased in order to cover for operating costs. Together with pressure from individual village leaders to collect coffee from within their villages, growers resorted to the use of their own hand-pulping machines, delivering parchment to the PCSs. Growers pulp coffee under different conditions, and thus supply parchment of varying quality, often below standard requirements. Only three PCSs affiliated to KNCU are operational today, and only about 30% of KNCU coffee is currently processed in CPUs.

Quality also deteriorated because replacement of the activities of PCSs by village-based, non-autonomous primary cooperatives greatly disrupted commercial orientation of cooperatives. TCA was not effective in carrying out all of the activities previously carried out by cooperatives, including the provision of essential agricultural services. Lack of autonomy from the government, and the multiplicity of tasks ranging from regulation, production, and processing, to the marketing of coffee rendered it ineffective and inefficient. As World Bank (1994) argued, the dissolution of the rural cooperative system and expropriation of its assets impaired the development of burgeoning rural institutions capable of responding commercially to farmer's needs. Input use such as chemicals for CBD and leaf rust gradually declined, and so did growers' investment in coffee maintenance.

***Figure 5: Trends in coffee production, 1951-2009 (in tonnes)***




*Sources:* Tanzania: Selected statistical series 1951-1994, The Economic Surveys 1999, 2000, 2002, 2004, 2006, 2009.

As a result of these institutional changes, yields declined, quality deteriorated further, and so was output as shown in figure 5. More steady output increase occurred after independence, but large swings were observed between 1973 and 1981, a period associated with most direct interventions of state in the activities of cooperatives. However, coffee prices were still

supported under the ICA system until 1989. From 1982, coffee output generally declined, albeit with large swings from year to year. In 1996, only two years after trade liberalization in the coffee industry, output fell dramatically, to a record low since 1965.

The second factor is nationalization of coffee estates. In 1973, 72 coffee estates were nationalized and subsequently transferred to primary cooperative societies and parastatal companies designated as specified organizations.[17] Although a number of smaller private estates escaped nationalization, this move reduced the contribution of estate coffee. Since the quality of privately managed estate coffee was higher than coffee from the smallholders, a decline in the share of estate coffee after nationalization as shown in table 2 contributed to the decline in the quality of coffee from Tanzania. This was to be expected, as productivity of privately managed estates has tended to be higher than that of smallholders.[18]

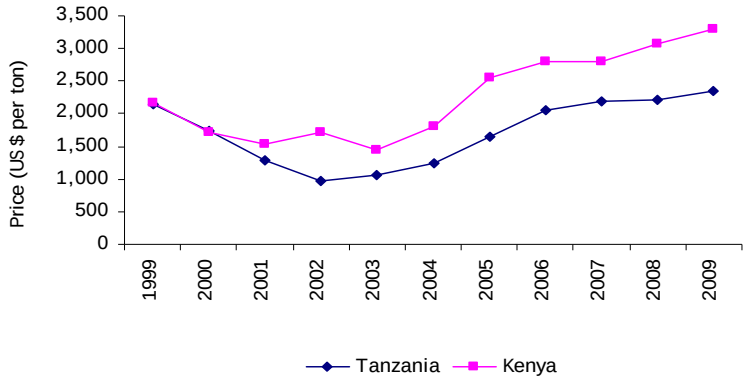
The implication of these institutional changes, therefore, is a slide in quality as shown in figure 4. Trade liberalization did not give an answer to the quality problem, because these institutional coordination issues remained unresolved. Trade liberalization was part of the economic reforms that started in Tanzania in the second half of the 1980s. Although its legal framework was created under the Coffee Marketing Board Act No. 18 of 1984 that established Tanzania Coffee Marketing Board (TCMB) to replace TCA, TCMB remained the sole exporter of coffee, in addition to its regulatory function. Trade liberalization in the coffee industry was effected in 1993 through the Crop Boards (Miscellaneous) Amendment Act No. 11 of 1993 that allowed licensed private firms to participate in domestic coffee trade, export and processing. This Act marked the end of the single-channel marketing system, introducing multiple channels through which producers sold their coffee. However, at the export level, the TCMB remained responsible for the control of quality of exportable coffee and for operating the coffee auction.[19]

Small improvement was noted following privatization and revival of some coffee estates in the early 1990s, and with the rise in world market prices. Available data show that the share of estates in coffee production increased from 4% in 1991/94 to 7% in 2004/05. Overall, however, the contribution of estate coffee is much lower than its level of 24% in 1972/73 shown in table 2. Just two years after the coffee trade was liberalized to allow private traders to purchase parchment coffee from growers, quality deteriorated further. This decline is associated with the practice of private traders to collect parchment coffee from growers without regard to quality at uniform prices in order to achieve high volumes, therefore debasing the overall coffee quality. There is further evidence of the importance of coffee quality and its relationship with processing mechanism when the prices of Mild Arabica coffee between Tanzania and Kenya are compared. As Ponte (2001) observes, coffee grown in Northern Tanzania is a substitute for high quality Colombian Mild Arabica and often traded at a premium over Colombian, but over time, that premium had decreased. He notes that while its quality is naturally more homogenous than Kenyan, it has performed poorly in

the market. This difference is largely attributed to the differences in the systems of primary processing and agronomical practices.

According to the Coffee Board of Kenya, one third of its coffee is produced by estates, and the remaining by the smallholders. All Kenyan coffee is processed using CPUs, through its large network of just over 4,000 licensed pulping stations, of which a quarter are run by cooperatives, and about a half by small estates. Figure 6 shows the resulting difference in the average export price over the period from 1999–2009.

