Institutional Innovations and Competitiveness of Smallholders in Tanzania

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Institutional Innovations and Competitiveness of Smallholders in Tanzania

Institutionele innovaties en het concurrentievermogen van kleine boerenbedrijven in Tanzania

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To

Brian and Lena
For your perseverance

Phillipine
For your love, dedication, and support

Eliapenda and Elishiisa Mmari
For your dedicated parenthood

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Acronyms

ACP	African, Caribbean, and Pacific
ADF	African Development Foundation
AfDB	African Development Bank
AKSCG	Association of Kilimanjaro Speciality Coffee Growers
AMCOs	Agricultural Marketing Cooperatives
CBD	Coffee Berry Disease
CFC	Common Fund for Commodities
CPU	Central Pulpery Unit
CSA	Cane Supply Agreement
DCGL	Dwangwa Cane Growers Limited
DCGT	Dwangwa Cane Growers Trust
DoP	Division of Proceeds
EBA	Everything But Arms
EEC	European Economic Community
EPA	Economic Partnership Agreement
EU	European Union
FAO	Food and Agricultural Organization
FBG	Farmer Business Group
FDI	Foreign Direct Investment
FFYP	First Five Year Plan
GATT	General Agreements on Tariffs and Trade
GDP	Gross Domestic Product
ICA	International Coffee Agreement
ICO	International Coffee Organization

IFC	International Finance Corporation
ISA	International Sugar Agreement
ISO	International Sugar Organization
JCCs	Joint Consultative Committees
KCGA	Kilombero Cane Growers Association
KCS	Kilombero Sugar Company
KCT	Kilombero Community Trust
KNCI-JVE	Kilimanjaro New Cooperative Initiative-Joint Venture Enterprise
KNCU	Kilimanjaro Native Cooperative Union
KNPA	Kilimanjaro Native Planters Association
MCP	Miller-cum-Planter
MOA	Mtibwa Outgrowers Association
MoU	Memorandum of Understanding
MSE	Mtibwa Sugar Estates
MUSA	Mwelya-Usambara Smallholders Association
NAFCO	National Agriculture and Food Corporation
NGOs	Non Governmental Organizations
NMB	National Microfinance Bank
NUTA	National Union of Tanzania
OPS	Open Pan Sulphitation
PC1	Parchment one
PC2	Parchment two
PCS	Primary Cooperative Society
PSRC	Parastatal Sector Reform Commission
REPOA	Research on Poverty Alleviation
ROA	Ruembe Outgrowers Association
SACCOS	Savings and Credit Cooperative Society
SAT	Sisal Association of Tanzania
SBT	Sugar Board of Tanzania
SDC	Swiss Development Corporation
SILABU	Sisal Labour Bureau
SISO	Sisal Smallholders and Outgrowers Scheme

SP	Special parchment
SSA	Sub Saharan Africa
SUDECO	Sugar Development Corporation
TAC	Tanganyika Agricultural Corporation
TANU	Tanganyika African National Union (TANU)
TASGA	Tanzania Sugarcane Growers Association
TASMA	Tanganyika Sisal Marketing Association Limited
TCA	Tanzania Coffee Authority
TCA	Tanzania Coffee Association
TCB	Tanzania Coffee Board
TCCO	Tanganyika Coffee Curing Company Limited
TCH	Tonnes per Hectare
TCMB	Tanzania Coffee Marketing Board
TFL	Tanganyika Federation of Labour
TPAWU	Tanzania Plantation and Agricultural Workers Union
TPC	Tanganyika Plantation Company
TRA	Tanzania Revenue Authority
TSA	Tanzania Sisal Authority
TSB	Tanzania Sisal Board
TSC	Tanzania Sisal Corporation
TSGA	Tanganyika Sisal Growers Association
TSMB	Tanganyika Sisal Marketing Board
TSPWU	Tanganyika Sisal Plantation Workers Union
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Organization
VAT	Value Added Tax
VP	Vacuum Pan
WRS	Warehouse Receipt System
WTO	World Trade Organization

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Abstract

This research examines the potentials for various forms of institutional innovations in building competitiveness of smallholder agriculture in Tanzania. It is inspired by a review of stylized facts on the performance of the agricultural sector since 1961 in Tanzania, from which it is hypothesized that persistent structural and institutional constraints inhibit increases in productivity, quality, and output of smallholders. Agriculture continues to employ a significant proportion of the labour force, and the smallholders dominate production of both food and export crops. While some policies and interventions of post independence contributed to the poor performance in export crop production, structural adjustments and trade liberalization did not reverse performance as envisaged. Recognizing the weakness in the workings of market institutions based on the neoclassical abstraction of free markets, this research draws from institutionalist perspectives which invoke the embeddedness of markets in social structures in the analysis of competitiveness of smallholders' export crop production. The core argument is that proactive and collective actions among market institutions and non-market institutions are crucial for addressing market failures and other policy and institutional rigidities that impede on competitiveness of smallholders.

This research examines this question using an interdisciplinary approach through an in-depth inquiry of three case studies involving smallholder production of cash crops. These cases represent a diversity of crop characteristics, historical evolution, institutional setups, and the current organizational practices and outcomes on various elements of competitiveness. These cases are situated in the coffee subsector, in which production is predominantly smallholder-based; the sisal subsector, in which production historically took place in large-scale plantations but which has seen the re-introduction of the smallholder scheme; and the sugar subsector, in which sugarcane is produced by both large-scale plantations and the smallholders.

In the study on the coffee subsector, it was established that while the evolution in the pattern of global production and consumption of coffee have led to the bifurcation of markets, Tanzania failed to position itself within a particular segment of the market and got stuck in the middle. This failure is associated with the evolution of its policy and organization of production, which deconstructed institutions that were crucial to the production and export of high quality coffee. The study further finds that recent industrial policy initiatives have been pioneered by non-state institutions to relocate coffee producers within the high-quality segment of the market. The study in the sisal subsector shows that the integration of smallholders in sisal production by private companies is a disguised form of a piece-employment relationship rather than a business partnership as it is construed to be. Underlying this relationship is a substantial imbalance characterized by the company's full control on all key resources, including land, processing facilities and output marketing. In the absence of countervailing powers mediated in non-market institutional settings, this form of integration cannot be expected to promote the competitiveness of Tanzanian sisal. In the sugar subsector, the study finds that even as the intermediary organizations of cane outgrowers have played significant roles in reducing transaction costs and promoting market linkage and access to credit markets, an increase in productivity required for competitiveness is limited by the character of its production and limited collective actions through horizontal coordination. The findings from the three case studies suggest that improving export crop competitiveness of smallholder producers requires strategies to promote coordination at the meso level, directed at eliminating binding constraints specific to the relevant subsectors.

Institutionele innovaties en het concurrentievermogen van kleine boerenbedrijven in Tanzania

Samenvatting

Dit onderzoek gaat over de vraag in hoeverre verschillende vormen van institutionele innovatie het concurrentievermogen van de kleinschalige landbouw in Tanzania kunnen vergroten. Op basis van een overzicht van de prestaties van de landbouwsector in Tanzania sinds 1961 wordt in dit onderzoek verondersteld dat hardnekkige structurele en institutionele beperkingen een toename in de productiviteit, kwaliteit en opbrengst van kleine boerenbedrijven belemmeren. Een aanzienlijk deel van de beroepsbevolking is werkzaam in de landbouw en kleine boeren zijn de belangrijkste producent van zowel voedsel als landbouwgewassen voor de export. Een deel van de beleidsmaatregelen en interventies van na de onafhankelijkheid heeft bijgedragen aan de tegenvallende export van landbouwgewassen, maar structurele aanpassingen en liberalisering van de handel hebben tegen de verwachting in dit tij niet kunnen keren. In dit onderzoek wordt onderkend dat marktinstituties die gebaseerd zijn op de neoklassieke abstractie van vrije markten gebrekkig functioneren. De analyse van het concurrentievermogen van kleine boerenbedrijven die landbouwgewassen voor de export produceren vindt dan ook plaats vanuit een institutionalistisch perspectief waarbij markten gezien worden als ingebed in sociale structuren. De kern van het betoog is dat proactief en collectief optreden rond markt- en andere instituties essentieel is om iets te doen aan marktfalen en andere vormen van onbuigzaam beleid of institutionele starheid waardoor het concurrentievermogen van kleine boerenbedrijven belemmerd wordt.

Om de onderzoeksvraag te beantwoorden is een interdisciplinaire aanpak gekozen met een diepgaande analyse van drie casestudy's over de productie van landbouwgewassen door kleine boeren. De drie casestudy's verschillen in gewaskenmerken, historische ontwikkeling, institutionele kenmerken en de actuele praktijken en resultaten op het gebied van diverse aspecten van concurrentievermogen. De casestudy's zijn gedaan in de koffiesector, waarin vooral kleine boeren actief zijn; in de sisalsector, waar de productie van oudsher plaatsvond op grote plantages, maar nu ook weer op kleine boerenbedrijven; en in de sui-

kersector, met zowel grote plantages als kleine boerenbedrijven als producenten.

In het onderzoek binnen de koffiesector bleek dat ontwikkelingen in de mondiale productie en consumptie van koffie hebben geleid tot een splitsing in twee marktsegmenten, maar dat Tanzania er niet in geslaagd is zich een positie te verwerven binnen een bepaald marktsegment, en vast is komen te zitten tussen deze segmenten. Dit heeft te maken met beleidsontwikkelingen en de organisatie van de productie, waardoor instituties die een essentiële rol speelden bij de productie en export van koffie van hoge kwaliteit werden afgebroken. Verder blijkt uit het onderzoek dat private instellingen recentelijk beleidsinitiatieven hebben ontplooid om koffieproducenten opnieuw te positioneren binnen het marktsegment van de kwaliteitskoffie.

Het onderzoek in de sisalsector toont aan dat de integratie van kleine boeren in de sisalproductie door particuliere bedrijven een verkapte vorm van het aanbieden van stukwerk is in plaats van een zakenrelatie op basis van gelijkwaardigheid, zoals het wordt voorgesteld. De aanzienlijke onevenwichtigheid in deze relatie blijkt uit het feit dat het bedrijf de volledige controle heeft over alle belangrijke middelen, waaronder grond, bewerkingsvoorzieningen en marketing van de producten. Zonder tegenkrachten vanuit een niet-marktgerelateerde institutionele context is het niet te verwachten dat deze vorm van integratie het concurrentievermogen van de sisalsector in Tanzania bevordert.

Hoewel in de suikersector is gebleken dat de intermediaire organisaties van suikerriettelers een belangrijke rol hebben gespeeld bij het terugbrengen van de transactiekosten en het bevorderen van de verbondenheid met de markt en de toegang tot kredietmarkten, hebben de aard van de productie en beperkte collectieve acties door horizontale coördinatie de voor het concurrentievermogen vereiste toename in productiviteit beperkt.

De resultaten van de drie casestudy's wijzen erop dat verbetering van het concurrentievermogen van kleine producenten van exportgewassen vraagt om strategieën die de coördinatie op mesoniveau bevorderen en erop gericht zijn om bindende beperkingen die specifiek zijn voor de relevante sectoren op te heffen.

1 Introduction to the Study

1.1 Introduction

There is some general consensus that growth is essential for poverty reduction and human development. Ndulu et al. (2007) conclude that poverty in Africa is essentially a growth challenge. Rodrik (2007) argues that economic growth is the most powerful instrument for reducing poverty. Similarly Kakwani (1990) and Ravallion (1997) have separately shown that poverty reduction is highly sensitive to economic growth, especially under conditions of low inequality. The observed high proportion of population living in poverty in the majority of Sub-Saharan Africa (SSA) countries and the corresponding low levels of economic growth signifies this relationship. The concept of pro-poor growth has developed, describing the patterns of growth required to reduce poverty. Growth is pro-poor if its rate of growth and its distributional change leads to a significant amount of poverty reduction (Ravallion and Chen 2003). What determines the potential impact of growth upon poverty reduction, therefore, is not just its quantity, but also its quality. The quality of growth defines its rate of growth, its sectoral composition, sustainability and transmission mechanism leading to poverty reduction.

For a large number of SSA countries, the economies have remained predominantly dependent on primary production, particularly agricultural commodities. Few depend on mineral exports. As long established, agricultural productivity growth is an important condition for economic growth and transformation (Nurkse 1953, Rostow 1960). In the contemporary globalized economy, high productivity and other attributes of competitiveness of agricultural commodities are even more crucial than ever. In developing countries like Tanzania, slow transition from low-productivity agriculture towards intensive, knowledge-driven, high-

productivity agriculture results in slow economic growth and transformation. A large number of its agriculture-dependent population remain trapped in persistent poverty and low equilibrium.

In Tanzania, while the share of agriculture in the total national output has declined when compared to its level at independence in 1961, its contribution to the economy remains significant. The post-independence government continued to pursue export-led agriculture, a structure inherited from the colonial regime, without a coherent strategic focus to develop and sustain the sector's competitiveness. As a result, the agricultural sector has not grown vibrantly to provide impetus for significant gains in poverty reduction, and poverty remains pervasive in rural areas. Despite this apparent weakness, the thrust for structural adjustments and rationale underpinning economic and institutional reforms have continued to re-assert the comparative advantage of Tanzania and other SSA countries in agriculture, particularly traditional agricultural exports (see World Bank 1981, Delgado and Minot 2000, World Bank 2007, and Utz 2008).

Despite the emphasis on comparative advantage in agricultural exports, the historical trend shows poor performance in traditional export crops and agriculture in general. Tanzanian agriculture is dominated largely by smallholders, and so the sector's performance is highly dependent on smallholders' productivity and their ability to compete in global commodity markets based on cost and quality. The interventionist policies of the past were generally ineffective, and in some cases, interventions reversed achievements in productivity-enhancing and quality control practices under different institutional settings. Structural adjustment and trade liberalization, while previously heralded as panaceas for agricultural competitiveness, have not resulted in sustained improvements. This research, therefore, sets out to investigate the conditions under which smallholder producers of export crops in Tanzania can increase productivity, raise quality of their produce, and hence become competitive under the current environment of liberalized markets.

From the analytical perspective, promotion of competitive, knowledge-based export crop agriculture is found within a framework that combines structured coordination and market exchange. As Hodgson (1988) puts it, a dynamic innovation system requires a structured combination of stability and variety, the latter allowing for narrow and specific contexts within a broader institutional environment that is stable

and predictable. The focus here is to understand (a) how the various forms of intermediary organizations and other institutions interact at the meso level to address factors that constrain agricultural export competitiveness in Tanzania, and (b) why these institutional solutions work in some cases and not in others. The core argument of the thesis is that proactive and collective actions among market institutions and non-market institutions are crucial for addressing market failures and other policy and institutional rigidities that impede on competitiveness of smallholders. Market institutions include privately owned trading and crop processing firms, private input stockists and input suppliers, and financial institutions. Non-market institutions broadly include state regulatory agencies, crop boards and respective ministries, local government authorities, and civil society organizations. The last category of institutions can also be referred to as non-state institutions, and includes intermediary farmer organizations such as cooperatives, associations, and farmer groups, and non-governmental organizations run by third parties.

1.2 Objectives of the research

As stated in the introduction, the pervasive poverty among the rural population in Tanzania can be closely linked with the poor performance of the agricultural sector. Agricultural growth averaged 4.4% between 2000 and 2008, against a target growth of 10% needed for sustained poverty reduction (United Republic of Tanzania 2009). The household budget survey for 2007 showed that 37.6% of rural households lived below the poverty line, compared with 16.4% and 24.1% in Dar es Salaam and in other urban areas, respectively (National Bureau of Statistics 2009). Poor agricultural performance has been attributed to external factors such as the slowdown in global demand for primary commodities, and unfavourable international terms of trade. Major internal factors such as disadvantages of geography and internal policy deficiencies are also advanced to account for the poor export performance and lack of competitiveness (Green et al. 1980, Ndulu et al. 2007). In attempts to deal with constraints associated with these factors, Tanzania has gone through different policy trajectories, ranging from state-led centrally planned economy to market-oriented economy in the context of structural adjustment and trade liberalization. Different episodes of agricultural performance were associated with these policy trajectories. The

overall outcome, however, as evidenced today is characterized by low productivity, deteriorating quality, and output stagnation.

The main objective of this research therefore is to explore the fundamental constraints that prevent improvement in agricultural export performance in Tanzania, and to explore institutional dynamics and a variety of institutional designs related to the performance of the sector. Specific objectives are:

- First, to investigate the hypothesis that despite major policy shifts, there remain constraints and market failures that prevent increases in productivity and output, and improvement in quality for smallholders in Tanzania.
- Second, to explore forms of coordinating smallholders, focusing on mechanisms through which the various institutions, individually or collectively, operate to mediate or amplify critical constraints and failures in key markets.
- Third, to contribute to the intellectual and policy debate on the potentials for collective actions and proactive engagement of market and non-market institutions to promote competitiveness of smallholder export crop production.

1.3 Research questions

The central concern of this research is the problem of the persistency of low productivity, poor quality, and erratic and falling output of export crops of Tanzanian smallholders. These put smallholders in an uncompetitive position under the current environment of liberalized markets. To address this problem, research is guided by the following overriding question: What forms of collective actions of market and non-market institutions are more likely to lead to improvement in competitiveness of smallholder-based export crop production? This question is operationalized through the following sub-questions:

1. What forms of governance and institutional coordination provide space for alleviating constraints and market failures that impede smallholder competitiveness?
2. How do the actions of markets and non-market institutions stimulate participation, investment, and productivity for small-

holders under the different structure of land allocation, tenure and utilization system?
3. How do the actions of these institutions support rural financial markets and expand smallholders' access to credits and essential agricultural services?
4. How do the governance structures and design of intermediary institutions expand access of smallholders to increasingly competitive commodity markets?

1.4 Research approach and methodology

To answer these research questions, the research approach and method of inquiry require the analysis of the historical trajectory and institutional mechanisms within which export crops are produced and marketed. The specific research questions were formulated along distinct but interrelated analytical handles. Consequently, to answer these questions, one needs to go beyond attempts to establish linear relationships between proxy variables for competitiveness and a variety of institutional designs. The preferred approach was therefore interdisciplinary in nature, combining different techniques of inquiry and interpretation of data to explain particular outcomes. As Luszki (1958) observed, most socioeconomic changes are dynamic and are driven by complex factors. This dynamism and complexity mean that some research problems can be better understood by integrating tools and concepts from more than one discipline.

The research combined exploratory and descriptive approaches applied to selected case studies, taking advantage of the relative benefits of these approaches. The combined approach provides flexibility in the process of discovery, avoiding the traditional approach that limits analysis to testing a set of restrictive hypotheses. The research problem is rooted in a historical and empirical context as set out in chapter three, with clear sets of analytical themes serving to guide a holistic but focused analysis. Exploratory research drew from case history analysis, interviews, and analysis of secondary data and literature. The descriptive approach provided the tools to identify patterns and causal relations based on a combination of secondary and primary data. The interactive manner under which this combination was achieved facilitated discovery of various outcomes and plausible explanations. As Lipton (2004) suggests, this approach is an important route to the discovery of causal inference.

This choice of research approach implied the use of mixed data, quantitative and qualitative. As Creswell (2003) observes, such a mix is useful when the desire is to generalize findings confined only to a particular set of population, and at the same time to develop a detailed view of the phenomenon, without knowing all important variables *ex ante*. Therefore, both quantitative and qualitative elements are inherent in this subject. The nature of questions also focus on the "what" and "how", and not so much on the frequency of occurrence of certain variables, magnitudes, or probabilities. As Marshal (2000) contends, the case study method of analyzing the complexity of organizational life requires both quantitative and qualitative data.

Visits and interviews were conducted for all relevant institutions for the three selected cases. These institutions are outlined in detail in the respective analytical chapters. The theoretical grounding in chapter two, and the context set out in chapter three guided the selection of three case studies. These cases represent a diversity of crop characteristics, and both historical and existing forms of organizing smallholders in the following sectors: coffee, sisal, and sugarcane, for which field work was undertaken in the Kilimanjaro region, in the Tanga region and in Morogoro respectively. These cases also reflect different experiments of organizational innovations, spearheaded by different institutions under differing institutional environments, and exhibit contextually specific drivers of competitiveness.

1.5 Challenges and limitations

The main challenge related to availability of quantitative data at the micro level, since smallholders often do not keep many records. In addition, this research did not involve household-level survey. Record keeping was also poor, in some cases, at the meso level. Changes in the leadership of farmer intermediaries, and frequent changes in legislations accompanied by changes of crop regulatory institutions also affected the consistency and quality of some data. In most cases, key market institutions were reluctant to reveal certain data, particularly those related to commodity transformation costs, profit profiles, and other accounting data useful for the analysis of distribution of value between growers and buyers. Some of these data problems were resolved with the use of supplementary data from existing household surveys, and the use of relevant

proxy data. Interviews at different institutional levels and triangulation of data across various sources minimized effects of such data limitations on the validity of the analysis.

1.6 Structure of the thesis

This introductory chapter has provided the rationale and motivation for writing a thesis on this subject, and has outlined the core problem, research questions, and methodological framework. The remainder is organized as follows. Chapter two explores theoretical concepts that underpin the institutionalist approach applied in this research and develops the analytical framework. Chapter three provides the context for export agriculture in Tanzania, based on empirical exposition and related institutional history. The contextual discussion in this chapter provides a fundamental basis against which the three cases were selected. Chapter four presents a case study in the coffee subsector, showing how export competitiveness was lost by failing to sustain coffee quality, and how the recent institutional innovations promoted renewed application of mechanisms to regain coffee quality and focus on niche markets. Chapter five provides an exposition of the case study in the sisal subsector, illustrating the problems associated with an attempt to revive the sisal industry based on smallholder production in the absence of balanced partnership and an appropriate institutional framework. Chapter six discusses a case study in the sugar subsector, showing that while intermediary organizations have mediated transaction costs to some extent, this has failed to remove a major obstacle to raise productivity, constrained in part by absence of horizontal coordination, and partly by the actions of monopsonic sugar mills. Chapter seven provides a synthesis of the three case studies and draw lessons for theory and policy.

2 Conceptualizing institutions for promoting competitiveness

2.1 Introduction

Orthodox approaches to development view markets as key institutions for driving economic transformation and foster innovation and competitiveness. The *raison d'être* for trade liberalization and related institutional reforms in SSA, for example, was the need to stimulate productive dynamism in the economy, including in export agriculture, on the premise that the non-market policy and institutional landscape that prevailed had failed. As chapter three establishes, neither the earlier interventionist regime nor trade liberalization in the context of structural adjustments stimulated improved productivity, quality, and quantity of traditional export crops in Tanzania. A wide variety of obstacles and constraints remain which require many interrelated activities and investments that do not emerge spontaneously, and exceed the often overestimated coping abilities of firms and individuals in conventional market settings. Hence, non-market institutions need to step in to promote structural transformation and to create capabilities for innovation needed to enhance competitiveness.

This chapter develops an analytical framework that contributes towards understanding of alternative institutional settings for promoting export crop competitiveness. Underlying this framework are concepts and ideas from the literature, particularly those focused on expounding the varieties of institutions and the different forms in which their workings influence competitiveness and economic performance. Section two discusses the notion of smallholders, its characterization as applied in this research, and relationship between productivity and competitiveness. Section three discusses key concepts from the institutional discourse and interactions among them. It provides not only the theoretical foundation

leading to development of the analytical framework, but it also serves to show why an institutionalist approach is appropriate to the subject matter. Section four discusses the analytical handles and how they interact within the analytical framework. Section five provides a summary of the key rudiments of the analytical framework.

2.2 Smallholders, productivity and competitiveness

The analysis of institutional history and empirical context in chapter three shows how the structure of production and the character of institutions bring to bear on competitiveness of the export crop subsector, illustrating that agricultural production in Tanzania is dominated by smallholders. The concept of smallholders, however, can be understood in different ways. The conventional meaning of smallholders is often based mainly on the size of landholding, relations with the market, and the type of farming: thus small-scale farmers as contrasted with large-scale farmers.

In this research, a general distinction is made between large-scale farming and the smallholders. This is not to suggest, however, that smallholders are a homogenous group. Some sources construe smallholders as farmers with less than a given threshold of cropland or livestock, and others consider smallholders those producing mainly for subsistence. Such a broad characterization of agricultural producers is problematic, which may mislead the design of policy and interventions. For example, Narayan and Gulati (2002) recognize that the notion of "small" changes in different contexts, crops, and regions. Cousins (2010) suggests that a broad categorization fails to capture the dynamics of differentiation within population of small farmers and within households. Bernstein (2010) points to a deficiency of such a broad categorization, which ignores the social conditions of production and the dynamics of class that emerge from them.

The Tanzanian National Bureau of Statistics characterizes smallholders in the broad local context, which includes the size of land and general market relations.[1] Smallholders sell part of their food crops, and others produce traditional export crops as a means to obtain cash income for purchase of other basic subsistence needs, with limited surplus for capital accumulation. The majority of these small farmers depend primarily on family labour. Thus, smallholders are defined relative to large-scale

farmers who tend to be more commercially oriented, producing for capital accumulation. While the average landholding for smallholders in Tanzania is two hectares (ibid.), subsequent chapters discuss the nature of distribution of landholding for growers within the context of each case study and its relevant dynamics and conditions of production. As tables 3.2 and 3.3 in chapter three show, a significant proportion of output is produced by those qualified as smallholders according to the traditional definitions which take into account the size of land, labour, and market relations. While differences in landholding size may not necessarily reflect differences in resource endowment to households, it is a variable that can be measured more objectively. For households whose primary activity is agriculture, and in an environment where production technology is generally non-mechanized, land is also a reasonable proxy for resource endowment.

The structure of production, and the socioeconomic and technological conditions of production relate closely to the observed levels of competitiveness under different institutional conditions. Competitiveness as a concept is viewed as an outcome of policy and institutional initiatives. Its meaning and context as applied here draws from the work of Michael Porter (1985, 1990, 2003). Competitiveness is defined in terms of the ability of local producers to supply agricultural commodities that are of superior quality and at prices that are competitive relative to prices of equivalent commodities supplied by others. Porter applies this concept widely in a framework of firms and nations. In his framework, firms design competitive strategies, and countries strive to develop macro and micro conditions for competitive advantage over others. Competitive advantage is present when a firm or an equivalent producing entity is able to employ its resources and its capabilities to raise productivity and to lower its costs, so that it supplies products that are either of superior quality at comparable costs, or of comparable quality at lower costs.

Productivity is an essential element of competitiveness, because it is the value of resources and the efficiency with which they are used to produce commodities that eventually determine if competitive prices provide adequate returns to producers to sustain production. According to Porter (2003), policy responses – such as currency devaluation – alone do not increase competitiveness unless they are coupled with innovation and strong microeconomic foundations to warrant high productivity. While productivity is an essential element of competitiveness generally,

its context and influence on smallholder production decisions may be very different. In his analysis of the feudal economy and its transition to capitalism, Dobb (1963) observes that while agricultural labour productivity was fundamental for profitability of the hired labour system, it was not as fundamental in the sharecropping arrangement. The preconditions for the profitable use of hired labour, therefore, were the existence of landless reserve labour and labour productivity that exceeded its wages. In the typical peasant production of countries like Tanzania, smallholders farm for subsistence and the surplus sold for cash income. In this case, productivity of labour (measured by output per labour hour) is not necessarily an important factor that influences the type of crops that smallholders grow. It is often the availability of markets, subsistence needs, and alternative use of land in particular geographical environment that matters.

Another important element in agriculture is productivity of land, also known as yield (measured by crop output per unit of land). Given the practical difficulties of measuring agricultural labour productivity, land productivity is often used as a proxy for agricultural productivity. The relative advantage of smallholders and large-scale farming on productivity remains a subject of debate to date. Contributing to this debate, Ellis (1988) observes that differences in land productivity can be explained by the differences in factor prices that they confront, which make them adopt different technologies. According to Ellis, large farms underutilize land relative to small farms, as the latter often intercrop, utilize a larger proportion of their land, and commit more labour. Griffin et al. (2002) argue that productivity of land tends to increase with smaller farm sizes, in particular under conditions of scarce land and capital on one hand and the abundant labour on the other. A similar argument is made by Lipton (2005), who contends that small farms have advantages in developing countries where capital and land-related transaction costs are higher.

Hazell et al. (2010) also observe that in the context of low-technology production where labour costs form a significant proportion of costs, small-sized farms enjoy an advantage over large farms. The sharing of labour and input costs among multiple crops add to this advantage, so that by implication, land productivity will be high for most smallholders. These arguments, however, cannot be generalized. Most smallholders practice mixed farming, and the choice of crops is driven by objectives other than productivity maximization. Land productivity may be high for

some crops under mixed farming but less for others. Sunk costs, or investments made in the past in perennial crop development can prevent farmers from switching between crops in response to changes in prices and productivity. In addition, productivity and efficiency of small farms, particularly for export crops, need to be viewed in the context of their value chain transformation processes, since these involve different types and sizes of investments and capabilities, most of which are beyond the confines of smallholders.

Some crops require economies of scale and efficiency at some stages in their value chain, but not in others. In this sense, the significance of productivity in competitiveness varies by specificity in the transformation process. Thus, competitiveness in this research is viewed not only in terms of the growers' ability to raise productivity, but also on their capability to improve quality of their output, and employ farming practices that promote efficient use of resources. Institutions are examined in the light of their different actions that promote or constrain competitiveness, their historical context and the current socioeconomic conditions of production and markets.

2.3 Institutions, markets and organizational innovation

While states and markets are the dominant institutions in the discourse on economic development, structural adjustments and globalization, the link between these types of institutions and the interplay of intermediary institutional arrangements are equally important to the understanding of economic performance. The abstraction of state and markets viewed independent of each other conceptually limits the understanding of the broader institutional settings and essential complementarity between varieties of institutions that influence economic performance. Underlying theoretical discourses on states and markets are the relative roles of each in allocating resources, stimulating innovation, and promoting inclusive growth. Mackintosh (1990) makes a compelling entry point to the analysis of markets and other types of institutions. She differentiates the notion of "abstract markets" from "real markets", relating the former to any process of exchange undertaken by independent actors. Such exchange ranges from goods and services to labour and money, and occur in an environment of private property rights. The latter relates to the

markets embedded within social and economic settings existing in the society. Describing real markets, Mackintosh (1990: 47) writes:

> Markets in this sense of the term have widely varying institutions and economic contexts, they operate on limited information, they involve and help to create a variety of social classes, power relations, and complex patterns of needs and responses. All of this generates real effects in terms of people's survival.

A complete analysis of markets therefore requires understanding of markets in an institutional setting, rather than in isolated, abstract terms. As Granovetter (1985) argues, understanding market embeddedness in the social structure enhances the understanding of the link between non-market institutional structures and economic choices and outcomes. The social embeddedness of markets is also implied in a point made by Polanyi (1957), who asserts that the assumptions of free-market economics such as the self-regulating character of markets had weak historical underpinnings. To view markets and their roles in this framework requires clarity on how the various forms of institutions are understood and how they relate.

Institution, a term widely used in this study, is defined differently in different literature. There is now more attention on the roles of institutions for explaining changes in economic systems and innovations in a society and therefore a synthesis of all definitions of institutions is required. This is an enormous, yet unproductive task that may end up subsuming everything as an institution. Thus, the conceptual discussion is limited here to the subset of institutions important for the subject at hand, particularly relating to interactions among the different facets of institutions which influence economic performance. The history of active discourse on institutions is often associated with John Commons and Thorsten Veblen. Veblen (1934: 190) saw institutions as habits of thought through which society evolve, and stated that "development of institutions is the development of a society". Commons (1951) defined an institution as a collective action in control, liberation, and expansion of individual action. To Veblen and Commons, institutions were part of social structure that shape human interaction and changes they bring in the process.

Many varying definitions and views on institutions have since emerged. A few of these are cited from Ronald Coase, Douglas North,

and Oliver Williamson, who brought in transaction costs explicitly into the analysis of institutions in relation to market behaviours. While Coase (1937) did not define institutions directly, his essay contended that the firm as an institution arose out of the need to coordinate transactions enabling agents to discover relevant prices and reduce transaction costs in market exchanges.[2] To Coase, firms represent organized forms of market exchange, which exist to the extent that they lower transaction costs arising from unorganized market exchanges. Williamson (1985) recognized that transaction costs are determined in an institutional environment and organized markets, stating that institutions have the main purpose and effect of economizing transaction costs. In his analysis, the term "institutions" – which provide incentives, exercise controls, and influence governance structures – may not be applied indiscriminately on all exchanges, but need to be aligned to particular attributes of transactions. North (1990) defines institutions as the humanly devised constraints that shape human interaction. His definition views institutions as constraints, as rules of the game that influence incentive structures which underlie exchange and transactions between rational individuals.

To apply the term "institutions" in the manner intended in this study, a compromise definition is adapted from Geoffrey Hodgson, which defines institutions as "systems of established and prevalent social rules that structure social interactions" (Hodgson 2006: 2). Reference to "systems" in this definition implies that institutions are not confined to non-market settings alone, since organizations, money, and laws governing exchange are institutions. The social interactions in this sense, then, include exchanges of goods, services, and other forms of transactions. Institutions do not only constrain individual behaviours but also enable their actions in a particular direction. Viewing institutions this way serves (a) to distinguish market institutions from non-market institutions, (b) to separate processes and outcomes, and (c) to distinguish concrete observable subjects such as organizations on one hand, and rules that shape patterns of behaviour on the other.

To view markets as institutions may appear problematic in the neoclassical economics tradition, in which markets are abstracted in terms of an exchange system under which supply and demand equate automatically through price movements. However, from institutionalist perspectives, markets are institutions. The institutional embeddedness of markets is well articulated by Ronald Coase, Geoffrey Hodgson, and Dorward,

Kydd, Morisson, and Poulton, in addition to perspectives of Mackintosh (1990) and Granovetter (1985) referred to earlier. Coase (1988) defines markets as institutions that exist to facilitate exchange by reducing transaction costs. Hodgson (1988) views markets as organized and institutionalized exchange, where property rights are exchanged in a structured mechanism enabling these exchanges to complete. Dorward et al. (2005) see markets as a form of institutions fulfilling exchange and its coordinating function. Thus, just as other institutions, markets too have their own enabling and constraining functions, and are therefore not completely free. Mackintosh (1990) similarly dispels the existence of free markets, noting that all markets are structured by state action, varying by the settings of their terms of operations. Rodrik (2007: 154) suggests that non-market institutions can reduce uncertainty, for "markets are not self-creating, self-regulating, self-stabilizing, or self-legitimizing". And as Hodgson (1988: 271) puts it:

> All long-term economic problems are essentially structural and institutional: institutions affect not only the framework of economic growth but also the ideology and culture which prevail in society, plus the purposes and goals to which people aspire.

It follows from these perspectives that progressive development outcomes emanate from complementary interactions of market and non-market institutions. It is within this complementarity that roles of intermediary organizations are to be articulated.

The concept of organization, also used widely in this study, is often used interchangeably with the concept of institution in ordinary language. In Hodgson's definition, organizations are, implicitly, institutions. To make its use clear, this study combines and adapts the views of Edquist and Johnson (1997) and Hodgson (2006), viewing organization as a special kind of institution created consciously with an explicit purpose, structures, criteria and boundaries. Although Hodgson does not subscribe entirely to the idea of organizations as players or actors, it is acknowledged here that under certain circumstances, organizations are created to act as intermediaries for coordinating exchange in a market or non-market institutional settings, and that in the process, internal and external tensions occur and evolve over time. Thus organizations play distinctive roles in coordinating transactions in a given environment dic-

tated by broader institutions, and in the process influence institutional change and market outcomes over time.

Both market and non-market institutions hence defined are central to the innovation process that propels growth and progress in society. In this study, innovation is viewed beyond its traditional meaning of invention or technical innovation, to encompass organizational and social dimensions of innovations. Bardegue (2005) and Hall (2006) define innovation to encompass not only generation of new knowledge but also the use of existing knowledge in a creative manner, producing new products and processes of transformation. Rodrik (2007) views "self-discovery" as a form of innovation, a term he describes as the ability to discover and produce existing goods at a lower cost, creating competitiveness in the global market. But self-discovery is itself predicated on the capability of firms or producers in a country and the institutional environment in which they operate, which determine how knowledge is generated, imitated and adopted in a scale large enough to propel rapid economic growth.

In developing countries where policy environment and other factors constrain new technological inventions and breakthroughs to new products and processes, it is logical to think in terms of an alternative path of innovation, centred on creating capabilities for individual producers and enterprises to learn and adapt best practices from the established inventions already used in practice. Forbes and Wield (2002) observed that technological development and industrial progress was achieved where pragmatic and selective interventions foster local efforts and learning in infant industries. Self-discovery in a context of a developing country requires a great deal of restructuring and reorganization in the structure and methods of production, extending the concept of innovation further from invention and knowledge application to organizational aptitude. The concept of organizational innovation, although articulated in earlier theories of growth that incorporated the role of human capital in economic growth, owes its origination to Joseph Schumpeter, who provided a more pronounced view of this concept in the development field when he argued for the importance of economic leadership and role of entrepreneurs:

> … economic leadership in particular must hence be distinguished from "invention". As long as they are not carried out into practice, inventions are economically irrelevant. And to carry any improvement into effect is a

> task entirely different from inventing it, and a task, moreover, requiring entirely different kinds of aptitudes. (Schumpeter 1961: 88)

Since then, a wide body of literature has linked organizational and institutional aspects of innovation to economic growth and development, ushering in new theoretical thinking that view organizational innovation as an important source of economic growth.

Reinert (2005), for example, uses the notion of the "other canon" to argue for the importance of integrating human knowledge and organizational ability as primary engines of growth, in addition to demand factors and traditional factors of production. In putting emphasis on the role of production organization, he writes:

> The traditional factors of production in standard economics, land (Nature) and labour – as well as water, wind or gravity – may be factors of *production*, but they are in and of themselves not factors of *change*. Human production is *caused* by factors added by Man to the produce and forces provided by nature: wit and will. (Reinert 2005: 65)

Along the same line, Kuttner (1996) discusses the dynamics of innovation and economic growth from its broader institutional particulars, arguing that long-term economic growth does not result merely from economic efficiency, but also from innovative efficiency. Kuttner views the latter, which encompass technical and organizational innovation, to be more strategic and superior form of efficiency. Hanusch and Pyka (2007) further broaden the concept of innovation, to encompass institutional conditions within which constraints to development are overcome. They write:

> Instead of allocation and efficiency within a certain set of constraints, Neo-Schumpeterian Economics is concerned with the conditions for and consequences of a removal and overcoming of these constraints limiting the scope of economic development. (Hanusch and Pyka 2007: 276)

These views do not only suggest a departure from traditional view of innovation, but also support a view maintained in this study that underscores collective actions and institutionally informed industrial policy to promote competitiveness of smallholder agriculture, in place of the current approach and systems that rely on interactions of markets and fragmented smallholders. The concept of industrial policy draws from the work of Hausman and Rodrik (2003) and Rodrik (2007), who defines it

as selective strategic policy choices that target the most binding constraint. This study locates industrial policy in the context of smallholder competitiveness within a set of strategic institutional and organizational configurations appropriate to specific agro-economic structures and global market conditions. In the case studies, specific forms of organizations and institutional settings are examined in relation to identifiable binding constraints to competitiveness. Institutional and organizational elements of innovation are therefore central. Although the notion of organizational innovation is intuitively appealing, its wider application in contemporary economics has been limited. The continuing poor economic performance in countries dependent on smallholder-based agriculture, however, have renewed intellectual and policy discourse on organizational and institutional innovations. A major line of new thinking represents a departure from the dominant policies driven by the notion of "market" in its abstract sense.

