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COFFEE MARKETING IN CAMEROON
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INSTITUTIONAL ECONOMICS OF ARABICA COFFEE MARKETING IN CAMEROON

VOLUME I

By

Paul David Wessen

A DISSERTATION

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ABSTRACT

INSTITUTIONAL ECONOMICS OF ARABICA
COFFEE MARKETING IN CAMEROON

By

Paul David Wessen

Between 1990 and 1994, Cameroon reformed arabica coffee marketing institutions and restructured existing marketing cooperatives. By introducing an institutional market structure that more effectively resolved problems of economic coordination posed by the arabica situation of high information costs, reform anticipated a significant improvement in performance. A case study of the arabica reform experience provides an opportunity to study performance under alternative institutional market structures in the context of a location-specific situation, and to provide insight into conducting institutional reform.

The study employs impact analysis to evaluate performance under the administered and the reformed market structures, focusing on how alternative institutions interact with situation to affect performance. The study analyzed cooperative marketing data which was supplemented by field observations and informal interviews.

The pre-reform administered market structure was poorly adapted to the arabica situation and failed to provide incentives for marketing organizations to economize, for farmers to produce, or for farmers and cooperatives to invest in quality. Performance was characterized by a long-term trend of declining real producer prices, decreasing

production, increasing per-kilo marketing costs, and deteriorating quality. The system eventually collapsed in 1988/89.

Reform sought to restore profitability within the arabica subsector by creating incentives for cooperatives to economize and for both farmers and cooperatives to invest quality. This entailed the introduction of a market-like institutional structure and a fundamental restructuring of marketing and governance relationships within North West Cooperative Association (NWCA). But reform only partially resolved high information cost problems, in part due to compromises made during implementation.

Under the reformed market structure, producers were the direct beneficiaries of the 1994 devaluation of the CFA franc and rising world coffee prices. Although per-kilo cooperative costs were reduced significantly during reform, there was a trend of rising costs after reform. Higher producer prices induced an increase in arabica production and a shift in regional marketing patterns. Although the study identified a positive quality response among cooperatives and producers during and after reform, problems remained.

If NWCA is to sustain the observed improvement in performance it will have to extend the reform process and modify the institutional structure that was implemented to reinforce incentives to economize. Sustained improvement in quality will depend on NWCA's ability to better use available measures of quality to distinguish and differentially reward producers and cooperatives for quality. But institutional reform is an inherently difficult process. Compromises made during implementation can have a strong impact on institutional performance.

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To my parents and wife, Kathryn--

I have truly been blessed.

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CHAPTER 1

Introduction

1.1. Background and Problem Statement

During the 1980s and 1990s, structural adjustment programs represented the primary policy reform model to privatize markets. The assumption underpinning this approach was that by restricting government involvement in the functioning of markets and removing policy-related price distortions, competitive market forces and prices would significantly improve performance by stimulating private economic activity. But structural adjustment policies produced mixed and sobering results (World Bank, 1994). A consensus is emerging that the reason for this poor performance is that these policy reforms focused on only a small part of the complex institutional matrix of rights, rules, belief systems and organizations of which they are part. Moreover, institutional theorists have established that the unique product characteristics of some commodities constrain the effectiveness of competitive markets in coordinating economic activity. This has led the World Bank (1997) to conclude that effective institutions matter as much as sensible policies in development. But the process of designing and implementing institutional reform has not been well-studied and is poorly understood.

Between 1990 and 1994, Cameroon privatized and reformed its arabica coffee markets through the *Program of Reform of the Agricultural Marketing Sector* it negotiated with

USAID. Distinctive about the arabica reform effort was its institutional approach. The premise underpinning this approach was that improving performance would require a complete reform of marketing institutions as well as a restructuring of existing coffee marketing cooperatives (structure) in a manner consistent with arabica marketing's high information cost and economies of scale characteristics (situation). National-level policy reforms privatized arabica markets throughout Cameroon. A subset of reforms targeted North West Province only, and sought to restructure fundamentally institutional arrangements and relationships within the North West Cooperative Association, Ltd. (NWCA). Reform planners believed that over the long termthis would be cheaper and effect a greater change in performance than dismantling than the previous institutional infrastructure and building a new one. Thus, the arabica reform experience in Cameroon presents a fascinating case study of institutional reform.

1.2. Objectives

The core paradigm of institutional theory is well-established. Briefly, the unique product characteristics of a good or service create situations of interdependence between people. Institutional arrangements, or structures, channel this interdependence by ordering relationships between individuals and defining their opportunity sets. Alternative institutional arrangements create very different incentives for individuals' behavior. As a result, performance is determined by the interaction between situation and structure. In the context of a given situation, alternative institutional structures can produce very different performance results. Conversely, the same institutional structure applied to different situations can result in very different performance outcomes.

Schmid (1994b) contended that although the theoretical foundations of institutional economics may be well-founded, its empirical database remains weak. Although institutional variation is required to study and understand the performance consequences of alternative structures in the context of given situation, this variation is often hard to find. As a result, institutional analysis has focused on predicting the expected performance of possible rule changes, comparing how alternative institutional structures applied in different places have performed in the context of a given situation, or comparing the performance of a given institutional structure applied to different situations with functionally similar characteristics. It is rare to find conditions where the performance of alternative institutional structures can be compared in the context of a location-specific situation.

The arabica reform experience in Cameroon represents one such example. Prior to reform, arabica markets were administratively organized. The government controlled virtually all arabica marketing activities and transactions, and determined marketing rules. However, reform sought to change all this by sharply restricting the government's involvement in arabica marketing, divesting it of authority to establish marketing rules, and introducing market-like institutional arrangements and relationships within the vertically integrated cooperative marketing structure in North West Province. This presents a unique opportunity to study the performance of alternative institutional structures within the context of a specific and situation.