***Figure 6: A comparison of international prices of coffee from Tanzania and Kenya***

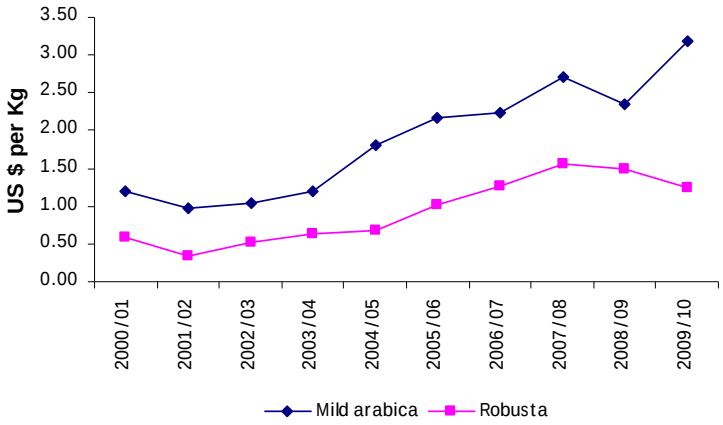



*Sources: Bank of Tanzania, Economic Bulletins September 2004 and March 2008, Bank of Tanzania, Monthly Economic Review March 2010; Central Bank of Kenya, Statistics Bulletin, June 2005, December 2007 and December 2010*

As figure 6 shows, even after trade liberalization, the quality of Tanzanian coffee has not increased to a scale enough to catch up with Kenyan counterparts, as seen also from figure 4. As a result, while both countries have benefited from steady rise in coffee prices since 2002, Kenyan coffee prices have risen faster and the difference has increased over time.

While the price of both Mild Arabica and Robusta have been rising since 2003, the price of Mild Arabica have risen faster than Robusta, reflecting a high demand for higher quality Mild Arabica even as global coffee supply conditions and blending conditions are favourable to Robusta. Figure 7 presents a trend in Mild Arabica and Robusta export prices from Tanzania over the ten-year period, showing that the price difference between the two coffee varieties have increased over the last six years.

*Figure 7: Trends in export prices of Mild Arabica and Robusta from Tanzania*




*Source:* Tanzania Coffee Board.

It can be concluded that the problem with the coffee industry in Tanzania revolves around the failure to preserve coffee quality. There was neither policy nor strategy to promote central processing of coffee and alternative mechanisms to provide integrated agricultural services effectively in place of cooperatives. Agricultural policies of the late 1960s and 1970s shifted the powers from coffee growers to the state through gradual changes in legislations and interferences in the activities of cooperative unions. As Hyden (1974) observed, the policy focus shifted from cooperative principles and management techniques to ideological transformation of the social structure. As a result, these essential rural institutions progressively failed to deliver the needed agricultural services to coffee growers.

The liberalization policy in the late 1980s and early 1990s was carried out based on a static notion of comparative advantage. It largely ignored the influence of evolving technology and market dynamics that alter production and cost structures, and the structural and institutional constraints that prevented coffee producers from creating and sustaining competitive advantage.[20] For the Mild Arabica coffee market, therefore, quality is a central aspect of competitive advantage, but leveraging the natural advantage of Tanzanian Mild Arabica requires appropriate institutional settings to stimulate self-discovery.[21]

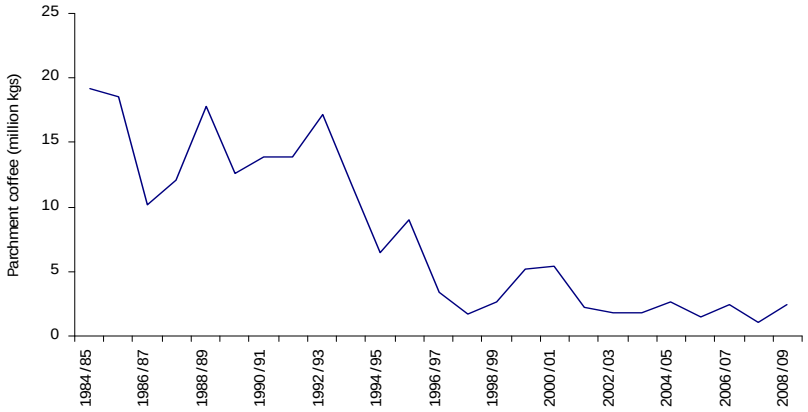
## 1.5 Brokering the revival of quality

As shown in the previous section, the collapse of central processing and the integrated system of production and marketing that supported smallholders under cooperative intermediaries contributed to a dramatic decline in the quality of coffee. Even as cooperatives were reinstated in 1984, KNCU, for example, was not able to re-establish its previous integrated system and its quality control regime. Drawing from the work of Gereffi et al. (2005), the characteristics of the coffee chain and the structure of production suggests that upgrading and

competitiveness can be promoted under some kind of coordinated governance mechanisms in which resources are availed of and activities are aligned towards meeting specific quality requirements for end consumers. This implies some mechanisms to integrate production, processing and marketing. Some leading global coffee roasters, such as Tchibo, have integrated vertically through investment in estate coffee production in Kilimanjaro. The ability of such an approach to sustain the country's competitiveness, however, is limited by the relatively low proportion of estate coffee production, and land scarcity in areas with high potential for Mild Arabica coffee that make estate expansion unlikely.

The vast majority of growers do not receive needed support from currently weak cooperative union. They now have to depend on the market for inputs. With the exception of the small amount of coffee processed in the surviving CPUs, the majority of growers have continued to process their coffee individually using hand-pulps. Figure 8 shows that the volume of coffee collected by KNCU since its reinstatement in 1984 has declined dramatically over the ten-year period, and since then, the volume of coffee it collects has remained low. At present, only 67 PCSs out of 92 PCSs comprising of 60,000 registered members channel coffee through KNCU.

***Figure 8: Trend in the volume of coffee collected by KNCU (1984-2009)***




*Source: KNCU (1984) Limited.*

With its weak institutional support from the cooperative union, some of the existing coffee growers have opted to switch to new intermediary organizations that emerged as a response to the new dynamics in the coffee market. These organizations have stimulated some innovative ways of organizing production and marketing, showing alternative ways to mediate various constraints and revive coffee quality, particularly coffee processing, financing and linkages to specialty niche markets. The notion of organizational innovation (Schumpeter 1961, Lam 2004, Kuttner 2006, Hanusch and Pyka 2007) is interpreted in these contexts.