From these perspectives, the study views institutions such as producer organizations, enterprise networks and market regulatory bodies not as constraints preventing proper functions of markets, but as complementary enablers of complex configurations of transactions. Chang (2002) characterizes the market economy in this context:

> … made up of a range of institutions of exchange, the firms as institutions of production, and the state as the creator and regulator of institutions governing their relationships. (Chang 2002: 546)

According to Chang, well functioning markets are dependent on existence of well functioning states and a wide range of other non-state institutions that affect and are affected by it. And Rodrik (2007) sees the state as a meta institution for creating institutional environment for markets to thrive. Incorporating these intellectual views into a workable concept, it is plausible to presuppose the proactive role of state as critical for complementing, rather than substituting viable intermediaries that coordinate producers and enable market institutions to promote efficiency and innovation.

Historical trajectories of existing competitiveness in fast growing economies of Asia suggests that some forms of collusion between state and non-state actors can help producers in creating competitive advantage, as long as the actions are well targeted, directed at public and institutional barriers to innovation, and are transitory in nature. Root

(2006), for example, draws examples from the guilds of early periods of modern Europe, the holding companies of East Asia, and the village enterprises of China to point out how collusive practices in developing societies improve their economic performance, although they may also become a hindrance at later stages of development. Harvey (2005) also points to the significant role played by Chinese government in achieving rapid economic transformation and high economic growth rates. The notion of collusion as used here is different from its traditional meaning of conspiracy. It implies non-standard mechanisms of coordinating transactions, such as contracts that are based on relationship-specific assets. Mackintosh (2001) describes such contracts as those based on specific investments made to provide goods or service for the specific user. These specific assets may take different forms, not necessarily physical plants. In agricultural environment, farmers may investment in specific inputs, infrastructure, and skills that make them worth more under specific supply relations with the processor, and particularly so when switching costs are high, or alternative uses of land is less attractive.

In Latin America, Tendler (1997) draws an instance of successful collusion between state and market institutions to promote innovations in small firms in the Ceará state of Brazil. Tendler cites a case of a state-designed innovative procurement system overseen by a state-created intermediary and technical assistance agency that paved the way for small enterprises to innovate and grow in the school furniture industry. This industry growth subsequently stimulated growth in other sectors through downstream and upstream linkages. These examples support the view that proactive state involvement can be effective when directed at complementing the missing or imperfect markets, removing public obstacles in the relevant time period, and supporting development of dynamic intermediaries and viable market institutions.

Nelson and Sampat (2001) uses a notion of social technologies to suggest the importance of institutionalized human interactions in the theory of production, broadening its analysis from just technical input–output relations, which he refers to as physical technologies, to encompass the processes in which activities are done. This notion of socio-technologies builds from the earlier work of Nelson and Winter (1982) that positions evolutionary theory in terms of capabilities and behaviours of firms operating in a market environment as drivers of change. In this work and subsequent discussions (Nelson, 1995; Nelson and Nelson

2002), economic change is explained by technical change juxtaposed by a combination of deliberate actions or routines and random effects. This construct accommodates the understanding that the functioning of real markets, where organization behaviours as well as actions of other actors in these markets, do not necessarily follow regular and predictable patterns. In essence, technological progress is driven by institutions as they change their routine and as they respond to stochastic changes in the market environment. These discussions concern the mechanisms and structures through which effective institutions define and enable productive paths with low transaction costs. As Nelson (1995) explains, a wide rage of institutions co-evolve with technology, as the process involves a combination of public sector activities, changing legislations, integration of industry and research centres, and industry associations and private firms.

The interactions among these institutions in the context of agricultural development in developing countries is discussed extensively in the works of Colin Poulton, Andrew Doward, and Jonathan Kydd, among other authors. A major thrust in their work is the indispensability of institutional coordination of smallholders in the current environment of liberalized production and markets. Specific institutional arrangements are essential to removing constraints for the poor who find themselves in low production equilibrium traps (Doward et al. 2005). In a recent article, Poulton et al. (2010) conclude that the survival of smallholders in the increasingly competitive markets depends crucially on linkages which allow them to access a range of resources and services, information and skills, and output markets. These linkages require a variety of forms of coordination which are not just market based, but which are relevant for different production and market contexts.

Birner and Resnick (2010) also argue that some public actions are needed to correct a variety of market failures inherent in smallholder agriculture, and particularly so in the early phases of development, as is the case in developing countries. In a sharp turn from its quest for complete liberalization of agricultural markets, the World Bank outlines institutional innovations as key for competitiveness of smallholders, taking note of a surge in such innovations across markets and countries. It further points to the remaining gaps manifested through incomplete land markets, asymmetries of access and information in financial markets, and inefficient input and output markets (World Bank 2007).

2.4 In search for competitiveness: The analytical framework

This section applies concepts discussed in the preceding section to discuss key analytical handles and how they interact to set out the analytical framework.

2.4.1 Linking institutions with competitiveness of smallholders

The analytical framework is built around the premise that effective organization and coordination of agricultural production is required to address key constraints and provide needed impetus for raising productivity and improving quality, and hence the competitiveness and growth of the sector. Comparative advantage taken as a static notion without paying attention to the drivers of competitiveness cannot lead to significant gains from trade and to sustainable rural development. From the preceding discussion of institutions, it is contended that the analysis of drivers of competitiveness of export crop producers cannot be adequately understood without identifying the binding constraints and the institutional context within which such constraints are mediated.

Drawing from the historical and contextual discussion in chapter three, export agriculture in Tanzania is constrained by many factors that cannot easily be mediated in an approach that ignores the embeddedness of markets in the social structure and the roles of other institutions. This implies an alternative framework built around conscious actions of institutions to mediate binding constraints to enhance producer capabilities for efficient production of high quality commodities. It is the variety of such actions and the conditions under which they are organized that institutional and organizational innovations are perceived to be instrumental and central for addressing market failures and promoting competitiveness of smallholders. Case studies on various forms of organizing production of smallholders are selected to examine the institutional and organizational conditions under which they operate, including their influence on farming practices relating to improvement in productivity and quality of their respective crops.

To be effective and desirable, such forms of organizations have to demonstrate potential to achieve the following outcomes: first, coordinated smallholders with interlinked production and markets through balanced partnerships; second, mediated constraints and failures that dimin-

ish capability of smallholders to raise yields and output quality, and to access productive assets and investment capital; and third, enhanced skills and organizational capability allowing smallholders to gain from economies of scale at the relevant stages in the value chain. As shown to be the case in chapter three, the three outcomes have not been achieved by relying on individual interactions of smallholders in abstract market settings. Like Poulton et al. (2006) argue, agricultural productivity requires transformation, including technical change and coordinated production activities in ways that promote advantages of economies of scale.

The notion of institutional innovation takes into account the roles of different institutions, namely, the state, markets, and civil societies in the process of discovery and progressive change. Innovations in institutional arrangements at meso level and complementarity among different institutions are critical vehicles to provide for the missing link between macro-level policies and micro-level outcomes. Although the liberalized market environment entails the increased role of economic coordination to market institutions, the analytical framework takes into account the importance of non-market institutions, primarily the state and civil society organizations in supporting viable organizational arrangements mediated by markets, by addressing market failures and removing externalities that inhibit innovation and competitiveness. As Rodrik (2007) points out, successful instances of productive diversifications in Latin America and East Asia resulted from both government action and public–private sector collaboration that helped to deal with externalities related to information and coordination.

The analytical framework is designed to guide the inquiry of the various organizational paths and processes through which smallholder competitiveness can be achieved. Although the central focus of the analysis is at the meso level of organizations, the framework takes into account the macro level aspects such as policy, regulatory environment, and production structures that influence activities and outcomes at both the meso level and micro level. The framework is also informed by a review of documented practices, drawing from them examples of how proactive or collective actions by a variety of institutions address critical constraints to smallholders and correct some identified market failures. The value chain analysis is used as a tool for mapping out key relationships across organizations in the selected cases, and to unpack coordination processes and actions alleviating or amplifying major constraints. Following from

Porter (1985) and Kaplinsky (2000), the concept of value chain refers to activities required to bring a product or service from its conception through a series of intermediate phases to the final consumers. Each activity contributes to creating additional value to the product or service. This framework provides a focused analysis on the dynamics of interlinkages across actors in capturing the range of activities required to bring agricultural commodities from farm through the different phases of production to the delivery to the final consumer, and the institutional and organizational arrangements under which transactions take place.

The inquiry is directed on the institutional framework, organizational practices and the relationship between institutions and processes in the upstream levels of production, processing, and marketing, taking activities at downstream levels of the chain outside the country as given. This approach has the potential to unveil the process through which Tanzanian smallholders producers of export crops integrate into respective commodity chains and their competitiveness under current market conditions. Attention is paid to the following three dimensions. First, understanding how production and marketing organization have evolved over time in relation to the existing configuration. Second, the institutional design and process through which some binding constraints are mediated, or where such design fails to address constraints. Third, the outcomes on the ground in terms of output quality, output growth, and productivity. In unpacking these dimensions, four core analytical themes related to the observed constraints and market failures are expounded in turn. These themes are: institutional design; land tenure and utilization systems; financing agricultural inputs and other essential services; and access to markets.

2.4.2 Institutional design

The institutional design as applied here encompasses the structure of governance and coordination mechanisms among key actors in the different institutional settings. The structure of coordination and behaviour of actors – such as growers, processors, and providers of essential agricultural services – influences the direction of change in market outcomes. The discussion on institutional design is therefore focused on aspects of coordination that shape the ways in which land, financial, and commodity markets are organized and how constraints relating to these markets are mediated.

Gereffi et al. (2005) identify three variables that play a significant role in determining how global value chains are governed and how they change: namely, the complexity of transactions, the ability to codify transactions, and the capabilities in the supply base. While these variables depend to a large extent on technological dimensions of products and the process involved in their production, they also depend on activities and effectiveness of prevailing institutions and institutional arrangements at various levels of the value chain. Gereffi et al. further identify five typologies of chain governance and the dynamics around the three determinants that cause them to change. These typologies range from, on one end of the spectrum, spot market-based structure characterized by many buyers and sellers, enhanced by low complexity of transactions, better codification of transactions, and increasing supplier competencies; and on the other end of the spectrum, hierarchical governance enhanced by the high complexity and de-codification of transactions, and decreasing supplier competence.

The typologies and the dynamics of change provide two lessons guiding the analysis of the nature of value chains involving smallholders and how they change.

First, chain governance and coordination mechanisms determine the form and degree of integration of producers with markets. Using liberalization policy to relegate every transaction to spot market-based structure potentially lead to poor, unintended outcomes. Vertical forms of coordination enable downstream actors to manage risks associated with massive investments in processing, distribution networks, and branding. It also serves to lower costs of production when certain activities in the value chain are carried out jointly and gain from economies of scale. Economies of scale refer to the reduction in average cost when a single product is made in large quantities (Milgrom and Roberts 1992). Vertical integration can also serve to align quality attributes to the demands of consumers, who are mostly located far away and beyond the reach of individual producers.

While some activities in agricultural value chains can be undertaken more efficiently in the individual smallholder settings, vertical coordination are important for linking various stages of the value chain to achieve total chain efficiency. For some crop settings, primary production can be carried out more efficiently where economies of scope can be realized. Economies of scope arise from cost advantages resulting from the use of

common resources or indivisible assets to produce multiple products (Teece 1980 and Fernandez-Cornejo et al. 1992). For example, smallholders intercrop coffee and banana in the same fields, such that inputs such as fertilizer and labour for field maintenance benefit both crops. At a later stage, however, high quality coffee is produced when coffee berry is processed in centralized wet-mills. In this context, therefore, some chains require vertical coordination, while others requires horizontal or a combination of different forms of coordination to make output competitive.

Webber and Labatse (2010) observe that competitiveness of African agriculture can be strengthened through horizontal coordination that allows farmers to benefit from economies of scale in various activities within chain nodes. Horizontal linkages have potentials to increase productivity within a given activity in the chain by enhancing access to key inputs, strengthening the dissemination of information and monitoring of compliance. It makes it possible to undertake joint investments under appropriate management structure. Mitchell et al. (2009) view horizontal coordination as a pre-requisite stage in process, function, and product upgrading in value chains. This form of coordination is important at production and processing nodes of the chain, and works well where there is some form of collective organizational structure.

Second, in the contemporary world of trade liberalization and market concentration, global commodity markets have become concentrated, which enable powerful buyers to dictate the terms of commodity transactions, including attributes of quality and pricing. As literature suggests, most global value chains involving traditional agricultural export commodities are increasingly driven by traders and buyers (Gibbon 2001, Gibbon and Ponte 2005, Kaplinsky 2005). This trend is not unique to agricultural commodities, however, as shown to be the case for non-agricultural value chains (Schmitz and Knorringa 2000, Gibbon 2001, Knorringa and Meyer-Stamer 2008). As Morrissey and Filatotchev (2000) point out, buyers place emphasis on price, quality, flexibility, and reliability. In turn, the latter three work to determine crop price movement. The pressure for growers to achieve both high quality and competitive prices at the same time requires them to be well organized to deal with various entry barriers, quality enhancement practices, and capacity to negotiate better prices. These lessons make the analysis of institutional design and

corresponding governance structures and coordination mechanisms crucial cross cutting theme.

In essence, understanding mechanisms of governance and the structure of relationships provides insights into an understanding of the institutional arrangements and a variety of coordination mechanisms, in particular upgrading in functions, process, or product quality and reliability of supply. These are important in commodity value chains under contemporary market environments where longer-term contractual relationships prevail over spot transactions. Long-term contracts provide certainty on future revenue flows for producers and also on supply flow to the buyers (Mitchell et al. 2009, Mackintosh 2001). Contracting between producers and buyers, however, is not a straightforward process. As Mackintosh (2001) clearly elaborates, in practice, there are informational and incentive problems that make contracting complex, requiring therefore a variety of institutional mechanisms to make contracts beneficial to the contracting parties.

Since information is asymmetric between buyers (also processors for export crops) and producers, long-term contracts built on trust and reputation can resolve problems associated with the prisoner's dilemma, which often results in suboptimal equilibrium conditions.[3] Contracts mediated under trusted institutional platforms can be more effective in reducing principal–agent problems, by providing incentives and mechanisms to ascertain and enforce behaviours of agents in the interests of their principals. Metcalfe (1995) stresses that the coordination problem must not only focus on reward–performance trade-offs, but also on the role of trust, loyalty and reciprocal commitment in giving competitive advantages of organizations. In agricultural value chains, where smallholders (agents) supply crops to processors (principals), the design of institutions for promoting competitiveness must take into account practical problems that may arise under specific market circumstances, and commitments from parties to sustain mechanisms that resolve key problems. These problems often found in contracting include strategic default when inputs are supplied by the processor in a competitive market, hold-ups in situations of specific relationship assets, conflicts over objectivity of measuring various commodity attributes, and pricing of future deliveries in situations where important contingences are not adequately factored in contracts.

Mediating such contracting problems may require a variety of public actions, either by the state or by non-state intermediary institutions. World Bank (2007) and Utz (2008), for example, support some government intervention in dealing with farm and market-level constraints. Examples of public actions include interventions to eliminate barriers such as the high cost of fertilizer, NGOs acting as brokers or integrators, and producer associations coordinating production and market transactions. Tendler (1997) documents the case of Santana cooperative in the Ceará state of Brazil as an example of an initiative originating from farmers, aided by actions of state and collaboration between smallholder organizations and service providers. The Santana cooperative emerged as a voluntary organization of formerly landless and small landowners who benefited from land distribution by the state in the late 1980s. The cooperative members chose to pursue an intensive livestock production, which succeeded in raising their output and productivity following their own initiatives to establish and sustain customized and client-driven extension services. The extension services were provided by a state agent, but were informed by farmers' own priority needs and financed through tacit contract between the cooperative and the state extension agent built on trust and commitment. As Root (2006) points out, however, successful public actions and institutional intermediation have to respond proactively to the changing market and institutional conditions, as successful intermediaries at one stage of development can be hindrances at later stages.

The nature of partnership is fundamental in institutional analysis of agricultural systems that involve relationships between actors with different endowments, knowledge and functions across the chain. Bitzer et al. (2008) differentiate between "partners *in* partnership" and "partners *of* partnership". The latter form implies that a particular partner hardly participates in partnership in its strategic objective. Where differences exist in resources and power, this kind of partnerships tend to reproduce the imbalance. These views suggest that for a sustainable value chain, governance structures and design of institutions need to strike an appropriate balance, for example between small-scale growers and a monopsonic processor, or between the state marketing board and private firms involved in marketing and processing. The balance is partnership depends also on ownership of assets, particularly land, and the political economy underpinning production and exchange relations.

The institutional design complements the three other analytical themes guiding this inquiry: land tenure and utilization systems; financing agricultural inputs and other essential services; and access to markets. Smallholder constraints revolve mainly around failures in these markets. The functioning of these markets depends on the institutional structure and mechanisms governing exchange and relations between key institutions. These are discussed in turn and subsequently juxtaposed with the three cases selected to provide deeper insights into organizational and institutional innovations needed to change the *status quo* of smallholders. While the three analytical themes are equally important, some have drawn out more issues to address than others, and consequently discussed at different levels of detail.

2.4.3 Land allocation, use and tenure systems

While land is considered to be an abundant resource in Tanzania, the allocation of land for various uses, the tenure systems, and recent trends in the use of agricultural land suggests that land-related problems may limit potential growth of smallholder agriculture. Average landholding for smallholders is 2.4 hectares per household, of which 79% was utilized by 2003 (National Bureau of Statistics 2006a). Since the change in labour productivity can be taken as a sum of change in land productivity and change in land area per agricultural worker, it follows that increased output resulting from increased area under cultivation may reach its limit if new land is not allocated for smallholder agriculture. This makes high productivity of land through intensification an even more urgent issue. Intensification is however constrained by generally poor technology use and limited application of improved inputs that characterize agriculture in developing countries.

Problems of land access for smallholder farming are also reflected in the frequent disputes over land and insecurity of tenure, derived in part from colonial legacy of land administration, delays in adjustment of land policy, and low mobility of farm households from areas with high to low population densities (Gordon 2008). The early post-independence land policy abolished freehold land and encouraged expansion of acreage for crop production, but did not deal much with the tenure and land distribution issue (Rweyemamu 1973). This created a pattern of unequal ownership of land and emergence of landless peasantry, albeit not very pronounced. Although the Arusha Declaration and policies that followed

may have addressed part of this problem, the agricultural sample census of 2003 has shown access to land to be problematic for the future agricultural output growth (National Bureau of Statistics 2006a).

The World Bank (2007) suggests development of land markets to enable transfer to more productive users as one of the solutions to improve land productivity. The World Bank documents an example of a land rental market in China that succeeded in achieving both productivity growth and equitable land distribution. This view, however, cannot be accepted universally. This success occurred against a strong non-agricultural growth and urban migration in China, which is not typical in Sub-Saharan Africa. Moyo and Yeros (2005) argue that structural adjustment policy in Africa has on the one hand intensified the process of land alienation, and on the other hand increased the demand for land and its natural resources as a consequence of the general decline in sources of income. Shivji (2008) observes that as predatory capital seeks natural resources (including massive amounts of land for agro-fuels), a new form of expropriation of peasants' land and new forms of accumulation by dispossession can be expected. The implication of land scarcity is that the growth of output of smallholders will have to come from the growth in productivity. In practice, different aspects of land allocation and use appear to be crucial in different settings. These aspects cover not only land in relation to productivity, but also its political economy that includes ownership and its influence on the nature of partnerships. These are pursued further under different contexts in the case studies.

2.4.4 Rural financial markets and agricultural credit

Thin financial markets and limited provision of credit in rural areas are known to be major impediments to capital formation and investment in developing countries' agriculture, adversely affecting productivity of smallholders. Productivity is affected because without access to financial services, adoption of new technologies and efficiency in the allocation of resources become difficult for poor smallholders. Lack of credit, for example, prevents smallholders from acquiring and using improved inputs, which not only affects yield rates but also the quality of their output. The agricultural sample census of 2002/03 has shown that very few small farmers in Tanzania use fertilizers, noting a dramatic decrease in the use of both inorganic fertilizer and farmyard manure from 22% of house-

holds in 1994 to less than 10% in 2003 (National Bureau of Statistics 2006a).

Transaction costs for credit from formal financial institutions tend to be high due to the dispersed nature of agrarian production, the small sizes of individual loans, and risks associated with agriculture activity. Informal provision of financial services is often fragmented, determined by memberships to certain networks, cooperative societies or asset categories, and the capital base of informal credit providers are not large enough to provide loans sufficient to cover a range of farmer needs in equipment and inputs. The vicious cycle of credit constraints among smallholders is difficult to break even where networks of formal lending institutions are extended to rural areas, because of collateral requirements. The majority of smallholder households, most of them asset-poor, are limited to considerably smaller loans at much higher rates because they revert to lenders who substitute costly monitoring with different types of collateral. Sometimes farmers avoid borrowing for the fear of losing their assets, a situation termed as risk rationing (World Bank 2007).

In dealing with problems of rural finance, a number of different approaches have been experimented with in developing countries. These have ranged from producer credit in some value chains, where inputs and other chain activities are financed against standing crops as collaterals, from state financing through input subsidies, to loans by specialized agricultural development financial institutions. Provision of input financing against future harvests was a feature of earlier pre-reform cooperative models in Tanzania. Land ownership was customary but there were instances of successful credit systems that were based on the floating charge on crops, even as smallholders' land was not formalized in the legal sense as advanced by De Soto (2000).

Other traditional forms of agriculture finance included establishment of specialized agricultural banks. State-created specialized development financial institutions, however, are often criticized for distortions and inefficiency. Other forms of public–private initiatives and collective actions have been documented. One such example is the Banrural bank in Guatemala, whose innovative governance model has enabled it to balance goals of profitability and rural development, reaching many smallholders (World Bank 2007, Trivelli and Pisseli 2008, and Wenner et al. 2007). The governance structures of Banrural bank include strong repre-

sentation of grassroots farmers' organizations not only in the ownership of the bank but also in the administrative council, along with the private sector and the state. This structure allows for constant negotiations and consensus among various groups of stakeholders, combining the benefit of private sector management without jeopardizing development goals, and making profits without ignoring the poor smallholders and rural enterprises.

Simonetti et al. (2007) provide another example of proactive and collective actions led by GAPI, a non-bank financial institution that designed an innovative approach to lending in rural areas of Mozambique. GAPI's success in revitalizing the cashew industry, for example, was based on three factors that shaped its approach. First, its design integrated provision of credits with business services to the borrowers so that they operated viable economic activities capable of repaying the loans. Second, its lending was directed towards value chains rather than to individual producer along the chain, which fostered effective coordination among respective value chains. Third, it worked in partnership with other institutions (such as the private traders) and NGOs to leverage competencies that existed in other institutions to develop production and business capability of producers in rural areas, in so doing building effective credit demand. This approach mitigated much of the coordination failures of markets, and substituted the credit requirement for collateral by viable business plans sanctioned by a partner NGO, TechnoServe, which also supported quality enhancements through initiatives to promote learning. These examples show that collective actions can potentially eliminate financing constraints facing smallholders in Tanzania.

Some forms of smallholder financing through intermediary institutions in value chains are also practised in various other forms. In some, input suppliers provide credit to smallholders, and in others private or cooperative buyers and processors extend credits to farmers against a portion of their harvests. Delgado and Minot (2000), for example, found out that in tobacco farming in the Tabora region of Tanzania, private buyers who have assumed the role of buying and exporting also provided fertilizers and other inputs to farmers on credit, which led to the doubling of fertilizer application between 1992 and 2000. The volume of tobacco exported has continued to increase from 12.7 thousand tons in 1992 to 31.7 thousand tons in 2007 (The Economic Survey 2007). Cooperative savings and credit societies and producer associations are also

known to provide credit to their members, and others have experimented with the Warehouse Receipt System (WRS), which allows farmers to access finance from financial institutions against inventory of crops deposited in designated warehouses as collateral.

In conventional credit markets, commercial banks offset part of their risks through collaterals and insurance markets, something that is difficult in an agrarian intermediation environment where the majority of smallholders are asset-poor, and where costly market-based insurance will be unattractive. How the various intermediary institutions mitigate risks and encourage financing of smallholders also form an important subject of inquiry within the broad question of practices and intermediation seeking to address failures in rural credit market.

2.4.5 Access to commodity markets

Agricultural commodity markets present another significant barrier to smallholders in developing countries. As earlier noted, agricultural commodity markets are increasingly organized through value chains, governed by few dominant and powerful downstream actors. Access of Tanzanian smallholders to markets and organized value chains is made difficult by their limited capability to produce high quality commodities in commercially sufficient and stable volumes, making the sector uncompetitive in international markets. Even in the domestic chains, smallholders often lack power to bargain for better prices, and because of structural and institutional constraints, transformation costs are high and they reduce margins, preventing them from saving sufficiently for farm re-investment and new asset acquisition. It is, however, possible to alleviate these constraints under coordinated organizational arrangements as some examples have shown.

Strategies of market access differ across different forms of organization of smallholders, depending not only on regulatory and policy environment governing the sector or the crop in question, but also on systems of chain governance, methods of organization, and relationships among actors. Monterroso et al. (2006) document a successful case of collective action of an NGO called OPCION, a private company called Aj Ticonel, and producer organizations to coordinate production and marketing of non-traditional vegetable products by poor smallholders in Guatemala. The role of OPCION is to support the development of or-

ganizational, marketing and production capabilities of smallholders through provision of credit for supplies, and in technical assistance on farming practices and quality control. Aj Ticonel markets the products and distributes them through supermarket chains in both domestic and international markets.

The NGO operates also as an intermediary between the private trading company and producer associations, communicating production quantity and quality demanded by clients, and helping farmers to meet those requirements. The producer associations operate autonomously, making decisions on how areas of cultivation, credits, and inputs are to be allocated among their members. One interesting feature of this arrangement is that producer associations did not have any formal contract with the company, but rather depended on tacit contract between them based on prior negotiations and trust. While this arrangement did not give producers more powers to negotiate within the chain on issues related to transaction conditions or chain governance, it secured their income, payments, and farmer services.

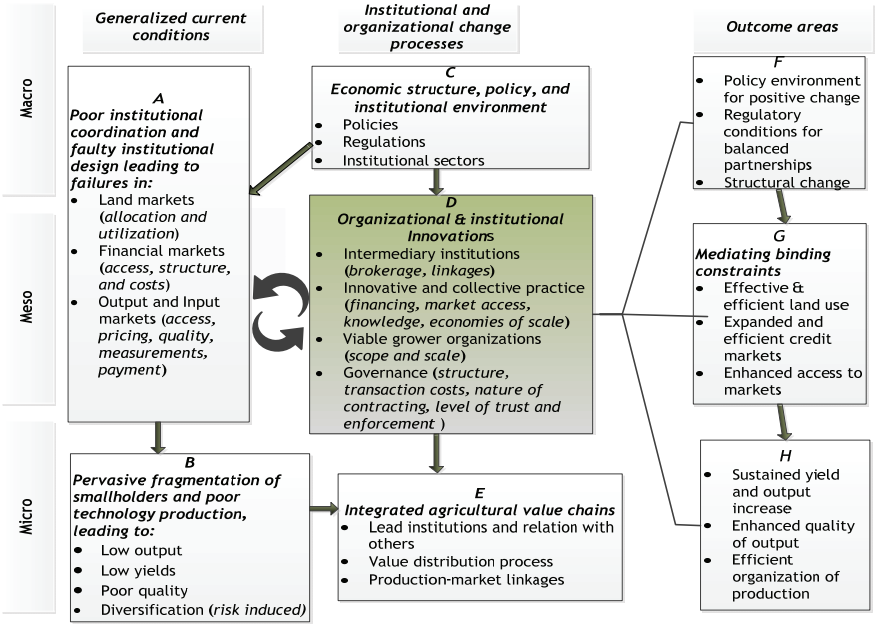
Quality of commodities and the ability of smallholders to comply with increasingly stringent standards set by consumer organizations and large buyers is an important factor for competitiveness. The changing features of consumption in industrialized economies, such as increased safety and environmental concerns, and market saturation for generic commodities have increased the role of quality standards and certification in shaping access to global value chains (Ponte and Gibbon 2005). Unable to understand these features and new standards, smallholders face high entry barriers and low prices, and fail to differentiate into decommoditized products driven by certifications. This research explores how the different institutional settings facilitate smallholders to produce high quality output that meet required standards, as in the OPCION and GAPI cases. It includes an analysis of how support services and the influence on attributes of chain governance expand smallholder access and margins.

2.5 Summary of analytical framework

In summary, the analytical framework is informed by the reviews of constraints of macro-level policy and institutional and structural conditions; meso-level organizations and intermediaries coordinating production and

market transactions; and micro-level structural conditions and constraints of smallholders. Viable forms of organization and coordination of smallholders within a framework of collective action of multiple institutions are viewed as solutions to address the persistent limitations to competitiveness of smallholders. Figure 2.1 presents a diagrammatic summary of the analytical framework, indicating conceptual relationships and key areas of institutional change in relation to analytical themes, and envisaged outcomes.

Figure 2.1
Diagrammatic presentation of the analytical framework



The arrow from box C to A indicates contribution of macro-level policy biases, counter-productive interventions, and structural limitations to the generalized weak linkages and inadequate coordination leading to market failures. These failures ultimately combine with fragmentation of smallholder production and low levels of technology, leading to low output, low productivity and poor quality. The arrow from box C to D indicates

the role of macro-level policy and institutional environment in facilitating meso-level organizational activities, and ensuing forms of governance and coordination. The arrow from box D to E shows the influence of such innovations on creating effective linkages, improved value-distribution process to the benefit of producers, and improved conditions for competitive production. The three-line connector from box D points to various outcomes expected of organizational and institutional innovations: at macro level, it points to the interface between structural, policy, and institutional environment needed to create conducive condition for intermediation and coordination at meso level. At meso level, these innovations eliminate binding constraints and market failures through coordination by intermediary institutions and a variety of collective actions and institutional arrangements. Conditions obtaining in boxes D and F serve to enhance effectiveness and efficiency of markets shown on box G, such that the most binding constraints are mediated, leading to sustained increase in productivity, quality and quantity of crops required for competitiveness, captured in box H.

In developing this framework, two caveats are stated, given their importance for this study and for the academic and policy debate. The first relates to inclusive innovation. While viable forms of organizing smallholders for competitiveness are expected to expand access of smallholders to productive assets and enhance their capability for high productivity and quality output, such outcomes are commonly based on the logic of markets, and so they may not always lead to the general inclusion of all smallholders. The trends in unequal power between buyers and producers, between downstream and upstream actors in the chain, and outcomes of exclusion and marginalization of smallholders are documented in the recent value chain literature.

Gibbon and Ponte (2005) for example, argue that, while global value chains and new international trade regimes could provide opportunities for developing countries, tighter demands including quality, lead times and volumes associated with these regimes have brought about more marginalization and exclusion of African producers. Pelupessy and Van Kempen (2005) attribute the power difference to indirect access to the market and customer information by upstream actors, large disparity in income, and cultural differences. The nature of interrelationship of institutions, the structures of governance and coordination, and factors that determine them ultimately determine how exclusion and marginalization

is minimized. As the existing gap between global markets and smallholders in terms of production capabilities and technologies is already very wide, it is likely that producers unable to meet minimum capacity requirements may be excluded. Although organizational innovations under this framework imply collective actions with potentials to minimize exclusion, it cannot be assumed that inclusion of all smallholders will come about as an automatic outcome of institutionally coordinated market integration.

The second caveat reflects the effect of the global financial turmoil and economic slump on both the analysis of causal mechanisms and outcomes in the context of the cases under the study and on major variables at the macro level more generally. This is because a major part of fieldwork was undertaken during the crisis years. The official government statement on the crisis was issued by the Bank of Tanzania on 22nd of October 2008. It stated that, to a large extent, most African countries had not been directly affected by the crisis, explained by the absence of strong linkages to global financial markets. It further stated that the banking sector in Tanzania continued to be strong, safe, and sound, and resilient to shocks emanating from the current crisis (Bank of Tanzania 2008b).

The statement, however, recognized effects identified by the Bank as of a longer term nature, including decline in demand for Tanzanian exports; reduced assistance to poor countries; decline in foreign loan and increase in borrowing cost of foreign loan that will deter FDI; and decline in tourism revenue. It is not clear why the Bank viewed these effects to be more of longer term, at the time that the global demand was already weak, signalled by the slumped demand in oil. Further, agricultural commodity demand was already in decline. Since the resulting organizational and institutional response were difficult to observe directly, as were the affected variables *a priori*, no commitment is made that effects of the crisis are fully integrated in the analysis that follows.

Notes

[1] The National Bureau of Statistics (2006a) characterizes smallholders on criteria related to the nature of production, market relations, and the size of landholdings. Thus, smallholders are defined as crop producers holding below 20 hectares and producing mainly for subsistence.

[2] Coase's (1937) notion of transaction costs consisted of costs of contract formation and enforcement.

[3] Mackintosh (2001) illustrates the prisoner's dilemma with a pay-off matrix in a simple game theory involving two parties, such that each party chooses its dominant strategy independent of the other party, resulting to a worse outcome for both parties than it is possible otherwise.

3 Historical and institutional context of export agriculture in Tanzania

3.1 Introduction

In 1967, only six years after independence, the government, through the Arusha Declaration, declared socialism and self-reliance as its development policy framework. The policy was implemented under a framework of public ownership of the major means of production in all sectors, and state provision of economic, social and commercial services. State institutions prevailed over market institutions in allocating resources and in coordinating production and marketing. The experience of economic policy and mechanisms for implementing socialism, however, led to stagnation in economic growth and macroeconomic instabilities leading to economic crisis. The scope of this crisis in Tanzania and its policy and structural causes are explained at length elsewhere (see Green et al. 1980, Wangwe 1983, Wuyts 1994). In short, the mid-1980s were characterized with acute shortages of essential goods, inefficient public corporations, low productivity in agriculture and industry, fiscal deficits and balance of payment deficits. The onset of this economic crisis necessitated the Tanzanian government return to market-driven economy, initiated through the adoption of structural adjustments.[1]

Structural adjustments are policies designed to substitute state interventions in economic activities with market mechanisms, at the same time rationalizing the traditional activities of the state and its policies. Structural adjustments are anchored on the neoliberal notion of free markets and efficiency underlying economic transactions of rational economic agents. The design of structural adjustments implemented in Tanzania and elsewhere in Africa reflected this neoliberal predilection for liberalization of trade, market-determined exchange rate regime, deregulation and private sector investments.[2]

Since the structural adjustments were introduced and implemented in Tanzania in the mid-1980s, certain outcomes were observed. The real exchange rate movements were determined largely by market forces, and the private sector was expanded, partly from new investments, and partly from privatization of public corporations. The monopoly of crop marketing authorities was disbanded, and the financial sector was reformed, paving the way for the growing number of commercial banks. Notwithstanding these developments, however, these same adjustments created new problems. These included reduction in real wages and real expenditures on social services, and increased uncertainty among the poor and peasants (Malima 1994). While the adjustments were intended to shift domestic terms of trade in favour of export production, the performance in the export sector, particularly agricultural exports did not appear to meet that objective.

This chapter aims to locate agriculture exports in the Tanzanian economy as they have evolved over time. It also aims to locate the institutional settings and the political economy within which the three case studies are embedded. It is shown that, while agricultural exports were significant as a source of foreign exchange and in national output at independence, this significance has declined dramatically. This decline has resulted from both stagnation within agriculture itself, and from the economic dynamics that has seen export diversification towards non-traditional exports, particularly mining, as sources of foreign exchange. While the share of agriculture has declined, the Integrated Labour Force Survey for 2006 shows that 75% of its labour force is engaged in the sector (National Bureau of Statistics 2007b). Section two discusses the stylized facts on Tanzanian export agriculture, in three subsections: structure of agriculture production; macroeconomic significance of export agriculture; and discussion of key trends in output, productivity, and quality. Section three explains the context of trade liberalization and its aftermath. Section four concludes.

3.2 Stylized facts on export agriculture in Tanzania

3.2.1 The structure of production

Tanzania inherited a colonial economy that was heavily biased towards primary production, mainly agriculture. In 1961, agriculture accounted for almost three-fifths of gross domestic product (GDP), while manufac-

turing accounted for only 2.8%.[3] Exports, which accounted for 31% of GDP, consisted mainly of unprocessed agricultural products (Bank of Tanzania 1983). While agriculture contributed nearly half of the GDP by independence, its contribution has declined in recent years. By 2009 the agriculture sector contributed 24.6% of GDP (The Economic Survey 2009). The significant decline in the current share of agriculture as reflected in the national accounts is accompanied by an increase in the importance of economic activities in other sectors. The revised national accounts, however, changed the valuation of agriculture. The revision was based on re-classification of activities and on the prices used to compute the value of agricultural production.

Table 3.1
Shares of GDP by sector at current prices, 1961 and 2009

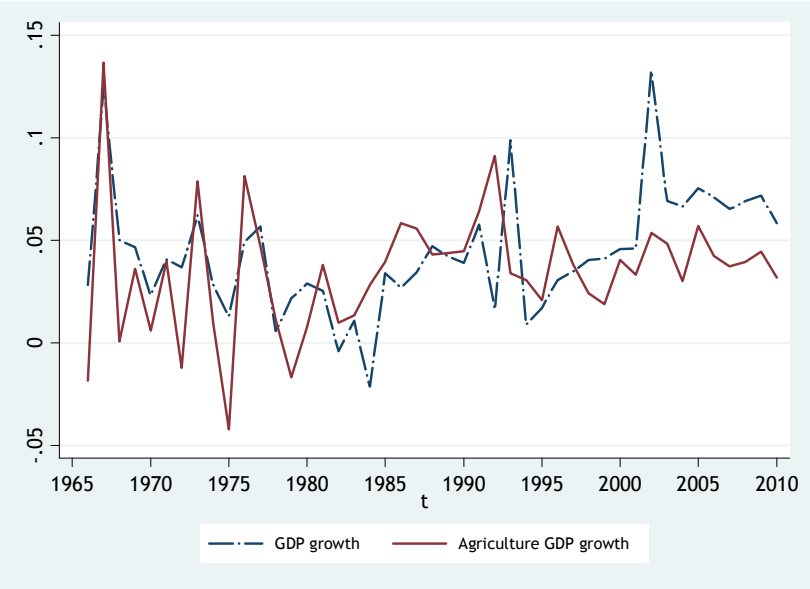
Sector	1961	2009
Agriculture, hunting, forestry & fishing	58.9	26.0
Mining and quarrying	2.8	3.3
Manufacturing and handicrafts	2.8	8.6
Electricity & water supply	0.6	2.1
Construction	3.0	7.9
Wholesale and retail trade, restaurants and hotels	11.4	14.1
Transport, storage & communication	4.4	7.1
Finance, insurance, real estate & business services	4.3	10.7
Public administration and other services	10.6	11.7

Source: Bank of Tanzania (1983) table 2, and United Republic of Tanzania (2010) table 2. Author regrouped the 2009 sectors into the 1961 classification[4]

The method applied in the past was based on the sum of quantities of crops produced from each region multiplied by a simple average price of respective crops in the country. The use of simple average price tended to overestimate the value of production because of higher prices prevailing in the Dar es Salaam region, whose agricultural production is the lowest in the country. The current method sums up quantities produced in each region multiplied by quantity-weighted average price, thereby

correcting for the overestimation of crop value in Dar es Salaam and other low output regions that are given less weight in determining crop values 2008.[5] As table 3.1 shows, manufacturing, construction, transport and communication, and finance and related services have grown significantly. The sectors of mining and electricity have also increased over the period.