The objective of this dissertation is to contribute to institutional economic theory and expand its empirical data base by:

- Providing a detailed case study of how alternative institutional structures

interacted with a location-specific situation.

- Analyzing how the interaction between situation and structure affected marketing performance within the Cameroonian arabica subsector, focusing on specific institutional elements and performance dimensions, and

- Drawing lessons from the Cameroonian reform experience to inform the process of designing and implementing institutionally-based reform.

Briefly, high information costs related to quality measurement problems at the point of initial handling in the marketing chain and economies of scale in processing and marketing characterize the arabica situation. The key institutional features of the administered and reformed market structures were categorized as rules governing market competition, price determination, cost determination, the distribution of residual earnings, the establishment and enforcement of quality standards, and cooperative governance rules. The key dimensions of performance examined in the study are prices, marketing costs, the distribution of residual earnings (income), coffee production, and quality. Structural and performance details were included in the analysis, because institutional details may have a profound effect on performance.

However, it is inherently difficult to evaluate and predict the long-run performance consequences of institutional reform from the vantage point of only two years. As a result, the dissertation attempted to identify directional changes in performance instead of the magnitude of change. In many respect, the dissertation represents a base-line study to which future performance can be compared.

1.3 Organization of the Dissertation

The remainder of the dissertation is organized as follows. Chapter 2 describes the dissertations institutional conceptual framework, as well as its methods of analysis. The chapter includes a detailed description of the data that were collected in the field in Cameroon, as well as their limitations. Chapter 3 describes the arabica situation and contains a brief description of the how arabica production and processing activities affect coffee quality. Chapter 4 describes the key elements of the administered market structure that was in place between 1978/79 and 1989/90, and analyzes its impacts on performance. Chapter 5 describes the key elements of the reformed market structure that was implemented in North West Province in 1993/94, as well as their predicted performance. However, the reform program included a transitional period of cooperative strengthening and reform implementation between 1989/90 and 1992/93, during which time the implementation of key reforms was deferred. Structure and performance during this transitional period are discussed in Chapter 6.

The remainder of the dissertation analyzes the performance of the reformed market structure during the 1993/94 and 1994/95 seasons. The objective of reform was to restore profitability and productivity within the arabica subsector by improving incentives to produce and improve quality. More specifically, this entailed creating incentives for cooperatives to economize, and for both cooperative and farmers to invest in quality so that farmers could realize higher coffee prices. Chapter 7 analyzes the impacts of reform on cooperative costs, coffee prices, the distribution of residual earnings and coffee production. But quality issues lie at the heart of arabica's high information cost characteristics. Chapter 8 describes the impacts of reform on coffee quality in detail.

Chapter 9 presents the conclusions specific policy recommendations to improve future performance. The chapter is somewhat unusually organized. It was originally written as a stand alone chapter and contains a detailed summary of the entire dissertation.

CHAPTER 2

Conceptual Framework and Methodology: Institutional Economics

Institutional economics is the conceptional framework used to analyze the performance impacts of reform within the Cameroonian arabica marketing system. Although there are a number of analytical paradigms within the rubric of institutional analysis, the general relationships and assumptions of institutional theory appear to be quite similar. Institutional paradigms differ primarily in details such as terminology used, emphasis and application. The dissertation will mostly rely upon the body of institutional theory developed by economists at Michigan State University, and in particular, impact theory as developed by Schmid (1987) in the Situation-Structure-Performance paradigm. However, the arabica marketing reforms that were implemented in Cameroon were an application of the Institutional Analysis and Design framework developed by institutional theorists at the University of Indiana[1]. Differences in emphasis and approach will be discussed later in this chapter.

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[1] USAID/Cameroon contracted with Associates in Rural Development, Inc. (ARD) through it's *Decentralization: Finance and Management (DFM)* to design new institutional arrangements to improve subsectoral performance. The work was carried out by institutional theorists from Indiana University, subcontractors in the DFM project.

2.1 Situation

The starting point for institutional analysis is to describe the situation in which economic activity takes place. Alternative terms for situation found in the literature include "environment"or "physical world." Situational variables describe the context of human interdependence or interaction. Included in an analysis of situation are the physical characteristics and resource endowments of a given location, the agro-climatic requirements of producing a commodity, the attributes of a good and its production process, and existing technology and technical knowledge. Situation defines what may be produced, what steps (actions) must be taken to produce a good and the methods by which a good or commodity might be produced (techniques). Situational variables represent hard constraints over which an individual or group has little control (Oakerson, 1994b; 1994c).

A description of a situation requires definition of situational variables and resulting patterns of human interdependence. Situational variables are exogenous, or independent, and may be subdivided into physical/technical and economic variables. Physical/technical variables refer to the physical properties of a good or commodity such as growing requirements, quality attributes, variability of quality, perishability and bulkiness. Economic variables describe conditions of human interdependence that flow from the characteristics, or attributes, of a good. Interdependence refers to circumstances in which the action of one person or group affects the welfare of another person or group (Schmid, 1987). Structure, or institutional alternatives, both shape and channel this interdependence in different directions. Economic variables which are relevant to arabica coffee production and marketing include high transaction costs due to measurement and

information problems, asset fixity, and economies of scale. As will be discussed in Chapter 3, the presence of these situational variables has strong implications for economic coordination within arabica marketing system. Goods or commodities with different attributes create different contexts of human interdependence. It is in the definition and categorization of situational variables that alternative paradigms within institutional analysis differ most.