The study identifies three innovative solutions designed and experimented by these intermediary institutions that have contributed to the modest improvement in coffee quality observed during the 2000s, in figure 4. The first innovation is the attempt to reintroduce CPUs in primary coffee processing among coffee growers. This is implemented by KILICAFE, a trading name of a network of smallholder coffee growers, the Association of Kilimanjaro Speciality Coffee Growers (AKSCG). Established formerly in 2001, KILICAFE presents an intervention approach distinct from traditional agricultural support systems that focus on research, extension and generic introduction of new technology. It is based on linkage formation through enhanced organizational capacity for production and marketing of high quality, or specialty coffee.[22] It involved TechnoServe as a third party intermediary acting as an innovation broker.[23] TechnoServe facilitated KILICAFE to reintroduce CPUs and in the search for market access for its high quality output.

The initiatives to establish KILICAFE started in the late 1990s when coffee prices had fallen dramatically. At this time, trade liberalization also exposed the cooperative union to intensive competition from private companies with greater access to finance and markets. Amid this market crisis and the failure by KNCU to provide advance payments to its affiliated PCSs, some of the discontented coffee growers proposed to withdraw from the network of the union. The motive was to seek for an alternative system free from bureaucracy and high coordination costs inherent in the union structure that further reduced farm gate prices. Some informed members of PCSs, many of whom had contacts with TCB, became aware of the existing potentials in speciality coffee markets. The primary concern was how to ensure high quality coffee as distinguished from low quality coffee, and how to ensure that growers receive the price they deserve for their coffee.

At different times, leaders from Mwika North East PCS and Amkeni Farmer Business Group (FBG) in the KILICAFE network emphasized that quality and prices were the main factors that motivated some farmers to engage in alternative organizational arrangement. The dissenting growers were also aware that, given the nature of the coffee market and the small volumes of individual producers, it was not possible for individual growers to access the high quality segment individually, due to small volumes and scale considerations. They started informal campaigns to bring together growers with common interests and commitment to producing high quality coffee. However, these growers lacked organizational skills and capacity to mobilize a critical mass of growers and to coordinate activities to bring about the desired change in quality of coffee.

Following its assessment of the coffee industry in 1998, TechnoServe, decided to target interventions on agricultural marketing cooperatives and other producer groups. Upon request from coffee growers, TechnoServe encouraged and supported the formation of farmer groups. The Amkeni FBG, comprised of 34 coffee growers, was the first to be formed in 1999. TechnoServe provided basic training to Amkeni on the basic principles of cooperation and management, and how to improve coffee quality. As news spread within the region, other

growers started to form groups and contacted TechnoServe for support. TechnoServe understood that for growers to be able to produce high quality coffee to the volume warranting a separate market channel, scale was important as they had to produce at least 50 tons. None of the FBGs were able to achieve this minimum separately.

TechnoServe facilitated the established groups to form an association. It supported the drawing up a constitution, management trainings, and meetings that finally established the AKSCG in 2001. KILICAFE's network was expanded in 2002 with the joining of 22 FBGs from Mbinga, and again in 2003 with 30 FBGs joining from Mbeya. With this dramatic organizational growth, TechnoServe assisted KILICAFE to establish an organizational structure able to accommodate coffee growers from distant regions in different coffee growing zones. By 2009, KILICAFE comprised 137 FBGs of which 26, 35 and 97 FBGs were in the North, Mbeya & Mbinga chapters, respectively, with a total of 11,000 growers, the majority of them in the southern zone. These grower intermediaries provided an institutional platform for successful contracts between growers and KILICAFE that guarantee enough coffee to support investment in CPUs.

After setting up the foundation for the association to operate effectively, TechnoServe actively promoted quality improvement based on reinstatement of CPUs for primary coffee processing and improvement in crop husbandry. These factors are central to quality, although natural factors such as soil type, altitude, and tree variety account for the intrinsic value of coffee. It facilitated credit for the groups to acquire CPUs and provided training on operating them and on quality controls. Different from the older CPUs, TechnoServe introduced smaller-scale CPUs developed in Columbia. These CPUs have low throughput capacity of between 500–1000 kgs of cherry per hour, and use less water, making them suitable for farmer groups with a small number of members and relatively low volume of coffee. They also cost much less than the larger CPUs used previously by cooperatives with throughput of between 2,000–5,000 kgs of cherry per hour. An increasing quantity of KILICAFE coffee is processed in central pulperies and by 2008/09, it reached 67% of its coffee totalling 3,000 tons (KILICAFE 2009). In places where its members produce volumes that are still too low to warrant feasible use of CPU, growers are trained on the best processing and drying practices in the home environment as a temporary alternative.

The second innovation brokered under TechnoServe is the market linkage with international coffee roasters. This initiative was given further impetus by the change in coffee market regulations that allowed direct export of high quality coffee from the 2003/04 crop season. Along with other industry stakeholders, TechnoServe and KILICAFE have advocated for this change since 2002. A transparent market system was put in place to allow members to receive a fair share of prices of coffee. KILICAFE started to export some of its specialty coffee directly in 2004, when it first exported coffee to Peet's Coffee and Tea Company of the United States. In the 2007/8 crop season, direct exports from KILICAFE accounted for 49% of the 1,314 tons of coffee it exported. In the 2008/09 crop season, it directly exported

54 containers equivalent to 1,036 tons.[24] Starbucks Coffee Inc. and Peet's Coffee and Tea, both based in the United States, are principal buyers of KILICAFE's coffee, in addition to other global buyers. These initiatives have raised the quality and the price of coffee traded through KILICAFE relative to generic coffee traded through the auction. Comparing the prices fetched by KILICAFE growers with others on the auction shown on table 4 for the 2007/08 crop season, for example, KILICAFE growers realized additional premium ranging from 23 to 82% on average through direct export as compared to the auction sales.