Figure 3.1
Trends in logarithmic growth rates in real GDP and agriculture GDP, 1965-2009 (at 2001 prices)



Source: National Bureau of Statistics, Tanzania 1995, Selected Statistical Series 1951-94; United Republic of Tanzania (2003), The Economic Survey 2002 Table 3; Revised National Account Estimates for Tanzania Mainland (2007) Table 3 page 42; United Republic of Tanzania (2010), the Economic Survey 2009, Table 3.

This change in the structure of the economy is seen also as the relationship between agriculture and overall GDP change over time. Figure 3.1 illustrates the trends in the growth rates of GDP and agriculture GDP, showing that agricultural growth and GDP growth moved in the same direction until the mid-1990s. Both GDP and agricultural growth

were very erratic between the mid-1960s and 1970s, with years of negative agricultural GDP growth rates in the mid-1970s and towards the end of the 1970s. Both GDP and agriculture GDP grew from the mid-1980s following a negative GDP growth rate in 1983. From 1983 agricultural GDP grew faster than GDP until the mid-1990s. From the mid-1990s, GDP grew faster than agricultural GDP, which have generally declined relative to the rates achieved between the mid-1980s and mid-1990s.

Subsistence agriculture as a share of agriculture GDP between 1964 and 1980 averaged 54% (Bank of Tanzania 1983). By 2007, the share of subsistence agriculture to agriculture GDP had declined to 41% (Ministry of Finance and Economic Affairs 2008). Notwithstanding the recorded decline in subsistence agriculture, it still remains substantial, signalling the importance of domestic, mostly food crop production, for which a large part does not pass through formal market intermediaries. Table 3.2 shows that about half of the crops produced in 1992 were not marketed, which is only a small decrease from the reported average of 54% during the earlier years.[6] It also shows that, a large proportion of agricultural output is for domestic consumption, and 14% for exports. Smallholders produce 92% of the total agricultural output. Nearly half of all agricultural exports are produced by the smallholders, and slightly more than half by plantations.

Table 3.2
Social structure of crop production, 1992

Form of production	Domestic consumption		Exports	Total
	Non-marketed	Marketed		
Small-holder peasantry	51.00%	34.10%	6.40%	92%
Plantation/large farms		0.90%	7.50%	8.40%
Total	51.00%	35.00%	14.00%	100%

Source: O'Laughlin (2004: 4).

The plantation system in Tanzania is traced back to colonial occupation, established through alienation of peasants from their best land. Labour reserve areas were also created and a mix of policy tools were put in

place to ensure availability of cheap labour to work on plantations mainly geared to fulfilling metropolitan industrial interests (Rweyemamu 1973). Rweyemamu asserts that the earlier plantation crops of sisal and tea were established not necessarily based on their comparative advantage, but because of their strategic importance in Germany and Britain following the effects of world wars. Production of all other domestic and export crops, however, remained predominantly in the hands of smallholders, as table 3.3 shows. The agricultural census survey carried out in 2002/3 also shows that smallholders dominated production of both annual and permanent crops, which together accounted for approximately 93% of the total planted area (National Bureau of Statistics 2006a).

Table 3.3
Main export crops by type of producer in the 2002/3 crop season

Export crops	Smallholders		Plantations/Estates		Total	
	Quantity Harvested (tons)	% of total	Quantity Harvested (tons)	% of total	Quantity Harvested (tons)	Value (Tshs million)[7]
Coffee	61,602	76.3	19,084	23.7	80,686	51,163
Tobacco	49,300	92.0	4,296	8.0	53,596	47,295
Cashew	183,419	99.5	935	0.5	184,354	43,377
Cotton	181,073	99.6	746	0.4	181,819	42,430
Tea	31,667	48.2	33,978	51.8	65,645	25,726
Sugarcane	404,694	63.2	236,073	36.8	640,767	9,612
Sisal	116	0.1	188,870	99.9	188,986	6,946
Pyrethrum	536	11.0	4,318	89.0	4,854	1,796

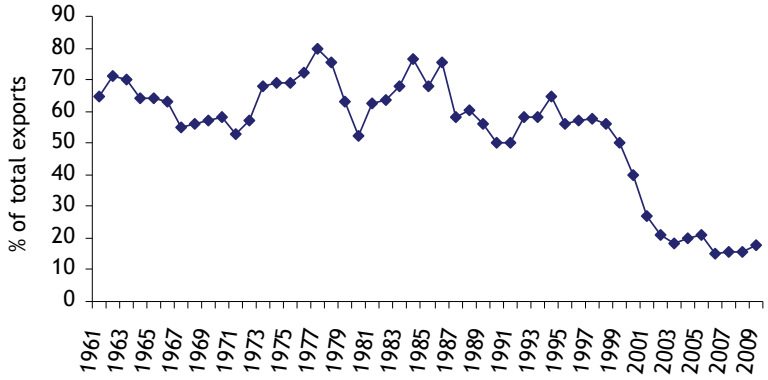
Sources: National Bureau of Statistics (2006a), National sample census for agriculture 2002/3, Smallholder Agriculture Vol. II crop sector-national report; National Bureau of Statistics (2006b), National sample census for agriculture 2002/3, Large Scale Farm Report Vol. VI: United Republic of Tanzania (2008), the Economic Survey 2007.

While export crop production has traditionally received prominence in policy and institutional development, cereal crops constitute the largest percentage of crops grown in Tanzania, occupying 61% of the total planted area, with cash crops occupying only 5% of the total planted area in 2002/3 crop season. However, the importance of export crops to the

Tanzanian economy, discussed shortly, explains why the state was keen to control export crop production and marketing. Table 3.3 presents the structure of production of main export crops by type of producer in Tanzania.[8]

Table 3.3 shows that smallholders dominated production of all export crops except sisal, tea, and pyrethrum. The smallholders have also increased their importance in the production of sugarcane, a crop initially dependent more on nucleus estates around large-scale sugar processing mills. Smallholders also accounted for a significant proportion of tea production, also processed in large-scale mills. Sisal, once a single most important cash crop now constitutes a very small proportion of crops produced by smallholders.

Figure 3.2
Share of traditional export crops in total goods exports, 1961-2009



Sources: Bank of Tanzania (1983: 286-87); United Republic of Tanzania, the Economic Surveys (1989, 1995, 2002, 2005, 2008, 2010).

3.2.2 The significance of export agriculture in Tanzania

The emphasis on export crops production in Tanzania, despite a much larger area planted to annual domestic crops, was undoubtedly due to their importance in foreign exchange earnings needed to finance development. As shown in figure 3.2, export crops accounted for over half of

total exports from the 1960s up until the mid-1990s, although this dependency declined dramatically in recent years.

It is clear that agricultural exports played an important role in the economy for over 30 years after independence, financing import requirements for domestic consumption and investment. In the terms of macroeconomics, GDP consists of private consumption of goods and services, public consumption of goods and services, investments, and net exports. The relationship between these variables is commonly presented in a simple macroeconomic identity:

$$GDP \equiv C + G + I + X\text{-}M \quad (1)$$

where C is private consumption, G is public consumption, I is investments, X is exports, and M is imports.

This identity can be re-written as:

$$C+G+I \equiv GDP - (X\text{-}M) \quad (2)$$

and, following from Wuyts (2004) as:

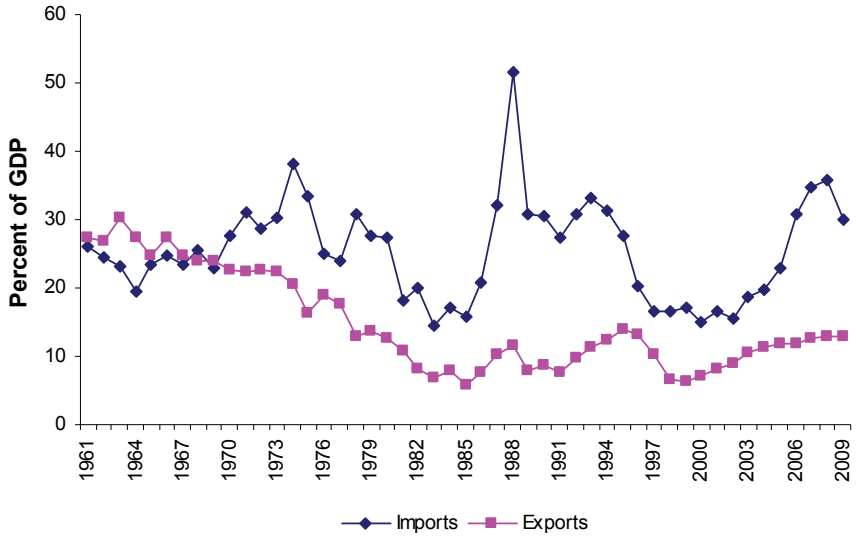
$$C+G+I \equiv GDP + M\text{-}X \quad (3)$$

where the left-hand side of identity (3) represents domestic absorption and the right-hand side represents the sum of GDP and the trade gap, an excess of imports over exports.

From identity (3), an economy's domestic absorption in excess of its GDP implies that the country imports more than it exports, and the monetary value of this difference, the trade deficit has to be financed by sources other than exports. Clearly, agricultural export production played a major role in generating foreign exchange, and thus in financing imports. The average domestic absorption in excess of GDP for the period 1961–80 represented 4% of GDP. This trade gap increased from the 1970, reaching 16% of GDP by 2007. Figure 3.3 presents graphically the trends in the share of exports and that of imports trending over the 48-year period. It shows the trade surplus for most of the 1960s, during which the share of exports to GDP was relatively high. This was reversed in the 1970s when both exports declined sharply until the mid-1980s, when some small, fluctuating increases were observed. Since the 1970s, however, the share of imports in GDP has remained above that

of exports, with a widening gap except for a short period in the mid-1990s. Since the share of export crops remained relatively large as a percentage of total goods exports until the mid-1990s as shown in figure 3.2, the decline in the volume and value of export crops reduced the ability of locally generated foreign exchange to finance imports, which was sustained only in the 1960s. As Wuyts (2004) illustrates, imports in Tanzania after this period has been financed largely by foreign aid.

Figure 3.3
Exports and imports as a percentage of GDP, 1961-2009



Sources: Bureau of Statistics, Presidents Office-Planning Commission (1991); United Republic of Tanzania, The Economic Surveys (1995, 2002, 2007, 2010).

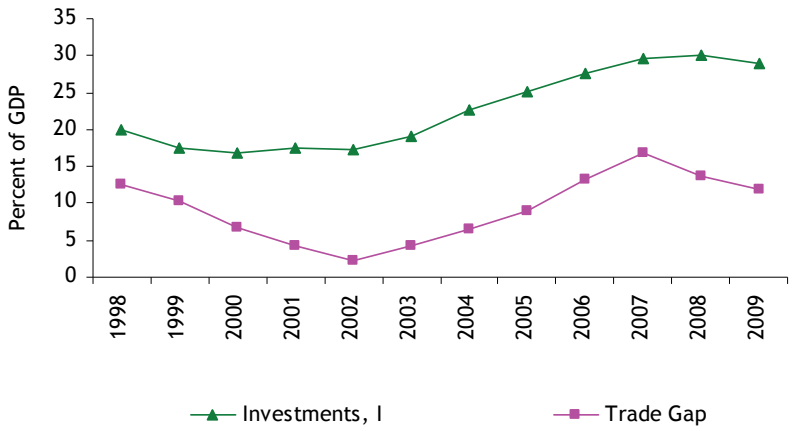
The trade gap does not only have implications for how imports are financed, but also for the relationship between domestic savings and investments. This can be shown by deducting the sum of private and government consumption from both sides of the macroeconomic identity (3), making the following identity (see Wuyts 2004):

$$I \equiv S + M\text{-}X \quad (4)$$

where S represents domestic savings, portion of GDP not going into final consumption.

Reflecting on this relationship, figure 3.4 shows that the increasing trade gap was accompanied by an increase in investments.[9] This implies that some foreign sources finance not only imports but also part of investments not covered by domestic savings.

Figure 3.4
Trends in investment and trade gap, 1998-2009



Sources: Ministry of Finance and Economic Affairs, The Economic Survey (2008) table 2B page 12, The Economic Survey (2010) table 2B page 14.

Reliance on foreign sources for investment may produce results that are not desirable for pro-poor growth. Foreign direct investment (FDI), for example, tends to flow into sectors that investors consider attractive in terms of risk, returns and gestation period. As data from the Tanzania Investment Centre shows, FDIs between 2001 and 2005 were highest in mining, wholesale and retail trade, manufacturing, and transport and communication averaging 29, 20, 15, and 13% respectively. FDI flows to agriculture were only 4.1% on average (Tanzania Investment Centre 2006).

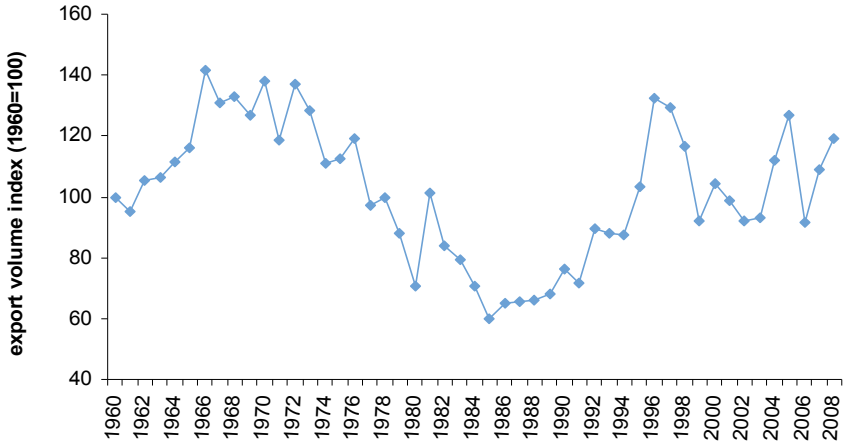
The limited flow of FDI to agriculture is not the only factor contributing to the observed decline in the share of agricultural export crops in total exports. Two other factors explain this condition. First, the decline in the volume of traditional agricultural exports and prices realized at international commodity prices. Second, there has been increase in exports of non-traditional commodities, especially minerals, which accounted for an average of 53% of non-traditional exports between 2001 and 2007 (The Economic Survey for 2007). The decline in the volume and prices of agricultural exports contributed to expanding trade gap and to a fall in the purchasing power of exports.

Notwithstanding the decline in contribution of export crops to total exports, a large number of smallholders obtain income from cash crop production. For example, between 400,000 and 500,000 are engaged in coffee production, and 13,074 smallholders supply sugarcane to the sugar mills. In general, agriculture still provides livelihoods for the majority of Tanzanians. According to the national census report, a large majority of Tanzania population live in rural areas, forming 77.4% of the 35 million Tanzanians by year 2002. While this is still a marked decline from 93% rural population of 1967 (The Economic Survey for 2007), it is still a large proportion. The recent labour force survey also indicated that large majority of the labour force, 75%, is engaged in agriculture (National Bureau of Statistics 2007b). Poverty estimates in Tanzania indicate relatively high levels of poverty in rural areas, which changed very slowly over the last 16 years. According to the Household Budget Survey for 2007, rural poverty level by headcount was 37.4%.

3.2.3 Trends in output, productivity and quality

As noted in the preceding subsection, the decline in the significance of export crops in total exports is associated with the decline in both output and prices. The overall general decline in crop production is demonstrated by the trends in production of six major export cash crops, namely cotton, cashew, coffee, sisal, tea and tobacco. The index of export volume for these six major crops in figure 3.5 shows that agricultural export volumes declined dramatically during the 1970s and throughout the 1980s, increasing slowly but unsteadily during the mid-1990s.

Figure 3.5
Index of export volume for major export crops, 1960-2008 (-base 2006)



Source: Computed by Marc Wuyts in 2008 using data from the Economic Surveys (various years) and the Bank of Tanzania (1983), Review of Political and Economic Performance (1961-1981), updated by author for 2007 and 2008 from the Economic Survey 2009.

The decline in the agricultural exports and a corresponding decline in the purchasing power of exports are explained both by the development strategy and by low productivity in the sector. The development strategy is explained in terms of both agricultural and industrialization strategies pursued after independence, discussed in turn.

Following independence in 1961, Tanzania pursued a mixed economy, with heavy presence of the private sector operating along with few state enterprises. Trade, banking and finance were largely in private hands. Agriculture dominated the economy, contributing to nearly half of GDP, with emphasis on a narrow range of export crops, produced in a dual system of large-scale plantations and smallholders. As figure 3.5 illustrates, volume of exports increased until the mid-1960s. The First Five Year Plan (FFYP) of economic and social development in 1964 aimed at attaining relatively fast growth in agriculture, to be achieved through the "improvement" approach for traditional production on one hand, and through "transformation" approach involving opening up new areas for modern and mechanized farming. The two approaches were

influenced by a World Bank mission's report in 1961 entitled "Economic Development of Tanganyika" (Bank of Tanzania 1983).

The improvement approach was focused on the practice of crop husbandry by smallholders through expansion of extension services and application of better inputs while maintaining a low capital–labour ratio, because it was then believed that rural sector had a large size of underutilized land and labour. The transformation approach was aimed at transforming agriculture through modernization of the sector, by creating highly productive village settlements in new areas with high capital intensity (ibid.). Two problems were associated with these approaches. First, a large proportion of the budget was allocated to the transformation approach, while the majority of agricultural populations were targeted under improvement of traditional agriculture. The second relates to the weakness of the 1964 village settlement scheme, a major vehicle for this approach. Although the initial periods of the scheme counted on voluntary settlement backed by the state provision of credits, farm implements, and social services, no sufficient preparations were made to develop the skill base of farmers in the schemes, and to integrate production and marketing. These programmes were also not financially viable, because, as Ponte (2002) puts it, overcapitalization and increasing costs could not be matched by financial returns. Ake (1996) also observed a situation of oversupply of tractors and farm technology in some schemes in Tanzania.

The implementation of the transformation approach intensified following the Arusha Declaration in 1967. This declaration invoked massive nationalization of the major means of production, rapid expansion of the public sector, and the state domination of economic planning and commercial activities. *Ujamaa* (communal family hood) village programme was introduced, where smallholders were exhorted to form *ujamaa* villages, a process followed by a more coercive villagization scheme in 1974 (Bank of Tanzania 1983). These programmes and policies largely disrupted productivity rather than supported its increase. They involved displacement of private traders by *ujamaa* shops and government trading agencies, which marked the beginning of scarcity of essential incentive goods and deterioration of rural–urban terms of trade. Government control of the rural population and its productive activities reduced incentives for innovation and autonomous development initiatives by farmers and progressive cooperatives. The dissolution of cooperative unions in

1976 and establishment of politically inspired primary cooperative societies along village governance structures were major factors that disrupted production for crops under established cooperative systems such as coffee and cotton.

The problems of industrialization strategy in relation to export crop production are well captured in Wangwe (1983) and Wuyts (1994). Wangwe shows that the influence of both foreign aid and incentives within internal institutions biased the allocation of foreign exchange in favour of manufacturing capacity expansion at the expense of capacity utilization. The effect of this bias was a decline in manufacturing growth despite massive investments in manufacturing. This bias affected agriculture by lowering the allocation of foreign exchange for investment in the sector, and also by constraining the supply of manufactured goods needed by crop producers. Wuyts (1994) argued that the state-led and aid-driven import industrialization strategy changed the balance between food and cash crops in favour of the former, which led to the fall in output of export crops by peasants. The decline in output of export crops constrained the supply of foreign exchange needed for imports of consumer goods and intermediate goods for the manufacturing industries. The inflationary pressure and scarcity that emerged from this process further constrained peasantry production of export crops.

A significant policy departure from an unbalanced focus on agrarian development along with sectoral linkages followed a critical assessment of rural development by Rweyemamu (1973), who argued that rural development objectives cannot be met without a corresponding strategy of industrial development, because its absence implied continued dependence on imports, a high sensitivity to changes in world prices, and a missing sectoral link inhibiting structural transformation. As Wuyts (2008) observes, the debates and the policies that sprang from Rweyemamu's work gave rise to the short-lived phase of basic industrialization strategy that came to an abrupt halt in the crisis years of the early 1980s. But a shift of focus towards industrial development driven by the basic industrialization strategy formulated in 1974 meant increased demand for foreign exchange to finance importation of capital goods and raw materials, reducing amounts available for agricultural investment. This added to the urban-biased allocation of surplus for industrial investment and infrastructure development, further undermining agricultural productivity and perpetuating disintegrated smallholder production seen today.

Although figure 3.5 shows some recovery in export volumes from the mid-1990s, the increase has not been steady and is not sustained at levels reached in the mid-1960s. As discussed in the next section, economic reforms were implemented from the mid-1980s. However, productivity and quality of output has continued to limit significant and sustained increase in agricultural output growth. Tanzanian agriculture remains characterized by low productivity of labour as well as productivity of land (United Republic of Tanzania 2005). As a larger proportion of output is grown by smallholders, the low productivity levels can generally be associated with smallholder productivity, which is found to be much lower when compared with productivity of large-scale commercial farmers. Table 3.4 compares yield rates for selected crops between smallholders and large-scale farms. It shows that for most crops, the yield rates of smallholders are much below those of large-scale farmers.

Table 3.4
Comparison of yields (tonnes per hectare) between smallholders and large-scale farmers

Crop	Smallholders	Large-scale farmers
Banana	6.9	15.8
Coffee	0.4	1.5
Mango	10.5	81.54
Pigeon pea	0.4	2.33
Oranges	8.6	32.23
Palm Oil	19.7	35.77
Maize	0.73	4
Sorghum	0.43	2.7

Source: National Bureau of Statistics (2006a), National Sample Census of Agriculture 2002/2003.

Another evidence of relatively low productivity of smallholders is in the time series information available for tea production as presented in figure 3.6. It shows that, tea yields from smallholders have been consistently lower than yields from large-scale estates since the 1970s to the

present, and even where productivity of estates increased during the mid-1990s, that of smallholders plummeted. This shows that there exist potentials for significant increases in smallholder productivity if the constraints they face are mediated. Some recent initiatives by the African Development Foundation (ADF) and other institutions to support tea outgrowers in Mufindi and Rungwe in the Southern highlands of Tanzania seem to have helped to increase productivity of smallholders from early 2000.

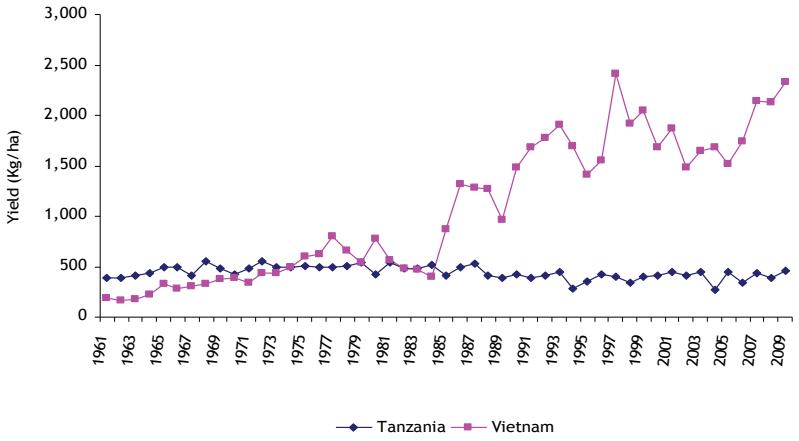
Figure 3.6
Productivity of tea per hectare by type of producer, 1977-2009

Source: United Republic of Tanzania (2008), Economic Survey 2007 table 37 p. 122, United Republic of Tanzania (2010), Economic Survey 2009, table 37 p. 128.

The potentials for improvement of productivity are also evident when comparing the yield rates for coffee and cashew between Tanzania and Vietnam. As shown in figure 3.7, coffee yields for Tanzania were higher than those of Vietnam between 1961 and 1973, but since then, Vietnam's yields have increased rapidly while that of Tanzania has stagnated. Similarly, figure 3.8 shows that Vietnam has raised its cashew yield

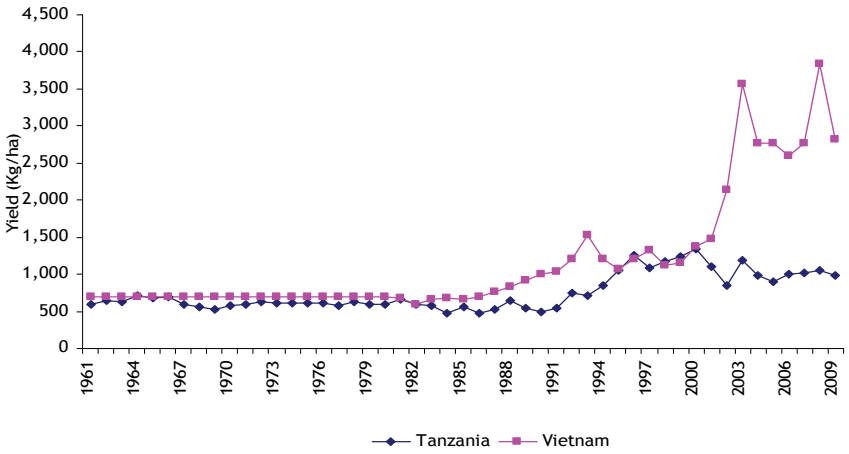
very dramatically since the mid-1980s, while Tanzania recorded only a modest increase in yields during the 1990s.

Figure 3.7
Comparison of coffee yields for Tanzania and Vietnam, 1961-2009



Source: Food and Agricultural Organization, 2008, 2011.

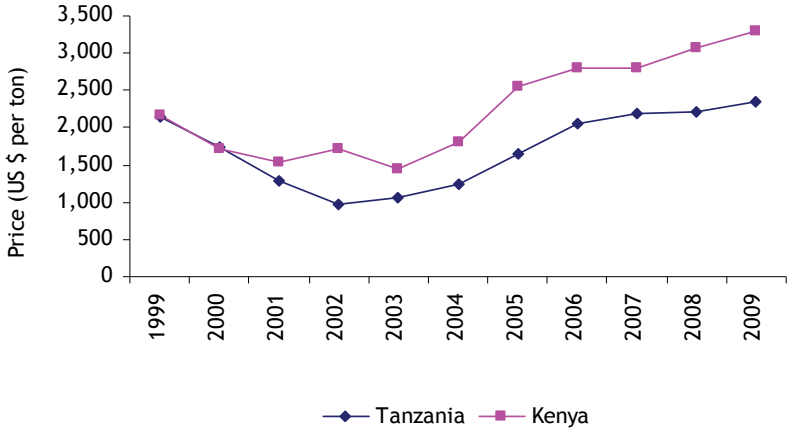
Figure 3.8
Comparison of cashew yields for Tanzania and Vietnam, 1961-2009



Source: Food and Agricultural Organization, 2008, 2011.

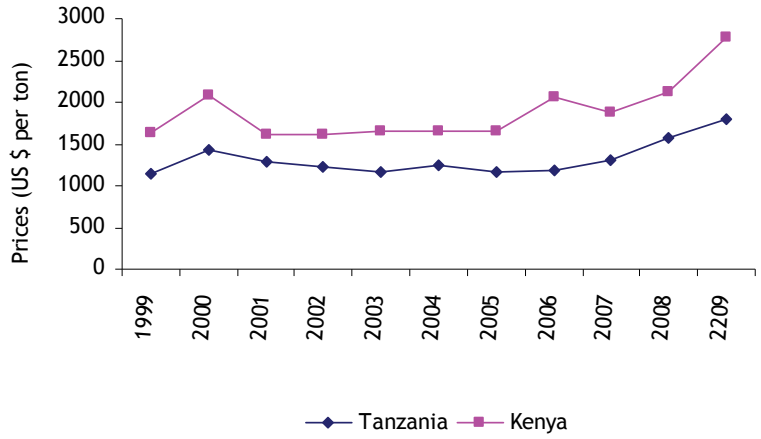
The problems of low output growth and low productivity are compounded by another problem of output quality, an important determinant of the value of agricultural output, especially so in the contemporary global markets dictated by standards and quality specifications from increasingly powerful buyers. Markets have tended to pay premium prices for high quality products, and the reverse is true for commodities perceived to be of low quality. Producers receiving low prices reduce intensification, such as the use of modern inputs, further depressing productivity and quality of output. While data for assessing the quality of agricultural produce from smallholders is generally limited, a comparison of prices fetched by exports of coffee and tea from Tanzania with the neighbouring country of Kenya serves as proxy. Figure 3.9 shows that while the two countries fetched similar price for exported coffee before 2000, the price of Tanzanian coffee dropped significantly below that obtaining in Kenya. Similarly, as figure 3.10 shows, the average price of tea from Tanzania has been consistently below that from Kenya.

Figure 3.9
A comparison of international prices of coffee from Tanzania and Kenya



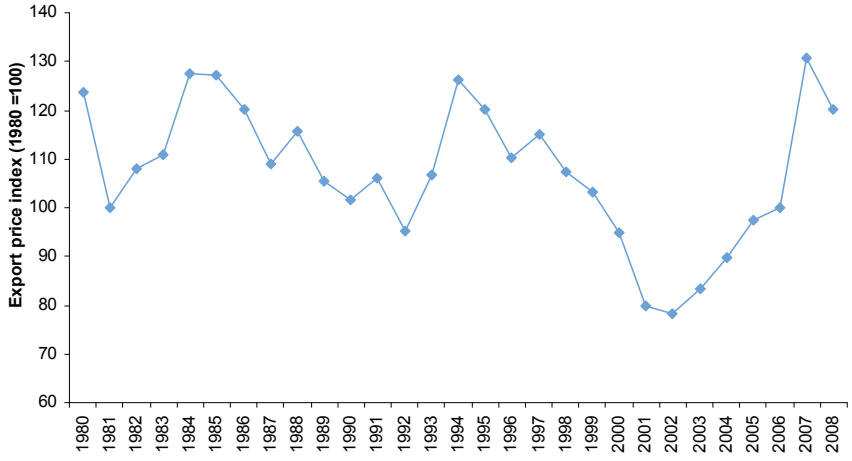
Sources: Bank of Tanzania, Economic Bulletins September 2004 and March 2008, Bank of Tanzania, Monthly Economic Review March 2010; Central Bank of Kenya, Statistics Bulletin, June 2005, December 2007 and December 2010.

Figure 3.10
A comparison of international prices of tea from Tanzania and Kenya



Sources: Bank of Tanzania, Economic Bulletins September 2004, March 2008; United Republic of Tanzania (2010), The Economic Survey 2009; Central Bank of Kenya, Statistics Bulletin, June 2005, December 2007, and June 2010.

Figure 3.11
Export price index for major export crops, 1980-2008 (-base 2006)



Sources: Computed by Marc Wuyts 2008 using data from the Economic Surveys (various years) and the Bank of Tanzania (1983), Review of Political and Economic Performance (1961-1981), Updated by author for 2007 and 2008 from the Economic Survey 2009

The decline in the average price for major export crops in recent years, while resulting from the fall in international prices, serves also to indicate the decline in quality overall, because high quality commodities often fetch prices above average commodity prices. Figure 3.11 presents a price index for major export crops of coffee, cotton, sisal, tea, tobacco and cashew, which shows a marked decline in prices during the mid-1980s, short period of recoveries during the mid-1990s, and a general decline thereafter until the mid-2000s when it rose again. The rise in the index is attributed to the rising prices of coffee, cotton, tea and tobacco, especially in the second half of the decade. In general, the price levels have declined during the 26-year period, most likely affecting agricultural terms of trade and further undermining agricultural growth potentials.

Other studies have also associated lower prices at international markets with lower quality of produce. The World Bank notes that, for a broad array of traditional and non-traditional exports from Tanzania, variable or sub-par quality has resulted in price discounts in international markets (World Bank 2007). A number of factors can be attributed to this quality problem, which includes structural constraints facing smallholders, and institutional changes and market failures before and after liberalization. Ponte (2002) pointed to the latter category of factors, associating the lower quality of coffee in Tanzania with domestic market liberalization that led to deterioration in quality control at the primary marketing level. Malpractices in crop purchases that resulted in low quality were attributed to weak quality enforcement and unclear regulatory framework (World Bank 2007). Gordon (2008) attributes quality declines to both producer practices that affect quality in the production process and decline in post-harvest grading practices.

3.3 Trade liberalization and its aftermath

The early periods of the 1980s were marked by severe economic crisis that affected not only agriculture but also the industrial and service sectors. While agricultural production stagnated, provision of basic commodities and services also deteriorated. Real producer prices fall gradually, and this combined with poor availability of basic consumer goods in the rural areas, led to deterioration of the rural terms of trade that served to depress agricultural production and productivity. Figure 3.5 shows the mid-1980s as the period with the lowest volume of output in export

crops. This period marked the beginning of economic reforms and structural adjustments, starting with reinstatement of cooperative unions and cooperative societies in 1982. In the background of structural adjustments in Tanzania was the influential Berg Report, which called for SSA to undertake structural adjustments.

The report re-asserted post-independence recommendations by the World Bank that suggested SSA to focus on production and export of primary commodities. It outlined trade and exchange rate policies, an overextended public sector, and a consistent bias against agriculture through low producer prices and taxation as policy distortions that depressed agriculture. Further, the report did not see hope for the SSA industrial strategy for growth, arguing that excessive investment in industry may actually limit the growth of other sectors, citing small market size, sparse population density, high capital requirements, inadequate technical and managerial capacity, and relatively high wages and low productivity of labour as key impediments to industrial development (World Bank 1981).

In 1985, the government made a major policy reversal to disband state control of markets, accompanied by a series of structural adjustments and reform programmes sponsored by the Breton Woods institutions. They included gradual removal of price controls, trade liberalization, liberalization of foreign exchange markets, privatization of public enterprises, civil service reforms, and the creation of an environment conducive to the growth of a private sector, which included reforms in the financial sector. It is important to note that the last three of these reform measures were more prominent from the period between 1995 to date. The character of liberalization during earlier reforms between 1985 and 1994 were more haphazard with unfettered market practices in importation and domestic trade. The major agricultural policy reforms followed the 1992 trade liberalization in crop marketing, when price control and the state monopoly on traditional exports markets were eliminated. Private traders, including foreign firms or their agents, participated actively in the marketing, processing and exporting crops such as coffee, cotton, tobacco and pyrethrum, competing with the few cooperatives that survived in export crop procurement from growers. Previous crop authorities were disbanded and replaced with crop boards that were formed under new crop regulations and with new roles focusing on industry regulations and promotion.

The premise for trade liberalization in agriculture revolved around three factors. First, getting prices right so that producer prices are aligned with export prices to increase the share of smallholders in export prices so as to stimulate production; second, making credit and input markets more efficient when operated by the private sector; and third, making the availability of incentive goods increase incentives for smallholders to produce more. Other macroeconomic policies such as currency devaluation and market determination of exchange rates were also expected to stimulate local supply response by increasing the local currency value of crops, and international demand for export crops produced in Tanzania by lowering their dollar price.

The expected impact of trade liberalization in agriculture has, however, not been as significant as earlier anticipated. The UNCTAD report indicates that the value of agricultural production in SSA remained stable between 1995 and 2000, and the nominal value of its agricultural exports declined slightly, with a modest increase in 2006 (United Nations 2008). This increase was much smaller compared to significant increases in the value of agricultural exports from Latin America and East and South-East Asia. The volume index of export crops for Tanzania presented in figure 3.5 shows modest increase during the 1990s, with a fall and stagnation during the 2000. This implies that the effect of trade liberalization on agriculture in Tanzania might have been just temporary. The effect of increased incentive goods for example, brought about a single-shot response, but other important obstacles remained unchanged. Gordon (2008) observes that, real producer prices for traditional exports did not increase significantly during the reform period, although the change in institutional environment in the marketing of traditional export crops led to the influx of private traders, introduced direct cash payment to producers, and increased investment at processor level. Associated with the change in the marketing environment was the disruption of input supply and financing for smallholders.

A number of factors are brought forward as to why trade liberalization did not produce significant change in African agriculture. One factor often cited is limited investment in agriculture, which has kept productivity generally low. In the UNCTAD report, it is argued that the main factors that contributed to strong performance in some countries were beyond trade liberalization, mainly the huge government investments made to agricultural sector and efforts to improve quality and

productivity of crops. In Tanzania, as a result of limited investment in various key areas in agriculture, including infrastructure, productivity has remained low, which has affected both output and competitiveness in the global market. In addition to claims of disproportionately low public investments in agriculture sector, data on new private investments, particularly FDI, show that the recent average investment flows are highest in mining, manufacturing, transport, and wholesale and retail trade, and lowest in agriculture (data from Tanzania Investment Centre 2006).

The post-liberalization removal of input subsidies was also accompanied by the collapse of the credit system under cooperatives, lack of appropriate and sufficient extension services, and market failures in the distribution of inputs in remote rural areas. The reforms such those in the financial sector for example, were expected to deepen financial markets in both urban and rural areas, but the proliferation of commercial banks that followed reforms concentrated in urban centres and have not addressed credit constraints in agriculture, particularly for smallholders. These factors are claimed to be responsible for the limited supply response to price incentives offered by trade liberalization. A combination of those factors and other constraints inhibit increases in productivity, output, and quality improvement, as pointed out also by Amani (2005), Ponte (2002), and Gibbon and Ponte (2005). Yet the case for re-focusing on agricultural production based on the existence of comparative advantage has continued to be made in published reports. Delgado and Minot (2000), for example, use early responses of agricultural outputs to structural adjustments and the analysis of domestic resource cost ratios to claim that Tanzania has a strong comparative advantage in maize, paddy, and all the traditional cash crops.[10] The report further points that, in comparison to non-traditional agriculture, export crop agriculture provides stronger growth linkages with the non-farm sector, including employment and consumption linkages. Utz (2008) also concludes that, Tanzania's comparative advantage and its large potential to enhance agricultural productivity provide a basis for focusing on agriculture and its related activities as the central element for poverty reduction.