Since situation describes hard constraints, exogenous economic variables will be included in describing situation. Given Cameroon's small arabica coffee production relative to world production, and the fact that its coffee is produced almost entirely for overseas consumption, the organization of the international coffee market, although also structured by institutions, must be considered as an exogenous, or hard constraint, on Cameroonian actions.

2.2 Structure: Institutions and Behavior

Structure refers to the alternative institutional arrangements which structure human behavior. Schmid (1987, p.6) defines institutions as "sets of ordered relationships between people that define their rights, their exposure to the rights of others, their privileges, and their responsibilities." Market institutions refer to a subset of rights and rules specific to economic exchange and transactions. Institutions may be legally, socially or culturally defined. A key thesis of institutional theory is that the same institution applied to different situational contexts will affect outcomes (performance) differently. Structure is the causal link between situation and performance.

The key behavioral assumptions of institutional theory are that people have a limited

ability to assimilate and process information (incomplete information) and have the potential to behave opportunistically. Institutions are human inventions which structure behavior by channeling human interdependence and interaction. Institutions also define how individuals interpret their world. As such, institutions are soft constraints which may be altered through collective action. They define the payoffs, or incentives and/or disincentives, to alternative lines of action by an individual (or group). Institutions both enable and expand individual action, as well as constrain, and may promote either cooperation or conflict (Shaffer, 1995). They are ubiquitous, and operate simultaneously at different points along a continuum with society and individual levels as the poles. Institutions may be embedded within other institutions. As a result, there is a matrix of institutions that undergirds behavior and human interaction. The institutional matrix defines an individual's opportunity set, or the behavioral alternatives an individual perceives prior to taking action. A change in institutions changes opportunities and constraints within the opportunity set.

Structure also includes the relationships of individuals inside organizations. North (1990, p. 73) defines organizations as "purposive entities designed by their creators to maximize wealth, income or other objectives defined by opportunities afforded by the institutional structure of society." Included among organizations are political, economic, social and educational bodies. Examples of economic organizations are firms, cooperatives and farm households. Using a sports analogy, North refers to institutions as the "rules of the game" which define and structure how economic activity can take place. Organizations represent the "players of the game," or team. Organizations attempt to "win the game ... by a combination of skills, strategy, and coordination; by fair and

sometimes foul means." (North, 1990, p.5). How a game is played affects the outcome of a game. The internal rules and governance structures of organizations further shape the opportunity sets of individuals within an organization, and influence their behavior.

The interactions between institutions and individuals or organizations affects outcomes, or performance. Groups of individuals or organizations seeking to maximize their objective functions, or unhappy with the outcome of a game, will at times seek to alter institutional rules. As such, organizations are the agents of institutional change (North, 1990). From this perspective, institutions are both dependent and independent variables. In a world of scarce resources and competing interests and organizations, the institutional matrix defines whose interests count, who has power to affect others' opportunities, and who can influence the direction of institutional change. At the same time, there is a feedback process in which groups react to changes in their opportunity set and performance outcomes by attempting to change institutions to further their own interests. Thus, the institutional matrix and path of institutional change are path dependent, a result of the complex interaction between institutions and organizations and who has power. From an institutional perspective, rights (structure) are antecedent to efficiency calculations (Schmid, 1994). Since it is impossible to define "efficiency" independent of a given set of institutions or property rights, efficiency criteria offer no guide to institutional choice. Moreover, it is not meaningful to describe how institutional change affects efficiency.

A distinction is often made between formal and informal institutions (North, 1990). Informal institutions are socially transmitted and enforced and are often rooted in culture patterns. They include belief systems (ideologies), codes of conduct, norms of behavior,

and conventions--within society and organizations. Informal institutions provide the cognitive screen, or cultural filter, through which individuals within a community interpret their environment, or situation, and form expectations. Informal institutions and patterned behavior are reinforced at an unconscious level. By structuring daily interaction and providing a common understanding within a community, the transaction costs of human interaction are lowered. Informal institutions are relatively resistant to change since past solutions to exchange problems in the past are carried over into the future through the cultural filter (North, 1990). This point underscores the observation that institutional evolution is path dependent. Informal institutions vary across societies, communities and organizations.

Social capital theory provides a way to interpret the relationship between informal institutions and behavior. The concept of social capital generally refers to the informal relationships between people and includes such things as "obligations; expectations; trustworthiness of structures; information channels; norms and effective sanctions" (Coleman, 1988). Each of these institutions involves cognition and mental images. It is particularly important that individuals within a social group have a sense of community if social capital is to influence behavior. With a sense of community, or obligation to the group, individuals may on occasion suppress their individual objectives in order to achieve group objectives.

If individuals lack a sense of community or group obligation-- what Coleman refers to as "closure" within social networks-- community norms, sanctions, expectations and obligations are less binding on their behavior. In a social situation without closure, the only potential sanction on an actor who defects from an obligation to another comes from

the actor who feels wronged or from third party enforces such as government. In a closed social network, the threat of group sanction provides a powerful disincentive to some forms of behavior. Although institutions and organizational structures are resources (inputs) in the formation of social capital, the actual process by which social capital is formed is not well understood.

From an economic perspective, trust is a particularly important element of social capital, providing an implicit contract between transacting parties which lowers transaction costs. Contracting costs, in particular, are much higher in the absence of trust since transacting parties must devise explicit contracts in which obligations and sanctions (enforcement characteristics) are elaborated. If contracting costs are sufficiently high, transactions may not take place. However, in a situation of mutual trust, if actor A does something for actor B, A anticipates with a high degree of certainty that B will reciprocate in the future. A's expectation about B's future behavior becomes an obligation for B (Coleman, 1988). Other aspects of social capital, that are related to trust, are reputation and a community's sense of "fairness" about outcomes. To have a "good" reputation implies trust, fairness and reliability in honoring commitments in transactions. One implication of social capital theory is that the identity of transacting parties affects price, as empirically shown by Schmid and Robison (1995). Social capital is a productive input in production and consumption that facilitates exchange and saves costs by substituting for alternative, more expensive physical and formal institutional inputs (ibid.).