***Table 4: KILICAFE and regional average prices for the 2007/08 crop season***

| Zone | Regional Average (US $/kg parchment) | KILICAFE Average (US $/kg parchment) | KILICAFE Premium (%) | Paid to KILICAFE growers (US$/kg parchment) | Share of price paid to growers (%) |
|---|---|---|---|---|---|
| | A | B | C = B – A/A | D | E = D / B |
| Mbinga | 1.43 | 2.6 | 82 | 2.04 | 78 |
| Mbeya | 1.82 | 2.38 | 31 | 1.82 | 76 |
| North | 1.96 | 2.42 | 23 | 1.96 | 81 |

*Source:* KILICAFE 2009 table 4.1, pp16, table 2.5 pp 9 and authors calculation.

Although prices paid to growers tend to fluctuate from period to period, depending on actual price fetched and operating costs, a share of price paid to growers ranged between 76 and 81%. During the same crop season, KNCU members received 70% of the selling price. This relatively high share is attributed to the strategy of coordination under the KILICAFE model. KILICAFE is a smaller organization than the cooperative union, and its operational costs are financed by a linkage fee assessed at 5 and 7% of auctioned and directly exported coffee, respectively. These fees are reviewed each year and approved along with the annual budget at the annual general meeting. Other organizations, however, provide grants that supplement activities and projects of the association. For example, in 2008, TechnoServe selected KILICAFE as its major partner intermediary under the new "East Africa Coffee Project" funded by the Bill and Melinda Gates Foundation.

The third innovation relates to financing arrangements for key value chain activities. Two financing mechanisms are considered innovative. One involves a financial institution and a coffee processor using Warehouse Receipt System (WRS), and the other is the KILICAFE's financing linkage. The WRS was designed and adapted by a group of 32 primary cooperative societies that have spinned off from KNCU to form an intermediary registered as the Kilimanjaro New Cooperative Initiative-Joint Venture Enterprise (KNCI-JVE). Commonly referred to as G32, the spin-off was instigated by the growing failure of KNCU to provide advance financing for crop procurement. During the two seasons prior to 2003/4, many PCSs failed to procure coffee from growers, compelling them to sell to traders at low prices. In addition, growers considered coordination costs of the cooperative union to be very high. At different times, officials of G32 and of Siha Kiyeyo PCSs, one of the G32 pioneers in Siha

district raised these problems as their main reasons for forming the G32 as an alternative intermediary to sustain coffee production and trade. One founding leader of G32 explains:

> The Union had failed to provide essential services to members. There were widespread maladministration and misappropriation of Union assets and high cost of operations. Interest costs on the Union's accumulating debt is a further cost consuming away farmer's income.

Unlike KILICAFE, however, the network of G32 is formed by a group of existing PCS affiliated to KNCU. They have a much longer history and more experience as farmer groups. Thus, no third party intermediary beyond the regulatory body for cooperative registration was involved to facilitate its formation. Thus, the formation of G32 was inspired and coordinated by leaders of PCSs themselves. Some of these leaders had worked in various committees of KNCU, and some on its management, which made them aware of its weaknesses and of possibilities for alternative organizational arrangements. It also made it easier for them to convince their members to sanction a decision to spin off. Under the Cooperative Societies Act No. 20 of 2003, such a decision required a unanimous decision of members at their annual general meeting. Like KILICAFE, the main objective of G32 was to reverse the trend of low prices paid to coffee growers by promoting the production of high quality coffee, eliminating unnecessary operating costs and deductions from coffee proceeds, and reaching directly to high quality coffee markets. During the 2007/8 crop season, coffee growers in Siha Kiyeyo PCS under the G32 received 87% of the selling price, much higher than a share they received previously under KNCU.

According to the coordinator of G32, they learned about the WRS from Gomata Primary Cooperative Society in the Same district (located east of Kilimanjaro region). The system was pioneered in Gomata in 2001 by an expatriate advisor for Kilimanjaro Cooperative Bank (KCB) from Rabobank Foundation of The Netherlands. It was this learning experience that convinced the leaders of G32 that it was also possible for its members to experiment the WRS as long as the bank was a willing partner. The coordinator further narrates:

> The success of this system was good news for us. We visited Gomata primary cooperative society, and when we came back we held discussions with KCB and the coffee curing company. We then held meetings with the leaders of our member primary societies and agreed this was the way forward.

The WRS commenced in the G32 network since the 2003/04 crop season, before the Warehouse Receipts Act was enacted. The WRS was legally formalized through the enactment of the Warehouse Receipt Act No. 20 of 2005. Prior to the Act, the system operated under self-governance of the three institutions: the KCB, the Tanganyika Coffee Curing Company (TCCCO), and PCSs in the G32 network. The WRS operates under the tripartite agreement between the three institutions, each with distinctive benefits and obligations. The central element in the WRS is the use of crops in the warehouse with an

assured market as collateral by a participating financial institution. It reduces transaction cost as well as risks for the bank, in contrast to the traditional credit systems of lending large amounts of money to the cooperative union against government guarantees or assets that were not easily liquidated upon default.

Under this system, the bank advances an agreed maximum amount of funds to the PCS based on estimates approved by its annual general meeting. The PCS then obtain immediate cash from the bank within the approved ceilings each time they deliver parchment coffee to the curing mill, and submit warehouse receipts to the bank. In this way, the bank limits its exposure to default risk to the amount equal to the value of the crop held in the warehouse. At the same time, the PCS minimizes interest liability, because interest is charged only on the amount disbursed and for the period between when parchment coffee is delivered to the mill and when it is sold to exporters. Once delivered to TCCCO, coffee is processed, graded, tasted, bulked and stored ready for the auction. The bank pays the processing costs directly to the TCCCO and these costs are subsequently debited by the bank from the PCS account just after sales proceeds are deposited by TCB. The bank also debits outstanding loans from sales deposits. While WRS system has been in an experimental phase for just a short period of time, it has shown the potential for alleviating financing constraints experienced by the cooperative societies in the past, enabling them to pay their members on time, at lower interest cost, and avoiding the accumulated debt problem experienced by the Union. The PCSs are also able to pay growers at prices reflecting the actual value of their coffee. It involves a transparent mechanism through which PCSs know the exact quantity and quality of their coffee sold, either through the auction or direct export, and the amount received, in both foreign and local currencies.