In June 2009, the government resolved to adapt *Kilimo Kwanza*, meaning "Agriculture First" as a priority policy framework. It provides a blue print for integrating agriculture development into government development agenda and implementation machinery. It is an ambitious policy agenda aimed at modernizing and commercializing agriculture for peas-

ants, small, medium and large-scale producers. It is, however, an ambivalent policy agenda, built around its ten pillars that touch every aspect of agriculture. It is not clear whether the emphasis will practically be placed on developing a competitive sector through improvement of smallholder-based production, or through large-scale plantation-based production.

3.4 Conclusion

As highlighted above, agriculture remains a major source of income and livelihood to the majority of the Tanzanian population, many of them smallholders. In the light of historical experience and structure of agricultural production, it is argued that developing a competitive sector based on the dominant smallholders requires a systematic and institutionalized approach to eliminate constraints that have continued to inhibit increases in smallholder productivity and improvement in quality. This approach entails proactive and collective actions of market and non-market institutions. Elements of such actions under different institutional frameworks and outcomes are examined in each of the case studies. These cases were selected to capture the diversity of production structure and the institutional setups in export crop production. Coffee is produced primarily by smallholders; its multiple stage processing is organized through different intermediary institutions; and market linkages are organised through exchange with private trading firms through the auction and direct export links. Sugarcane is produced by both large-scale estates and by smallholders in approximately equal proportions; processing is undertaken by privately owned large-scale mills; and transactions between growers and mills are organized through intermediary of growers. Sisal is produced primarily in large-scale plantations, but a small number of smallholders have been integrated into production of sisal through a land lease regime. Their sisal output is procured and processed by privately owned processing plant. This sisal processor is both an exporter of fibre and a local manufacturer of fibre products.

Notes

[1] Loxley and Campbell (1989) summarize objectives of structural adjustment as a policy seeking to restore growth and stability by changing relative prices, domestic expenditures, and the type and degree of state intervention. Although there are

different types of structural adjustment programmes, some aimed at stabilization and others aimed at structural reforms, no distinction is made for the purpose of this study because they were implemented almost at the same time in a framework that is difficult to draw a clear line of cause and effect between them. For detailed discussion on these programmes, see Toye (1994) and Lensink (1996).

[2] Structural adjustments in Africa were orchestrated by the World Bank and the International Monetary Fund (IMF), set as necessary conditions for the countries at the brink of economic crises to receive financial assistance in the forms of concessional credit.

[3] Earlier national accounts grouped agriculture, hunting, forestry, and fishing together. In 1961, it accounted for 58.9% (Bank of Tanzania 1983). At present, fishing is classified separately. However, fishing constitutes a very small proportion, and the Economic Survey for 2009 shows that contributed just 1.5% of GDP.

[4] These percentage shares do not add up to 100 because they are based on factor costs before adjustments for imputed financial intermediation services and taxes.

[5] Information is drawn from the author's direct discussion with a senior official in the Department of National Accounts Statistics in the National Bureau of Statistics on 29th of September 2008.

[6] The data on this table is drawn from the input-output tables for Tanzania last constructed in 1992.

[7] Value figures for cashew, coffee, tea, sisal, cotton, and tobacco are export values, and those for sugarcane and pyrethrum are obtained as a product of quantity harvested and the procurement price per ton in the 2002/3 crop season.

[8] This table is based on the 2002/03 sample census of agriculture. The most recent sample census was undertaken in 2009 but the final results were not yet released at the time of this writing.

[9] For past years, the Selected Statistical Series 1951–94 gives data on gross fixed capital formation, which does not measure total investment. It only captures gross additions to fixed investments.

[10] Domestic resource ratios compare best alternative use of the factors of production for producing one unit of commodity in question to the actual net returns for using the same factors in the activity in question. Its calculation involves a number of assumptions, specifications, and detailed production and market data that cannot be obtained by the author to enable a comparable analysis at the time of this writing.

4 Competitiveness of smallholders in bifurcated coffee markets

4.1 Introduction

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. Through affiliation with REPOA, access to the data sets was obtained for this academic purpose. Although the emphasis of the survey was to investigate vulnerability of agricultural households to a variety of risks, and to gauge the demand for market-based insurance for coffee price and weather-related risks, it provided data on distribution of land and the nature of household's coffee production.[2] 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 chapter 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.

4.2 Global market dynamics and bifurcation of markets

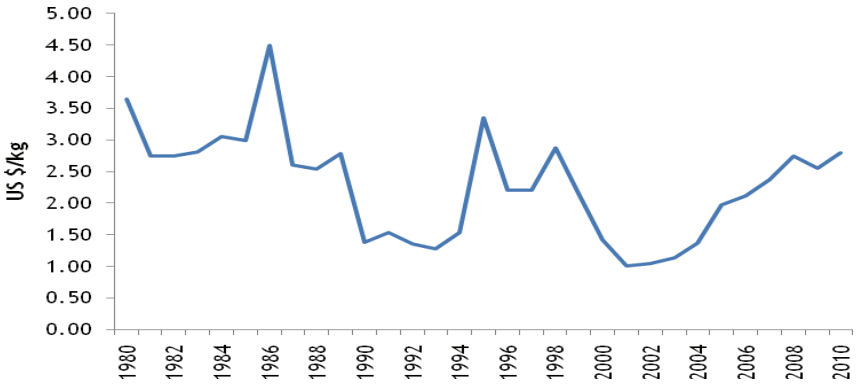
There are two broad categories of coffee produced in the world, namely Arabica and Robusta. Arabica grows on high altitude, it is generally of higher quality than Robusta, and contributes a higher proportion of global production and consumption. It constitutes approximately two thirds of the total coffee 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 4.1 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 4.1
The ICO indicator price of coffee, 1980-2010



Source: ICO 2010, http://www.ico.org/new_historical.asp[3]

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.[4] 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%.[5] 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[6] in 1980 to 119 million bags in 2009.[7] This represents approximately a 47% increase over this period. While global consumption of coffee also increased,[8] the increase was only 15%, from 112 million bags in 1980 to 130 million bags in 2009.[9] 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 4.1.

Table 4.1
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 notwithstand-

ing, 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.[10] 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.

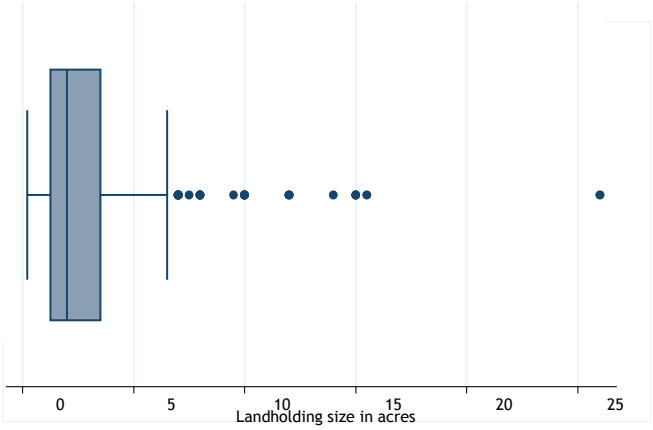
4.3 The structure of coffee production in Tanzania

4.3.1 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. As pointed out in chapter two, 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.[11] Because a large proportion of coffee-producing households depends 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 4.2 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 4.2
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 4.2 indicates the contribution of estate coffee declined dramatically since 1972/73.

Table 4.2
The structure of coffee production by type of producer, 1972/73 and 2004/05

Producer category	1972/73		2004/05	
	Production (tons)	Share %	Produc-tion(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.[12] 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.

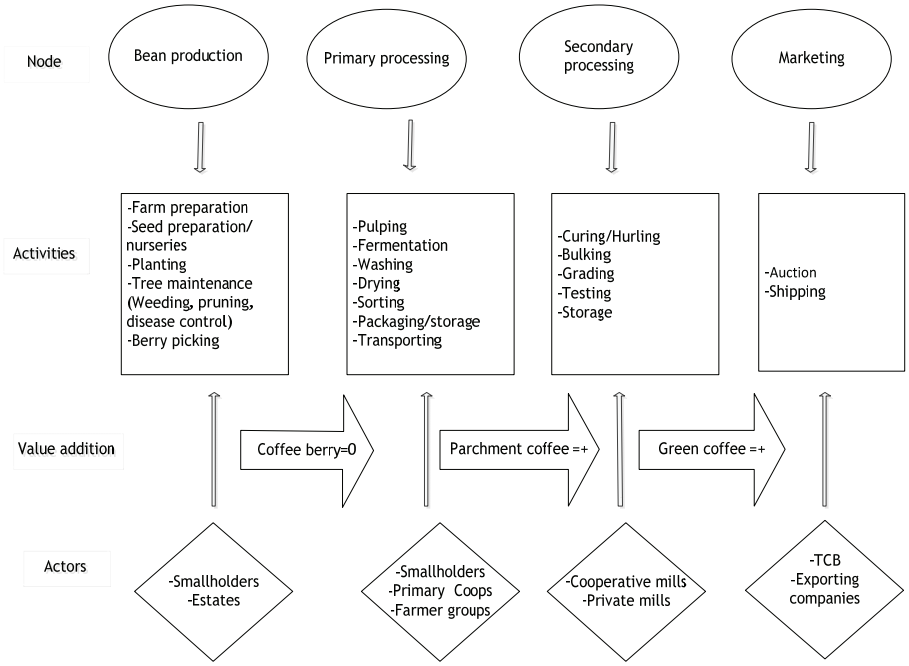
After taking the reign of Tanganyika from the Germans, the British colonial government did not encourage further settler farming besides those existing, mainly in Kilimanjaro and Arusha, and very few in the southern highlands. The central province covering regions of Dodoma and Singida provided most 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.[13] 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.

4.3.2 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, prima-

ry processing or pulping, secondary processing or curing, and marketing. The organization of activities in the value chain is summarized schematically in figure 4.3.

Figure 4.3
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.[14] 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.[15] 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 4.3.

Table 4.3
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.

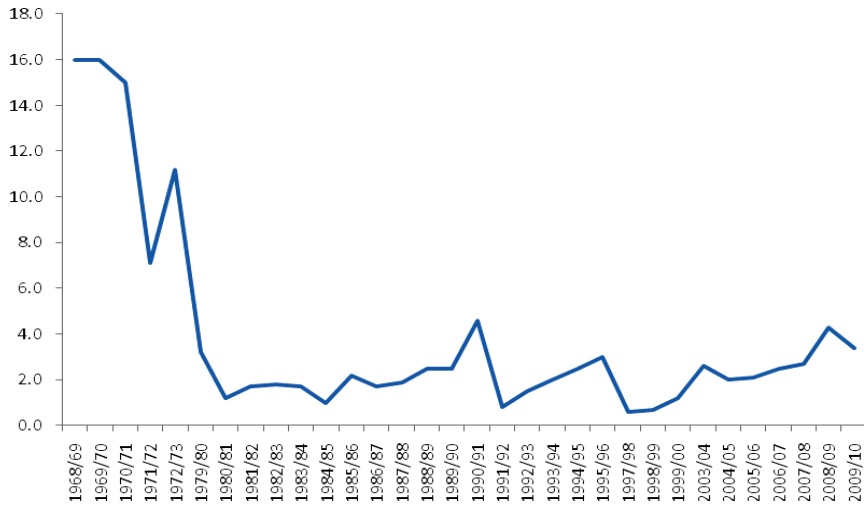
At the final node, an export activity for green coffee is initiated by the TCB which furnishes information pertinent to the subsequent auction to all licensed traders. It includes the auction date and available coffee by grade, class and warehouse location. The Moshi auction takes place at the TCB auction 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.

4.4 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 4.4
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.[16] 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).[17]

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 4.4 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 4.4 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.

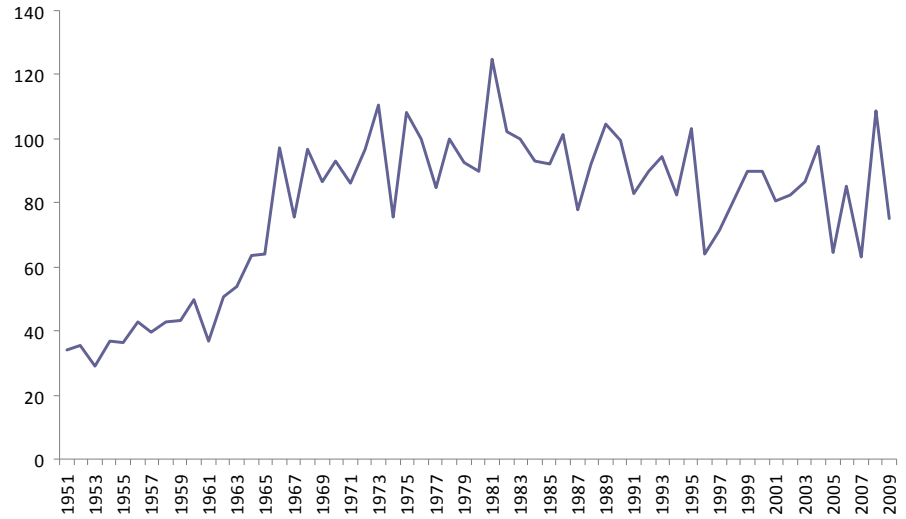
The key point here is that these institutional changes led to the collapse of the system of central primary processing using wet-mills managed by PCSs. As PCSs were established in every village, each was responsible for collecting coffee and other crops under the coordination of TCA. During the reign 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 4.1, 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 farmers needs. Input use such as chemicals for CBD and leaf rust gradually declined, and so did growers' investment in coffee maintenance.

Figure 4.5
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 4.5. 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.[18] 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 4.2 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.[19]

The implication of these institutional changes, therefore, is a slide in quality as shown in figure 4.4. 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.[20]

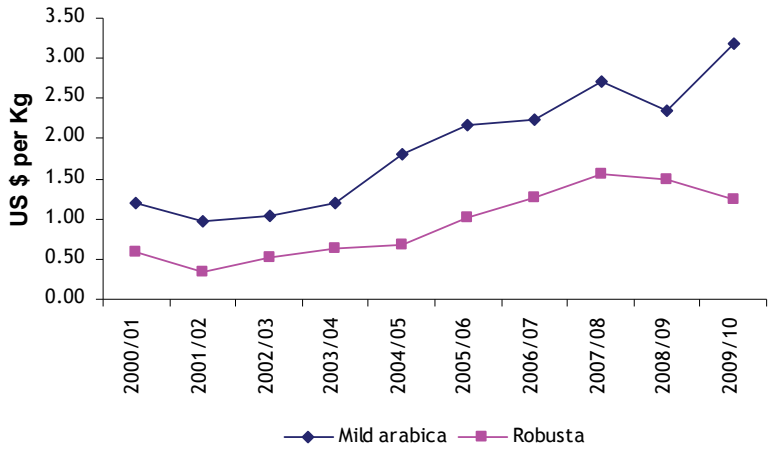
Small improvement was noted following privatization and revival of some coffee estates in the early 1990s, and with the rise in world market

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 4.2. 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 3.9 in chapter three shows the resulting difference in the average export price over the period from 1999–2009. As figure 3.9 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 4.4. 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 4.6 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 4.6
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 (1973) 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.[21] For the Mild Arabica coffee market, therefore, quality is a central aspect of competitive advantage, but leveraging the

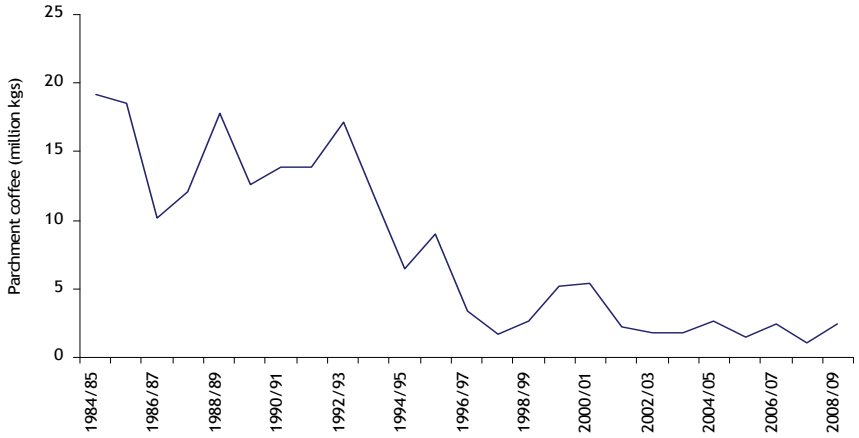
natural advantage of Tanzanian Mild Arabica requires appropriate institutional settings to stimulate self-discovery.[22]

4.5 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 4.7 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 4.7
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 4.4. 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.[23] It involved TechnoServe as a third party intermediary acting as an innovation broker.[24] 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 war-

rant 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.[25] 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 4.4 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 4.4
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 his-

tory 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.[26] 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 4.5 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 4.5
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 4.8 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 4.8
Trends in prices for direct export and auction Mild Arabica, 2003/04-2010-11

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

4.6 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.

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.[27] 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.[28] 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.

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 survey was funded by the World Bank and implemented by REPOA. It was first designed as a two-round panel of rural agricultural households in Kilimanjaro and Ruvuma regions. The author coordinated fieldwork for the first two rounds in 2003 and 2004. A third round was carried out in 2009 as part of another related project funded by the World Bank, again implemented by REPOA. For Kilimanjaro, the third round in 2009 covered 793 households, an attrition rate of 17% over the six-year period. The attrition resulted primarily because the survey was designed to follow households, some of which had ceased to exist for various reasons. However, the distribution of the sample across districts in the region between the two surveys remained essentially unchanged, reducing the likelihood of biased inferences.

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

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

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

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

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

[8] 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.

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

[10] 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.

[11] 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.

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

[13] Noted also by Hyden (1980).

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

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

[16] 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.

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

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

[19] 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.

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

[21] 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.

[22] 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.

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

[24] 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.

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

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

[27] 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.

[28] 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.

5 Integrating smallholders in sisal: partners or disguised piece workers?

5.1 Introduction

The production of sisal in Tanzania dates back to the colonial era in the 19th century and has evolved through various policy and institutional arrangements that affected ownership, marketing and labour relations. However, the structure of production remained mainly unchanged, dominated by the plantation structure created during the colonial regime. Sisal became one of the single most important exports of Tanzania in the 1960s, contributing nearly a third of total export earnings and employing a large number of agricultural workers. However, the later years of the 1960s and early 1970s marked the beginning of a dramatic decline in global sisal demand.

The industry that was once a "goose that laid golden eggs", as Sabea (2001) put it, collapsed in terms of output, foreign exchange earnings and employment. In 2007, production of sisal fibre contributed only 8% of the total global output of fibre compared to the 27% it commanded in 1964. In the late 1990s, the sisal industry was privatized, and the global demand seems to be increasing. Following privatization, KATANI Limited integrated smallholders in its sisal production chain. This is unusual in the plantation settings in Tanzania, apart from earlier schemes promoted by the state in the 1960s. This study was carried out to assess how this integration is designed and its outcomes in terms of promoting competitiveness.

The study combined a variety of strategies for enquiry, drawing from a historical analysis from review of literature, archived records and secondary data collected from various sources. Interviews were carried out with officials of Tanzania Sisal Board (TSB), Sisal Association of Tanzania (SAT), KATANI Limited, the Mwelya-Usambara Smallholders Asso-

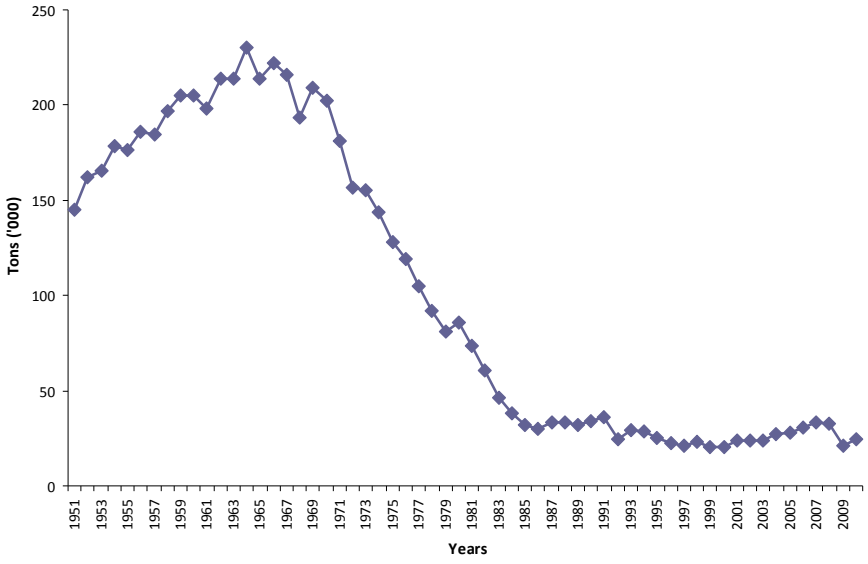
ciation (MUSA), Tanzania Plantation and Agricultural Workers Union (TPAWU), a sisal specialized Agricultural Research Institute at Mlingano, and with other knowledgeable informants, mainly individuals who worked in the industry at different times, and smallholder sisal growers. These growers were randomly interviewed during visits to the sisal fields to observe various activities at farm level. Some data limitations relate mainly to the difficult of obtaining financial data from the private company, from which the actual structure of capital, operating overheads, and distribution of value between the processor and the smallholders were to be obtained. An alternative approach such as examining the company's organizational structure and detailed data on amortization of overhead costs, and data availed by TSB was used to mitigate this data deficiency.

In the light of the analysis of the institutional framework underpinning the current smallholder integration, it is argued this integration is substantively a form of employment relation between the company and sisal growers rather than a business partnership. The feature of this relationship is the conspicuous imbalance in contractual relationship under which the company controls land, transformation process and output marketing. In the absence of countervailing powers to balance this partnership, this kind of integration will not help to promote efficiency and productivity in production of sisal fibre. To put this proposition in context, section two situates the Tanzanian sisal industry in the global market context, aiming to show how Tanzania lost its global fibre market leadership. Section three discusses the historical role of the colonial state and foreign capital in shaping the sisal plantation economy. Section four traces the evolution of institutions and production organization in the sisal industry, showing that, even as the global market conditions changed dramatically, institutional changes focused on ownership and control, rather than on structure and considerations of efficiency and competitiveness. Section five examines institutional design inherent in the current integration of smallholders, showing the nature of imbalances induced through the land ownership regime, the nature of contracts, and the institutional environment. The last section concludes and draws some implications for policy and institutions.

5.2 Situating Tanzania sisal in the global market context

In the 1960s Tanzania was a leading producer of sisal fibre worldwide, contributing to slightly more than a quarter of the total output of sisal and henequen. From early 1970s, production declined dramatically, as shown in figure 5.1.

Figure 5.1
Trends in sisal production in Tanzania, 1951-2010

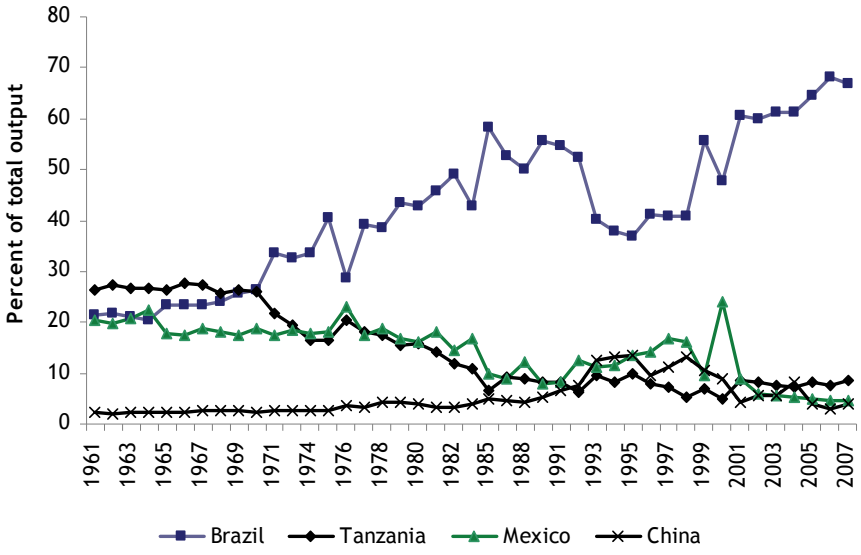


Source: Tanzania Sisal Board.

As figure 5.1 indicates, production of sisal was very high in the early 1960s with its peak in 1964. The most dramatic decline started in 1971, roughly five years after nationalization of the major part of the industry. By 1980, production was only 37% of its peak in 1964. The 1980s marked also a period of severe economic crisis in Tanzania, and sisal production continued to decline throughout the two decades to its lowest level in 1997.

The decline in demand of traditional fibre products and corresponding fall in prices of sisal fibre in the global market was caused mainly by competition from cheap synthetic substitutes of polypropylene, especially for agricultural twine. These products were produced in the main importing countries of Europe and North America. As FAO (1971) observe, the effect of reduced industrial activity and decline in end-use of fibre in France, Germany, and the Netherlands, and greater use of synthetic twines and other methods of hay storage in the United States such as cubing, silaging and loose hay were major contributions to the declined demand and price of sisal. In response to these market crises, some producing countries attempted to diversify sisal use by introducing non-traditional products, albeit in limited scales.

Figure 5.2
Production of sisal and henequen by four major producing countries, 1961-2007 (% of total output)



Source: United Nations, http://data.un.org/

The non-traditional products include pulp and paper; geotextiles used in civil engineering works; sisal composites used in automotives in place of fibre glass; biogas; organic fertilizer; animal feed; bioethanol; and hecogenin used in the pharmaceutical industry. According to a study by Landon (2001), the global consumption of sisal and henequen in traditional uses declined from 90% of total sisal produced in 1973 to 40% in 2000, while for non-traditional uses, it rose from 10% to 34% during the same period. However, Tanzania has not ventured into the commercial production of these products, except for a recent pilot 300 kw biogas/ electricity plant using sisal waste built in Hale estate, with the support of CFC and the United Nations Industrial Organization (UNIDO). These attempts notwithstanding, the role of Brazil in changing the supply conditions contributed to downward pressure on prices and eventual collapse of the Tanzanian sisal industry. Figure 5.2 serves to show the trends in production of sisal and henequen from the major producers as a percentage of the total.

As figure 5.2 clearly indicates, while production of sisal in Tanzania declined rapidly from the 1970s, Brazilian output rose steeply and continued to rise, giving it a production command of 67% of total sisal in the world. Even as global fibre price declined, Brazil continued to increase its output. Lawrence (1992) contends that this divergence is due to two factors. First, the export competitiveness of the Brazilian sisal, attributed to its production structure based on smallholders using simple processing technology, and the regular devaluation of its currency. The Tanzanian currency was highly overvalued and the regime then was inflexible on its exchange rate policy.[1] In addition to the benefit of currency devaluation, Brazil paid its farmers high domestic prices even when export prices were low. Devaluation, however, cannot by itself resolve bottlenecks to competitiveness. Devaluation affects the terms of trade through changes in the relative prices of export and imports, which may reduce real income of producers. It can also lead to reallocation of resources and therefore reduce productivity, which is contrary to its intended purpose.

Second, informal agreements on price stabilization through production and export quotas and indicative prices were unsuccessful, as both consuming countries and some producing countries such as Brazil did not honour the agreement. The reluctance of Brazil to respect the agreement is most likely related to its internal political economy. Most of

its sisal is produced in the semi-arid regions in the states of Bahia, producing just over 90%, and Paraíba and Rio Grande de Norte producing the remaining.[2] It is produced by 35,000 smallholders, with over 500,000 people depending directly and indirectly on sisal. No other crops are economical in the area, making it politically necessary for the Brazilian government to provide support in various ways to ensure continuity of the industry. The government of Brazil provides compensation to sisal producers in the event of unfavourable international prices or exchange rate in order to sustain sisal production and livelihoods in these regions.[3] The Brazilian state therefore, played and continues to play a significant role of protecting grower's income, and in recent years, on a drive to diversify products and markets.

During the mid-1960s, Tanzania attempted to diversify from the export of raw fibre into secondary products, with the establishment of several spinning mills. These included Tanzania Cordage (TANCORD) with a largest installed capacity of 60,000 tons, Sisal Kamba Spinning Mill, Tanganyika Industrial Combine (TIC), Pongwe Spinning Mill, Usambara Spinning Mill, Tanzania Carpet Company and TASCO. All these mills were based in the sisal-producing hub of Tanga, except the last two which were based in Morogoro and Dar es Salaam, respectively. And all except TASCO, Pongwe and Usambara spinning mills were owned by the state. However, capacity utilization in secondary processing remained very low. 1n 1975, with an already installed capacity of 110,000 tons of which only 30% was utilized, the government of Tanzania entered a joint venture with CORDEMEX, a state corporation in Mexico, to establish another spinning mill. This mill was constructed and machinery imported, but it never commenced operation.

While the overvalued currency reduced competitiveness in manufactured exports, other factors – particularly those related to the nature of industrialization, allocation of export earnings and aid, and subsequent fall in import capacity of exports – accounted for low and declining capacity utilization. These factors and mechanisms which brought about the undermining of capacity utilization are well articulated by Wangwe (1983) and Wuyts (1994) as discussed in chapter two. Both observe rapid growth of investments associated with foreign aid during the 1970s, but this was accompanied by a slow growth of industrial output and low capacity utilization. Export taxes on crops also contributed to reduce competitiveness of sisal. The government of Tanzania was reluctant to abol-

ish export taxes on the basis that export taxes were the means by which every peasant contributes to public revenue in the spirit of self reliance (Mtei 2009). The decline in the volume and prices of traditional export crops as shown in figures 2.5 and 2.11 constrained foreign exchange availability, which reduced capacity utilization in most industries as capacity to import intermediate goods and non-agricultural raw materials fell.

No doubt, manufacturing activities in the sisal industry were similarly constrained, demonstrated by large capacity expansion and low utilization. In 1968, Tanzanian exported 13,660 tonnes of manufactured sisal products (Tanganyika Sisal Marketing Board 1969: 58). At the time of privatization in 1998, only 5,532 tonnes of manufactured sisal products were produced. Fifty-five percent of this amount was exported and 45% was consumed in local markets (data from Tanzania Sisal Board). By 2010, 7,650 tonnes of manufactured sisal products were produced, of which 41% was exported and 59% consumed in local markets (ibid.).

Thus Tanzania lost much of its global market share of fibre to Brazil from the early 1970s. Although the Brazilian state engaged actively to support sisal production, it is likely that its production structure based on the use of simpler technology and smallholders made it more feasible to sustain production even at low global fibre prices. Brazil use small *Paraiban* machines for decortications. They are located within a shortest distance in the field where leaf is harvested and transported by mules and donkeys. These machines have low operating capacity of between 150 and 200 kgs of dry fibre in a ten-hour shift, and wastes between 20–30% of fibre (SINDIFIBRAS 2006). However, their operating costs are lower than large-scale stationary decorticators. Tanzania continued to use large-scale stationary decorticators. These decorticators has installed capacity of processing 120 tons of leaves per day, or six tons of dry fibre per day and serve an average of 1,000 hectares of sisal field. These stationary units require water and electricity to run, plus the high cost of trucks or rail wagons to transport leaf from fields.

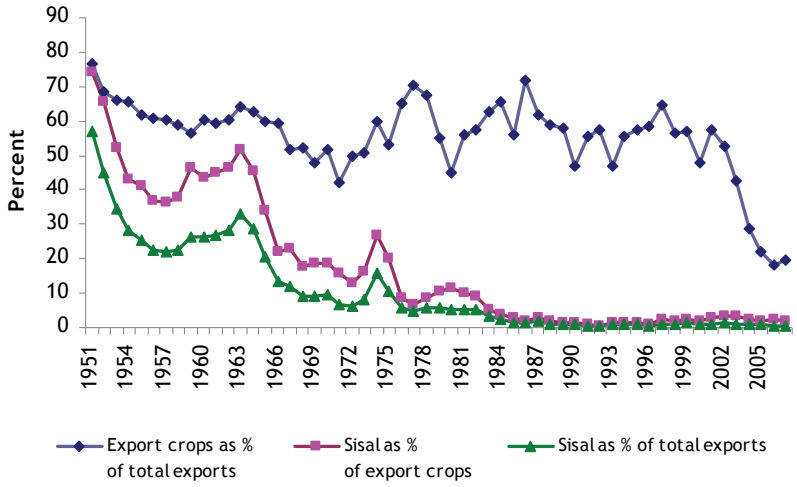
5.3 Production structure, the state and foreign capital

The importance of sisal to the Tanzanian economy dates back to the pre-independence period, in the 1920s, when Tanganyika sisal contributed to as high as 47% of the world's total production of hard fibre (Sabea

2001). Consequently, the state institutions from Germany to Britain and subsequently the independent Tanzanian government had sisal production high in their priority for resource allocation, especially land, capital and labour. As of 1951, sisal exports constituted 74% of cash crop exports among six major crops, namely sisal, coffee, cotton, tea, tobacco and cashew. It also constituted 57% of total exports from Tanganyika. This is not surprising, as the colonial government had sought to establish Tanganyika as a source of primary raw materials for the European markets, a historical process that led to the creation of plantation economy in the first place.

Although the proportion of sisal in total exports as well as in the exports of major crops declined over time, it remained significantly high by independence in 1961, in proportions of 27 and 45%, respectively. Figure 5.3 shows the trend in exports of sisal as a percentage of export crops and total exports from 1951 to 2007.

Figure 5.3
Trends in sisal exports as a percentage of cash crop exports and total exports, 1951-2007



Sources: Tanzania: Selected Statistical Series 1951-1994; The Economic Surveys 1992, 1998,1999, 2007, 2010.

Figure 5.3 shows that sisal lost its significance in its contribution to exports from the mid-1960s and since then it never recovered. Other export crops continued to contribute nearly half of total exports until the early 2000s when non-traditional exports grew rapidly. By the year 2007, sisal contributed only 1 and 3% of total exports and of major crop exports, respectively. In that same year, traditional export crops accounted for only 19% of total exports. The importance of export crops was replaced by mineral exports that accounted for half of total exports in 2007.

In spite of its significant contribution to exports in its peak years, however, the industry's overall contribution to the economy was questioned on grounds of its high import propensity and foreign exchange drain through transfer of factor incomes to the owners of capital based in Europe. As Lawrence (1992) argued, the net effect of the industry was considerably lower than its gross contribution due to leakages attributed to its high import intensity and remittance of profits to overseas. The industry, however, was also known to account for a large proportion of wage employment. According to Sabea (2001), sisal plantations engaged about 35% of the total wage-employed in Tanzania until the late 1960s.

Although the use of large-scale, stationary decorticators enhance the quality of fibre, improvements in manufacturing technology and substitutability of fibre with synthetics and with non-sisal fibre may reduce the premium that high quality fibre commands over fibre of low quality. The trends in global fibre prices indeed suggest this possibility. For example, Tanzanian highest grade (3L) and its average grade (UG) commanded premiums of 65 and 29%, respectively over Brazil's No. 3 in 1999. By 2005, both premiums had been reduced by half.[4]

The economic importance of sisal in Tanzania was often seen in terms of its contribution to export earning, tax revenue and employment. Aspects of production efficiency and competitiveness did not seem to have received adequate emphasis by the state. Large-scale plantation setting was viewed as superior form of production due to the economies of scale in the key production activities it implied. This method of production relied heavily on large capital originating from foreign sources during colonial rule and even after independence. The system also relied, however, on massive labour for activities such as sisal harvesting and field maintenance, which are difficult to mechanize. The supply of such labour was made possible through strong collusion between state institu-

tions and private estate owners at the time. Some researchers have argued, however, that the development of small-scale agriculture is more feasible than large-scale agriculture. Lawrence (1975b), for example, argued in favour of smallholder production of sisal in an organized socialist production system. Lawrence subsequently argued that privatization by restructuring estate organization to independent or cooperative smallholder production systems provides a better option for increasing yields and overall output through economies of scope and through labour intensive techniques (Lawrence 1997, 2004).[5]

Lawrence emphasizes the choice of production techniques by smallholders, resting his argument on the lack of evidence on efficiency based on output size. Lawrence, however, proposes a hierarchical management of activities that demand economies of scale such as processing, implying contractual linkages between the smallholder producers on one hand, and large-scale processors on the other. Such a bond, however, requires the existence of balanced institutional relationships between growers and processors that does not lock growers in hold-up situations or contractual conditions that subject growers in precarious positions. Smallholder production in Brazil is organized differently. Its processing system based on the use of small, mobile decorticators does not require hierarchical management as is the case under plantation farming or in a system relying on large-scale central processing.

In terms of economies of scope, the advantage of smallholder sisal farming accrues from multicropping. This is because smallholders can grow food crops between rows of young sisal. Thus the same land and given levels of labour efforts are used to produce both sisal and food, so that effective unit costs are lower than when a single crop is grown. Considering the crop cycle of sisal, a sufficient amount of land per grower is required to allow for rotational cropping with mature, young sisal, and fallow at all times, so that there is both stability in the supply of sisal leaf to the processor and a possibility for multicropping. Hence a land allocation and utilization system is an important element to consider when organizing sisal production through smallholders. As Griffin et al. (2002) argue, productivity of land increases with smaller farm sizes, and thus where there is a combination of abundant labour, scarce land and capital, small farms have higher total factor productivity and utilize resources more efficiently. As this case illustrates, however, the character of land regime does not support sustained increase in land productivity based on

economies of scope, in particular as the growers are uncertain about the behaviour of the company in the lease contract discussed subsequently in the chapter.

It is well acknowledged that the economic structure inherited in Tanzania was one designed to perpetuate colonial interests of the periphery, mainly with respect to the supply of cheap raw materials. The introduction of the money economy and exchange, the plantation structure in the production of sisal, and production of other cash crops by peasants and few settler farmers was a result of this historical formation. In particular, with the establishment of the sisal plantation system in Tanganyika by the Germans, the agronomy of sisal production was designed be of high capital investments but also labour intensive. Key features of the plantation system in Tanzania were the disruption of the traditional patterns of production and the development of the migrant labour system. Pre-colonial African societies practised traditional economy relevant to technological conditions of the time and the relations of production that defined rights and commands of individuals to the resources and environment. Rweyemamu (1973) observes that the dominant pre-capitalist productive system was based on village communities which consisted of working owners of the land or the small peasant cultivators. The security of land tenure was guaranteed by their productive use of land and their belonging to a defined community. Even though peasants were not entirely undifferentiated, the land tenure that guaranteed ownership of land to the peasants largely prevented the emergence of wage labour. Wage labour emerged under colonialism with the introduction of the money economy and colonial administrative machinery.