Formal institutions (rules) include laws and regulations as interpreted and enforced by political authority (Shaffer, 1995). They include a nexus of political and economic rules. Political rules define jurisdictional boundaries-- who may participate in decisions; how

authority is achieved, allocated and constrained; who has access to and voice in the policy process; and how individual preferences are weighted and aggregated. Economic rules define property rights, the bundle of ownership rights, and resource use rights. These rights allocate costs and benefits. Economic rules structure transactions and influence economic behavior through the incentives (negative or positive) they create. Formal institutions strongly influence contracting relationships. They create both opportunities and constraints. Interdependence means that one person's constraints are another's opportunities (Schmid, 1987).

The polity and economy are interrelated and interdependent (Samuels et al., 1994). Markets are structured by institutional rules decided through the policy process. As such, markets reflect political preferences and the distribution of wealth and power, or whose interests count. From this perspective, "the market is always an instrument of the political system" (Shaffer et al., 1987, p.7). Economic power often confers political power, and vice versa. Prices are also influenced by institutional arrangements. "The effectiveness of prices as carriers of information, incentives, and rewards in the coordination of economic activity depends upon the institutional structure organizing transactions" (ibid., p.14), particularly if high information costs result in uncertainty about supply and demand conditions (see Chapter 3).

Formal institutions are effective to the degree in which they are internalized and enforced. A law that is not enforced may have little impact on behavior, though it may sometimes inspire. Rules as written, or on the books, may differ from the rules in use (Ostrom, 1992). Those in power may choose to ignore rules they do not like. Many developing countries lack effective courts or legal processes to enforce formal rules.

Some rules within the institutional matrix may have greater relative influence on behavior than others, or be contradicted by other rules. North (1990) refers to a hierarchy of rules which operate at different levels, distinguishing between constitutional law, statute law, common laws and bylaws. A more thorough hierarchy of rules is developed by Kiser and Ostrom (1982) and Oakerson (1994b; 1994c). At the operational level is the complex of market rules which affect patterns of exchange. Operational rules are decided at the governance or authority level. Governance rules specify who has the right to "prescribe, invoke, apply, and enforce" operational rules, and associated patterns of behavior. In turn, governance rules are decided at the constitutional level. Constitutional rules specify who has the right to prescribe, invoke, apply and enforce governance rules, and associated patterns of behavior. This has important implications for the policy process. Reform of marketing institutions or rules at the operational level may have few behavioral or performance consequences, if they are ignored or selectively invoked, applied and enforced at the governance level. Market participants may put little stock in new rules if they believe that they will be reversed or changed in the future at the governance or constitutional level. Thus, effective reform of operational rules may require accompanying reform of rules at deeper levels of the institutional matrix.

Formal and informal institutions interact and are interdependent. Informal institutions evolve within the context of formal rules. The reverse is also true. Formal institutions may complement informal institutions, or may be designed to counteract or modify informal constraints. However, informal institutions are more tenacious and resistant to change since they are perpetuated through the cultural filter. This means there is frequently a tension between altered formal rules, and persisting informal institutions (North, 1990,

p.45). Given this tension between formal and informal institutions, the complexity of the institutional matrix, and interactions between institutions and organizations, there is no certainty that reform programs (or formal rule changes) which attempt to improve performance by "getting institutions right" will in fact produce the intended results. Different individuals may internalize new rules differently, or formulate differing strategies in adjusting to rule changes. Thus, the behavioral response to newly introduced institutions is uncertain, and difficult to predict. Implementing institutional reforms (market-based or otherwise) to achieve desired outcomes is inherently difficult, and likely involves an iterative, situation-specific process.

The arabica market reforms in Cameroon represented an attempt to improve subsectoral performance by introducing new, primarily formal, market institutions. However, these reforms were introduced within the context of informal institutions and cooperative marketing organizations that had largely evolved in response to formal institutional arrangements of the previous, administratively-oriented policy regime. A key ingredient of the arabica marketing reforms was a transitional period of institution-building, organizational restructuring, and market learning. Institutional reform entails learning (and unlearning) new market expectations, new marketing strategies, and norms of behavior to complement the change in formal institutions.

2.3 Performance

Performance is the outcome of the behavior of actors within a system, as structured by the hard constraints of a situation and the soft constraints of the institutional matrix. Since behavior is an intervening variable between structure and performance and has both

cognitive and strategic dimensions, there is no automatic link between institutional reform and performance. Performance is determined by the complex interaction of structure and behavior within the context of a situation. Performance outcomes may be intended or unintended.

The policy process influences the path of institutional evolution by determining whose interests count. As the policy process unfolds, some institutional arrangements may arise which create perverse incentives and poor performance outcomes. Again as a result of the policy process, these institutional arrangements may persist over time.

A question that arises, particularly in the economic development process, is how to design policies which promote improved performance. From an institutional perspective, effecting a change in performance requires a change in the behavior of market participants. In turn, changing behavior implies a need to reshape opportunity sets and payoffs (incentives) to alternative lines of behavior. Opportunity sets are structured by institutional arrangements, either substantively, or cognitively by altering perceptions of meaning. Thus, the lever for effecting a change in performance is institutional change. Institutions are both independent and dependent variables. Individuals (or international donors) who are unhappy with existing performance or who desire different outcomes may organize collectively or form organizations, to change institutions to further their own interests or objectives. However, institutional arrangements operate within the context of the hard constraints which flow from a situation. This implies that sustainable economic performance or development might be enhanced if institutions are aligned with and adapted to the specific characteristics of situation. But there is no guarantee that the policy process will yield this result. It is a matter of contention whether this means that

there is an a priori match of situation and structure.