Another financing arrangement is the KILICAFE credit linkage. As already mentioned, TechnoServe played a major role not only by providing KILICAFE with technical support for developing mechanisms for improving processing technologies but also linking it with sources of credit for wet mills procurement. This linkage facilitated the FBGs to invest in the CPUs. One official of KILICAFE recalled that it started initially with a small loan to help with acquisition of few CPUs, but its capacity expanded with more linkages brokered by TechnoServe as its coffee export potentials increased. For example, in 2007, KILICAFE obtained an interest-free loan of TShs 197.9 million and a grant of TShs 121.9 million from the United States-based African Development Fund for a project to expand specialty coffee in Tanzania. Some of these funds were used to purchase a total of 21 CPUs for FBGs. Starting with the 2006/7 crop season, Root Capital, an international social fund lender also based in the United States, funded the acquisition of 25 CPUs worth a total of $225,000 at an interest of 9% recoverable over 4 years. Root Capital also funded the construction of KILICAFE's warehouse at Makambako in the southern zone through a loan of US$130,000 at an interest of 9% from the 2007/08 crop season.

As a result of these investments and the expanding volume of coffee it exports, KILICAFE is also able to borrow from local commercial banks to fund its working capital for the CPUs and for advance payments of coffee cherry delivered to the CPUs. In the 2004/05 crop season, KILICAFE secured an overdraft of US$450,000. As its credit repayment rate was solid, its overdraft facility expanded gradually to reach US$1,800,000 in the 2008/09 crop season.[25] The KILICAFE financing linkages and also financing by other initiatives, some involving private sector collaborating with farmer groups, have led to an increase in the number of CPUs in Tanzania from less than 50 in 2000 to 256 by November 2010. Seventy-five percent of these CPUs are in the southern zone of which 42% were supplied by KILICAFE, 42% by private companies, 11% by other AMCOs, and the remaining by district councils and village governments (data from Tanzania Coffee Board, 2010). The G32 also encourages and supports its members to invest in CPUs. At the time of the fieldwork, the G32 had requested technical and financial linkage support from TechnoServe in expanding the use of CPUs. Siha Kiyeyo PCS, which had initiated this process much earlier, was already installing and testing its CPU.

As Poulton et al. (1998) point out, developing rural credit markets is difficult because of the problems of strategic default. These two examples represent a sharp contrast with the traditional means of credits to farmer organizations, in particular through cooperative unions. While they do not directly address the problem of strategic default to individual growers, they provide some in-built mechanisms for accountability, and reduce risks and costs of credit and transactions. These benefits seem to pass over to growers in the form of timely payment against crop delivery, and a higher share of export price. They also provide increased collective investment capacity in processing technology. These mechanisms can be extended to cover seasonal credits to individual farmers provided that coordination within and among intermediaries is strengthened. A study by Simonetti et al. (2007), for example, demonstrated how the partnership between a financial institution and TechnoServe in Mozambique succeeded in reviving cashew nut processing and improving quality through the value chain lending approach and creation of economically feasible production systems.

The combined initiatives have contributed to an increase in the share of high quality coffee supplied by smallholders. Evidence is given by the increase in the share of coffee exported directly by smallholder intermediaries shown in table 5 which shows that, over the five crops years since direct export of high quality coffee was allowed, direct coffee sales from intermediaries of smallholders have increased substantially, although total direct export coffee represented just 12% of the total Mild Arabica exported during the 2009/10 crop season.

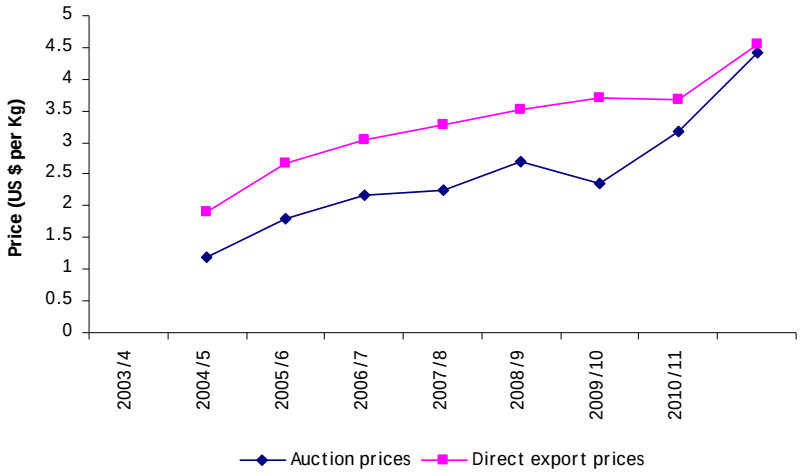
*Table 5: Direct exports of coffee by category of exporter, 2004/05 and 2009/10*

| Category of exporter | 2004/05 | | 2009/10 | |
|---|---|---|---|---|
| | Kgs | % | Kgs | % |
| Intermediaries of smallholders | 208,620 | 7.6 | 1,328,322 | 32.6 |
| Estates and private traders | 2,531,081 | 92.4 | 2,745,647 | 67.4 |
| Total | 2,739,701 | 100.0 | 4,073,969 | 100.0 |

*Source:* Tanzania Coffee Board, author's computation.

Specialty coffee has shown to perform consistently better in terms of export prices than auction Mild Arabica prices. As figure 9 shows, direct export prices have been consistently higher. Although in the recent two crop years 2009/10 and 2010/11 the two prices have tended to converge as coffee prices have generally risen, prices for specialty coffee are more stable.

***Figure 9: Trends in prices for direct export and auction Mild Arabica, 2003/04-2010-11***




*Source:* Tanzania Coffee Board and KILICAFE, author's computation.