The onset of the slave trade in the 18th century and European colonial exploitation in the 19th century destroyed the production relations of the traditional economy. Plantations were a major institution of surplus creation through extensive and intensive use of cheap migrant labour for production of sisal for use in spinning mills for agricultural twine and shipbuilding industry of the metropolis (Rweyemamu 1973). Rodney (1983) recounts the role of German East African Company, assisted by the colonial administration, in shaping the structure of cash crop production seen today:

> Large-scale alienation took place on the coast around Tanga and Pangani, while settler farms were encouraged to the immediate west and North

> West in Usambara and in the foothills of Mount Kilimanjaro. (Rodney 1983: 8)

The process of plantation development by the German settlers through alienation of land and the creation of reserve areas is discussed in detail by Rweyemamu (1973), Lawrence (1975a), Bolton (1978) and Tambila (1983). The colonial administration assisted the settlers to displace African peasants from the best land where sisal plantations were established in Tanga, Morogoro, and some parts of eastern Kilimanjaro and southern coast of Lindi. It is this clear separation of land between Africans and Europeans that facilitated capital expenditure by the settlers, but which restricted the competitiveness of African exports because they were alienated from their best land, and some confined into reserves (Rweyemamu 1973). In the earlier days of plantation establishment, peasant production of sisal was discouraged by both the settlers and colonial administration.

Three key features of plantation production of sisal in Tanzania serve to connect this historical perspective with the current undertaking of smallholders. First, although the colonial government supported the sisal industry through land and labour policies and regulations, all plantation estates were owned by private companies. In 1923, these private producers formed an influential association, the Tanganyika Sisal Growers Association (TSGA). Rodney (1983) observes that estate owners based in Tanga were better organized than others in the territory, and thus TSGA, with its headquarters in Tanga, had much easy access to the colonial administration, so much so that it was viewed as an extension of the latter with respect to sisal matters. TSGA also established its sisal research centre at Mlingano in 1934, and its marketing arm, the Tanganyika Sisal Marketing Association Limited (TASMA), in 1948.[6] According to one experienced industry expert, this research centre was very instrumental for increased yields on sisal estates in Tanganyika based on its hybrid variety that came to replace the original Sisalana, used until the present day.

A second important feature of plantation production was a heavy reliance of cheap labour. The plantation structure involved large-scale hierarchical units of estate management that required massive labour to perform several tasks, from sisal planting, field maintenance, leaf cutting, transportation and decortications. Introduction of monetary wages by the estate owners was viewed as an incentive sufficient to attract the needed labour, but because of alternative incomes from peasantry, peas-

ant farmers did not respond adequately to money wages. Thus, in order to preserve their short-term profit maximization needs, the plantation owners resorted to use colonial administration to acquire the needed labour cheaply by evicting peasants from their land, forced labour, taxation and legislations preventing African peasantry from producing certain cash crops.

TSGA played a crucial role in accessing adequate and cheap supply of labour. It established the Sisal Labour Bureau (SILABU) in 1944, which the colonial administration supported, including the provision of labour camps for workers in transit. According to Lawrence (1975a), SILABU accounted for most of the labour supply from long distance, and by 1947, three years after its establishment, it recruited 105,326 labourers. Tambila (1983) observed that, it was not possible to recruit the substantial amount of labour needed given the technology of the time, and the reluctance of local people from the Tanga area to work on fixed wage terms and in difficult conditions. Thus, labour was recruited from elsewhere in the territory, especially in the southern, western, central and some parts of northwestern Tanganyika (Rodney 1983). Labourers were also recruited from Rwanda and Burundi.

Despite the various efforts taken by the colonial government and the SILABU, stability of labour supply and productivity was difficult to achieve. The poor conditions of labour at the estates, low wages, and involvement of labourers in peasant cultivation encouraged absenteeism and high labour turnover. The majority of labourers retained their peasantry relationship with their kinship communities, and others established themselves around the estates where they were made to work on contracts. Bolton (1978) provides an account of labour militancy prior and after unionization in the sisal industry, which showed widespread collusion between the state and estate managements in suppressing labour actions in line with keeping estate production profitable. As the consciousness of labourers increased and their need to unionize was recognized by TSGA, an attempt was made to weaken such initiatives by establishing joint consultative committees (JCCs) in the estates through which selected workers were to discuss issues with their employers. The JCCs were therefore designed to subordinate workers' interests. Such committees were not supported by labourers, as Bolton writes:

> Sisal labour was not interested in sending delegates to meetings at which such issues as wage increases were put down in favour of sermons on the

> desirability of productivity increases and the need for worker education so that they might render a better return on the task work. (Bolton 1978: 178)

The Tanganyika Federation of Labour (TFL) was formed in 1955, followed by the establishment of the Tanganyika Sisal Plantation Workers Union (TSPWU) in 1956. The growing tension culminated in a number of strikes and unrests, such as the Mazinde estate strike in 1958. According to Bolton (1978), the Mazinde strike gave the workers a new impetus, as the settlement of the strike came with a compromise in which TSGA, TFL, and TSPWU jointly agreed on re-establishment of workers committees in the estates in which the unions were fully represented, marking the commencement of collective bargaining with TSGA. The conflicts and the strikes, however, continued through the early 1960s and even after independence in 1961, exacerbated by the conflict between the ruling party Tanganyika African National Union (TANU) and TFL, as the latter advocated for rapid Africanization policy, which the former was not keen to pursue.[7] Estates responded to the 1960s wage increases by reducing recruitment, recruiting mainly from local remnants of migrant settlers around the estates (ibid.).

The support of the state to plantation owners on matters of labour continued after independence, as were the strikes that followed the rationalization of labour and task increases. The orientation of the unionism and labour relations in the industry changed in 1964 with the dissolution of TFL and, correspondingly, the dissolution of TSPWU, following the alleged involvement in the coup attempt (ibid.). Union activities were integrated into the ruling party through the establishment of the National Union of Tanganyika Workers (NUTA). This move did not only weaken the bargaining position of labourers, but it renewed some coalition between the state and TSGA, which favoured the labour policy of TSGA. NUTA continued to operate in the subordinate position to the state, which retained much control on labour issues and other policies in the industry. The trade union in Tanzania continued to be patronized by the state for over three decades that followed.

Today the industry workers are represented by the Tanzania Plantation and Agricultural Workers Union (TPAWU). According to the official of TPAWU, it was established in 1996 although it was registered officially in 2000. TPAWU represents workers from plantations and processing companies, crop boards and cooperatives. It works with the employers through collective bargaining agreements with SAT, unlike its

predecessor that used strikes and labour stoppages. However, it can be noted here that the current labour union is operating under a different legislative environment, and represents far fewer workers than was the case in the 1950s and 1960s. Sabea (2001) indicated that there were about 128,928 workers employed in the sisal industry in 1961. Records from TPAWU show its current representation to be 4,229 permanent workers on record in the industry today. Labour returns for 2009 shows that seasoned labour did not exceed 2,878 during the year (TSB labour returns for 2009). According to the official of TPAWU, such a massive decline in the industry's labour force is a result of the decline of sisal production and the abolition of the Manamba system.[8]

The history of labour recruitment, trade unionism and the subsequent changes after independence have a significant bearing on sisal production today. These include not only the decline in quantity of labour but also the quality of labour. As one interviewed industry expert observed:

> Many of the labourers present in the industry today are those that chose to remain even after years of decline and those reproduced in labour camps. Most of them are old and their productivity has declined, and not much of the new generation of young people who joined the industry have the skills that older workers had accumulated.

A third feature of sisal plantation structure was the dominance of foreign capital, ownership and management. As Rweyemamu (1973) recounts, most land concessions and trading companies that controlled sisal and other export crops were subsidiaries of European firms, citing for example, the Ralli Brothers of London who handled purchasing, processing, transport and shipping of sisal. Thus, domestic savings and investment were limited by the outflow of factor payments through interest and dividend payments. In addition, the import of capital goods limited technological development in facilities and organizational skills essential for furthering the industry and for diversification (ibid.).

5.4 Evolution of institutions and production organization

The state's sphere of influence on the sisal industry was first marked by the enactment of the Sisal Industry Act in 1965. The Act established the Tanganyika Sisal Marketing Board (TSMB) charged with responsibility to promote the development of the sisal industry, to promote African participation in sisal production, to secure favourable arrangements for the

marketing and export of sisal, to license sisal agents to market and export sisal, and to regulate the industry overall. SILABU was also disbanded in 1965 and the practice of labour recruitment from distant regions officially came to an end. The enactment of the Act and increased attention of the state to the industry created fear of further interventions, which provided incentives to some estates to engage in malpractices and to reduce re-planting of new sisal. This was made known to the government, as Bolton writes:

> NUTA tried to approach the government over the matter of sisal companies failing to fulfil investment and maintenance responsibilities on estates because of their fears of the implications of future nationalization policies. (Bolton 1978: 201)

This call was not heeded by the government, however, and thus workers continued to suffer redundancies and wage freezes. Investment declined, resulting in a decline in productivity and output. It is not nationalization *per se,* therefore, that was responsible for the decline and "death' of the industry as widely believed (see Sabea 2001 and Kweka 1987). In addition, available records from the Tanzania Sisal Corporation (TSC) shows that in the early years of nationalization the corporation attempted to reverse productivity problems inherited from their previous estate owners. TCS carried out detailed feasibility analysis and converted all non-performing sisal estates to engage in other economic activities, particularly livestock rearing, keeping under sisal only viable ones. Other estates that in the view of TCS lacked commercial feasibility based on their size and condition were abandoned. A memo from an expatriate economist to the Board of TSC in 1969 cited the example of efficiency at its Ngombezi estate:

> Ngombezi was an unprofitable estate under its previous private management since the high cost of its expatriate staff and head office in Europe meant very high overheads and the imposition of quotas prevented these overheads from being spread over a sufficiently large tonnage. TSC management has halved overheads and cut production costs by approximately 13%, thereby turning this estate into a profitable one even at today's prices.

Lawrence (1975a) similarly observed that the state sector was trying to maintain a full rotational planting programme, while many privately

owned estates were less efficient and more likely to go out of business amid falling prices.

TSC was established in 1967 by the Sisal Industry Act of 1967, which followed the adoption of the policy of socialism and self-reliance. Under this Act, six estates were fully acquired at 100% ownership, while 27 others were acquired at 60% of shares (United Republic of Tanzania 1967). Almost all but three estates were nationalized, namely Anglo-Swiss-owned Amboni estates, Karimjee Group estates, and Dutch-owned Lugongo estates. Another company, Ralli estates, had already negotiated with the government on some partnership arrangement, where the government acquired 49% of the shares, and 51% retained by a British investor, Sir Isaac Woulson. The state corporation directly controlled production at approximately 50% by 1969. TSGA was also disbanded in 1968.

The state increased control of the industry by establishing the Tanzania Sisal Board under the new Sisal industry Act of 1969. Its functions were, among others, "to control the marketing and export of sisal and to secure the most favourable arrangements for the marketing and export of sisal" (United Republic of Tanzania 1969). The Act also vested Tanzania Sisal Board with power over all marketing interests of the private sector through TASMA and two of its subsidiaries, Tasma Finance Company Limited and Tasma Storage Limited. The Board constituted only officials appointed from government ministries and state-owned financial institutions. In essence, the interests of market institutions became subordinated to the state, although nearly half of the plantations remained under private ownership.

This arrangement was also short-lived, as the government sought to strengthen its control on all major crops by introducing single-channel marketing for all export crops. The government enacted the Sisal Industry Act in 1973 which created the Tanzania Sisal Authority (TSA). The objective of the act was "to make a provision for a unified system of marketing and export of sisal, and to establish the Tanzania Sisal Authority…" (United Republic of Tanzania 1973). The TSA also took over activities of the TSC, officially disbanded in 1977. Thus, the Authority became responsible for activities of the entire chain in the sisal industry in Tanzania, ranging from production, processing, and marketing for both local and export markets to promotion, development, control, and regulation of the industry.

A privatization drive followed as part of the reforms addressing the economic crisis of the 1980s. Privatization of the sisal industry was somehow delayed because of political pressures from local leaders in areas surrounded by sisal plantations, where sisal estates were in poor condition, where there were land conflicts and accumulated employee debts under the defunct TSA. In 1997, a new act, the Sisal Industry Act 1997, was enacted. Under this Act, the Tanzania Sisal Board (TSB) was created with an objective to promote an orderly development of the sisal industry. The functions of the Board were limited to promotion and regulation in the industry, research, licensing of exports and imports, quality standards, consultations and advice to the government. Market and export control, and direct involvement in production, processing, and manufacturing of sisal products do not form part of the functions of the state under this Act.

A number of private companies acquired state-owned sisal estates through the privatization programme coordinated by the Presidential Parastatal Sector Reform Commission (PSRC). Unlike other private companies, KATANI Limited resorted to integrate smallholder growers in its business. All other companies continued with the traditional plantation production structure. As established thus far, the institutional evolution focused more on ownership and industry control, rather than on structures of production and innovation. The structure of production remained the plantation system dependent on large-scale stationary decortication plants. The complementarity between state and market institutions was seen much more on the issues of labour recruitment and control, and on appropriation of foreign exchange from fibre exports. Development of alternative processing technology and production organization received little attention.

Over the last 12 years following privatization, output has increased only modestly as figure 5.1 has shown. The large-scale stationary decorticators in use operate below their installed capacity, which translate to high unit cost of processing. According to the official of SAT, as of July 2010, only 40 decorticators were operational, all running a single shift. The official attributed the low level of processing to the increase in downtime due to low production of leaf, problems with supply of machine parts and lack of sufficient technical knowledge for their maintenance. A locally designed mobile decorticator was developed in the mid-1990s, but its use is very limited on account of its low throughput, which

is not consistent with the plantation structure. These decorticators, known as Agro-Makyos Decorticator (AMD-III), are powered by diesel power engines of between 7.5 and 13 HP, with a capacity to decorticate 60 kgs of dry fibre per hour.

The privatization process, therefore, may have been blind to market failures and focused on state failures to vilify any direct role of the state on grounds of inefficiency. As Rowthorn and Chang (1993) argue, theories that equate efficiency and private ownership may be misleading, and suggest consideration of optimality of organizational size and dynamic efficiency through sustained innovation and structural change. The structural change, they contend, involves a broader political economy rather than just its economics. A broader perspective of privatization entails an institutional analytical framework taking into account the nature and character of firms taking over public enterprises, and the dynamics within which efficiency and effectiveness are promoted, including the process of privatization itself.

Pitelis and Clarke (1993) observe widespread concerns on collusion, corruption and conflicts of interest in the process of privatization in developing countries. In such a situation, questions can be raised on the likelihood of private interest to promote efficiency, through genuine restructuring and managerial efficiency. Henley (1993) notes that efficiency gains are not merely a product of ownership rights from public to private, but also of whether new owners have a direct interest in managerial efficiency, the absence of which become tantamount to conversion of a public monopoly into a private monopoly. Such a private monopoly will, just as is often perceived of a public monopoly, carry with it inefficiency or fail to bring about dynamic efficiency.

Dynamic efficiency gains are viewed to be the most important source of improved economic efficiency to obtain from privatization. These gains depend on the competence and quality of management and technical personnel. In the context of sisal production, recovery and competitiveness depend also upon the skills and capability of growers, which ultimately depend on the extent to which the private promoting company commits to invest and to provide productivity-enhancing support services. The subsequent section examines the private interest and commitment to attain such a dynamic efficiency under the land-induced smallholder integration in sisal production.

5.5 Integrating smallholders in production of sisal

5.5.1 History of smallholder integration in Tanzania

The integration of smallholder production is not a new phenomenon in the history of the Tanzanian sisal industry. Historical accounts of smallholders' participation in sisal production are documented in Bolton (1978), Lawrence (1975b) and Pössinger (1968). Before the 1960s, African participation in production of sisal was limited to the production of hedge sisal, particularly in the Lake zone. Smallholder peasants grew sisal to demarcate their fields and homesteads. As its commercial value was made known to them, they decorticated sisal leaf manually to produce unbrushed fibre sold through cooperative agents. The government sought to involve African smallholders as part of its improvement programme, and so it promoted special schemes. The Kwaraguru nucleus scheme and the Kabuku settlement scheme were established under the agreement between the government and the Amboni group in 1964.

Land under the Kwaraguru scheme remained under the ownership of the Amboni group. Smallholders were to produce sisal through their cooperative, to be processed by the Amboni group. Kabuku was developed as a settlement of 250 smallholders, each allocated a total of 12 hectares under coordinated planting programme in line with the sisal production cycle of 10 years. Of the 12 hectares, one was to be used for settlement and for growing food, and 11 were meant for sisal, of which 8 were to have mature sisal at any time, 2 for immature sisal, and 1 for fallow (Lawrence 1975b). The original capital investment was incurred by the Amboni as a long-term loan, which included mechanized cultivation of the field. The settlers were organized in four villages, with representational committees and organized blocks of farms so that cutting was planned according to the processing schedules of the Amboni group. The settlers were collectively responsible for cutting the sisal in alternate months, and individually responsible for maintaining their own fields.

As these experiments progressed, differentiation began to emerge among the settlers in terms of income, posing problems to the objectives of establishing *ujamaa* cooperatives and joint production.[9] This differentiation emanated from original individualistic landholdings, under which villagers who had migrated from Kilimanjaro, Lushoto and Pare resorted to employ casual labour from nearby villages, themselves concentrating on production of food and other activities. The resulting richer farmers

subsequently resisted the pooling of their land with other farmers. In addition to intra-settler differences, conflict began to emerge between the Amboni group and the settlers. The conflict related to the nature of deductions made by the Amboni for the transportation of leaf, processing, and transportation of fibre to the port, and the 10% of the c.i.f. price withheld for loan repayment. Coupled with falling prices of sisal, the smallholder settlers considered avoiding such charges by setting their own processing facility, but their production levels did not make an economic justification for such investment.

Another smallholder initiative was established in 1963 as an *ujamaa* village in Mbambara by a group of ex-sisal workers. According to Lawrence (1975b), this scheme was supported by TANU Youth League, a youth wing of the ruling party TANU. The village carried out diverse activities including production of food crops, fruits, poultry and cattle. Villagers distributed the tasks among themselves, but owing to various problems such as sickness, and the attraction of the national service programme for some youths, labour shortage was not uncommon. Agency problems created by conflicting goals between individuals and communal enterprises were also common. It was found out that village members did not do their communal work as carefully as the work on their private plots where they grew food crops (ibid.).

Like Kwaraguru and Kabuku smallholders, the Mbambara villagers felt the effect of declining prices and reduced their work efforts and sisal re-planting on the communal farms. Mbambara *ujamaa* villagers used to transport their own sisal, using a truck donated by president Nyerere in 1969, but declining production meant that the six-ton truck was too costly to maintain with lower amounts of leaf transported to the decorticator. The extension support from the government was weak, and the villagers themselves were not trained in proper crop husbandry. The organization of labour in a village operating as a single unit also proved complex, and the work discipline obtainable in an organized plantation was not easy to attain without sufficient education and supervision of government. According to the former official of TSC, there were many other small cooperatives in the Tanga region producing sisal. Some were supplied with small mobile decorticating machines known as *raspadors*, but the costs of maintenance, lack of experience in their use, and reluctance of growers to observe the required crop husbandry prevented

them from sustaining profitable levels of production. By the mid-1970s, all these schemes had collapsed.

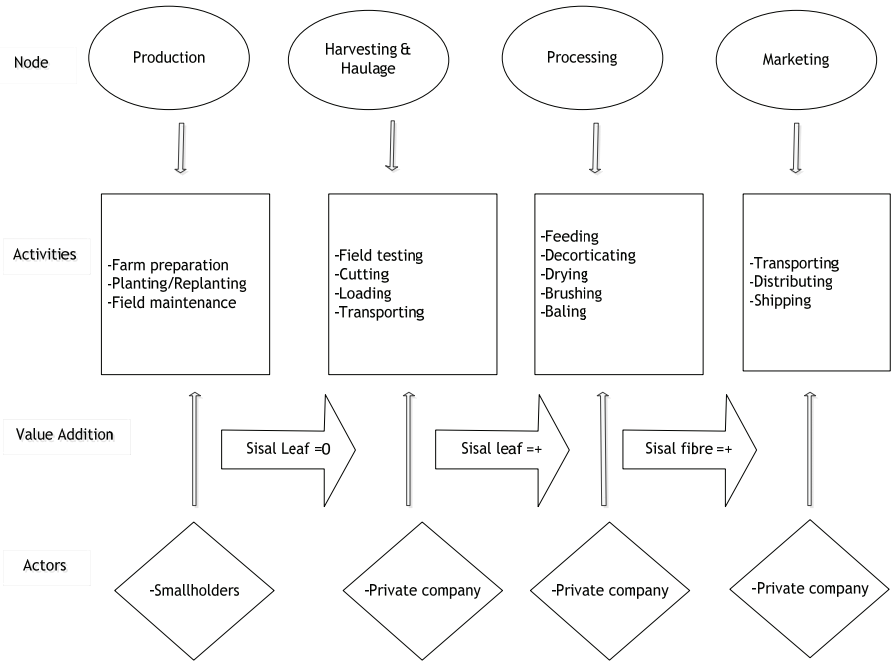
While Lawrence viewed smallholder production of sisal as the most viable alternative to sisal production, Pössinger did not. Lawrence based his views mainly on the economies of scope, given the potential of smallholders to cultivate food crops within sisal fields. Pössinger contended that although lower running costs and overheads were associated with smallholder production, the likely irregular supply would lead to stoppages of production. For him, a combination of production of leaf and processing into a single unit was vital. Pössinger suggested, instead, the continuation of the plantation form of production through participation of African capital in the existing companies. By the time the sisal industry was privatized in the late 1990s, there was practically no sisal fibre produced by smallholders. The smallholders in the Lake zone resumed their manual decortications in 2000, and by 2008, they produced 7,868 tons of unbrushed fibre. This represented nearly 24% of the total sisal fibre produced countrywide (TSB data). This is a significant contribution, despite the poor quality attributed to this poor method of decortication.

As the industry has evolved, local capital is now evident in the form of investments in private companies currently running sisal estates, mostly under the traditional plantation structure, in line with the views of Pössinger. As already highlighted, growth in fibre output following privatization has been modest. The Sisal Smallholders and Outgrowers Scheme (SISO) established in 1999 in the five estates run by KATANI Limited[10] presents complex organizational issues contributing to the debate on the viability of smallholder production of sisal in Tanzania as discussed in the remainder of this chapter.

5.5.2 The value chain integrating smallholders

To facilitate the understanding of current smallholder integration in sisal production, an overview of fibre production value chain activities is imperative. Figure 5.4 provides a schematic representation of key activities at each node and the role of the smallholders and KATANI Limited.

Figure 5.4
Sisal fibre value chain under KATANI



The first step in the fibre production chain is the clearance of land on which sisal is grown. For most of the existing estates, this work was carried out during the establishment of plantations, initially using labourers and subsequently using tractors and other bush-clearing machines. It also entails clearing of poled, old sisal in the end of their life cycle from the fields. For most parts of the estates allocated to smallholders, old sisal fields had to be cleared, because they had remained unattended for years. After having cleaned the land, ploughing takes place to allow replanting of young sisal. Initially, these smallholders were supplied with seedlings by the company, grown by the Sisal Research Institute, but the cost of transport became prohibitive to smallholders, who resorted to the use of bulbils and suckers. Bulbils are young, mutant sisal plants that stem from sisal poles, while suckers grow from the roots of sisal. While bulbils and suckers grow well, their growth tends to be retarded if not properly propagated. According to the official of the Sisal Research Institute, smallholders resorted to bulbils and suckers because the seedlings grown

in its nurseries were not currently sufficient to meet the demand of all estates, adding that "even if priority for seedling allocation is given to the smallholders, the cost of transporting them to their farms is an obstacle."

Maintenance of the sisal fields is also an important part of sisal production. In a typical plantation, this activity is carried out by a combination of machines and labourers, but for the smallholders, this activity is mainly carried out manually by family or hired labour. Owing to the difficult of raising financial capital, only few growers use hired labour. Those with relatively large holdings, explains an official of MUSA, use hired labour, especially for weeding. Depending on weather conditions, weeding is done between two and four times in a year. The smallholders also intercrop on young sisal plants, mainly with maize and leguminous crops, which provide some economies of scope, since labour effort is spent on multiple crops. The major output from this primary node is sisal leaf, which can be harvested beginning the third year after planting.

The second node is the harvest and haulage of leaf to the stationary decorticating plants located on each estate. This is one of the crucial nodes where the value of output from producers is determined. Due to the processing technology in use, cutting of sisal and its haulage to the processing plant is an important part of value addition. Harvesting of sisal is a coordinated process whereby processors assess the amount of leaf to be decorticated under the existing capacity in terms of labour, utilities and throughput rate. These factors determine the amount of leaf that has to be cut and delivered to the plant in a day. Once cut, sisal leaf must be decorticated within 48 hours. Sisal cutting is heavily labour intensive and constitutes a large share of production labour cost. It involves cutting of approximately one cubic metre of leaf per day per labourer, depending on land terrain, size of leaf and distance from the nearest track where collection is made. A cubic metre of leaf consists of 110 bundles, each bundle having 30 leaves. Transport of cut sisal is an important activity in this node. Although most estates are connected with light locomotive lines, road network across estates is more commonly used to haul sisal leaves with trucks and tractors from the fields to the decorticators. As the smallholders do not own transport equipment, the company's owned transport facilities are used and the costs arising thereof debited against their fibre proceeds.

The third node is the decortication process. The large-scale decorticating plants, commonly known as Corona's, are strategically located up-

hill and close to water sources so that flume wastes and other effluents flow downhill by gravitational pull. Corona is the name of the model patented and manufactured by the firm Krupp in the 1940s (see Tambila 1983). On arrival at the plant, sisal leaf is fed through conveyor belts to the feeder, and through to automatic decorticators where fibre is decorticated and separated from flume waste. Here, only between 2 and 4% of leaf is retained as raw fibre. The wet fibre is moved to the drying grounds where it is spread on lines to dry naturally from the sun. The flume wastes are washed away downstream. Dried fibre is moved to the brushing room where it is softened, straightened, and graded. These are then pressed and baled, marked by source, grade and weight. The bales are stored ready for sale. It is at this node that notable value addition takes place, by converting leaf to fibre, a tradable commodity. The supervision and costing of this process is entirely in the control of the owners of processing facilities. These are crucial for determination of distribution of this added value to growers.

The last node in the chain relevant for this study is fibre marketing. Marketing involves arrangements for distribution to the local users of fibre and shipping to the export markets. Locally used are manufactured final products such as twine, ropes, carpets, mats, baskets, and other derived products. Over the last decade, local sales of fibre exceeded export of raw fibre. Whereas in 1998, 65% of fibre was exported, in 2008, only 43% was exported. However, the derivation of income and value distribution to smallholders in this case is based on leaf they supply to the processor. The processor determines the price payable to growers based on indicative prices of fibre and not the actual price at which fibre is sold, which growers have no means to verify. For this reason, further processing of fibre into secondary products is not pursued in detail for the purpose of describing this chain and its organizational implications for the smallholders.

5.5.3 The SISO scheme and its outcomes

The SISO scheme describes the totality of all farmers that were given land for sisal cultivation by KATANI Limited. There are five estates currently under KATANI Limited, each with its own management that coordinate leaf supply and processing, and report to the company headquarters. These estates are Hale, Magoma, Magunga, Ngombezi and Mwelya. Growers under SISO differ by size of land they hold under the

lease. As table 5.1 demonstrates, for example, 258 growers in Mwelya holds 2,398 hectares compared to 107 growers in Ngombezi who hold 6,480 hectares. They also differ in economic characteristics and attachment to land, since some are employees of KATANI, others are absentee farmers in public and private sector employment, and others are primarily peasants in the neighbouring villages. By 2008, production in all five estates amounted to 2,074 tons of fibre, equivalent to 6% of total fibre production. For the first three estates, a large proportion of sisal growers are employees of the company working at the estates and at the corporate office.

In comparison with the estimated minimum economically efficient size of six hectares proposed at the inception of SISO, table 5.1 shows the distribution of allocated land for estates under KATANI.

Table 5.1
Distribution of land allocation by estate (hectares per grower)

Estate	Average	Largest	Smallest
Ngombezi	37	200	6
Hale	14	54	6
Magoma	11	115	6
Magunga	10	200	6
Mwelya	5	28	1

Source: Tanzania Sisal Board

Table 5.1 shows that the average landholding for two estates of Ngombezi and Mwelya represent two extremes. On one extreme, Ngombezi estate was allocated mainly to members of management of the company (TSB) and to influential absentee farmers, with an average holding of 37 hectares. These are essentially large-scale farmers as classified by the National Bureau of Statistics, although they are relatively small when compared to the estates. On the other extreme, Mwelya estate was allocated to peasant farmers from the neighbouring villages in the Makuyuni area, with the average holding of 5 hectares. The table also show large variations by grower indicated by the difference between largest and smallest land size.

Mwelya producers, while having smallest units, are the most active and dynamic among the farmers, and their institutional relations with KATANI are of special interest to this study. Table 5.2 serves to illustrate the structure of sisal production in the five estates.

Table 5.2
Distribution of KATANI producers by estates

Estate	Size (ha)	Number of farmers	Allocated (ha)	Under cultivation (ha)	Percent
(1)	(2)	(3)	(4)	(5)	(5/4)*100
Hale	4,180	141	2,037	531	26
Magoma	2,270	179	1,936	1199	61
Magunga	6,620	408	4,160	545	13
Ngombezi	6,480	107	3,971	1216	30
Mwelya	2,398	258	1,264	962	76
Total	21,948	1,093	13,368	4,455	33

Source: KATANI Limited and Tanzania Sisal Board.

Table 5.2 shows that the Mwelya estate had cultivated a higher proportion of land allocated than any other estate. Farmers from this estate are also the most organized, with a stronger collective voice through their producer association, MUSA. In a focus group discussion with leaders and farmers from Makuyuni, Kwamkole and Vulini farmer groups in the MUSA network, a sense of strong bond was visible, and a common message was "we all believe in our association as our voice to the Board against practices of KATANI on unfair prices, delayed payments, and on provisions of our contracts". The official of TSB also confirmed that MUSA was so far the most solid farmer organization under the SISO scheme. None of the members of this association are employees of KATANI. Their constant quest for review of contractual arrangement with KATANI is partly explained by this independence. In terms of production, Mwelya smallholders produced higher amounts of fibre than the other four estates. Table 5.3 gives the distribution of production for 2008 and 2009.

Table 5.3
Distribution of fibre output under KATANI contract by estate

Estate	2008		2009	
	Tonnes	%	Tonnes	%
Hale	198	13	164	11
Magoma	272	18	345	23
Magunga	82	6	72	5
Mwelya	616	41	760	50
Ngombezi	320	22	192	13
Total	1488	100	1533	100

Source: Tanzania Sisal Board.

As table 5.3 shows, Mwelya smallholders produced over 40% of total fibre output from estates under KATANI for both two years.

The process of establishing SISO involved intensive sensitization meetings with villagers surrounding the estates, with estate employees and other individuals interested in cultivation of sisal. Villagers were attracted by the access to scarce good land in areas surrounding the estates, given that there was an opportunity for them to grow food crops in between rows of young sisal and at the same time earn income from sisal. The process of land allocation for the villagers was simplified. Initially villagers were asked to write application letters individually, indicating interest in sisal production. The key criteria to qualify for land was an indication of commitment to develop the fields and to grow sisal. According to the official of MUSA, eight villages surrounding the estates applied for allocation of land initially set at six hectares per applicant. The process of allocation was also staged. For example in Makuyuni village, 33 applicants were allocated one hectare each, which was increased to three after their successful effort to clean and replant the first one. These were then subsequently increased to a maximum of six hectares as planned by KATANI. In other estates, a mix of employees and villagers were allocated land on the same basis, although for employees, different amounts of land were allocated depending on the position and commitment to invest.

Mwelya growers are organized into eight groups based on village structure, which together form the association. These are Makuyuni, Vulini, Kwamkole, Mwelya, Mbagai, Madumu, Mombo and Kwapunda. Growers from these groups are not entirely homogeneous, as they differ by the size of their current landholdings as shown in figure 5.5, and by diversification of their economic activities. As of September 2008, a register of MUSA had 265 registered members. About 86% are also engaged in cultivation of other crops, mainly maize, beans, and fruits. About 15% also keep livestock, and about 11% are engaged in small businesses. Less than 1% are former teachers, extension officers, and rural medical staff.

The association represents the interests of the smallholders and has been a major institution negotiating with the company on their behalf. It actively advocates members' interests to the TSB and the government on issues related to the contract. These contracts, signed in 2002, have been the centre of controversy between the smallholders, the company and TSB. These contracts require growers to plant and maintain sisal on land allocated to them during the contract period of ten years. Ten years is an average life cycle of sisal plants from planting to its poling age. These contracts also remind farmers that the land remains the "property" of the company. The contract allows the smallholders to cultivate seasonal crops on the portion of fallow land and on that with young sisal of less than three years, but only at the advice of an extension officer from the company. This nature of contract poses a problem of land ownership, because it does not give farmers any guarantee of their investment if misunderstandings lead to termination of contract.

Karl Marx analysed a similar situation that Irish peasants faced, leading to class struggles in Ireland. The landlord–peasant relationship allowed landlords to take advantage of improvements made on land by tenant peasants to demand increased rents, and where peasants refused, they were replaced by new peasants who paid higher rents justified by improvements made by previous tenants at their own expense (Marx 1971). Marx referred the owners of land as absentee landlords, a class that benefited from both labour and capital of Irish peasants. According to Marx, these peasants became tenants at will, since they did not have options to invest in different ways except on land, which they did not have at their disposal except on lease terms. As Marx argued, peasants can be producers of commodities, not labourers, if their independent position enables them to appropriate surplus labour (McLellan 1977).

The contractual relation observed in the case of Tanzania mirrors the analysis of Marx in the sense that the company operates as an absentee landlord who extracts rents from tenants through the mechanism of fibre pricing discussed in this section. The company itself does not engage directly in primary production activities.

These contracts essentially bind growers under a monopoly of the company in the control of land. They can sell their leaf only to KATANI at the price of UG-grade sisal fibre prevailing on the international market, and only with written permission from the company may a grower sell leaf elsewhere. This establishes effective monopsony in the processing and marketing of smallholder sisal, at terms that are not favourable to the smallholders. These contracts also stipulate that the company and the farmer will jointly prepare a programme for planting, weeding and cutting so as to prevent likely competition for labour in recognition of the problem of labour scarcity,[11] especially for the cutters. Furthermore it stipulates the practice of rotational planting so as to guarantee availability of mature sisal to feed the processing plants on a continuous basis. However, growers complain that the company makes all decisions unilaterally, despite having created committees and subcommittees at each estate to oversee these various activities, as one sisal grower and member of the association from Makuyuni remarks:

> You know, initially we were very happy and were enticed by availability of land. The problem started with this contract and our counterparts deciding on everything even where contracts stipulate that we jointly make plans and decisions. We realize now that their interest is to make profits using our labour and capital.

There are two committees at estate level which are very critical to the existing relationships between the smallholders and the company: the SISO committee and the Budget Committee. The former is responsible for approving the prices of leaf to be paid to growers and the apportionment of various costs. This committee consists of seven staff of the company, two representatives of smallholders, and one invited member from TSB. This composition is also contested by the smallholders as being unbalanced and ineffective in addressing the problems in the pricing system discussed shortly. The Budget Committee is largely one-sided, as it is formed by estate managers and directors of KATANI. This is the core committee that makes all the estimates of costs and revenue, and

proposes the pricing structure presented for approval by the SISO committee. According to the officials of the association, seldom does the SISO committee alter budget proposals from the Budget Committee, because sisal growers are largely under-represented. One official of the association who is also a member of the SISO committee narrates:

> The committee is almost an instrument of approving what is already prepared by the budget committee. The details of how costs and budgets were reached are not shared with us, and even if we are to vote against the proposal, we lose because we are very few. The proposals always consider the profit of a company, but not the profit for the farmer.

In addition to pricing decisions and allocation of processing costs, smallholders do not participate adequately in production and harvest scheduling. The company is responsible for recruiting, supervising and paying sisal cutters, and these costs are passed on to growers through deductions from sisal leaf payments. The dominance of the company over key decisions and the governance of this integrated sisal value chain signify an unbalanced business relationship between the two parties, and this imbalance has a significant bearing on the competitiveness and on poverty reduction. The company provides all services to growers at costs determined by the company. While some of these services can be provided by other providers at lower costs, contractual obligations and rigidities makes it difficult for growers to use such alternatives. For example, the growers find haulage costs charged by the company very high, but an attempt to use other private trucks is often discouraged by the company.

While some activities such as extension are still under the domain of the government, the sisal industry does not currently receive extension services from the government. These services had been provided from within the industry for many years. In practice, nearly each estate has always employed its own field officers. The official from the Ministry of Agriculture, Food Security and Cooperatives revealed that the extension officers located in the district councils are responsible for all crops produced in their areas, but it is sometimes the case that these extension staffs are not technically conversant with all crops. In addition, the official observes:

> In the industry like sisal that created its own extension and research capability, it has been a tendency to believe that capacity still exists within es-

tates themselves, and since the involvement of these smallholders is a recent phenomenon, it had not been the subject of absolute priority.

The design of the scheme under which the processor owns both land and processing equipment is the basis for the imbalance that allows the company to benefit disproportionately more than growers. Here the company uses its contractual terms to reap rents from both control of land and market monopsony, as table 5.5 indicates. Although a decision was reached at the conclusion of the arbitration between KATANI and PSRC in 2005 that the ownership of the land for all estates is to be vested under TSB, this decision had not been implemented at the time of fieldwork, and the company has continued to insist on the validity of the existing contracts. Responding to this issue of land ownership, a senior official of TSB observed that the new leasing arrangement was to be implemented after land is resurveyed. However, this exercise had not commenced and it was not clear at the time of fieldwork when and how it was to be implemented.

In addition to the weakness implied in the enforcement mandate, the study uncovered the problem of conflicts of interests among individuals within institutions, which may partly serve to account for non-compliance or slow response in implementing TSB directives. For example, it was found out that some of the senior officials of TSB were also the founding members of Mkonge Investments and Management Company, a local partner and current majority shareholder of KATANI Limited. This is not surprising, as both KATANI and the initial management of TSB drew a majority of their human resources from the defunct TSA. But it created conflicts of interest in the process, as officials expected to enforce decisions that may reduce profitability and monopoly powers of the company are also its members whose personal gains result from its profitability and monopoly position. The problems in the design of partnership and in the institutional coordination have meant that the traditional constraints that prevent smallholder competitiveness remain largely unresolved. Land entitlement remains problematic, growers are still credit-constrained, and market linkage is used as means to extracting monopoly rent rather than as means to stimulate productivity.