2.4 Policy Implications

The specific institutional paradigm employed in designing and implementing the arabica coffee market reforms was the Institutional Analysis and Design (IAD) Framework developed by institutional theorists at Indiana University[2]. From the IAD perspective, poor performance is the result of perverse behavioral incentives contained in institutional arrangements that are poorly matched to a given situation. This implies that economic performance can be improved by better matching, or "fitting", institutional prescriptions to a situation. The key task in designing institutional reforms is to devise incentive-compatible institutional arrangements that encourage patterns of interaction (behavior) that are consistent with one's desired performance objective (Oakerson, 1994b). In terms of the Cameroonian arabica coffee subsector, reform designers believed that the long term trend of poor and deteriorating performance was attributable to institutional arrangements that were poorly matched to arabica marketing's high information cost and economies of scale situational characteristics. Stated differently, poor subsectoral performance was fundamentally an incentive, or behavioral problem. To improve performance, reform designers attempted to get incentives right by designing new institutions and restructuring existing cooperative marketing organizations to obtain a better fit with the arabica situation.

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[2] More detailed information about the IAD framework and theory may be found in Oakerson and Walker (1997); Oakerson, (1994b); Ostrom et al. (1993) and Kiser and Ostrom (1982).

The IAD framework is open to criticism for being too deterministic, given its notion that specific situational variables and conditions have specific institutional solutions. A less deterministic approach to the institutional design question would be that a set of possible institutional solutions and performance outcomes exist for any situation or problem. The institutional solution that is chosen ultimately is determined by whose interests count in the policy process. Institutional choice has strong implications for economic performance. However, the notion that there is a unique institutional fit or match for a given situation that will yield desired performance implies that either all economic actors have common interests, objectives and expectations in the outcome of institutional reform, or that the interests of one group should be favored over those of others. The concept of "correct institutional fit" also depends on the performance criteria chosen for evaluating performance, and what is perceived to be acceptable levels of performance.

Shaffer et al. (1987, p.1) take a marketing systems approach to improve market performance. This approach assumes that "unexploited economic opportunities and barriers to improved market system performance exist, these opportunities and barriers can be identified, and that institutional and behavioral changes can be implemented to improve system performance." The key focus of attention is on institutions which structure incentives, and shape opportunity sets. This implies both creating new opportunities and constraining others. Above all, an adaptive pattern of institutions is necessary, which is responsive to new opportunities and barriers which arise as an economy evolves. The policy design task is to identify strategic changes in the opportunity sets of participants and to contribute more effective behavioral responses by

means of institutional variables and knowledge, to promote more desirable performance (Shaffer et al.).

The criteria for desirable performance are decided through the policy process. This approach does not assume an "ideal" system exists. Both market and political coordination processes, or a mix thereof, are available options. In trying to improve market performance through institutional change, policy makers and planners must have some normative concept of what constitutes a desirable improved outcome, and as such, a preference for some institutional arrangements and organizations over others. However, since there are always winners and losers when institutional rules are changed, competing interests attempt to influence the policy process.

A key objective in reforming institutional arrangements for marketing arabica in Cameroon was to improve farm incomes. As a result, the interests of farmers were favored over those of other market participants, and not all farmers have the same interests. During reform design and implementation there was often some question as to who "owned" the project-- expatriate donors, coffee marketing cooperatives or coffee farmers in North West Province. In effect, USAID/Cameroon assumed the role of agent of institutional change for NW coffee farmers.

2.5 Institutional Design and Implementation

2.5.1 Designing New Marketing Institutions

The specific method used by USAID/Cameroon in designing the arabica coffee marketing and cooperative restructuring reforms was described by Oakerson (1994b) as follows.

- Step 1: Describe the operational situation. Identify and analyze performance criteria, structural/institutional elements and patterns of behavior, and situation. Identify key situational variables. Find empirical relationships.

- Step 2: Diagnose sources of the problem. This begins with performance, and requires working backwards through behavior, to the set institutional arrangements within a particular situation. Identify key situational variables. The key foci in problem diagnosis are the incentives generated by institutional arrangements within a given situation. In particular, perverse incentives (defined as a"mismatch between rules and physical facts of a situation") which produce undesirable patterns of behavior must be identified.

- Step 3: Design, or prescribe, institutional solutions to the problem. This entails moving the opposite direction: from the situation to structure/behavior to desired performance. The critical design function is to understand the relationship between the situation and institutions. The objective of the design is to create incentives that support patterns of behavior that will generate desired performance.

- Step 4: Repeat Steps 1-3 at different levels in the hierarchy of institutions, beginning first with the governance level and then proceeding to the constitutional level. Effective reform of the operational rules of a situation may require accompanying reforms of the governance structure (who prescribes, invokes, applies and enforces operational rules). Constitutional change may also be required. However, national constitutional reform is an activity with often prohibitively high transaction costs.

The focus of this approach is on formal rules. Informal rules are not considered. The assumption is that the new incentive structures created through multilevel policy reform will lead to changes in behavior and informal rules over time. In some respects, the impact analysis of the impacts of the reformed arabica marketing institutions on subsectoral performance in Chapters 7 and 8 tests this assumption.

2.5.2 Implementing Institutional Reform

Implementing a program of institutional market reform is an inherently labor-intensive process, requiring new techniques and procedures in the way a donor provides assistance.