## 1.6 Conclusion and implications for policy and institutions

This study has shown that coffee quality in Tanzania began to deteriorate when provision of essential agricultural services and central pulping promoted by cooperatives collapsed following counterproductive state interventions. Quality problems combined with the fall in global coffee prices to depress farm-gate prices, leading to output decline over time. The free markets and trade liberalization once heralded as a panacea for increasing output, productivity and competitiveness in agricultural exports did not reverse the quality and output problem in the Tanzanian coffee industry universally. In the absence of active industrial policy to promote competitiveness in the coffee subsector, Tanzania was stuck in the middle, failing to make a strategic choice amid international market dynamics that have seen coffee markets bifurcated into mainstream market on one hand, and specialty niches on the other.

Transformation of Tanzanian agriculture into a competitive export sector is therefore a matter of strategic choice that requires joint strategic plan and action, and not an automatic outcome of trade liberalization.

The observed improvement in coffee quality suggests that regulations in the coffee market and institutional mechanisms for enforcing quality standards do not impinge on the free movement of coffee in the market. On the contrary, it is trade liberalization, characterized by the absence of regulations and quality controls, which is detrimental to the coffee market. In the contemporary international coffee market regime, niche markets provide Tanzanian coffee growers with the best opportunity to compete. As Van Beuningen and Knorringa (2009) have argued, over the longer term, a higher and more stable income for smallholders can be expected from higher quality markets, as data has also shown. Although the prevailing market prices seem to be favourable even for the mainstream Mild Arabica, there is no guarantee that these prices will be sustained, given the structure of the contemporary global production and markets.

From these conclusions, two implications for policy and intermediation in the coffee industry are outlined. First, a strategic choice to produce and export high quality coffee for targeted niche markets requires a proactive involvement of the state to work collectively with institutions such as TechnoServe and cooperatives with a view to mediate constraints to quality improvement, particularly in relation to coffee processing, financing and market linkages. As Porter (1986) contends, a global competitive strategy for firms embodies a careful coordination to reinforce firms' brand reputation with buyers by ensuring quality and quantity consistency.[26] Action must be directed at integrating production and markets effectively to enhance quality and to improve productivity by smallholders. Such actions include registration of all coffee growers and the design of institutional affiliations in ways that reduce strategic default and help them to benefit from economies of scale at the processing stage and from access to key services. Given that the state and its related institutional providers have the mandate and capacity to provide essential infrastructure in the producing areas, central processing of cherry coffee can be mandated, provided that grower intermediaries are facilitated to acquire financing necessary to procure CPUs of appropriate scale.

Second, stability of intermediary institutions is essential to ensure their ability to coordinate small growers in an environment of missing and incomplete markets. Stable relationships are crucial for sustaining output quality.[27] The design of organizations is an important factor for stability of intermediaries. The design of the two new intermediaries of growers departs sharply from the design of the traditional cooperative union. Many of the operational functions are delegated to the respective primary societies or FBG, where self-monitoring is easier, and information exchange on quality and prices more accessible. The coordinating units for both the G32 and KILICAFE are much smaller, focusing on coffee marketing and linkages with providers of various technical and financial services. KNCU has failed to

promote central processing after its reinstatement, remaining locked in a rigid path-dependency that sustains coffee growers in low equilibrium. New dynamics require different strategies. The hegemonic design of the cooperative union is far removed from the realities of the contemporary coffee market, which require a clear strategic focus, consistent quality improvement and efficiency. As Hodgson (1988) observes, ossified organizations, ones with internal routine running on inflexible grooves cannot foster innovation and improvement. While some institutional changes are inherently slow, it is possible to accelerate the change process through the use of agents of change external to the system itself, such as an NGO or the state.

## REFERENCES


AKSCG (2009) “Coffee Marketing Programme 2009/10: Business Plan”, Moshi: AKSCG (mimeo).

Bacon, C. (2005) “Confronting the Coffee Crisis: Can Fair Trade, Organic, and Specialty Coffees Reduce Small-Scale Farmer Vulnerability in Northern Nicaragua?”, *World Development* 33(3): 497-511.

Baffes, J. (2003) “Tanzania’s Coffee Sector: Constraints and Challenges in a Global Environment”. Washington, DC: The World Bank.

Bank of Tanzania (2004) “Economic Bulletin, September 2004”. Dar es Salaam: Bank of Tanzania.

Bank of Tanzania (2008a) Economic Bulletin for the Quarter Ending March 2008: Vol XL No. 1. Dar es Salaam.

Bank of Tanzania (2010) “Monthly Economic Review, March 2010”. Dar es Salaam: Bank of Tanzania.

Banturaki, J. (2000) *Cooperatives and Poverty Alleviation*. Dar es Salaam: TEMA Publishers.

Bernstein, H. (2010) *Class Dynamics of Agrarian Change*. Nova Scotia: Fernwood Publishing.

Beuningen, C. van and P. Knorringa (2009) Inclusive Improvement: Standards and Smallholders-Taking stock and moving on, The Hague: Hivos and ISS.

Birner, R. and D. Resnick (2010) “The Political Economy of Policies for Smallholder Agriculture”, *World Development* 38 (10): 31-54.

Bitzer, V., M. Francken and P. Glasbergen (2008) “Intersectoral partnsership for a sustainable coffee chain: Really addressing sustainability or just picking (coffee) cherries? *Global Environment and Change* 18(2): 271-284.

Brandit, H. (1991) *The Formulation of a New International Coffee Agreement*. Berlin: German Development Institute.

Central Bank of Kenya (2005) “Statistics Bulletin, June 2005”. Nairobi: Central Bank of Kenya.

Central Bank of Kenya (2007) “Statistics Bulletin, December 2007”. Nairobi: Central Bank of Kenya.

Central Bank of Kenya (2010) “Statistics Bulletin, December 2010”. Nairobi: Central Bank of Kenya.

Central Statistics Bureau (1967) “Statistical Abstract 1965”. Dar es Salaam.

Chang, H. (2002) “Breaking the mould: an institutionalist political economy alternative to the neo-liberal theory of the market and state”, *Cambridge Journal of Economics* 26 (10): 339-559.