Land rights, differentiation and productivity

Sisal estates in Tanga region are surrounded by villages and settlements, including parts of the estates that were abandoned and infringed by for-

mer labourers or by the indigenous population. Most villagers are engaged in agricultural activities, producing mainly food crops such as maize, beans, fruits and livestock keeping. A significant part of smallholder land is owned under customary laws, recognized in particular cultural and community settings under which rights and entitlements to land use are embedded. The agricultural sample census 2002/3 estimated that for the Tanga region, the available land per crop-growing household was 1.8 hectares. The production of sisal requires continuous and rotational replanting, implying that for smallholders to produce sisal, much more than the reported average land holdings per household will be required for them to grow both sisal and food crops. The 1964 Kwaraguru-Kabuku settlement scheme was based on 12 hectares per household, which included one hectare for homesteads to the farming households. The current SISO scheme adapted a minimum of six hectares as the feasible land size per sisal-producing household.

Due to land scarcity in areas surrounding the estates, it was not possible for the smallholders to produce sisal commercially outside the estates. This consideration, together with the land pressure stemming from local politics in Tanga during the process of privatization of TSA also inspired KATANI to establish the SISO scheme. The scheme was also expected to mitigate the problem of labour shortage and costs facing the industry. It relied on growers' own labour, or was expected to attract labour from fellow villagers more conveniently in the light of the history of sisal labour and connotation it carried with it. As the smallholders were expected to grow food crop along with sisal, lower effective costs of production to the smallholders were expected from economies of scope as Lawrence (1992, 1997, 2004) argued.

Although the original intention for the scheme was to allocate six hectares for each smallholder household, subsequent development have created differentiation in the size of leased land, with a largest holding of 34 hectares and the smallest holding of one hectare. Those unable to develop their allocated land had to relinquish it back to KATANI, but some of them opted to transfer their lease rights to those willing and able to invest resources and labour efforts. Thus, as of September 2009, the distribution of land holdings for Mwelya smallholders had the structure shown in figure 5.5.

Figure 5.5
Distribution of land holding for Mwelya smallholders by size (hectares)

Source: Mwelya-Usambara Smallholders Association.

Figure 5.5 shows clearly that the majority of these smallholders, 66%, have been unable to retain the minimum land size considered feasible for sisal production. The data from the association further shows that of those with land under six hectares, only 47% operate on above three hectares, 30% between two and three hectares, and 23% below two hectares. Interviews with some growers in the Makuyuni area revealed that some of them had expected to obtain loans for sisal cultivation as promised by the promoting company, but it turned out to be a disappointment. One official of MUSA observed during an informal discussion with farmers:

> There have been a lot of frustrations among farmers over the last three years, because returns from sisal are held very low because of KATANI's pricing system, delays in payments, and lack of credit support through the company as expected by farmers. This has caused some farmers to exchange their leased land or part of it with others for immediate cash needs.

The exchange of leased land is recognized through written agreements between the parties to the exchange, witnessed by the farmer group, the official of the association, and a copy sent to the company for its records. This fragmentation of land among the smallholders is likely to constrain the flow of sisal output needed to maintain the operations of de-

corticators, as it is most likely to disrupt the rotational planting system. The resulting differentiation is also likely to diminish incentives of these growers to bond as a grower intermediary, especially if the company attempts to align with those with relatively large lease holdings to ensure continued supply of leaf.

The lease tenure of ten years implied in the contract between the smallholders and the company is also seen as an impediment to the former for further investment, because of the uncertainty in the behaviour and actions of the company towards the smallholders. Some growers find sisal growing too risky and with low returns. It was not clear at the time of fieldwork how the problem of fragmentation of leaseholds below the implied minimum feasible size of six hectares for production of sisal was to be resolved, given that the land titling issue itself remained unresolved.

In terms of productivity, data shows that while average land holdings per smallholder are lowest for Mwelya estate, its average yield rate of fibre per hectare is highest among the five estates under KATANI's coordination, as shown in table 5.4.

Table 5.4
Average fibre yield (tonnes) by estates under KATANI

Estate	Area under sisal (ha)	Output (tonnes)	Tonnes/ha
Hale	531	164	0.31
Magoma	1200	345	0.29
Magunga	546	72	0.13
Mwelya	963	760	0.79
Ngombezi	1216	192	0.16

Source: Tanzania Sisal Board.

This difference may be attributed to the fact the majority of Mwelya smallholders depend on crop production for their livelihood, and so despite the organizational problems discussed thus far, they exert more effort on the fields producing both food crops and sisal than is the case with the absentee farmers and employees occupying other estates. This is

consistent to the point made by Ellis (1988) that absentee landowners are likely to derive their income from non-farm economic activities, and so they spend less investment on land, which they hold for social prestige, political influence or speculative purposes. These observed yield rates, however, are below their potential average of 1.5 tons per hectare as estimated by the TSB and the Sisal Research Institute.

This allocation of land under SISO scheme, made without a corresponding transfer of power, therefore relegates growers to the status of disguised labourers. Their tenure is insecure, reflected in the nature of contracts and the associated friction between growers and the company. As Griffin et al. (2002) observe, however, to promote smallholder productivity requires not just redistribution of property rights on cultivable land, but also accompanying policy and institutional changes to support them. Thus a change in property rights regime can serve to shift the balance of power, but additional institutional innovations are needed to promote productivity and processing efficiency.

The problem of adverse credit arrangements

As discussed in chapter two, the paucity of agricultural credit and low levels of rural capital accumulation is one of the key constraints for smallholders in Tanzania. Financial institutions also view agricultural credit as too risky, especially so in the form practised by smallholders in Tanzania: rain fed and on fragmented land owned under customary laws that limit their use as collateral. The production of sisal adds another complexity due to the long gestation period, because harvests begin three years from planting. However, Mwelya villagers endeavoured to join the SISO scheme expecting that apart from land, credit was to be made available for sisal production activities. In the early years of its establishment in 1999 and 2000, these growers were promised credit tied to their sisal production. Initially, farmers used their own savings or funds from other sources to clear the fields. Although KATANI did not have its own capital base nor the mandate to extend credit to smallholders, its assets base and goodwill was to be used to secure loans from financial institutions, which in turn was to be extended to individual growers to cover for various expenditure related to farm preparations and maintenance of sisal.

Indeed, KATANI was able to obtain a loan of Tshs 6 billion from one non-bank financial institution for the purpose of rehabilitating its

processing plants, rehabilitating and acquiring transport facilities, and extending credit to smallholders. According to the officials of MUSA, however, less than 10% of their members received loans from the company, and for those recipients, most received only about a third of the amount they applied for. For example, most growers applied for a loan of approximately Tshs 1,500,000 but the maximum amount of loans disbursed per smallholder was Tshs 500,000. The process of loan repayment to the company has since become contested by the smallholders. The reason for the contest is that repayment of loan became a responsibility of all growers, irrespective of whether they had borrowed or not. According to the records of MUSA, deductions from leaf proceeds for 2007 included Tshs 110,000 per ton of fibre for loan repayment. This was heavily contested by the association, so that in 2008, this item was dropped from the deductions. However, the repayment burden of interest on loans has continued to be passed over to growers through continuous deductions from sale proceeds. Loan repayments are included in the computation of net proceeds even for non-recipients of loan. The breakdown of costs of operations for 2008 shown on table 5.5 for example, included Tshs 40,950 as interest on loan per ton of fibre. The association has repeatedly asked the company to provide details of the amount of loan which interest apply and the period of recovery, but no response to this request was given.

In response to the problem of inadequate access to credit and repayment of corporate credit, growers decided to form their saving and credit association. Mwelya-Usambara Savings and Credit Cooperative Society (SACCOS) was established in 2006 as a member-owned and -controlled financial institution. Their expectation was for banks to extend loans to growers through the SACCOS, with a possible guarantee from the company. However, the process of linked credit from the bank proved to be difficult, as the deposit base from SACCOS was limited. Lack of credit to meet short-term cash needs of smallholders also put them in a weak position to negotiate for higher prices with the company before sisal is cut. Subsequently, in a move that the officials of MUSA translated as an attempt by the company to extend its control over financing arrangements, estate-based SACCOS were encouraged to dissolve them and to form one large savings and credit association, *Umoja* (Unity) SACCOS, covering all smallholders under the five estates it coordinated. MUSA members agreed to join the Umoja SACCOS but without dissolving their

own SACCOS. The first governing board of *Umoja* SACCOS was constituted mainly by the employees of the company, and as a protest, MUSA opted out of *Umoja* and resorted to keep their own SACCOS. Minutes of the association's meeting on June 2007 outlined reasons for rejecting a federated SACCOS, which leaned heavily towards mistrust of the company's influence on the management of the SACCOS and the fear of cross-subsidizing farmers from other estates who lagged behind in sisal production.

Instead, the association decided to strengthen its SACCOS, and members agreed that each one contribute 10% of proceeds from sale of sisal to cover member's shares, deposits, costs of administration of SACCOS, and expenses for the smallholders association. As of June 2010, Mwelya SACCOS had mobilized a capital of Tshs 30 million and was already providing credits to its members for farm operations and for personal needs at an interest rate of 10%. While this initiative can potentially strengthen the smallholder's position in the partnership, the small size of their capital base and hurdles against collective access to credit through bank linkages remains a constraint. This problem is compounded by the delays in payment of sale proceeds to farmers by the company, which is also blamed for delaying remittance of the 10% contribution to the SACCOS' account after having already deducted from their sale proceeds. The official of the association observed that as of 16th July 2010, farmers had not been paid for the sisal harvested in February, March and April 2010, contrary to the requirements of the existing contract that stipulates that payments must be done within 45 days after harvesting.

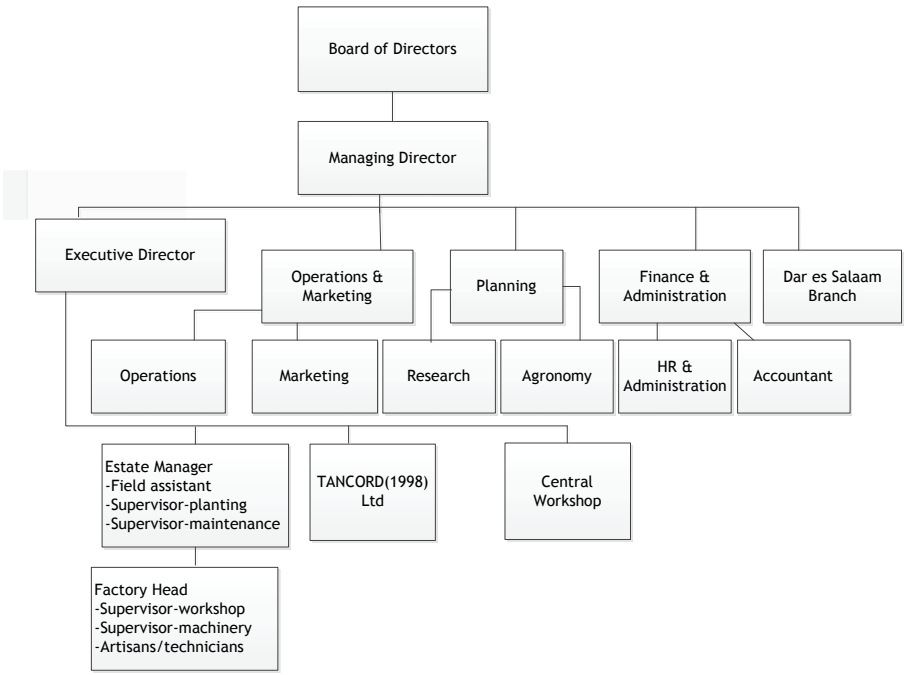
This experience of MUSA shows that self-financing mechanism by smallholders is a possible alternative to interlinked credit in an integrated production chain, but its sustainability depends on the commitment of the buying company in observing the terms of the contract, and the nature of the partnership itself. Such a mechanism is a preferred alternative for producers who have no control on credit arranged through a monopsonic buyer in an unbalanced partnership, where there is no transparency, and where the high cost of credit is passed on to growers.

Market linkage and masquerading monopoly

In the current SISO scheme, essentially the same estate structure of production and marketing is followed, except that production of leaf is carried out by individual growers on leased estate land, while processing and

marketing of fibre is undertaken by the company. There are three major problems that are found in this particular institutional arrangement likely to prevent output growth and competitiveness of smallholders in its current settings: the lack of incentives by the company to cut operating costs; failure of the pricing system to induce output, productivity, and quality increases; and limited institutional platform for industry wide innovation. These are discussed in turn.

Figure 5.6
Organizational structure of KATANI



Source: Drawn by author from a narrative description by KATANI Limited.

The issue of the incentives with respect to cost control and profitability is seen here in the context of the structure of organization of the company, and the process by which the institutional arrangement between the company and the smallholders is executed. As noted earlier,

the company was formed and still run by professionals and employees of the defunct TSA. While the company is a private entity, its structure has remained highly hierarchical. Its organizational structure is summarized in figure 5.6.

This structure attracts high overhead costs. The directors, departmental managers, supervisors, and other employees, must be paid irrespective of the volume of fibre produced and sold. Costs of office operations, buildings and vehicles are also high as a result, and as shown in the pricing structure, all these costs are absorbed by small quantity of units of fibre produced. As long as these costs are recovered before growers' share is considered, the company will have no incentive to increase operational efficiency and to cut costs. The pricing system practised by the company allows it to recover all of its operating costs plus a profit. The price of fibre depends mainly on prices prevailing in the international market, determined by the global demand and supply conditions. The prices of leaf paid to smallholder growers, however, depend not only on fibre price but also on the costs of processing, company overhead and the average yield rates for all estates under the mandate of the company as computations on table 5.5 indicate. This is because the price of leaf is determined as residual after deducting all processing and administrative costs. This residual pricing was a typical mechanism that was used to sustain inefficiency of crop marketing boards to the detriment of export crop producers. These costs are largely determined by the company with only a limited consultation with growers. The pricing process begins with an estimation of yields in the field through field tests carried out just before harvesting, from which the average forms the basis for price estimation. For example, for 2008, an estimate of yield of 38 meters of leaf per ton of fibre was used to estimate leaf price, including all processing costs as shown in table 5.5.

As table 5.5 shows, while direct factory costs constituted 20% of fibre processing costs, indirect overheads including depreciation constituted 55%, and a further 20% was added to cover management and marketing costs plus profit for the company. The total costs of Tshs 691,356 constituted 68% of price of Tshs 1,021,000 per ton of fibre in 2008 shown on table 5.6. The residual of Tshs 329,644 is then translated in gross price per ton of leaf by dividing it by the average meters of leaf per ton, 38 for 2008, giving a gross price per ton of Tshs 8,675. This gross price is not payable to the farmers, because additional deductions have to be

made for the cost of cutting and haulage from the field to the decorticator, amounting to Tshs 3,473, and 3,031, respectively. The net amount payable to the farmer was therefore Tshs 2,171 per meter or Tshs 82,498 per ton of fibre, equivalent to 8% of the market price of fibre.

Table 5.5
Pricing structure and cost allocation by KATANI for 2008

Cost object	Cost per ton (Tshs)	% of total cost
Direct factory costs		
Decortication	29,704	4
Drying	15,673	2
Brushing	16,752	2
Balling & Stocking	22,767	3
Factory power	52,766	8
Subtotal	*137,662*	*20*
Indirect overheads		
Estate staff welfare	24,232	4
Maintenance of machinery	25,210	4
Maintenance of buildings	6,492	1
Maintenance of drying line	2,193	0
Maintenance of infrastructure	11,504	2
Maintenance of trucks and tractors	15,708	2
Estate staff salary	52,511	8
Office equipment	10,398	2
Crop levy, property tax, retirement benefits, water rights insurance, licenses	19,181	3
Supervision on field operations	20,698	3
Fibre transport	18,905	3
Subtotal	*207,032*	*30*
Interest on loan	40,950	6
Depreciation	170,691	25
Total costs before management & marketing costs and profit	*556,335*	*80*
Management and marketing cost	102,100	15
Profit (5% total costs including management)	32,921	5
Total costs of fibre production per ton	*691,356*	*100*

Source: KATANI Limited, MUSA, TSB.

Clearly, the share of price for the sisal growers is low, and computations are made without regard to production costs they incur. Recent estimates by TSB show the average annual cost of field maintenance of Tshs 105,000 per hectare if the fields are properly maintained. At the current average productivity of less than one ton per hectare (see table 5.3), it is unlikely that producers will be induced to increase output under this pricing regime. One grower in Mwenya complained:

> The pricing of leaf assumes that its production is costless. The price they pay us really means nothing when compared to what we put in the sisal fields in terms of our money and labour.

This kind of pricing reduces incentives to growers, who expected much higher income from sisal farming. An official of MUSA added that the differentiation in leaseholding in Mwelya is the outcome of this pricing structure, as some villagers opted out of the scheme by transferring their leaseholds to others.

An additional problem to this pricing regime is the lack of sensitivity to differences in quality of sisal, a further disincentive to the smallholders to improve quality. The assessment of quality based on field tests and not on actual production is one problem, but the average price of fibre applied to all producers is another. Here, the price is determined as the weighted average price of all fibre produced by grade. Table 5.6 shows the computation of the price per ton of fibre for 2008.

Table 5.6
Estimation of average price of fibre by KATANI

Grade	Fibre price (Tshs/ton)	% produced	Contribution to price
3L	1,150,000	4.50%	51,750
UG	1,050,000	75.00%	787,500
SS UG	950,000	15.00%	142,500
UF	750,000	1.50%	11,250
TOWS	700,000	4.00%	28,000
Average price (Tshs per ton)			1,021,000

Source: KATANI Limited.

With averaging as a basis for pricing, growers with large quantity of high quality sisal are not entitled to higher prices, giving no incentives for them to invest in raising quality, which cross-subsidize those that produce low quality sisal. In a statement to the delegation from TSB on the 6th of October 2008 for example,[12] smallholders from Mwelya cited this system of determination of proceeds distributable to growers and to the company as the key impediment to their progress, adding that despite their previous letters of complaints and frequent meetings with the TSB and the company, no action was taken to address it. The TSB delegation, however, did not offer immediate solution.

The pricing regime and unbalanced nature of this partnership, therefore, reduce incentives for both the company and the smallholders to innovate for higher yields and sisal output. For the company, the ability to recover all of its costs by amortizing maintenance costs plus depreciation to fibre output prevents it from actively pursuing improved efficiency, such as investment in new production and processing methods. For the smallholders, their contractual obligation limits any venture into alternative processing or transportation arrangements. Officials of MUSA observed that their attempt to organize their own transport for leaf was met with resistance from the estate management, on the ground that they cannot comply with their processing schedule. As computation of leaf price indicated, transport costs constitute approximately 37% of the gross price of sisal leaf per metre.

This arrangement was also expected to attract a new generation of young farmers, and hence to reduce the problem of labour shortages. However, those with alternative access to land or other economic activities find little attraction in the current setting. Most of those engaged in direct employment in the sisal industry are old, comprising mostly of labourers employed in the industry since the 1960s and 1970s. Young people in areas surrounding the estates are still reluctant to work in the plantations, especially as sisal cutters. Clearly, the pricing regime and distribution of value under this institutional arrangement is not suitable for promoting sisal production by smallholders. The power asymmetry leans heavily towards the company, reflected in the nature of contracts, and the absence of countervailing powers, with the resulting counterproductive frictions.

5.6 Conclusion and implications for policy and institutions

This study has shown that, smallholders' involvement in the production of sisal is not a new phenomenon. While such schemes did exist in the mid-1960s, the political environment at the time was biased towards a socialist production organization based on communal farming. The organizational relationship between the smallholders and the estates, however, presented problems, some of which are similar to those experienced under the current scheme. Confronted with global changes in the sisal market, the sisal industry in Tanzania was unable to sustain its market leadership from the early 1970s. Macroeconomic policies of the time, especially the overvalued exchange rate, forex allocation bias, and export taxes contributed to the decline in competitiveness relative to other countries, particularly Brazil, as well as to substitute products. The organization of production in the plantation structure also entailed high overhead costs, large capital requirements, and complex coordination of labour. Changes in the political economy in the mid-1960s and subsequent years brought with it changes in ownership and institutional settings. Nonetheless, production structure remained mainly plantation-based.

The current integration of smallholders by a private company was based on the premise that at production level, smallholders operate smaller parcels of sisal fields more efficiently, benefiting from economies of scope obtained by intercropping and use of family labour. Economies of scale are then to be gained through shared facilities for processing and value upgrading, and from benefits of joint access to reliable markets. The study concludes that the existing institutional framework does not lend itself to provide these benefits to the smallholders, because of imbalance in the partnership rooted on the lack of independence on the part of growers who farm on leased land. In the language of Bitzer et al. (2008), the smallholders are here interpreted to be partners *of* partnership rather than partners *in* partnership. The lack of countervailing powers worsen the outcomes of this imbalance, since control of key resources, including land, transport equipment and processing plants are vested in the hands of one partner. In essence, the smallholders in this case are disguised piece workers.

Two areas of relevance for policy and institutional design are outlined. First, in the presence of strong competition from Brazil and com-

petition from substitute products in the global market, active policy strategy is required to promote diversification in the use of sisal. A strategy may also be required to reorganize fibre production structure to make it efficient and competitive. Such initiatives are likely to be beyond the confines of "markets" viewed in abstract terms.

Second, even when smallholders provide efficiency advantage over plantations, their integration under the present institutional framework is an obstacle to competitive production, even if global market conditions improve. To be effective, the scheme needs to be reorganized into a balanced partnership, by introducing effective countervailing powers. These will require separation of land ownership from the processor, enabling part ownership of the processing facility to the growers, and enhancing access of essential services such as credit and extension outside the domain of the processor. A strong, independent sisal board is essential for enforcement of contracts and for promoting innovation.

Notes

[1] Edwin Mtei, a former governor of the Bank of Tanzania explains how the political sentiments of the time resisted professional advice to devalue (see Mtei 2009).

[2] See www.brazilianfibres.com.br, accessed 12 October 2010.

[3] Based on author's communication with an official from the Syndicate of Plant Fibre Industries of the State of Bahia (SINDIFIBRAS) and its book titled *O Sisal do Brasil*.

[4] Author's computation from FAO (2005) data.

[5] Economies of scope relates to the production of joint products, or multiple products by the same firm or producer, such that the costs of producing one product is unaffected by the output of other products. This is distinguished from economies of scale, which refers to the responsiveness of cost to changes in output of a particular product. Economies of scale exists when long-run average cost decrease as output increases (see Gravelle and Rees 2004, Milgrom and Roberts 1992, Teece 1980).

[6] This research centre is the now the government's Sisal Research Institute.

[7] Africanization policy was intended to include Africans in the management positions in the sisal estates and in the civil service, and change in the management practices that were viewed as perpetuation of colonial practices.

[8] Manamba is the name given to migrant labourers because of their system of recruitment and numbers that were assigned to them for identification of contracts, tasks, and area of origin.

[9] *Ujamaa* is a Swahili term for communal livelihood, and the type of socialism that Julius Nyerere, the first president of Tanzania aspired. Hence Tanzanian socialism came to be commonly referred to as *Ujamaa*.

[10] The use of the term "smallholders" in the context of the SISO scheme considers all farmers allocated parcels of land within the estates as smallholders irrespective of their size of land. The fact that they are intended to supply their leaf output only to the company for further processing qualifies them as outgrowers. There are, however, a few independent, medium-scale sisal growers who also supply sisal leaf to private processors, who can be considered outgrowers but who are not necessarily smallholders. Nevertheless, the term smallholders in this study is used to distinguish sisal growers under the SISO scheme from large estate producers operating independently.

[11] Unlike the previous days of recruitment of migrant labour, most cutters today consist of a few older labourers who continue to work for the estates and remain in the camps, members of the families, and some recruited from neighbouring villages on a seasonal basis.

[12] Written statement delivered by the association to the TSB delegation.

6 Missing links in coordinating sugarcane outgrowers

6.1 Introduction

Sugar production in Tanzania is carried out not only for local consumption but also for export. Cross-border trade of sugar has for a long time operated within a framework of state regulation and international agreements. It is an important industry within the agricultural sector, employing between 14,000 and 15,000 people directly in the producing companies and institutions, and about 66,000 people in cane production and secondary activities (Sugar Development Corporation 2001, United Republic of Tanzania & European Commission 2005). The industry was promoted as part of the import substitution industrialization strategy, involving large-scale, capital-intensive vacuum pan mills. Cane is supplied by both the nucleus estates and the outgrowers, most of whom are smallholders. Throughout the 1970s and 1980s, the industry was fully under the control of the state, until the late 1990s when all sugar milling companies were privatized as part of economic reform.

In spite of privatization of sugar mills, smallholder production of cane has continued to be significant. The nature of production and the strategy of collective action, however, raise some doubts about the potential of the existing production structure to be competitive in the global sugar market amid changes in production patterns and reforms in the European Union's sugar industry. This study investigates the structure and organization of cane production, and the extent to which existing institutional arrangements put cane outgrowers in a position to raise productivity and efficiency, which are essential components of competitiveness.

In carrying out the study, interviews were carried out with officials from key institutions, including the Sugar Board of Tanzania (SBT), mill-

ing companies, intermediary organizations of outgrowers, and those providing major services to cane growers in the Kilombero and Mtibwa cane growing areas. Interviews were also carried out with some farmer groups, and so were observations of operations in cane fields and sugar mills. Secondary data was collected from report files availed from sugar milling companies, outgrower intermediaries, and from SBT. Additional information was sought from literature, from the FAO, and from the International Sugar Organization (ISO). A visit was also made to Dwangwa sugar estates in Malawi, where interviews were held with officials of the outgrower intermediary, the milling company, and growers. Some data limitations relate mainly to the difficulties of obtaining detailed revenue and cost data from sugar mills, from which the analysis of processing costs and distribution of proceeds between them and outgrowers were to be obtained. However, alternative proxy information was sought from other institutional respondents and through triangulation from available data from other sources.

The key proposition in this case study is that raising productivity among cane outgrowers in Tanzania is limited by its character of production and limited collective actions through horizontal coordination. Intermediary organizations play important functions in vertical coordination, such as reduction of transaction cost and uncertainty (Coase 1937, North 1990, Glover 1984). Existence of these organizations and their transaction-reducing functions are necessary but not sufficient for raising productivity and for enhancing efficiency in the current environment of production. These require additional institutional catalysts of change to support meso-level intermediaries to experiment with production organization that allows for innovation and practices for realizing economies of scale.

In expounding this proposition, section two examines the sugar industry in its global market context, showing that efficiency and productivity are essential requirements for the long-term survival of the sugar subsector in Tanzania. Section three examines the relationship between the choice of technology, production organization and the history of outgrower production. Section four discusses the structure of outgrower coordination, highlighting the ways in which vertical coordination by producer organizations have helped to reduce transaction costs, and how the absence of horizontal coordination limits increase in productivity. It also illustrates an alternative experiment within Africa showing the po-

tential for horizontal coordination to increase productivity of small cane outgrowers. Section five concludes and draws some implications for policy and institutions.

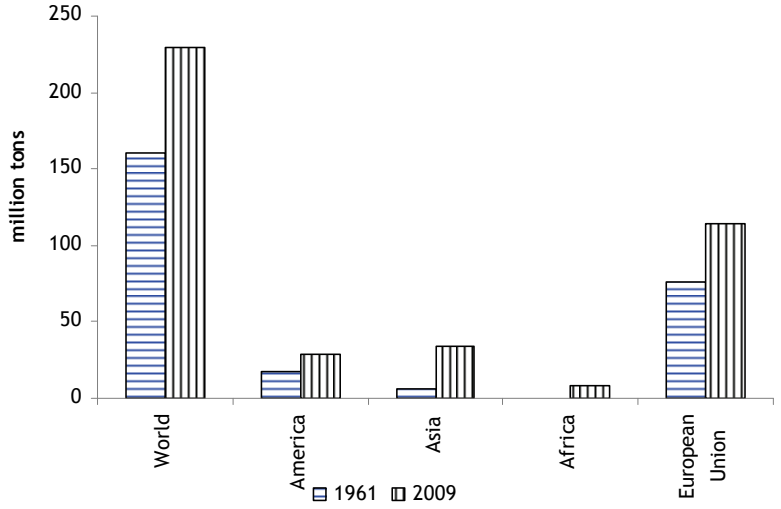
6.2 The sugar industry in the global market context

The global sugar industry has evolved in its unique way since the 19th century. Contrary to the notion of free market and free trade principles of which the General Agreements on Tariffs and Trade (GATT) and its successor World Trade Organization (WTO) were set to promote, the sugar industry worldwide has been characterized by government interventions and controls. These interventions have compartmentalized market between a multitude of special multilateral and bilateral arrangements on one hand, and free market on the other. They have also led to structural instability in supply and demand for sugar, and high volatility in sugar prices with perverse effect on production. Three stylized facts about the global sugar industry are outlined, and these have implications on Tanzanian sugar production.

First, while production of sugar was largely dependent on cane produced in developing countries of Asia, Africa, and Latin America, the latter part of the 19th and throughout the 20th centuries witnessed radical changes where beet sugar grew in importance. Beet sugar is produced almost exclusively in developed countries of Europe, Asia, and North America. Over the past 48 years, sugar beet production has increased by about 40%, and much of this increase has occurred within the European Union. Figure 6.1 serves to show the change in the structure of world production of sugar beet by major producing regions between 1961 and 2009.

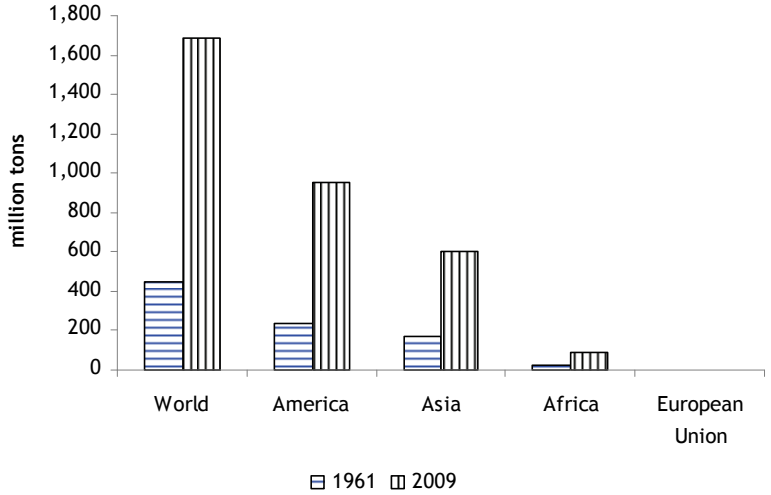
As figure 6.1 indicates, production of sugar beet has continued to expand over the last five decades, with the European Union (EU) contributing more than half of this output. Conversely, cane sugar is concentrated in developing countries, mainly in the tropics. Figure 6.2 shows the structure of world production of cane by major producing regions in 1961 and 2009, showing a dramatic rise in cane production mainly in America and Asia. Africa contributed only 5% of global output of cane in 2009. Of the Americas, major producers are in South and Central America.

Figure 6.1
World production of sugar beet by major producing region, 1961 and 2009



Source: FAOSTAT - www.fao.org/corp/statistics.

Figure 6.2
World production of sugar cane by major producing region, 1961 and 2009



Source: FAOSTAT - www.fao.org/corp/statistics.

The structure of cane and beet production closely mirrors the structure of sugar production. By 2007, Asia was the leading producer of sugar, followed by South America and the European Union, producing 38%, 25%, and 11% of world sugar, respectively. The remaining regions produced less than 10%. Africa produced only 6% of world sugar (International Sugar Organization 2008a). Tanzania produced only 3% of the total sugar output from Africa. This structure and trend suggests that while Tanzania is not a significant producer of sugar globally, it faces formidable competition on the market, both from developed countries and developing countries. During the same period, global consumption of sugar stood at 157 million tonnes against production of 166 million tons (ibid.). With increasing production, substantial surpluses are likely, which have tended to hurt the economies of developing countries dependent on sugar exports, particularly so under liberalized market environment.

Second, the global sugar marketing system has made sugar prices very volatile, due to the distortions built in production interventions and compartmentalization of market. As Abbot observes:

> Whereas changes on the upside invariably set off an expansion of output, on the downside, they are not followed by a corresponding contraction. Also the conventional relationship between prices and consumption does not appear to hold in respect of sugar. A fall in the price of sugar has little effect on the level of production. There is therefore, a built-in tendency towards overproduction, which contributes in a big way to the fundamental imbalance which characterizes the industry. (Abbot 1990: 4)

Hagelberg and Hannah (1994) observed a similar market response. The free-market sugar includes the part of world trade to which special trading arrangements do not apply. The free market for sugar, commonly referred to as "residual market", has been only a small proportion of world sugar traded outside special arrangements (World Development Movement 1980, Abbot 1990, and Hagelberg and Hannah 1994). The special arrangements have varied from period to period, depending on the provisions of various bilateral agreements and the International Sugar Agreements that began in 1937.

The special arrangements embedded in various bilateral and multilateral agreements include the Sugar Protocol under the Lomé Convention between the European Economic Community (EEC) and the African,

Caribbean, and Pacific (ACP) countries signed in 1975, and the International Sugar Agreements. There are numerous other agreements, for example between Cuba and former socialist countries, and between the United States and countries in Central America. The Sugar Protocol gave preferred access to ACP countries' sugar to the EEC market based on a quota system and duty-free agreement. The Lomé convention was reviewed three times, resulting in the Lomé Convention II (1981–85), III (1985–90), and IV (1990–99), under which preferential access of ACP markets to the EEC continued, albeit with some modifications. Significant changes occurred, however, following the establishment of the European Union (EU) after the Maastricht Treaty in 1993, and the United States petition to the WTO in 1995 against the preferential sugar trade between the EU and the ACP.[1]

While the preferential sugar trade under Lomé convention and its variants was considered supportive of ACP countries, the EEC common agricultural policy was viewed to work to the contrary. The World Development Movement (1980) outlined protection of EEC farmers, subsidized beet farming and exports from EEC that depressed sugar prices in the free market, and its reluctance to join the International Sugar Agreement (ISA) as some of the factors that depressed production growth from developing countries. The ISA was first signed in 1931. The subsequent ISA was signed in 1937. According to Hagelberg and Hannah (1994), the agreement classified as free market all sugar exports except those to the USA, some from Soviet Union, and those between French territories and Belgium and Luxemburg. The subsequent agreements of 1953 and 1958 excluded imports by the USA, and Soviet imports from its three neighbours, trade between member countries and their overseas departments and associated territories, and trade covered under Commonwealth Sugar Agreement of 1951. The 1968 agreement recognized the exports to United Kingdom through special arrangements made under Negotiated Price Quota of the Commonwealth Sugar Agreement, among other bilateral agreements. And the 1977 ISA continued with the 1968 agreements with some minor modifications.

After the 1977 ISA, the participating countries sought to incorporate the EEC as a member in the agreements, negotiations were difficult because of the different positions between incumbent members and the EEC, the former preferring export-quota type measures while the latter preferred measures based on accumulation and release of stocks. The

1984 ISA mainly provided a framework for further negotiation. In 1987, another ISA was adopted without economic clauses or provisions for regulating the sugar trade. The period between 1983 and 1992 was thus viewed as a period of self-regulating market, where the ISO, the Secretariat to the ISA, lacked any regulatory tasks besides analysis and dissemination of information on the industry. It also marked the period in which the share of developing countries in net exports dropped, while its share in net imports increased (Hagelberg and Hannah 1994). Eventually, the 1992 ISA was reached, although the USA refused to sign the accord. This ISA formally established the ISO as an organization for market evaluation, consumption and statistics aimed at providing informed discussions among members.

In addition to a multitude of special agreements governing sugar markets, the free market is also open to speculators who trade on the futures markets. Futures markets refers to widely practised international exchanges of commodity and financial instruments where parties enter into contracts to buy or sell specified quantities of commodities at a specified price to be delivered at a specified future date. Both the World Development Movement (1980) and Abbot (1990) observed that trading in the futures market is used more for speculating than for risk hedging purposes, thus contributing to large price swings.

Third, production organization and technology vary widely across producing regions and across countries in the same region. For example, sugar beet is produced under a highly mechanized environment. On the other hand, sugar produced in developing countries is extracted from sugar cane, grown on a mix of mechanized, large-scale plantations and smallholder, labour-intensive farms. Consequently, output flexibility, productivity, and cost structure differ widely.

A combination of these stylized facts has three implications for the sugar industry in Tanzania. First, notwithstanding the notion of free commodity markets and trade liberalization, the sugar industry has until very recently remained highly politicized, regulated, and subject to government interventions even in the developed economies. Second, the reform in the EU sugar market provides both an opportunity and challenge to the local sugar industry. While Tanzania imported 184,000 tonnes of sugar in 2007, it exported 39,820 tonnes during the same year (International Sugar Organization 2008a). Most sugar imports came from different countries, including the EU, United Arab Emirates, Saudi Ara-

bia, Mozambique and others, but the entire exports were destined into the EU (ibid.), most of it, if not all, under the special arrangement.

Under the current EU reforms in its sugar industry, protective subsidies for domestic farmers and preferential high prices through these special arrangements are abolished. The sugar protocol governing quota-based exports ceased in September 2009. Tanzania, however, has the opportunity to export sugar under the Economic Partnership Agreement (EPA) with the EU, through the free access to the EU market under Everything But Arms (EBA) initiative. To benefit from this initiative, however, Tanzania producers of sugar must be competitive. To be competitive, efficiency and productivity in cane production has become more important. As this study establishes, smallholder production of cane in Tanzania is significant, entailing that smallholder productivity needs more attention than before. The ISO correctly observes hence:

> … for potential beneficiaries of the EBA, such as Tanzania, the need to raise the general productivity of smallholders is paramount and heightens the need for the organisation of smallholders into viable configurations. (International Sugar Organization 2008b: 6)

Third, the continuing innovation and investment in technology and organization of sugar production worldwide will have a bearing on the competitiveness of the Tanzanian sugar industry, even for its own local consumption. The market availability of cheap sugar from more efficient producers in the region or outside the region, even under the regulated sugar market environment exerts pressure on local producers to reduce costs. While it was not possible to obtain detailed cost structures for processing and marketing from the milling companies, reports and data obtained from SBT for 2005 suggests that although Kilombero Sugar Company was more efficient in sugar production than Mtibwa Sugar Company, costing $320 and $353 per tonne, respectively, both costs were higher than counterparts in South Africa, Malawi, and Zambia, and roughly double the cost of Brazil that stood at US$ 154 per tonne (Sugar Board of Tanzania 2006).

6.3 Choice of technology and structure of production

The structure of the sugar production and marketing in Kilombero and Mtibwa can be conceived of as a "designed" monopsony. The use of the term "design" here relates to the choice of production technology and

the resulting organization of production. There are two common scale-differentiated technologies that are key to this distinction as described in technical detail in Bush (1989), Tribe (1989) and Lone (1989). These are the Open Pan Sulphitation (OPS) plant and the Vacuum Pan (VP) factories. The latter technology is often a large-scale, capital-intensive process that takes advantage of economies of scale compared to the former, which is suitable for smaller-scale operations. According to Bush (1989), much of the VP process equipment is designed to take full throughput of the factory, making capacity utilization extremely important for their efficiency, factory recovery, and hence their viability. On the other hand, the OPS plants are less dependent on capacity utilization. Their recovery rates depend more on operator skills in processing, which is not supported by instrumentation but rather through manual actions and operator judgments. VP factories are energy efficient than OPS plants owing to the centralization process of the VP in which bagasse[2] is used to generate power for boiling cane juice and for other activities in the factory (ibid.).