The institutional approach to reform employed by USAID/Cameroon acknowledged that in promoting new institutions, the interests of new stakeholders are implicitly favored over the interests of the main stakeholders in the old institutional environment. Thus, the reform process is often contentious and must overcome resistance on the part of the old stakeholders. There is no straight line path to achieving the performance objectives of institutional reform. Effort must be expended by donors and policy makers to steer the reform process along the right path, and acknowledging this may be an imperfect process. It is critical that the implementation process is inclusive.

Dialogue between the agents of institutional change and affected parties is essential in enhancing understanding, and communicating objectives. Education is a critical function in promoting the interests of new stakeholders and keeping the reform process on the path toward desired outcomes. Education and dialogue are equally important in overcoming potential resistance from old stakeholders by altering their perceptions of the consequences of reform, particularly by identifying new opportunities for them. For example, revitalization of the declining arabica subsector in Cameroon should have been, in principle, an interest common to all market participants. Old stakeholders would potentially gain from reform as well. Most important, dialogue and education may enhance formation of social capital.

Therefore, the arabica market reform effort envisioned periodic meetings and evaluations of the reform implementation process which would include all parties in the reform process-- donors, technical assistants, representatives from all levels of the cooperative structure, and government officials, technical assistance, and other donors involved in policy reform activities in Cameroon. At the cooperative level the reform

project envisioned smaller meetings between donors, technical assistance and cooperative representatives and management. The purpose of these meetings was to promote dialogue; voice concerns; assess progress; identify implementation difficulties; and suggest possible modifications to elements of the institutional design that proved to be unworkable. But events in Cameroon conspired to severely disrupt the review process. Project reviews were held erratically. This contributed to delays in implementing reform, and the tensions and disagreements between reform participants.

Implementing institutional reform is an iterative process. Theoretical prescriptions must be adapted to specific conditions of time and place. Some recommended institutional arrangements may not be feasible or have unintended consequences. Compromise is often required in overcoming implementation difficulties arising from old stakeholder resistance. If "ideal" institutional prescriptions cannot be implemented, second-best solutions may be required to keep the reform process going. This suggests that an institutional design must be flexible. Although it is necessary to implement the core institutional changes targeting specific situational variables, flexibility at the margins is often important in keeping the reform process going.

2.6 Methods of Analysis

2.6.1 Impact Vs. Institutional Change Analysis

The dissertation is a case study of the performance impacts of alternative market structures on performance in the Cameroonian arabica subsector. Performance is analyzed through impact analysis. Impact analysis links situation to structure in order to predict performance (Schmid, 1987). In interacting with a given situation, alternative institutions

may generate very different performance outcomes. It is impossible to understand how structure affects performance without an understanding of how the incentive structures contained in institutional arrangements effect the behavior of the different actors within a system.

Impact analysis is usefully distinguished from institutional change analysis (Schmid, 1994b). Whereas the focus of impact analysis is to determine how institutional choices affect performance in the context of a given situation, institutional change analysis focuses on the process of institutional choice itself, or how new rules are devised and implemented. This entails looking at the characteristics of a situation (including goods, communities and groups) associated with rule changes and the structural and performance conditions that created pressures for institutional change. Although the issues explored in conducting impact and institutional change analysis are separable, they also often overlap. The way a rule is devised and implemented may have a profound effect on performance (Schmid, 1994b).

In studying the impacts of reformed marketing institutions on performance within the arabica subsector, the boundary distinguishing impact from institutional change analysis was sometimes indistinct. Significant parts of the original institutional reform design were never implemented or were modified during the implementation process. To use the terminology of project planners, it proved impossible to "fit" the optimal institutional design to the arabica situation during the reform process. Although the dissertation will discuss how the content of the proposed institutional reforms changed during the implementation process, institutional change is not its main focus. Instead, the purpose of the dissertation is to evaluate the impacts of alternative marketing institutions as they were

implemented on actual performance in the arabica subsector in Cameroon.

2.6.2 Impact Analysis

The steps involved in conducting impact analysis are outlined by Schmid (1987). The starting point in conducting impact analysis for analysis is to identify and characterize a given situation. This entails describing how the inherent situational characteristics of a good and its production and marketing causes people to be interdependent (Schmid, 1987). The arabica situation is characterized by high information costs due to quality measurement problems at the point of initial handling in the marketing system. Progressively greater economies of scale in secondary processing and marketing further characterize and complicate the arabica situation. Conditions in the world coffee market are heavily influenced by arabica's asset fixity characteristics. The situational characteristics of arabica coffee have a profound implication on the ability of alternative institutions to coordinate the economic activities of actors in the marketing system. The arabica situation is described in detail in Chapter 3.

The next step in impact analysis is to describe and characterize alternative institutions. Structure determines whose interests count in situations where people are interdependent. Institutions determine who has the right to claim the benefits and who bears the costs from an activity, transaction or decision (Schmid, 1987). Furthermore, institutional rules determine who has the right to participate and decide in resource use decisions. In other words, institutions allocate power (discretion) between the participants in a marketing system by determining "who decides what in relation to whom" (Oakerson, 1994c). In discussing alternative marketing rules, it is important to have an understanding of how

authority rules (or rules for making marketing rules) embedded at a deeper level of the institutional matrix might affect rule application and enforcement. In characterizing alternative institutions one must go beyond the content of specific rules and ask who will be the gainers and losers from specific institutional arrangements, who has the right to participate in making key decisions, and who has the ability to make and enforce rules.

A complete description of each element (formal and informal) of the institutional matrix governing a complex system such as arabica coffee marketing is beyond the scope of the dissertation. Instead the analysis identifies key institutional features (categories of rules) of the pre-reform and post reform market structures. The key structural categories are rules governing competition; price determination; marketing costs (margins), the determination and enforcement of coffee quality standards; the right to export coffee; and the right to retain and distribute the residual income from coffee sales. Since arabica farmers in Cameroon marketed their coffee through cooperative marketing organizations during the entire time period of analysis, cooperative governance rules are also an important feature of structure.