Cousins, B. (2010) “What is a ‘smallholder’? Class-analytic perspectives on small-scale farming and agrarian reform in South Africa”. Working Paper no. 16. Cape Town: Institute for Poverty, Land and Agrarian Studies.

Gereffi, G., J. Humphrey and T. Sturgeon (2005) "The governance of global value chains", *Review of International Political Economy* 12(1): 78-104.

Graaf, J. de (1986) *The Economics of Coffee*. Wageningen: Center for Agricultural Publishing and Documentation (Pudoc).

Grodnik, A. and E. Conroy (2007) "Fair Trade coffee in the United States: Why companies join the movement", in L. Raynolds, D. Murray, and J. Wilkinson (eds) *Fair Trade*, pp. 83-102. New York: Routledge.

Hannush, H. and A. Pyka (2007) "Principles of Neo-Schumpeterian Economics", *Cambridge Journal of Economics* 31(2): 275-289.

Hausman, R. and D. Rodrik (2003) "Economic Development as Self Discovery", *Journal of Development Economics* 72(2): 603-633.

Hazell, P, P. Colin, S. Wiggins and A. Dorward (2007) "The Future of Small Farms for Poverty Reduction and Growth" 2020 Discussion Paper No. 42. Washington, D.C: International Food Policy Research Institute.

Hodgson, G. (1988) *Economics and Institutions: A Manifesto for a Modern Institutional Economics*. Cambridge: Polity Press.

Hyden, G. (1974) "Cooperative Education and Cooperative Development: The Tanzanian Experience", *Agricultural Administration* 1: 35-50.

Hyden, G. (1980) *Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry*. London, Nairobi and Ibadan: Heinemann.

International Coffee Organization (2010a) Coffee Statistics. Accessed 4 November 2010 <http://www.ico.org/new_historical.asp>.

International Coffee Organization (2010b) "The International Coffee Agreement 2007", London: International Coffee Organization (mimeo).

Itika, J. (2005) "Institutional Structures as the Rules of the Game": Reflections on Coffee Production and Marketing in Moshi District", *Eastern Africa Social Science Research Review* 21(1): 39-56.

KNCU (1984) Limited (2009) "The KNCU Profile". KNCU (1984) Limited (mimeo).

Knorringa, P. and J. Meyer-Stamer (2007) "Local Development, Global Value Chains and Latecomer Kuttner, R.M. (1996) *Everything for Sale: The Virtues and Limits of Markets*. New York: Alfred A. Knopf.

Lam, A. (2004) "Organizational Innovation", BRESE Working Paper No. 1. London: School of Business and Management, Brunel University.

Maghimbi, S. (2010) "Cooperatives in Tanzania mainland: Revival and growth, Coop Facility for Africa", Working Paper No. 14. Dar es Salaam: International Labour Organization County Office.

Mahdi, S. (2008) "The Impact of Regulatory and Institutional Arrangements on Agricultural Markets and Poverty - a case study of Tanzania's Coffee Market". Dar es Salaam: (mimeo).

Muradian, R. and W. Pelupessy (2005) "Governing the Coffee Chain: The Role of Voluntary Regulatory Systems", *World Development* 30(7): 1099-1122.

Murray, D. and L. Raynolds (2007) “Globalization and its antinomies: Negotiating a Fair Trade movement”, in L. Raynolds, D. Murray and J.B. Wilkinson (eds) *Fair Trade*, pp. 3-14. New York: Routledge.

Mwandha, J., J. Nicholls and M. Sargent (1985) *Coffee: The International Commodity Agreements*. Hampshire and Brookfield: Gower Publishing.

Narayan, S. and A. Gulati (2002) “Globaliation and the Smallholders: A Review of Issues, Approaches, and Implications”, MSSD Discussion Paper No. 50, Washington D.C: IFPRI and World Bank.

National Bureau of Statistics (1995) Selected Statistical Series 1951-1994. Dar es Salaam.

National Bureau of Statistics (2002) Integrated Labour Force Survey 2000/01. Dar es Salaam.

National Bureau of Statistics (2006) “National sample census of agriculture 2002/2003: Smallholder Agriculture”, Vol II Crop Sector- National Report. Dar es Salaam, National Bureau of Statistics.

Oxfam International (2002) “Mugged: Poverty in your coffee cup” London: Oxfam International (mimeo).

Pelupessy, W. and L. van Kempen (2005) “The Impact of Increased Consumer-orientation in Global Agri-food Chains on Smallholders in Developing Countries”, *Journal of Competition and Change* 9(4): 357-381.

Pérez, S.A., L. Klerkx and C. Leeuwis (2010) “Innovation Brokers and their Roles in Value Chain-Network Innovation: Preliminary Findings and a Research Agenda”, Montpellier: ISDA.

Pitelis, C. and T. Clarke (1993) “Introduction: The Political Economy of Privatization”, in T. Clarke and C. Pitelis (eds), *The Political Economy of Privatization*, pp 1-30. London: Routledge.

Ponte, S. (2001) “Coffee Markets in East Africa: Local Responses to Global Challenges or Global Responses to Local Challenges?”, CRP Working Paper No. 01.5. Copenhagen: Centre for Development Research.

Ponte, S. (2002) “The ‘Late Revolution’? Regulation, Markets and Consumption in the Global Coffee Chain”, *World Development* 30(7): 1099-1122.

Porter, M. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.

Poulton, C., A. Dorward and J. Kydd (1998) “The Revival of Smallholder Cash Crops in Africa: Public and Private Roles in the Provision of Finance”, *Journal of International Development* 10(1): 85-103.

Renard, M. and V. Pérez-Grovas (2007) “Fair Trade in Mexico: At the center of the debates”, in L. Raynolds, D. Murray and J. Wilkinson (eds), *Fair Trade*, pp. 83-102. New York: Routledge.

Rodney, W. (1983) “Migrant Labour and the Colonial Economy”, in W. Rodney, K. Tambila and L. Sago (eds) *Migrant Labour in Tanzania during the Colonial Period*, pp. 4-28. Dar es Salaam: Tanzania Publishing House.