The adoption of VP technology in most developing countries as opposed to OPS technology is attributed more to the political economy rather than to purely technical and efficiency considerations (Lone 1989, Hagelberg and Hannah 1994). Lone observes that VP factories in developing countries, particularly in Africa were established as import substituting industries to cater for the rapidly growing urban market for white sugar. Hagelberg and Hannah similarly observe that, with rising demand for sugar resulting from economic development, governments found import substitution easier and with additional benefits of contributing to agricultural intensification and rural development programmes. Even in countries where traditional production of jaggery[3] or gur was made in OPS plants that were not capable of separating non-sugars, the production of sugar came to be based on imported VP technology rather than on upgrading or developing indigenous technology (Lone 1989). Tanzania falls in this category. This was the beginning of systems of the agro-processing industry in which cane growing and milling functions were closely integrated and coordinated. The VP milling technology was thus associated with the establishment of large nuclear estates run by the millers to ensure adequate and constant supply of cane to the mill, hence the term miller-cum-planter (MCP). For convenience, these MCPs are referred to simply as millers.

Lone (1989) and Abbot (1990) observe that there are multiple forms of sugar production organizations worldwide, which are not necessarily mutually exclusive. Three types are most common. The first is total integration, under which sugar mills own plantations supplying the entire cane requirements. The second form is partial integration, where mill-owned plantations supply a portion of cane requirements, with the remaining part supplied by outgrowers. The third form is that of total separation, where MCPs are largely non-existent, so that millers depend entirely on smallholder cane cultivation. This last form of production partly explains the importance of small-scale OPS sugar plants in India and in other Asian countries. The first two types are found in Tanzania. Total integration is practised in the Kilimanjaro region by Tanganyika Plantation Company (TPC) Limited, one of the four large-scale sugar factories. The second form has been practised in the Kilombero and Mtibwa valleys in the Morogoro region since the establishment of commercial production.

The involvement of smallholder cane farming in Tanzania dates back to pre-independence period. Baun (1968) observes a mix of smallholder producers of cane with a few large Indian and European estates since 1920s, most of which was used by Indian traders to produce jaggery and brown sugar used for local household consumption. Even with the opportunities provided by the Indian traders for cane trade, the smallholders did not take the cane production very seriously, and instead continued with the cultivation of multiple crops on outlying fields where shifting and semi-permanent cultivation of maize, rice and cotton were practised. It is not the crop rotation that was practiced *per se*, but allocation of specific plots for suitable crops determined by soil fertility in that period and fallow (ibid.). Certain crops had the advantages of being planted in blocks, not because of scale effects in production, but due to other strategic factors such as common protection of vermin. In production of rice for example, plots of several holdings were consolidated in a particular geographical area, but each household tended to its own plot. The cultivation of other crops, including cane, continued on individual household basis, often characterized by small farms of various sizes and forms, most of which are evident today. Baun also found rice and sugar cane as complementary crops with respect to the demand for labour, and thus relative returns dictated the choice of a crop among the two.

Apart from the independent growers, the only organized smallholder production of cane was the Kilombero Settlement Scheme in the Sonjo, Ichonde, and Kichangani, with a total of 250 holdings and land area of 1,330 acres. The Sonjo scheme was established in 1959 under the political party TANU to provide settlement for unemployed urban youth. The Ichonde scheme was established in 1960 for the unemployed in the Morogoro region, while the Kichagani settlement resulted from self-initiative of 100 small farmers in 1963. The entire scheme was subsequently placed under the management of the Tanganyika Agricultural Corporation (TAC). As Baun further observes, the organization of the settlements involved the division of labour between the TAC acting an intermediary between the farmers and the sugar mill. The TAC provided land clearing and cultivation services, divided the plots by blocks, procured and distributed seed cane to farmers, and organized cane marketing, after which the costs for such services were deducted from their proceeds.

The settlers farmed their land in accordance with the rules and under the guidance of the TAC. As Baun observes, however, while the yield and gross returns for cane settlers were 50% higher than those from cane growers outside the settlement, their net returns were lower than rice and cane growers outside the settlement, mainly on account of high costs of services deducted under the settlement. The high costs of scheme administration, depreciation of equipments and buildings, and land improvement accounted for high costs of services amounting to 81% of sugar cane price per ton, thus distorting the incentives of the settlers to continue with production under the scheme (ibid.). A problem with this approach therefore was in the organizational design which relied on the State Corporation that was not accountable to growers and had no incentives to cut managerial costs.

Large commercial-scale production started in 1960, when a small private mill was built at Mtibwa, followed by construction of a large-scale milling plant at Mswolwa in Kilombero in 1962, known today as K1. Increased sugar demand in the post-independence period necessitated the government to initiate some strategies to increase production of cane and sugar. The National Agriculture and Food Corporation (NAFCO) formed in 1969 took over half ownership of Mtibwa and constructed a large-scale milling plant still present today. NAFCO coordinated production of sugar in Kilombero and Mtibwa until Sugar Development Corpo-

ration (SUDECO) was formed in 1974. SUDECO established another mill in Kagera in 1974, and a second mill in Kilombero in 1976, presently known as K2. SUDECO also acquired ownership of TPC in 1980, making it the sole institution responsible for sugar production and marketing in Tanzania. SUDECO continued to encourage production of cane by outgrowers in Kilombero and Mtibwa to supplement the supply from its own estates.

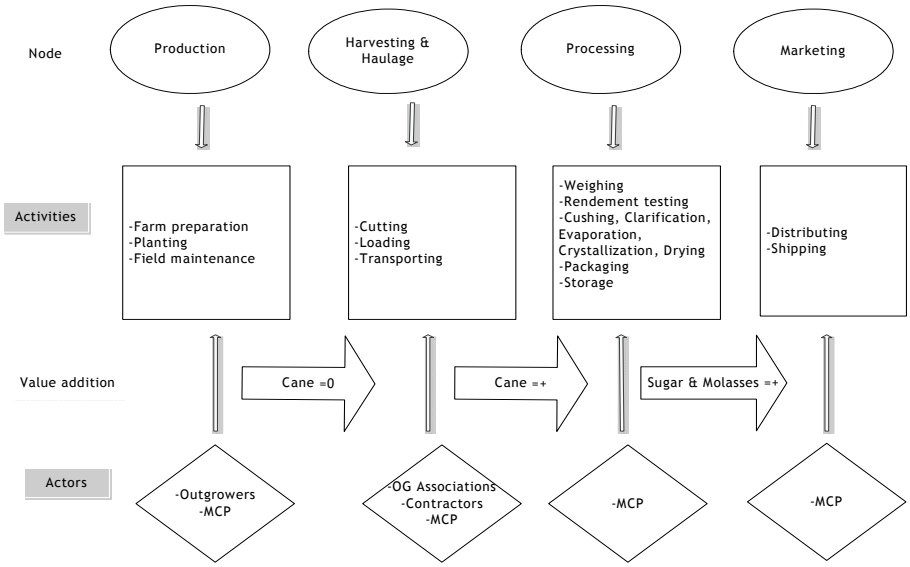
Outgrowers have thus supplied cane to the mills since independence. Following the poor performance of the sugar mills and financial problems that characterized many parastatals during the economic crisis of 1980s, these mills were privatized. Privatization in the sugar subsector started in the late 1990s. In 1998, 75% of the shares in Kilombero Sugar Company (KCS) were acquired by Ilovo Group.[4] In 1999, all shares of Mtibwa Sugar Estates (MSE) were acquired by the Super Group of Companies.[5] The SBT was established as a regulatory body following the enactment of the Sugar Industry Act of 2001. Under this Act, SUDECO was disbanded. The total area under cane production by outgrowers increased dramatically, from 4,148 hectares to 11,826 hectares in Kilombero between 1998 and 2006, and from 3,000 hectares to 10,390 hectares in Mtibwa during the same period. At present, the exact data on the number of outgrowers cannot be established with absolute accuracy due to the differences in the records of outgrower organizations and millers. Data from SBT, however, indicated that by 2009, there were a total of 13,074 outgrowers, of which 63, 35, and 2% were based in Kilombero, Mtibwa, and Kagera, respectively.

To the milling companies, to operate with these thousands of outgrowers under spot-market arrangements is complex and inefficient. These outgrowers cultivate cane in individual fields of different sizes, located in different parts surrounding the estates. Collection of cane requires a well-synchronized programme to match milling capacity with the cutting schedule. Logistical arrangements and negotiations with each grower individually are logically inefficient. To the growers, individual bargaining weakens their market position, and also increases costs relative to the quantity of a single grower. Outgrower intermediaries therefore emerged out this necessity, which became apparent as the number of outgrowers grew over time.

While outgrowers have supplied cane to Kilombero and Mtibwa mills since their establishment, no formal organization had existed to mobilize

them or to negotiate on their behalf. The thrust of outgrowers to organize emerged in early 1990 amid mounting problems with parastatal-operated mills in terms of capacity utilization and absorption of growers' cane, inadequate prices offered for their cane, and unreliability of payments. These experiences led them to form associations for protecting their interests and for advocating for a sustained business relationship, including supply of integrated agricultural services. Kilombero Cane Growers Association (KCGA) was established in 1991 to serve growers supplying to the first mill (K1), while Ruembe Outgrowers Association (ROA) was formed in 1992 to serve growers supplying to the second mill in Kilombero (K2). Mtibwa Outgrowers Association (MOA) was formed in 1996 to serve growers supplying cane to Mtibwa mill.

Figure 6.3
Sugar value chain



6.4 Intermediary coordination, transaction costs and productivity

6.4.1 Outgrowers and the transformation process

In order to understand well the design and functioning of producer organizations in the Tanzanian sugar industry, a description of the sugar value chain reflecting production systems of Kilombero and Mtibwa is necessary. Figure 6.3 presents a diagrammatic summary of the four nodes of the value chain.

The first three nodes in the value chain are the most important in the transformation process, and these are highly interdependent. From one direction, the quantity and quality of cane affects the mill's capacity utilization and milling efficiency. From the other direction, the mill crushing capacity determines the quantity of cane to be produced, particularly where supply constraints are resolved. Cane delivery and haulage systems, and the average distance between the mill and the field also determine haulage and mill efficiency.

Production of cane involves land clearing, planting and cane maintenance. A reliable supply of cane requires good coordination at this stage, so that a particular geographical block of land produces cane of uniform maturity and quality, so that economies of scale can be realised from harvesting and haulage logistics. On the ground, this has proved to be difficult on the part of outgrowers who operate autonomously at farm level. Growers plant at different time periods, maintain their fields in different degrees of intensity, and apply inputs in different amounts, resulting in uneven maturity and quality of cane they produce.

Harvesting and haulage of cane require logistical skills and appropriate equipment for cane loading and haulage to the mills making it an important stage in value addition. Distance from the fields to the mill, the quality of infrastructure, and supply of cutting labour are important determinants of efficiency at this stage. Appropriate harvest scheduling is necessary to ensure that most fields are harvested at the time sucrose content is high, that fields with final ratoon crops are harvested first to give room for immediate replanting, and that areas with poor drainage are harvested first before rains prevent access. This stage is coordinated jointly by the miller and outgrower associations. Most associations today own their own cane loaders, but haulage is outsourced to private transporters. In Kilombero, the miller outsourced cane haulage since privati-

zation. In Mtibwa, the miller used its own transportation equipment for both estates and outgrowers until 2009 when the miller decided to outsource this function and encouraged outgrowers to source their own haulage companies.

Significant value addition takes place at the third node, processing. Bulky and perishable cane is transformed into compact, non-perishable product. At the beginning of this process, the delivered cane is weighed and its quality is measured by rendement, a measure of sucrose content in cane. The measurement process is one area of disagreement between millers and outgrowers, because the later are not, in practice, involved in this process, which is an important factor determining prices that growers receive for their cane. Cane is transformed into sugar through an automated process involving crushing, clarification, evaporation, and crystallization. Important by-products are molasses, sold as a secondary product for use in the manufacture of alcohol, industrial spirits and animal feeds; and bagasse, which is used by the mills to produce electricity for the mill's use and surplus for sale. At the time of fieldwork, KCS was already producing 70 KWh of electricity and was transmitting part of it to the national power supply company.

Marketing of sugar and related by-products is carried out by the milling companies. Some parts of market transactions, however, remain regulated by SBT under the provisions of the Sugar Industry Act of 2001. Regulated parts of market include exports and imports of sugar. As discussed in section 6.2, the export market has been confined to special arrangements within the EU market. SBT was responsible for allocating the amount of sugar that each miller in Tanzania exported to the EU, prorated according to their relative sugar output. The SBT also regulates imports of sugar into the country, by issuing import licenses for a limited quantity based on estimates of national sugar supply shortfalls.

As earlier highlighted, outgrowers contribute significantly to the production of cane. As table 6.1 shows, between 1995/96 and 2008/09, outgrowers in Kilombero have increased their share of cane from 30 to 44%. In Mtibwa, the share of outgrowers cane has declined from 57 to 49%.

Table 6.1
Share of outgrowers in cane production, 1995 and 2009 ('000 tonnes)

Year	Kilombero				Mtibwa			
	Estates	OG	Total	% OG	Estates	OG	Total	% OG
1995/96	366	155	521	30	166	215	381	57
2008/09	608	473	1,081	44	229	217	445	49

Source: Sugar Board of Tanzania.

For both Kilombero and Mtibwa, outgrowers have expanded their land area under cane cultivation very dramatically as table 6.2 shows. For the estates, Kilombero has not expanded as much as Mtibwa. The expansion of Mtibwa estates was enabled by acquisition of additional 30,000 hectares of land from a previously government-owned ranch in Dakawa, about 60 kilometres from the present mill. According to the officials of the company, three quarters of this land is earmarked for sugarcane, to be accomplished through an annual conversion rate of 2,500 hectares each year.

Table 6.2
Area under cane cultivation, 1997 and 2006 (hectares)

Year	Kilombero		Mtibwa	
	Estates	OG	Estates	OG
1997/98	6,413	4,148	3,680	3,000
2005/06	7,984	11,826	5,243	10,390

Source: Sugar Board of Tanzania.

Much of the output of cane from outgrowers is accounted for by expansion of land area under cane cultivation rather than by increase in productivity. For example, during the 2005/06 crop year, Kilombero estates produced 507,774 tonnes from 7,984 hectares, while outgrowers produced 481,187 tonnes from 11,826 hectares. These figures translate to 63 and 40 tonnes per hectare for the estates and the outgrowers, respectively. In Mtibwa, estates produced 248,554 tonnes from 5,246 hec-

tares, while outgrowers produced 259,962 tonnes from 10,390 hectares, translating to 47 and 25 tonnes per hectare for the estates and outgrowers, respectively.

6.4.2 The structure of coordination and limits to productivity

Most agriculture and rural development literature place emphasis on the importance of producer organizations in fostering collective interests of smallholders, in particularly access to markets and credits. Producer organizations are defined differently, since they tend to be diverse in purpose, mandate and levels at which they operate. In developing countries, organizations engaged in agricultural and rural development tend to be more multipurpose grassroots organizations that combine economic and social functions in different degrees. Following Rondot and Collion (2001), producer organizations are membership organizations created by producers to provide services that are more effectively mobilized collectively. Producer organizations exist in different forms, such as cooperatives, associations, farmer groups or unions, and at different levels, from village or small geographical areas to regional and national levels.

As Rondot and Collion (2001) and Ton and Bijman (2006) observe, the multipurpose functions of producer organizations support and reinforce each other. That is, their economic and technical function is facilitated by their social control within communities in which they are founded. In turn, these organizations promote collective well-being of their members by mediating economic relations between local constituents and their external environment, primarily markets. It is in this context that others have come to refer such organizations as hybrid organizations (Rondot and Collion 2001, Ménard 2004). According to Ménard, hybrid organizations exist to facilitate key investment and operational decisions, under which markets cannot bundle needed resources and capabilities, and which total hierarchy risks inflexibility and weakened incentives. Producer organizations for cane growers are crucial intermediaries in this respect, for the nature of the product and technology in place has necessitated investments in processing that is site-specific. On one hand, a single large-scale sugar processing plant for an economically feasible cane-growing distance of 40 kilometres effectively creates a monopsony, where a single buyer procures cane from large number of outgrowers.[6] On the other hand, outgrowers link with buyers through vertical coordination by outgrower associations.

The organization of cane outgrowers in Tanzania is structured in three tiers. The first tier is the national-level apex organization known as the Tanzania Sugarcane Growers Association (TASGA). This is an advocacy and lobbying organization and it represents outgrowers in the board of directors of SBT. TASGA is also responsible for mobilizing capacity development support for its member organizations. In the second tier are the associations of outgrowers, representing growers at mill level. These are principle intermediaries directly involved in the vertical coordination of growers.

Principal activities of these associations are to negotiate the terms of business between outgrowers and millers, and to provide essential agricultural services to their members. These services have expanded in scope in recent years, which include cane harvesting, loan brokerage and administration, and extension support. Prior to privatization, millers performed essential agricultural services such as providing seed cane, fertilizers and pesticides to outgrowers at costs subsequently deducted from the proceeds of their cane supply. This integrated system of service provision minimized problems of credit constraints and input availability. Following privatization, the new owners of the mills disbanded provision of these services. A senior official of KSC explained that the rationale behind this move was to enable the company to focus on its core business of producing sugar. This approach, however, neglects the potential consequences of low productivity of outgrowers and its adverse effect on efficiency of sugar production, including cane supply shocks. At best, the intent of millers appears to be an attempt to mitigate risks in cane production. Production risk is increased by the reliance on rain and the fragmented structure of cane production by individual growers. Millers in both Kilombero and Mtibwa retained provision of cane cutting, loading and harvesting services charged to outgrowers at cost until recently when outgrower intermediaries took over some of these tasks, often under passive supervision of millers.

In the third tier are farmer groups organized along geographical cane-growing areas in Kilombero, and along the established village structures in Mtibwa. These farmer groups are the operational levels of the second-tier intermediaries. Members of second-tier associations are therefore registered as members in one of these smaller farmer groups. These smaller groups provide opportunity for horizontal coordination. As Poteete and Ostrom (2004) argue, smaller groups are more likely to be ho-

mogenous, which facilitate mutual trust, collective action, and self-monitoring. The system of registration of all growers as required by the Sugar Industry Act of 2001, and the existence of these smaller groups are potential instruments for reducing strategic default and enhance peer monitoring, which are essential for successful provision of agricultural credits and integrated agricultural system. Yet, these groups are used mainly as conduits for the periodic training and extension in a traditional approach, without attempts to promote joint investment and farming systems in these localized areas to raise productivity.

The second-tier intermediary organizations, therefore, are central institutions for coordination observed in this study. They have played useful roles in vertical coordination of transactions between outgrowers and sugar mills, and between outgrowers and other institutions. Because a large number of outgrowers produce cane from individual parcels of land scattered around the mills, dealing with each one individually is complex and costly. The formation of these second-tier intermediaries at mill level has enabled outgrowers to negotiate and to transact collectively with millers, reducing transaction costs to both parties. Transactions between the two parties in Tanzania are presently governed by Cane Supply Agreement (CSA). The collective efforts of outgrower associations and SBT orchestrated the eventual adoption of CSAs in Kilombero since 2006. In Mtibwa, the miller agreed to draw CSA in 2009, after years of operating on an annual cycle of precarious pre-harvest negotiations of prices, quantity and quality of cane. These CSAs provides more stable market relations, as it details the method of price determination that takes into account the relative costs of production between cane growers and sugar processors.

These organizations have also managed to negotiate and lobby to various authorities for a reduction and removal of multiple taxes and levies charged assessed at various nodes along the value chain, which increased transformation costs and reduced growers' income. For example, at the time of fieldwork, district council levy had been reduced to 1.6% of gross revenue, and VAT was removed from cutting and loading of cane. However, VAT was retained on cane transport from field to the mill. The assessment of income taxes was also exempted for small outgrowers.

An additional contribution of existing vertical coordination is a recent experiment to provide seasonal credits to the outgrowers using the CSAs

as a basis against which financial institutions participate in providing credit. This experimented was first implemented during the 2007/8 crop season in Kilombero, as growers were faced with mounting difficulties in tending to their fields. This arrangement circumvented traditional barriers of collateral and complex application procedures, aligning certain interests of market and non-market institutions. It is based on a tripartite agreement between KSC, the two associations of KCGA and ROA, and two financial institutions, the National Microfinance Bank (NMB) and CRDB Microfinance Limited. Under the tripartite agreement, the miller provides market assurance by committing to purchase all cane produced by growers registered by the associations, provided certain minimum quality requirements are met, by signing the CSAs. The miller commits to make payment of cane proceeds through the relevant bank accounts maintained by groups of outgrowers, accompanied by the list of growers, amount of cane procured, and respective entitlements. The outgrower intermediaries scrutinize loan applications from its members, and advise applicants on amounts to be applied consistent with their income levels, measured by a third of the average income from cane over the last three crop seasons. Leaders of these farmer groups are then to ensure that deductions are made for loan repayment as agreed at the time of application. Financial institutions deduct agreed amounts in the process of effecting payments.

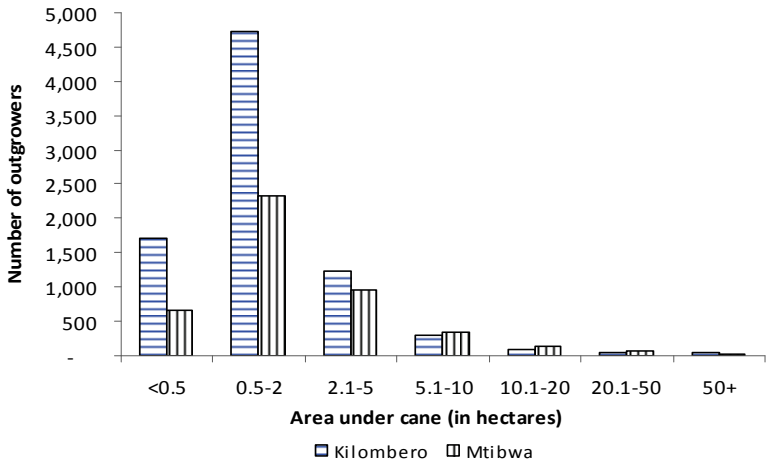
The tripartite credit arrangement in Kilombero eliminated problems of information and enforcement inherent in rural credit markets. Outgrowers were able to obtain cash loans to meet their crop maintenance costs and other household needs. This arrangement, however, has not resolved all problems related to agricultural loans. Loan amounts are inadequate relative to investment requirements at farm level. Interest rates remained high, which are 15 and 21% for NMB and CRDB, respectively. These are contrasted by the estimated return from cane farming of 10%.[7] In addition, the financing of common costs such as maintenance of infrastructure remained unresolved.

The foregoing discussion shows that outgrower intermediaries have demonstrated the significance of vertical coordination in reducing transaction costs between different parties in the value chain. This is an important step in promoting investment in processing capacity and associated infrastructure by both parties. However, this coordination falls short of mediating uncertainty related to the timing and reliability of supply,

and sustainability of the current production system given contemporary global market development. A crucial element is the difficulty in transforming the system of primary production of cane by outgrowers to raise productivity through horizontal coordination. Horizontal coordination in this case refer to the linking of transformation activities at farm level in ways that promote uniform application of best practice, shared managerial and technical services, and economies of scale that allow collective investment in common infrastructure required to improve productivity.

Production activities at farm level have continued to remain fragmented. The majority of cane outgrowers in Kilombero and Mtibwa are small, many of them growing cane on not more than two hectares. There are very few large outgrowers on the other extreme, growing cane on 50 or more hectares, but these represent less than 3% of outgrowers. The distribution of land area under cane by size is presented in figure 6.4. This distribution shows that, most outgrowers' cane is grown on individual parcels of land not exceeding two hectares. These represented 79 and 66% of outgrowers in Kilombero and Mtibwa, respectively.

Figure 6.4
Distribution of outgrowers' land area under cane by size in 2008



Source: Sugar Board of Tanzania.

Land ownership is based on traditional customary rights, which grants the individual landholders the right of use of land in accordance to their preferences and needs. The practice of cane husbandry, while organized through the associations of outgrowers, is still influenced by independence and grower's individual choice. The majority of the outgrowers intercrop cane, paddy and maize. Although some outgrowers farm on more than one parcel of land, they sometimes have the tendency to switch between crops, especially between paddy and cane. This practice dilutes farmers' focus on best practices for cane growing and prevent them from seizing opportunity for economies of scale in common services and joint operations.

In terms of the uptake of productivity-enhancing practices, such as the use of fertilizer, officials from outgrower associations confirmed that very few of their members use fertilizers at present, and mainly when credit was provided for that purpose. Even when credit is availed of, some outgrowers are reluctant to apply fertilizer on account of its high cost. In addition, these associations are not capable of holding large stocks of fertilizer or to subsidize it, so that farmers have to depend on private stockists. In addition to fertilizers and pesticides, individual growers vary in the amount of efforts put into routine maintenance of cane fields and ratoon, making yields and cane output uneven within same geographical areas. All outgrower cane production is rain-fed, so that variability of weather from year to year also leads to variability in output.

Following a study of cane outgrower models in Africa, Church et al. (2008) argue that management and organizational structures matter for success in outgrower production systems. This is especially the case for consolidated farming that brings advantages of economies of scale, uniform management styles, efficiency in logistics, enhanced purchasing of inputs, and improved accountability and control measures. They observe that in countries where outgrower production is coordinated by companies run by professionals, outcomes were better in terms of productivity and output, skill development for farmers, input procurement, and cane prices. This form of coordination extends beyond its vertical form that is concerned with transaction between growers and the miller, to horizontal coordination that includes mechanisms for managing production at farm level. Horizontal coordination in this respect extends beyond inter-firm coordination. It is an extended coordination mechanism encom-

passing "focal" coordination, a term Poulton et al. (2010) use to refer to as a combined coordination under which an agribusiness system, like the case of sugar milling companies, provide a full range of pre- and post-harvest services. The ideas of horizontal coordination discussed by Webber and Labtse (2001) are seen within this production context. The character of primary production and the interdependence across various nodes in the chain shows the importance of coordination strategy to deal with what Milgrom and Roberts (1992) refer to as synchronization problems. In such a case, as Milgrom and Roberts puts it, a simple price system relying only on responses of individuals cannot be relied upon to achieve optimum results.

An illustrative example of a system combining vertical and horizontal coordination is drawn from Dwangwa in Malawi. In both Tanzania and Malawi, outgrowers supplied cane to the state-owned mills prior to privatization. But as Tanzanian outgrowers transacted individually with the mill, the state in Malawi played a more active role and organized small growers differently. In 1975, through the Control of Land Order 1975, the government of Malawi reserved a stretch of land for exclusive cultivation of sugarcane, and in 1978, it created the Smallholder Sugarcane Authority which coordinated development of sugarcane production by smallholders on 5,000 hectares allocated for the purpose. Outgrowers under this organization supplied cane to Dwangwa Sugar Corporation, a state-owned sugar company. During privatization, the state facilitated small growers, employees and management of the Smallholder Sugarcane Authority to acquire its shares, a process akin to a management buyout. These new owners formed a company, Dwangwa Cane Growers Limited (DCGL). At the same time, Dwangwa Cane Growers Trust (DCGT) was formed as an autonomous entity to assume development roles on behalf of outgrowers.

Under this new ownership structure, smallholders land was pooled into blocks of 40 hectares registered under titles held by the Trust. The average land per outgrower is 2.5 hectares. The DCGL carries out daily management of field operations. The company provides labour and machinery for activities that benefit from economies of scale, such as land preparation, fertilizing and weeding on young cane. The subsequent maintenance activities are tended by outgrowers themselves, but the management of DCGL actively ensures that such activities are carried out as scheduled. The fields are clearly marked with identification tags on

each block, so that outgrowers can identify boundaries of their plots. The DCGL keeps detailed operational data for each plot, and provides extension services on a regular basis. These costs are not charged directly to outgrowers on activity-by-activity basis. They and financed through a management fee of 20% that the company retains against cane proceeds. If, however, any grower fails to carry out maintenance activities on time and to the required standards, DCGL employs its farm labour and deduct direct labour costs from their respective grower proceeds.

The DCGL also purchases inputs, including fertilizer and chemicals, under a special arrangement between DCGL and the milling company. Under this arrangement, inputs are procured and transported in bulk by the miller along with the estate's input supply. This arrangement benefits the growers because of discounts on large volumes, although a small handling fee is charged by the miller. The DCGL also manages all the harvesting activities, ranging from scheduling, cutting, loading and hauling. An official of DCGL observed that this system of coordination has put productivity of outgrower cane in close range with those of the estates, and it also releases labour time for outgrowers from active engagement in all farm operations. Cane growers can therefore spend more time to produce food on distant plots. These growers are also entitled to dividends from the profit of the company, in addition to proceeds from cane.

Under this arrangement, economies of scale were also achieved from massive investment in irrigation infrastructure, both pivot and furrow.[8] Such an irrigation infrastructure is expensive to develop and to maintain by individual farmers. The DCGT obtained a long-term development loan from the African Development Bank (AfDB) on behalf of outgrowers, with a guarantee from the Government of Malawi. The loan was used to develop block farms, and to procure and install irrigation infrastructure and farm machinery. The Government negotiated the loan with the AfDB for 54 years at an interest rate of 0.75%, with a ten-year grace period. The Government then assumed the exchange rate risks, and made a subsidiary loan to DCGT at rates pegged to inflation rate, with a reduced period of repayment to 25 years and a grace period of implementation of 5 years. Repayment of this loan is effected through a development charge amortized from proceeds of cane to farmers by DCGL and remitted to the Government through the Trust.

While this arrangement created a long-term debt to cane growers, rate of interest is low, and the growers were able to finance the otherwise prohibitively high-cost infrastructure required for enhancing productivity and competitiveness in cane production. In order to safeguard the interest of growers and the government, the Board of Trustees of DCGT draw members from the ministries of finance and justice, in addition to representatives of growers. The milling company in Dwangwa also have keen interest in obtaining good yield and cane output for its processing facilities, and so it provides support and advice to DCGL and to the Trust. In order to match cane output increase from this irrigation project for outgrowers, the company agreed to upgrade its milling capacity from 140 tonnes per hour to 200 tonnes per hour. It has enabled outgrowers to supply 21% of total cane supply to the mill.

As of 2009, 85% of 1,073 hectares harvested by outgrowers in Dwangwa were under irrigation, and only 15% was rain-fed (data from Dwangwa Cane Growers Limited). Conversely, outgrower intermediaries in Tanzania have little control on field activities of outgrowers, and all outgrower cane is rain-fed. Combining these factors, economies of scale in production is difficult to achieve, and unit costs of harvesting and transportation increase as machinery and trucks have to cover a larger land area of scattered plots with uneven levels of outputs. Consequently, productivity of outgrowers in Kilombero and Mtibwa as measured by cane yields per hectare lag much below Dwangwa, which can largely be attributed to differences in production management systems. Table 6.3 below shows differences in average yield rates for outgrowers in tonnes per hectare (TCH).

Table 6.3
Average yield rates by different outgrowers in 2009/10

Location	Farming type	Yield (TCH)
Dwangwa	Pivot irrigated	140
	Furrow irrigated	115
	Rain fed	70
Kilombero	Rain fed	37
Mtibwa	Rain fed	25

Sources: MOA, ROA, KCGA & DCGL.

As table 6.3 illustrates, cane yields in Dwangwa are much higher than those from the counterpart outgrowers in Kilombero and Mtibwa. While other factors contribute to this difference, such as agro-ecological conditions and cane varieties, it is difficult to refute the contribution of differences in cane husbandry, and economies of scale in provision of key infrastructure and essential services on productivity differences. Data from the ISO similarly showed marked differences in land productivity based on indicative yield rates between Malawi and Tanzania outgrowers and estates. Table 6.4 is an excerpt from the ISO 2008 study.

Table 6.4
Indicative yield rates in TCH between Malawi and Tanzania by type of producer

Country	Outgrowers	Estate
Tanzania	40-55	70-100
Malawi	92-105	108-112

Source: International Sugar Organization 2008b.

Table 6.4 shows that for Tanzania yield rates for outgrowers were nearly half below those for the estates, while they were only less than 10% below estates in Malawi.

The central element contrasting the two cases is in the design of institutions for coordinating production. The organization of growers under a professional farming enterprise, and pooling of land parcels into economically mechanizable and irrigated blocks have proved to be superior to fragmented, rain-fed cane production coordinated only vertically. The former was facilitated by an active engagement of the state through legislation of land use, and support to the establishment of grower-owned management company, a form that is unconventional in the smallholder production settings in Africa. It also guaranteed large, long-term loan that financed irrigation infrastructure and farm machinery. While the benefits of institutional design enabling "focal" coordination and consolidation are visible, the study outlines three factors that limit combination of vertical and horizontal coordination in Tanzania, hence constraining increases in productivity of outgrowers.

First, the Tanzanian land tenure regime makes it difficult for outgrowers to pool their land voluntarily into block farms. The block farming system appear to be a suitable alternative for outgrowers in Kilombero and Mtibwa, even under a rain-fed environment by facilitating investment in common infrastructure, such as field roads, drainage and fire breaks. These are currently in poor condition and raise production and logistic costs at the time of harvesting. Like in Dwangwa, block farming can potentially facilitate provision of extension services and coordination of planting schedules and monitoring of field maintenance. In Kilombero, block farming was piloted with the support from KSC through its outgrower support organization, the Kilombero Community Trust (KCT) by Sonjo farmer group in Msolwa and by two other groups in the Mbwande and Mtaro areas. The Sonjo group, the first to try block farming in 2007/8 crop season recorded high yield rate averaging 74 TCH from eleven month-old cane.

Two factors serve to explain why it was easy to establish these pilot block farms under the current land tenure regime. First, in these areas, cane fields were originally designed in blocks, where boundaries, field roads and firebreaks were already well developed. These areas are part of the earlier outgrower schemes of the 1960s. Second, the majority of group members are employees of the milling company. They are relatively more educated and easier to mobilize through peer networks and the influence of KCT. To the contrary, the majority of growers find it difficult to give up individual decision rights for collective management of production. The customary attachment to land and lack of trust between outgrowers are major obstacles. At different times, officials from KCGA and ROA said that they face resistance each time they introduce the idea of block farming to their members. Some growers expressed fear of a possible loss of their land in the pooling process.

The second constraining factor is capacity of outgrower associations to provide essential services in their current structure. In the mid-2000s, outgrower associations decided to take over most of activities related to cane loading and haulage for the outgrowers. With the support from the AfDB, these intermediaries were able to procure machinery and equipment including computers, motor vehicles and cane loaders, and started to provide those services to their members at cost price. The associations also started to outsource some of these services, particularly cane haulage to private transporters. However, management of harvesting schedule

and operations became problematic. These problems are also attributed to conflicts within associations' management, in which some leaders of associations are also providers of services contracted by the same associations.

In other instances, these officials were intimately associated with the contractors, but no prior and transparent declaration of such interests is made. As a consequence, ineffective contractors have continued to operate without recourse. One outgrower complained that some officials were using their positions to enrich themselves. In one of the focus group discussion with officials of the newly formed association in Kilombero, one official characterized the situation "… as the one in which associations and its leaders get richer, and farmers get poorer". These problems raised a lot of discontents among growers who felt they were unfairly treated, causing their cane to be harvested at the period of low rendement, or not harvested at all. Some outgrowers also complained that their cane was cut but was not transported in time so it became stale. For many such outgrowers, the solution was seen in forming new associations to exercise control and management of their own cane harvesting, and to negotiate with the miller.

The spontaneous split of these associations is thus seen as a response to their failure to adequately provide services to outgrowers. However, the formation of new associations has complicated logistics even further due to the nature of their formation. The resulting associations are not necessarily formed along defined geographical boundaries, so that more than one association exists to serve outgrowers in the same location, creating confusion and conflicts among outgrowers. Interviews with officials of different outgrower associations revealed that following the rushed split of the associations, each association individually started to negotiate with millers on CSAs. This has undermined the bargaining position of outgrowers. In Mtibwa, for instance, each of the two intermediaries has a separate contract with the miller under different terms and conditions. In Kilombero, the old associations were reluctant to cooperate formally with the newly formed associations. At the same time the miller was not in favour of dealing with multiple associations in order to reduce transaction costs. Thus, the newly established associations had no formal CSA with the miller. Without the formal agreement, the associations cannot guarantee their members to secure loans from local financial institutions. This was evidenced in 2009/10 crop season when the

NMB declined to process loan application for members of the newly formed associations because they had no CSA, the basis of the tripartite financing arrangements. An official of one newly formed association in Kilombero, MUSGA hence complained:

> The bank has refused to grant loans to our members, simply because we were unable to provide a copy of the cane supply agreement between our association and the miller. The miller is also insisting that we continue to supply our cane under existing cane supply agreements with our original associations. This problem is discouraging our members from tending to their fields and may affect future productivity and cane supply.

At the time of fieldwork, the number of registered associations had grown from two to six in Kilombero, and from one to two in Mtibwa.

The third productivity-inhibiting factor is the hostile relationship between millers and outgrowers, leading to imperfect commitment to binding contracts. This is particularly the case at Mtibwa, where the relationship between MSE and MOA has deteriorated over the years, despite considerable efforts of mediation by SBT and government leaders at district, regional and national levels. While the officials of the mill attributed the problem to the stubborn character of MOA leaders, officials of MOA and outgrowers attributed this condition to a political patronage exercised by the miller because of existing business association between the miller and senior political leaders. They also link the existing agribusiness relationship between the mill and a senior politician who is a single largest individual outgrower, and the affiliations of the owners of mill with the ruling party as source of this stale relations and continuing patronage behaviour of the miller. A senior official of the mill agreed that the company has a business relationship with a senior politician, but that relationship was purely on commercial terms governing cane supply, and that there is no attribution to any political influence on the part of the miller.

It was clear, however, that the miller does not treat outgrowers as strategic business partners, expressed by continued payment delays and the difficult with which the CSA came to exist. Various records showed that a series of meetings and directives from SBT, Ministry of Agriculture and Food Security, and regional and higher government authorities occurred between 2007 and 2009 on this matter, culminating in the Memorandum of Understanding (MoU) between MOA and the miller

drawn on 29th of April 2009. The MoU provided for the conclusion of a CSA based on Division of Proceeds (DoP) within two months. The CSA was eventually drawn and signed on 13th of August 2009. The expansion of cane production by the miller at Dakawa, located 60 kilometres from the mill, is seen as an attempt to reduce dependency on outgrower cane supply. This move disregards high transport costs, from which industry experts have established 40 kilometres as the maximum feasible distance from the field to the mill. Taking into account the rising costs of transportation, cane haulage in Kilombero was charged based on distance beginning the 2009/10 crop year. Table 6.5 illustrates the magnitude of cost difference by distance.