The next step in impact analysis is to formulate hypotheses that predict how situation and structure will interact to affect performance. Performance in the arabica subsector is dependent upon the effectiveness of alternative institutions in resolving problems of economic coordination that are associated with arabica's high information cost and economies of scale characteristics. More specifically, the key questions asked in relating structure to situation were:

1) How effective were alternative institutional arrangements in distinguishing, certifying and rewarding quality at the farm level, and in promoting quality control during

processing?

2) How effective were alternative institutional arrangements in controlling marketing costs to realize economies of scale?

Behavior is the link between structure and performance. Alternative institutions order and direct human interdependence through the types of incentives they create. In relating situation and structure to predict performance, an understanding of the incentives contained in different institutions, and the types of behavior they encourage, is essential.

The key features of the pre-reform market structure and their predicted performance impacts are discussed in Chapter 4. Chapter 5 distinguishes between, and predicts the performance impacts of the original institutional reform design and the reforms that were actually implemented. Chapter 6 discusses the institutional features of the transitional period of reform. The key features of the reformed market structure and their predicted performance impacts are reiterated in Chapters 7 and 8 and prior to evaluating actual performance after reform.

The final step in impact analysis is to test hypotheses by observing performance. Institutional variation is essential in testing hypotheses. This requires observing the performance impacts of alternative institutional structures applied to a given situation (good) across time or space. Frequently one is interested in predicting the performance impacts of a proposed rule change that has never been implemented for the good in question. In this case, performance can be observed by identifying a different good that possesses functionally similar situational characteristics in which the rule was tried (Schmid, 1987). The institutional reform of the arabica marketing system in Cameroon between 1989 and 1994 provides a unique opportunity to study the performance impacts

of alternative market structures while holding situational and place variables constant. The before and after reform experience provides the necessary institutional variation to test hypotheses about the links between situation, structure and performance using empirical data. More specifically, the reform experience in Cameroon provides an opportunity to observe the actual interaction of situation and structure, and its impacts on behavior and performance. For these reasons, the dissertation adopts a case study approach and confines its scope of analysis to the arabica subsector in Cameroon only.

The emphasis in impact analysis is on actual (or substantive) performance. In situations of interdependence and conflicting interests among different groups, the key question in evaluating performance is to ask how alternative institutions distribute wealth and opportunities between groups (Schmid, 1987). Usually impact analysis is used in the policy process to either predict the performance impact of a proposed rule change, or inform the choices of policy makers who seek to effect a desired change in performance but must choose from an available set of institutional alternatives. The measures of performance selected for analysis should reflect the expressed interests of the actors (groups) who are affected by institutional change.

In evaluating (and predicting) the performance impacts of reform, the choice of new institutions had already been made and the questions of whose interests would count in the reform process had been decided. Moreover, the reforms were adopted with specific performance objectives in mind. In analyzing the impacts of reform on performance, the choice of performance measures was guided by the objectives of the reforms themselves. The key measures of subsectoral performance used in the case study are: marketing costs, producer prices, distribution of the residual income from sales; coffee production and

coffee quality. The marketing costs, producer prices and distribution of residual income variables implicitly measure the distribution of income. Subsectoral performance prior to reform is discussed in Chapter 4. Performance during and after reform is discussed in Chapters 6 through 8.

The key issues in analyzing performance of the reformed structure was whether the reforms were successful in achieving their desired change in performance, and to determine why they succeeded or failed. The analysis was often complicated by the fact that in many instances, institutional reform had multiple performance objectives. Furthermore, within a complex system such as a subsector, different elements of the institutional structure interact, and performance feeds back onto behavior and structure. In such a situation there is no reason to expect that there will be a uniform response to reform by the various actors in the marketing system. Detail matters in measuring the impacts of alternative institutions on performance.

In a complex system, the links between situation, structure and performance are rarely linear, and sometimes difficult to discern. This makes it difficult to isolate the effects of specific rule changes on performance. Nevertheless, the case study attempted to identify linear links between specific features of institutional structure and performance measures. Possible interactions between variables in the system were discussed separately. This method of analysis was sometimes cumbersome and redundant.

The institutional framework of analysis employed by the dissertation adopted a problem-solving approach[3]. This entailed obtaining knowledge from a "variety of

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[3] Problem-solving research techniques are discussed in detail in Johnson (1986).

alternative methodologies ranging from formal hypothesis testing to more rhetorical methods such as history, case study, analogy and introspection" (Schmid, 1987, p.260). The approach to analyzing the pre-reform and post-reform arabica market structures differed slightly. In the case of the pre-reform structure, performance outcomes were known. Thus, the analytical approach was largely historical and used empirical evidence to diagnose how situation and structure interacted to affect actual performance. Although detailed performance data were available for the first two years after reform, the impacts of institutional reform on performance are often perceived over the long term. Thus, the impact analysis of reformed market structure relied on measuring actual performance and predicting future performance. Although the analysis used quantitative measures of performance whenever possible, it also relied heavily on more qualitative and anecdotal data sources. The primary objective of the study was to identify the direction in which performance changed after reform instead of determining the absolute magnitude by which it changed.

2.6.3. Sources and Collection of Data

The data set analyzed in the dissertation was compiled from a variety of sources, including secondary sources, reform project documentation, direct observation and informal interviews in the field, and newsletters and marketing data provided by the North West Cooperative Association, Limited (NWCA) located in North West Province, Cameroon. Data availability problems severely limited the scope of analysis.