Rodrik, D. (2007) *One Economics. Many Recipes: Globalization, Institutions, and Economic Growth*. New Jersey: Princeton University Press.

Schmitz, H. and P. Knorringa (2000) “Learning from Global Buyers”, *Journal of Development Studies* 37(2): 177-205.

Schumpeter, J.A. (1961) *The Theory of Economic Development: an inquiry into profits, capital, credit, interest, and the business cycle*. New York: Oxford University Press.

Simonetti, R., M. Wuyts and A. Fivawo-Wuyts (2007) “Banking on Rural Innovation for Poverty Reduction: A Case Study of Value-chain Lending in Mozambique”, *European Journal of Development Research* 19(1): 136-155.

United Republic of Tanzania (1971) The Tanganyika Coffee Curing Company (Acquisition of Shares) Act No. 3 of 1971. Dar es Salaam.

United Republic of Tanzania (1977) The Coffee Industry Act No. 5 of 1977. Dar es Salaam.

United Republic of Tanzania (1984) The Coffee Marketing Board Act No. 8 of 1984. Dar es Salaam.

United Republic of Tanzania (1988) The Tanganyika Coffee Curing Act (Restoration and Regrant of Shares) Act No. 12 of 1988. Dar es Salaam.

United Republic of Tanzania (2001) The Coffee Industry Act No. 23 of 2001. Dar es Salaam.

Winch, G.M., and R. Courtney (2007) “The Organization of Innovation Brokers: An International Review”, *Technology Analysis and Strategic Management* 19(6): 747-63.

World Bank (1981) Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Washington, DC: The World Bank.

World Bank (1994) “Tanzania Agriculture, The World Bank Country Study”, Washington DC: The World Bank.

World Bank (2004) “Coffee Markets: New Paradigms in Global Supply and Demand”, World Bank Discussion Paper No. 3. Washington DC: The World Bank.

## Notes

[1] These estimates includes growers of both Arabica and Robusta coffee in the main producing area in the Northern zone, Southern Highlands zone, Western Lake zone and in other marginal producing areas. However, the study focused more on Mild Arabica coffee and its institutional setup, drawing more of the details from within its major producing region of Kilimanjaro.

[2] The author converted figures on the graph from US cents per lb into US$/kg.

[3] Adhesive stamps were issued quarterly to exporting countries in proportion to their quotas, to be affixed on export certificates (Mwandha et al. 1985).

[4] Leading roasters are Phillip Morris, Nestlé, Sara Lee, Proctor and Gamble, and Tchibo (Ponte 2002).

[5] A standard coffee bag contains 60 kg of green coffee.

[6] Data from International Coffee Organization (ICO), 2010 (http://www.ico.org/new_historical.asp).

[7] Consumption equals the sum of net imports and inventory change. Thus, global production and consumption do not match on a one-to-one basis due to movements in accumulated inventory.

[8] Data from ICO 2010 and European Coffee Federation (ECF) 2010.

[9] Fair trade is a movement of activists, particularly from the North, working with producers, labourers, and other impoverished sectors in the South using market-based strategies. The objectives of Fair Trade revolve around promotion of well-being of producers through expanded access to markets, better price, sound environmental practices, and economic security. It is coordinated by the Fair Trade Labeling Organization International, FLO. For details, see Murray and Reynolds 2007.

[10] The National Bureau of Statistics (2006) characterizes smallholders based on the nature of production, market relations and the size of landholdings. For crop producers, smallholders are those holding below 20 hectares and producing mainly for subsistence.

[11] Rweyemamu (1973) provides a detailed historical account of plantation agriculture in Tanzania.

[12] Noted also by Hyden (1980).

[13] Approximately 5 kgs of coffee cherry translate into one kg of parchment.

[14] Approximately 1.56 kgs of parchment produce one kg of green coffee.

[15] KNCU Commercial College was transformed into Moshi Cooperative College 1963 and run by the government. It is currently a constituent college of Sokoine University of Agriculture, renamed Moshi University College of Cooperative and Business Studies.

[16] This factory was nationalized in 1971 under Act. No. 3 of 1971 and re-granted in 1988 under Act No. 12 of 1988.

[17] See Second Schedule of the Specified Coffee Estates (Acquisition and Regrant) Act No. 31 of 1973.

[18] De Graaf (1986) for example, using Kenya data for 1982, showed that estates spent more man days and inputs than the smallholders, and although yield rates for the estates were 1,110 kg/ha and

600/kg/ha for the estates and smallholders, respectively, costs were correspondingly US$1.95/kg and US$1.30/kg.

[19] The TCB replaced TCMB following the Coffee Industry Act of 2001.

[20] The notion of competitive advantage is applied in the framework of Michael Porter (1985), that coffee producers may compete either by delivering comparative buyer values at lower costs than other producers, or by differentiation, delivering superior buyer value even at comparable costs.

[21] The concept of "self-discovery" is adapted from Rodrik and Haumann (2003) and Rodrik (2007) who refer to it as discovery of new activities within an economy than can lead to profitable and competitive production. In the context of this case, reintroduction of CPUs and strategic coordination to capture specialty niche markets are examples of the self-discovery process.

[22] Specialty coffee, known also as gourmet coffee is a high quality coffee falling between classes 1-5.

[23] Following from Winch and Courtney (2007) and Perez et al. (2010), the notion of innovation broker relates more to actual facilitation of innovation. Innovation brokers enhance the interaction between actors, enabling other organizations to innovate.

[24] One container of coffee translates to 360 bags of 60 kgs of green coffee each.

[25] Data from KILICAFE business plan and report of performance, 2009.

[26] Hazell et al (2007) argued for institutional innovation involving joint coordination by the state, civil society, farmer organizations and market institutions as solutions to the persistent market failures facing smallholders.

[27] As Schmitz and Knorringa (2000) observe, chains driven more by quality concerns tend to favour stable relationships, through which conditions for learning and improvements are enhanced.