Table 6.5
Cane haulage costs by distance in 2009/10

Distance range (Kilometers)	Cost (Tshs/tonne)
1 - 10	4,250
11 - 20	6,120
21- 30	8,900
31- 40	12,000

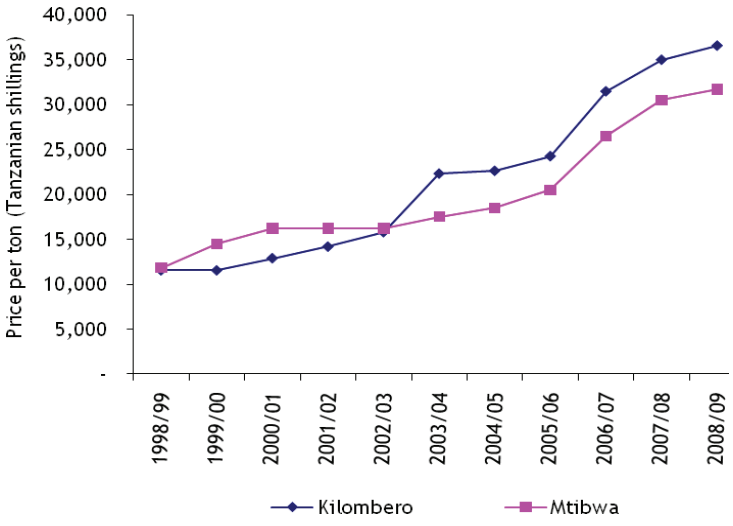
Source: KSGA.

This hostility led to some members of MOA to establish a new outgrower intermediary with the support from the miller. The miller believes that the new intermediary, popularly known as TUCOPRCOS, an acronym for Turiani Cane and Other Crops Cooperative Society will provide outgrowers with alternative route for their cane to the mill, and in the process, weaken the bargaining position of MOA. It has also led to the dual pricing of cane from growers in the same area. Cane pricing had been one of the fundamental problems in Mtibwa. In the past, prices of outgrower cane were based on a fixed price negotiated between them at the beginning of each crop season. Following intense negotiations, this method was replaced by CSAs based on a system of a full DoP.[9]

As noted earlier, the miller in Mtibwa agreed to operate on CSA in 2009, while their counterparts in Kilombero adapted it since 2006. Dur-

ing the 2009/10 crop year, the DoP was more favourable in Kilombero, in the ratio of 55.5 and 44.5% between the outgrowers and the miller, respectively. In Mtibwa, the DoP ratio was 53.5 and 46.5% for outgrowers and miller, respectively. Cane price in Kilombero for that crop year was Tshs 45,344 per tonne. In Mtibwa, MOA members were paid Tshs 38,650 per tonne. TUCOPRCOS agreed on a partial DoP on grounds of services it continues to enjoy from the miller, agreeing to receive Tshs 37,000 per tonne. These differences in institutional arrangement have produced a marked difference between the price paid to outgrowers in Kilombero and Mtibwa as illustrated in figure 6.5. It shows that, while Mtibwa outgrowers received a higher price of cane prior to the 2002/03 crop season, they have since then received a lower price and the gap has widened.

Figure 6.5
Prices of outgrower cane per tonne, 1998/99–2008/09



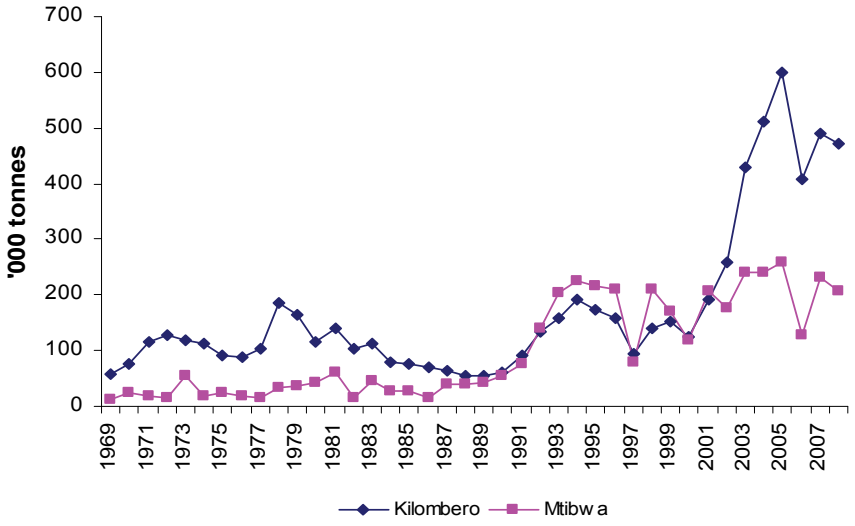
Source: Sugar Board of Tanzania, KCGA, ROA, and MOA.

The CSAs also require millers to pay cane growers within 45 days after cane is delivered to the mill. In Kilombero, both officials of associations and outgrowers observed that the miller complied with the requirements for timely payments. The situation was not the same in Mtibwa, where delayed payments emerged as another problem facing outgrowers, aggravating the ailing relationship between the miller and officials of MOA. The results of this hostility and opportunistic behaviour have had negative consequences on cane supply by outgrowers, and on the desired balance in the partnership between growers and millers. Cane output from outgrowers is on the decline, yield rates have remained low, and cane fields are deteriorating rapidly, exposing the mill to the risk of excess capacity. Interviewed outgrowers in Mtibwa confirmed experiencing significant declines in output and yield of cane. One grower holding 1.2 hectares observed that she abandoned her field after going for two years without harvesting and could no longer tend the crop. Another grower had reduced cane growing from 4 hectares to 1.6 hectares due to the same problem. Three relatively large growers claimed that due to unfavourable pricing regime and unreasonable payment delays, they have reduced their area under cane from 48, 35, and 80 hectares to 8, 13, and 12 hectares, respectively. Figure 6.6 illustrates the trends in output of cane by outgrowers in Kilombero and Mtibwa, showing that after privatization, output grew dramatically in Kilombero, while in Mtibwa it almost stagnated around the levels attained prior to privatization, with sharp period fluctuations.

Average yield rates in Mtibwa have also fallen when compared to its level at the beginning of privatization compared to the same in Kilombero. Table 6.6 illustrates this difference.

For both cases, land productivity is lower for outgrowers than it is for the estates due to differences in farm intensification, mechanization and irrigation as discussed earlier. However, the situation in Mtibwa shows a dramatic decline in yields, compared to an increase in Kilombero.

Figure 6.6
Trends in outgrower's cane output, 1969/70–2008/09



Sources: KSC and MSE.

Table 6.6
Yield differences in TCH by type of producer, 2000/01 and 2007/08

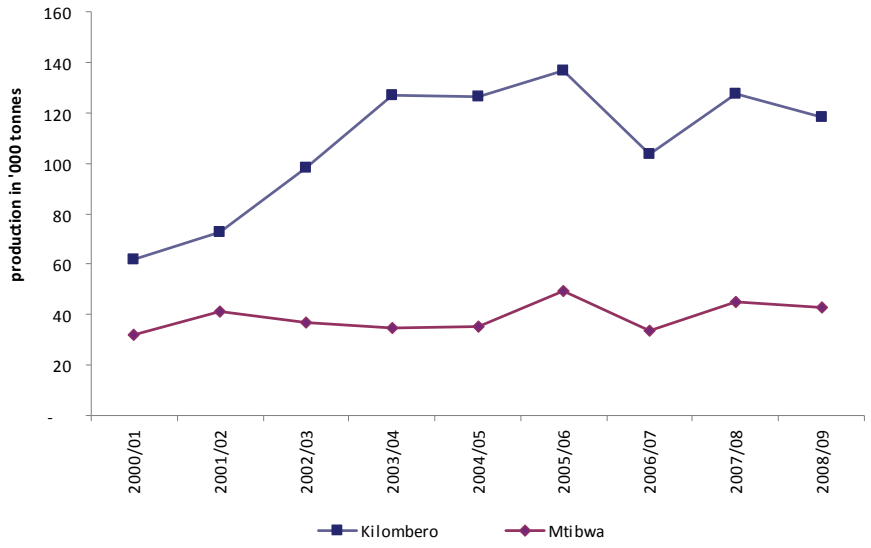
	2000/01		2007/2008	
	Estates	**Outgrowers**	**Estates**	**Outgrowers**
Kilombero	60	30	77	40
Mtibwa	50	47	65	25

Source: Sugar Board of Tanzania.

Reports and data obtained from SBT suggest that the miller in Kilombero has been more successful in expanding sugar production, while Mtibwa has almost stagnated. Figure 6.7 captures the output difference between the two companies for the period under commercial production after privatization, showing that while the miller in Kilombero has doubled sugar production between 2000/01 and 2008/09, production by the counterpart in Mtibwa has remained almost stagnant. This difference

suggests fundamental differences in investment, management systems and outgrower operation strategy between the two firms.

Figure 6.7
Trend in sugar production for Kilombero and Mtibwa, 2000/01-2008/09



Source: Sugar Board of Tanzania.

This difference is also evident in the mechanisms to support outgrowers between these two companies. While millers in both Kilombero and Mtibwa withdrew from providing inputs and essential services to outgrowers directly, the miller in Kilombero established KCT in 2003 as a non-profit, non–governmental organization (NGO) aimed at helping outgrowers to improve their skills and productive capacity. The company set aside 1,200 hectares of its estate land to KCT for cane production. Supported by International Finance Corporation (IFC), Swiss Development Corporation (SDC), and UNITRANS, the KCT developed the farm and commenced profitable cane production in 2004.[10] About 80% of income generated by KCT is earmarked for supporting outgrowers through development and maintenance of infrastructure such as roads, drainage and firebreaks; and institutional development and capacity

building for outgrower associations. The remaining 20% is earmarked for community enhancement projects such as schools and health centres.

The support of KCT to outgrowers is considerable, especially with respect to financing of common costs such as infrastructure maintenance. These have reduced the incidence of crop loss arising from difficulties in harvesting during wet seasons. As earlier discussed, KCT is also supporting skill development and educating outgrowers on the benefits of joint investment and field management through block farming, taking lead in the piloting block farms in the Sonjo, Mbwande, and Mtaro areas cited earlier. Given the magnitude of outgrowers and the land area they cover, progress is slow and much more is needed for the infrastructure development and for institutionalizing block farming. In Mtibwa, on the contrary, there is no similar arrangement. Mtibwa outgrowers and their associations are solely responsible for maintaining such infrastructure and providing pre-harvest support services. Because of weak resource base of the association, most field roads in Mtibwa remained in poor condition, and its officials observed that there were massive losses of crop due to poor infrastructure that prevented trucks and tractors from reaching the fields during rainy harvest season.

Thus, while producer organizations are important vehicles for vertical coordination needed to reduce transaction costs in an industry where chain activities are so interdependent as this case demonstrates, some missing links still exist in practice. In particular, there are both weaknesses internal to producer organizations and those that relate to weak partnership between milling companies and producer organizations. In an industry where both parties are so interdependent, the behaviour and actions of the milling company have an influence on the growers farming practices. Combining these factors with traditional land regime that limit consolidation, it is concluded that the existing mechanisms have shown to be effective only in reducing some transaction costs related to information, negotiations, and enforcement, but not much in terms of horizontal coordinating mechanisms for improving productivity. As illustrated, higher productivity of outgrowers can be achieved through consolidation of production activities which benefits from economies of scale, efficiency gains through enhanced and uniform crop husbandry practices, and well coordinated planting and harvesting sequence.

6.5 Conclusion and implications for policy and institutions

The analysis in this chapter has located the Tanzanian sugar industry within a global market context showing why competitiveness is more important in the contemporary environment. It has examined the current mode of outgrower organization in relation to production and market coordination, showing that while vertical coordination of growers through intermediary organizations have enhanced market linkages and reduced transaction costs, horizontal coordination remains very weak, and a result, productivity is very low relative to its potential. Since the majority of these outgrowers are small and fragmented, raising their efficiency and productivity requires effective coordination to bring in economies of scale in the use of equipment, infrastructure, and managerial and technical support, and at the same time keeping transaction costs low. Effective coordination, in turn, is anchored on the existence of enabling institutional environment created through isomorphism of market and non-market institutions.

The foregoing conclusion points to the following implications. First, the intricacy with which the existing institutional arrangements such as the CSAs came into being, and the lingering enforcement problems for some mills signals the need to strengthen policy and regulatory framework governing agro-processing and contractual relationships between outgrowers and millers. While sugar production efficiency requires investment in capacity to absorb efficiently produced cane, it also requires adequate and stable supply of cane, which in turn can be achieved through predictable and enforceable business relationship between growers and millers.

Second, even in situations where intermediary organizations have enhanced market-based solutions to resolve some outgrower's constraints, the involvement of state beyond regulations may be critical to stimulate sustainable high productivity increases for outgrowers. In the credit market, for example, outgrowers with small farms and low income receive very small amounts of credits, and some did not even qualify for loans. This situation locks them in a vicious circle of low income, because as a result of low savings and credit constraint, they cannot purchase inputs or adequately tend to their fields for higher yields. In addition, interest cost remained high relative to returns. This calls for the state intervention to address these credit market failures through a well-articulated pol-

icy on financial institutions, or by designing special incentives for specialized intermediaries for agricultural finance. Financing of common infrastructure and equipment for productivity enhancing farming practice requires a different approach that is beyond market solutions alone.

The structure of land use and tenure regime is another area where the state may influence to stimulate productivity increases without distorting the functioning of market relations between the growers and the millers, which remain guided under the framework of CSAs. The practice of block farming in Malawi was facilitated by its Land Act and the state support in the formation of a Trust and a professional outgrower's management company. The current land regime in Tanzania is likely to constrain block-farming development, unless substantial investment in sensitization of growers is made, organizations are strengthened to reduce cynicism, and regulatory framework for block farming is instituted.

Notes

[1] The EU and ACP framework of cooperation after the expiry of the Lomé Convention IV is currently based on the 2000 Cotonou Agreement.

[2] Bagasse refers to the remaining cane fibre after sucrose juice is extracted.

[3] Jaggery is a traditional sugar made up of concentrated cane juice that does not go through a centrifugal process of separation of molasses, sugar crystals and other non-sugar particles. It is also known as gur in some Asian countries. In Tanzania, it is known in Swahili as Sukari Nguru.

[4] Illovo Sugar Limited is a multinational sugar company based in the Republic of South Africa. It runs sugar mills and estates in South Africa, Malawi, Zambia, Swaziland, Tanzania, and Mozambique.

[5] Super Group of Companies is a Tanzanian company primarily dealing with transportation, manufacture of trailers, and distribution of automotive accessories.

[6] The concept of monopsony, widely used in microeconomics was pioneered by Joan Robinson (see Robinson, 1950).

[7] The rate of return on cane growing was computed by outgrowers support unit of Kilombero Sugar Company.

[8] Pivot irrigation is a method in which centrally stationed equipment rotates around a pivot. The equipment consists of large sprinkler with several segments of pipes supported by trusses mounted on wheeled towers. Furrow irrigation is

based troughs contracture to draw water from a river and depend more on gravity.

[9] DoP method is a system of cane pricing in which proceeds from the sale of sugar are shared between cane growers and millers after deducting common marketing and distribution costs, in ratios agreed at the commencement of cane supply agreement.

[10] IFC and SDC are international agencies for development, while UNITRANS is a private company contracted by Illovo Group to provide transport services to its sugar milling operations in Africa.

7 Synthesis and conclusion

7.1 Introduction

This research has focused on understanding how various institutions and interaction among them lead to improvements in competitiveness of smallholders in export crop production, and the conditions under which different outcomes are evident. The preceding chapters four to six each documented the trajectory of institutional change in particular crop settings, and analyzed each case study in the context of the four analytical handles employed to answer the research questions. This chapter makes a synthesis of lessons from the analyses of cases in the preceding chapters, which contribute to the different strands of theory. Key concepts and lessons were drawn mainly from literature on industrial organization, integrated into institutionalist and value chain theories. This synthesis is carried out along each broad strand of theory as drawn from the relevant literature. In addition, this chapter also outlines lessons that are specifically relevant for contemporary policy discourse and practice. Finally, while each of these chapters draw conclusions in its own right in relation to its key proposition, this final chapter integrates these conclusions to draw an overall conclusion in line with the core argument of the thesis.

7.2 Industrial organization theory

Industrial organization theory encompasses analysis of industry structure and sources of competitiveness within and between firms, including product characteristics, cost structures, and production technologies and innovation. Also salient to this strand of theory are the analyses of market-specific drivers of competitiveness and role of industrial policy in complimenting these factors to promote competitiveness. This research has applied part of this framework in analysing key constraints to small-

holders' competitiveness in export crop production, and the complementary role of industrial policy to address them. This approach contributes to this literature in two ways. First, some key concepts applied in this research have been drawn from literature applied mostly in manufacturing and technology-intensive sectors. This is particularly the case with the notions of competitiveness and its determinants (Porter 1985, 1986, 2003) and the framework of industrial policy in promoting competitiveness (Hausman and Rodrik 2003, Rodrik 2007). This is not surprising, given the experience of industrial growth in the North America and Western Europe, the notable success in manufacturing competitiveness in Japan after the Second World War, and the emergence of newly industrialized economies in Southeast Asia and China. This research applies these concepts to the study of agriculture sector competitiveness, and particularly the smallholder-based export agriculture, in combination with other theoretical perspectives to capture intricate relationships between diverse actors, the processes of institutional change, and the interface between market and non-market institutions.

Second, much of the existing literature documents the design, success, or limits to industrial policy from the perspectives of governments or state institutions as lead actors in the process. This study points to alternative mechanisms organized by market institutions and non-market institutions such as NGOs that have shown to serve well towards industrial policy objectives. It departs from traditional overemphasis of the state as policy actors, which also tends to undervalue the roles of market and other non-state institutions. In doing so, however, it does not emasculate the roles of state institutions in dealing with externalities and in creating institutional environment under which other institutions operate. This observation reflects also the perspectives of the New Public Management, which advocates for governance reforms that takes into account this complementarity. As Batley (1999) points, government's role does not always just shrink but also change, and it may grow as coordination, support and regulation of other actors become more important. The proactive involvement of an international NGO, TechnoServe, in the coffee industry to initiate a successful smallholder-based agribusiness is a good example. The state responded to the outcomes of improved coffee quality and market response by further reforming market regulations that allowed smallholder growers to export their higher quality coffee directly rather than through the auction. In the sisal subsector, there are some

institutional rigidities and entrenched interests that prevent acceptance of alternative arrangements with potential to promote efficiency of the private firm, state regulatory body, and individual growers and their representative organization. A similar observation is true with respect to the organizational relationship between the sugar mill and cane growers in Mtibwa, which has contributed to the poor outcomes on productivity and output growth.

7.3 Institutionalist theory

The institutionalist theory is concerned with processes by which social structures and its pertinent institutions influence change and stability in socioeconomic behaviour. This research has applied a variety of concepts from institutionalist theory, and its analytical approach builds on an interdisciplinary analysis that captures the complexity of institutional factors that has influenced change in a smallholder-led export crop agriculture in Tanzania. Three lessons contributing to this strand of theory are outlined. First, the study approach integrates historical analysis and connects analysis of institutional dimensions at macro, meso, and micro levels to examine particular sets of outcomes in smallholder production of export crops in their specific contexts. This approach has revealed lessons of the past institutional changes and problems associated with policy errors, and how these relate to competitiveness dimensions identified in the analysis of respective value chains. It validates the significance of path dependence, a central notion that underpins evolutionary economic theory. In this perspective, Nelson and Winter (1982) argue that both initial conditions and accidental events have significant impact on outcomes. It is conspicuous that the differences in economic performance across these cases relate closely with the ways in which social routines, or actions of key institutions support or constrain technological change.[1]

In the sisal subsector, for example, rigidities in routine of the private company, observed through its inherited high overhead parastatal corporate structure ostensibly hidden in the smallholder scheme have failed to stimulate development of efficient processing technology and to provide incentives for growers to adapt best practices for raising output, productivity and quality of sisal. The process of institutional change is also incomplete, as complementary institutional components such as property rights, especially land ownership, are not aligned to promoting balanced

partnership that is more likely to put in place the right incentives for technological change. In contrast, in the coffee subsector, path dependence is less strong as the new institutional routines by-passed the rigid cooperative structure to promote technical change that has led to observed improvement in coffee quality. A similar conclusion can be claimed for the practice of smallholder cane growers in Malawi, but not for cane producers in Tanzania who are still trapped in low productivity, rain-dependent and fragmented production system.

Second, the distinction between real markets and abstract markets signifies the importance of institutions in the analysis of change. In order to understand the functioning of real markets, which are endemic in everyday life of transactions and exchange, one needs to come to terms with a variety of institutions and the different roles they play in the making of real markets. This is particularly the case because in practice, traditional neoclassical assumptions underlying abstract markets rarely hold: information is not readily available to all economic agents in the same form at the same time; transaction costs are not zero; and various externalities and failures are often associated with markets. Real markets therefore, as Mackintosh (1990) describes, are distinguished from the abstract markets owing to the real effects they bear on people's survival needs and responses in a complex and evolving social relations. The complexity of these social relations warrants public actions to coordinate the functions of markets under different socioeconomic circumstances, beyond neoclassical conception of markets. All three cases demonstrates a varieties of transaction costs at various nodes in the value chains, and a variety of failures in input, output and credit markets have been mediated only within institutional settings that are non-standard from the perspectives of markets in their abstract terms.

Third, intermediary organizations play key roles in creating new institutional arrangements that mediate key constraints to competitiveness, particularly on innovative initiatives to develop interlocking mechanisms connecting financial, input and output markets. Such an integrated production system not only reduces transaction costs and promotes efficiency at certain nodes in value chains but also serves to reduce risks for producers and providers of finance and other essential services. These initiatives are more successful in some cases than in others due to a variety of reasons. For example, in the coffee subsector, new intermediary institutions has shown success in promoting re-establishment of quality

enhancing central processing of coffee, bolstered by complementarities between actors. The absence of similar complementarities in the sisal subsector and in one of the sugar mills have served to slow down institutional change required to promote attributes of competitiveness relevant to these subsectors.

For these intermediary institutions to be effective, however, the design of these institutions matter. In the three cases, varieties of intermediary institutions are seen to operate in different forms under different episodes of policy and institutional settings. A key point is that different forms of intermediary institutions are more effective than others depending on policy and institutional environment and crop characteristics. In the coffee subsector, for example, the traditional cooperative have failed to promote either quality improvement for niche markets, or increased output for the mainstream market, although it successfully integrated production and markets prior to politically inspired interventions of the mid-1970s. The rigidity in its institutional transformation is a clear reflection of regressive character of policy interventions of the past. Progressive institutions change as their purpose of existence, interactions and market environment change over time. Root (2006) interprets this evolutionary feature well, arguing that while intermediary organizations can be very instrumental in economic coordination in the early stages of development, they can be hindrances at later stages, unless they change to reflect coordination needs of the time. In the coffee case for example, new intermediary organizations designed to reflect current realities of markets and social structure of production have shown some success in promoting improvement in coffee quality. The cooperative union on the other hand, while very successful in years prior to state interventions that culminated with its abolishment, has largely been unable to stimulate significant improvements in coffee quality for its members. In the sugarcane study, the recent split of outgrower associations is a reflection of the unfulfilled coordination and support requirements of cane outgrowers in the current market environment.

The standard neoliberal strand implicit in trade liberalization assumed that important institutions such as farmer intermediaries were not necessary or they emerge only spontaneously in the process of market exchange. To the contrary, liberalization generated low-level equilibrium conditions under which institutions were deconstructed, and those that survived became inefficient and ineffective. While such institutions may

indeed emerge spontaneously, they can also be designed as strategic institutional devices to systematically mediate binding constraints and to attain desired international competitiveness, as the case of TechnoServe intervention in design of a new growers' intermediary illustrates. In other cases, key market institutions in chain governance deal with intermediary institutions as if they are constraints, rather than as important vehicles for connecting producers and buyers, and for coordinating investments needed to reduce buyers' business risks. Hostile environment between smallholder intermediaries and processing companies in the sisal and cane subsectors are good examples. This environment is more detrimental in the long-run, as these agro-processing companies take advantage of their market power to increase short-run profitability, at the expense of a well coordinated, sustainable and efficient supply of raw materials from the smallholders.

As Goodin (1996) argues, what individuals can do depend on organizational technology available or availed to them for realizing their individual or collective volitions. Organizational technology includes intermediary organizations on one hand and the institutional arrangements on the other. Although Goodin prefers a more indirect intervention to the design of institutions, he articulates key design principles, most of which are not systematically evident in the settings of various intermediary institutions in these cases. The fundamental weakness relate to robustness of intermediaries in terms of capacity to deliver, and the balance of power, checks and accountability. These are important principles because they establish mechanisms for trust and foundation from the bottom that underpin the ability of organizations to influence individual behaviours, practices, incentives, and to create conditions for sustainability. Weaknesses around these principles are most evident in the sugarcane case, where some outgrowers have split from original associations on account of poor delivery of essential services and inadequate accountability. In the coffee case, the two new intermediary organizations have shown improved capacity to deliver to their members, attract lower intermediation costs, and have put in place simple mechanisms of accountability, which together have altered incentives and practices of their coffee-growing members. It is on this basis that active support in the design of intermediary organizations is envisaged. The specific design attributes of such institutions, however, must be conscious of the differ-

ences in production and market characteristics for each commodity to avoid the fallacy of universalism.

7.4 Value chain theory

Value chain theory focuses on understanding of linkages in key activities within the firm or across firms, and the relationship between actors who collectively constitute transformation processes in the creation of value for the end consumers. These activities and relationships are important for determining competitive advantage. This research applies some elements of value chain theory, particularly those relating to the structure of governance and mechanisms of coordination, and how these influence institutional change and outcomes for the smallholders. Four lessons are drawn in relation to this strand of theory. First, integrating smallholders in international commodity chains under liberalized market environment is a more complex process than it is often considered to be. Contrary to the assumptions underlying strategies designed to induce supply response and integration of producers into international commodity markets through trade and price policy, these case studies promote the view that these policy instruments are inadequate, that market participation by smallholders requires supplementary interventions at meso levels. They provide further insights into different institutional mechanisms experimented in particular settings and their outcomes, and how these mechanisms can be used to mitigate adverse consequences of certain trade and price policies. In the case of coffee for example, trade liberalization did not induce the significant supply response as it was widely expected to. On the contrary, the quality of smallholder coffee deteriorated further. It was the recent institutional interventions to promote re-discovery of wet-mills and market linkages that have stimulated improvements in coffee quality for smallholders.

Second, in all three cases, mechanisms of governance in key value chains activities are important drivers of institutional change and the resulting outcome to the smallholders in terms of distribution of income,[2] and to the chain as a whole in terms of efficiency and market competitiveness. While the structure of governance and coordination mechanisms is often influenced by the three determinants as discussed in Gerrefi et al. (2005) – namely complexity of transactions, extent of transaction codifications and local supply capabilities – its character

within localized upstream activities depends on technical characteristics of these commodities and effectiveness of prevailing pertinent institutions. Intermediary organizations, however, are not given much emphasis in the global value chain literature, which stresses the significance of lead firms in vertical coordination. For all the three crops, the exportable commodity results from some processing activities and transaction arrangements which are difficult and inefficient for growers as individuals or small groups. For example, secondary processing of coffee requires large-scale curing mills, and highly concentrated buyers impose different quality attributes and volume requirements, which dictates the necessity of some forms of hierarchical coordination upstream in the chain. Similarly, sugar cane reaches final consumers in the form of sugar supplied from centralized large-scale mills. For the case of sisal, while alternative processing methods exist, only centralized processing of fibre continues to be in use in Tanzania, which also dictates some form of hierarchical form of governance. Some differences, however, are evident in the outcomes of governance mechanisms across these cases, influenced by power concentration, which is grounded on the differences in ownership of key resources, predilection of key actors, and the nature of regulatory environment and enforcement characteristics. These, in turn, determine distribution of rents and the incentives they bring to bear on competitiveness.

Within the coffee sector, for example, more active governance of activities are seen with intermediaries that focus on speciality niche coffee than it is for those producing generic, commoditized coffee. These intermediaries need to keep up incentives for growers in terms of high prices for them to supply coffee berry to the central pulperies, since they are not obligated by enforceable contractual relations. Other coffee growers operate on loose governance at production and primary processing level, and use their cooperatives mainly as a conduit to transact, receiving farm-gate prices net of all overhead costs of the cooperative union and marketing costs. For the Mild Arabica coffee growers in Tanzania, therefore, high incomes can be sustained if intermediary institutions are able to sustain processing innovation, a crucial complementary factor to the natural advantage of volcanic soils and altitude, which together can constitute some barriers to entry.[3]

Distributional problems are more prominent in the cases of sisal and sugar cane. In the sisal case, all key resources, including land are owned

and therefore controlled by the private company promoting the smallholder scheme. As a result of this power concentration and the difficulty of the Sisal Board to introduce and enforce some countervailing powers, the larger share of rent is realized in the downstream end of the chain, and the company has tended to insulate itself from potential competition for the fibre supply through its restricted contracts. Growers are left with very small residual margins from the price of fibre. In the case of sugar cane, outgrowers supply significant proportions of cane from their own land. Sugar milling companies control the processing and marketing activities within the chain, but there is some degree of mutual interdependence between the mills and outgrowers. This interdependency has paved way for rent-sharing arrangement specified under cane supply agreements that take into account relative investments by both parties.

It is also evident, however, in another situation within the sugar cane study that the institutional environment is weakened by patronage, which has skewed the concentration of power in favour of the milling company. In their framework of global value chain analysis, Gereffi and others ignore the tendency of some lead firms to apply extra-economic means of these types to maintain control and reap a larger share of rents from value chains.[4] This tendency has resulted into differential distribution of rents between cane growers supplying to different mills although they face similar production conditions and chain characteristics. In addition to distributional problems, the lack of trust and patronage form of governance at Mtibwa has diminished its ability to take advantage of relational rents that were possible if synergies between the mill and the outgowers were tapped rather than undermined. As Kaplinsky (2005) points out, it is of little value to be an island of efficiency in the sea of inefficiency, and the low levels of productivity and stagnant sugar output growth validates this point.

Third, while studies on organizational aspects of smallholders underscore the importance of coordination in different forms, this research examines the relative importance of vertical and horizontal coordination, informed by the differences in market characteristics and specific conditions of crop production. While vertical coordination is critical in the process of integrating fragmented smallholders in the commodity value chains, it is not sufficient for promoting competitiveness for all agricultural commodities. This is not only due to some technical parameters of production but also due to the political economy that influence control

and ownership of key resources. On technical parameters, value chains from different commodities involve different types of activities that differ in the intensity of requirements for specific investments, economies of scale, and quality enhancement at the upstream levels of the chain. In addition, the nature of binding constraints differs by commodity production system and its market dynamics. In the sugar industry, for example, the loss of preferential trading arrangements that sustained market access even at high production costs now makes efficiency in sugar production more important than before, as low-cost sugar is likely to crowd out high-cost sugar from the global free market.

Where a significant proportion of cane supplied to sugar mills comes from outgrowers, as is shown to be the case in Tanzania, productivity of outgrowers is necessary to warrant reliability of supply, efficiency of harvesting and haulage logistics, and milling efficiency. The current outgrower production practice, however, sustains low productivity and inefficient production. Yet, cane outgrowers are effectively coordinated only vertically, focusing mainly on market integration, transaction costs, and some limited credit linkages. Horizontal coordination that allows joint investment in common infrastructure and pave the way for economies of scale in their use is absent. In contrast, economies of scale at farm level are not inherent for efficient production of coffee bean, and productivity increase can emanate from specific investments at individual farm level. In this case, consolidation of fragmented plots of land is not a fundamental requirement for key infrastructure investment and a coordinated planting, maintenance and harvesting programme. Consolidation of coffee beans to appropriate scale is fundamental at the primary processing phase and in subsequent chain activities, because of the specific investment requirements in wet-mills and curing plants. Therefore while individual household management of fragmented, small plots of land does not necessarily constrain productivity in the coffee subsector, it does so for sugarcane production. These divergent influences of land ownership and utilization on outcomes within these different chains show the importance of local binding constraints in determining the effectiveness of vertical coordination, an issue that is often ignored in global value chain literature. Therefore, restructuring of land regime, or development of an alternative institutional framework to enable horizontal coordination is a priority of industrial policy specific to the sugar subsector than it is for coffee subsector.

Fourth, much of the literature on agricultural value chains in Sub-Saharan Africa appears to be more dominant on high-value commodities such as vegetables and fruits. These case studies add to this literature with a focus on traditional export commodities, and particularly on organizational dimensions within the upstream activities in these value chains. The value chain analysis provided tools for identifying different sources of competitiveness in the three traditional export crops and a variety of institutional mechanisms to achieve competitiveness under the liberalized market environment.

7.5 Policy discourse and practice

In terms of lessons for the current policy discourse and practice, four lessons are outlined. First, while active industrial policy has been traditionally associated with the active engagement of the state, ongoing policy reforms need to take into account other non-state institutions as important actors to initiate and implement selective public actions.[5] Market institutions that seek to create or sustain competitive advantage, through access to unique sources of particular commodities for example, can also initiate or act as important partners to a successful implementation of industrial policy. In some industries, global retailers make substantial investments to strengthen capability of producers of specific commodities earmarked for their specific niche markets. The study of the coffee subsector provides an example of how global retailers and an NGO initiated an industrial policy, actively engaged in promoting improvement in the quality of coffee. Deterioration in the quality of coffee was identified to be the most binding constraint for competitiveness. The NGO supported development of farmer organizations and facilitated re-discovery of wet-milling coffee processing, and renowned global retailers assured markets for the resulting high quality coffee. It is important to note, however, that market institutions and civic organizations are often driven by different incentives, so that initiatives like the coffee quality improvement may also have their limits, particularly in relation to inclusiveness and sustainability.

Second, even where central processing is inherent in certain stages of the value chain transformation process, institutional arrangements governing transactions between primary producers and processors generate different results. In the sugar industry, large-scale VP sugar mills are mo-

nopsonic buyers of cane from outgrowers in particular geographical localities. The mills operate in the form of vertical integration, but to ensure full utilization of their processing capacity, they rely on significant supply of cane from outgrowers. Since these outgrowers are landowners and supply significant share of cane to the mills, it has been possible to broker a relatively balanced cane supply agreements, as the case of Kilombero has shown. Some problems remain, however, in terms of fulfilment of the terms of agreements due to the nature of enforcement characteristic as Mtibwa illustrate, implying a need for public action and attention of higher-level authority.

In contrast, the form of smallholder integration in the sisal industry exhibits an unbalanced partnership under which the processor controls key resources: land and processing plants. The processor uses this lack of resource power on the part of the smallholders to dictate the terms of agreement, and to control the entire value chain, including services that can be supplied by providers outside the chain more efficiently. In the absence of countervailing powers, the company continues to act as absentee landlords, extracting land rents, in addition to rents from intermediate services and from the fibre market. In the coffee sector, the growers own primary processing facilities through their intermediary organizations. Some intermediary organizations own secondary processing plants, as illustrated by the cooperative union in Kilimanjaro with a majority stake in a curing mill, and so coffee growers enjoy some degree of independence and flexibility.

Third, in order to remove inefficiencies inherent in parastatal corporations, it is not just privatization that matters, but also the character of that privatization. In other words, substance prevails over form. Privatization is most relevant in the sisal and sugar subsectors. In sisal, the private company operating the scheme emerged from within the defunct parastatal entity that operated the state sisal estates. But the company has continued to operate in much the same way as the parastatal in terms of its hierarchical structure, its operating overheads, and how these costs translate into the transactions with the smallholders. In the cane subsector, the two milling companies in Kilombero and Mtibwa are characteristically very different, especially with respect to their experience in the industry, investment in key resources, and relationship with outgrowers. These differences have undoubtedly contributed to the marked differ-

ences in sugar-cane productivity, milling efficiency, and sugar output growth between the two mills.

Fourth, agricultural development policy and strategy need not necessarily treat large-scale and small farms as zero sum game. In other words, it is not a matter of choice between which among the two is to be promoted and sustained as a strategy for agricultural development. These case studies have shown that large-scale and small-scale farms can and do co-exist. The focus of policy design therefore needs to be directed at identifying synergies between them, and to establish institutional mechanisms that ensure complementarity to promote innovation for higher productivity, improved quality, and reliability in output.

7.6 Conclusion

In its overall conclusion, this research has shown that the smallholders in Tanzania face wide varieties of constraints emanating from historical, geographical and structural factors. These constraints set difficult initial conditions for igniting and sustaining competitiveness, particularly in the traditional export crops amid changing market and institutional conditions in global markets. The presence of these constraints requires many interrelated activities and investments that do not emerge spontaneously, and often exceed the abilities of firms and individuals in conventional market settings. Hence, non-standard institutional arrangements are seen to be inevitable for mediating these constraints to pave the way for smallholders' capability to become competitive. Production efficiency, productivity and quality of commodities are essential elements of competitiveness in different ways across different configurations of production. To achieve competitive advantage, therefore, requires strategic choices that involve a variety of institutional solutions tailored to the peculiarity of particular value chains.

Notwithstanding this conclusion and aforementioned lessons, many other factors can in different ways influence the direction of outcomes associated with these institutional interventions and coordination frameworks. In both theoretical and practical terms, understanding the interplay of micro-level determinants such as the patterns of intertemporal choice among competing crops, intra-household dynamics, household resource allocation and investment decisions serves to inform the design of effective intermediary institutions and accompanying policy frame-

work. These aspects, however, require a micro-level study approach using specially designed household surveys, which are beyond the scope of this thesis. These are suggested as areas for further research.

Notes

[1] Nelson (1995), Nelson and Sampat (2001) and Nelson and Nelson (2002) use the term routine as social actions of organizations and other institutional interactions to influence technical change and the resulting economic change.

[2] Kaplinky (2000) and Kaplinky and Morris (2001) consider income in value chains as rent, which arises out of differential productivity of factors and barriers to entry. In essence, they relate rents to income accruing from access to capabilities and resources that others do not have. Some capabilities can be created within the chains based on they way activities are organized and governed, but they can also be exogenous, such as those arising from unique natural resources or from effective industrial policy.

[3] Kaplinky (2005) shows the link between rent and scarcity, and that the latter can result from barriers of entry. These barriers of entry can result first from factors endogenous to the firm and to its partners in its value chain and or locality through command on the production process; and secondly from exogenous factors, such as gifts of nature or actions of state or other capable actors. The growers of Mild Arabica coffee under coordination of new intermediaries have potential to benefit from both sources of rents.

[4] Recent value chain literature based on Global Production Networks approach acknowledge the roles of domestic actors, both within the network and those outside it, and the distribution of power among them in determining social and economic outcomes on other actors of networks in their locations (see for example Henderson et al. (2002) and Bair (2008).

[5] While this lesson is consistent with the New Public Management perspectives, public sector reform in a developing country like Tanzania is more likely to be slow and requires substantial efforts to alter institutional cultures and mindsets, and to strengthen managerial capacity.

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