The arabica marketing reforms were implemented between 1990 and 1994 through the *Program of Reform in the Agricultural Marketing Sector, Phase I* (PRAMS), a joint

agreement between the U.S. Agency for International Development in Cameroon (USAID/Cameroon) and the Government of Cameroon. The reform program included a research component to study the policy reform process in Cameroon. Most of the data for the dissertation was collected during fieldwork in North West Province, Cameroon between March 1993, and April 1994, that was funded through the PRAMS research component. Although the purpose of field research was to monitor the reform process and assess its impacts on performance of behalf of USAID/Cameroon, from the outset there was a clear that any data collected could be used in writing the dissertation. However, the field research did not go as planned. Although originally intended to last through the end of September 1994, USAID permanently closed its mission in Yaounde, Cameroon on July 30, 1994, and moved the termination date for field research forward to the end of March 1994.

During fieldwork, USAID/Cameroon permitted complete access to PRAMS project documentation--including all communications between it and NWCA, trip reports, consultants' reports, feasibility studies and project proposal documents. Structure and performance data for the period prior to reform were collected primarily from these various sources. Information gathered through informal field interviews and conversations with cooperative officials and arabica farmers in North West Province, representatives from donor organizations with knowledge of Cameroon, and reform planners deepened understanding of the pre-reform era.

Structure and performance data for the period during and after reform were collected in a variety of ways. Arabica processing and marketing functions in North West Province, Cameroon are conducted by the North West Cooperative Association, Ltd (NWCA), a

federation of marketing cooperatives which includes 40 (now 73) local cooperatives where coffee is accepted from farmers, 11 cooperative unions where coffee is milled, and the Apex organization which sells coffee to buyers. NWCA extended full access to cooperative staff, meetings and records during fieldwork. Much of the post-reform performance information was collected by directly observing cooperative activities (i.e., coffee acceptance, milling) at all levels of the cooperative structure and in all regions of NW Province. Cost, price, sales contract and production data were compiled from cooperative records[4]. Observation of cooperative-wide meetings to review the reform process, cooperative management meetings and informal interviews and conversations with cooperative managers and technical assistants also proved to be a rich source of information. These information sources were heavily weighted towards cooperatives, but many of the reforms targeted farmers. Eleven Peace Corps Volunteers (PCVs) were assigned to NWCA to provide training, technical assistance to local cooperative managers and educate farmers. Research and monitoring duties were included in the PCVs' job responsibilities. Although recurrent logistical problems made it difficult to organize a structured, farm-level data gathering system with the volunteers, they were nevertheless an extremely valuable source of information concerning events that occurred at the farm level, and were of great assistance in arranging farm-level visits.

However, because the implementation of key institutional reforms was seriously delayed, in many respects the information collected in the field was better suited for institutional change analysis than impact analysis. As originally proposed, the key

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[4] Cooperative by-laws give all cooperative members access to this information.

institutional reforms were to be implemented prior to the 1992/93 season. This would permit the direct observation of two marketing seasons under full reform. However, the key reforms were not implemented until the beginning of the 1993/94 season, midway through field research. The closure of USAID/Cameroon necessitated that field research conclude at the end of April 1994. Although this date more or less corresponded with the completion of coffee collection and processing, fieldwork concluded as NWCA was still selling the 1993/94 coffee crop. Although there was sufficient time to observe a complete marketing campaign under full reform, it was only possible to gather partial marketing performance data for the 1993/94 season. Early closure also meant that it would be impossible to design and implement a farm level survey.

However, a research colleague, who had been heavily involved in planning the institutional reform program and a member of the PRAMS research team, visited North West Province in May 1995. This provided an opportunity to obtain complete cost, price, sales contract data and production data from NWCA for the 1993/94 and 1994/95 seasons. Much of this information was contained in monthly *Marketing Newsletters* distributed by the NWCA Apex to its affiliated cooperatives and members. In addition, an open-ended questionnaire was to distributed to senior NWCA staff members that asked about their subjective impressions about key performance measures (particularly coffee quality) that may have occurred since the completion of fieldwork. Subsequent opportunities to request data from NWCA after 1995 were only partially successful. Because of the limited availability of data, the case study analyzed marketing data through the 1994/95 season only.

Data problems created several procedural difficulties in writing the dissertation. In

many respects, the types of research questions and hypotheses that could be tested were conditioned by the information that was available. The impact analysis had to repeatedly confront and resolve data limitations. Although it is believed that the information assembled was sufficient to measure the direction of changes in performance that were associated with key features of the reformed market structure, in important respects, data availability drove the dissertation research instead of research driving data collection.

CHAPTER 3

Situation: Characteristics of Arabica Coffee, Its Production and Marketing

The inherent attributes of arabica coffee, and those of its production, transformation and marketing, combine to create a situation which complicates effective vertical coordination within the marketing system. Specifically, quality variation in arabica coffee and associated measurement and high information cost problems create special problems for the marketing system in coordinating supply with the quality attributes of demand. Given this situation, alternative market institutions may produce very different performance outcomes within arabica coffee subsectors. Performance depends in large part on the effectiveness of arabica coffee marketing institutions in resolving measurement and information problems and coordinating economic activity--between both farm and market, and between the separate stages within the marketing system. This chapter provides a description of the arabica's production and processing situation. Later chapters will compare and contrast marketing performance in the Cameroonian subsector under alternative institutional market structures.

3.1 Variable Quality

Quality plays a key role in buyer demand for washed arabica coffee, and thus influences sales prices. Based on their cup taste evaluations of the quality attributes of

different lots, buyers pay premiums of up to 10 per cent for superior quality coffee relative to a benchmark world price measure of average quality coffee. Coffee evaluated as inferior in quality is discounted in price. But, arabica is a highly heterogeneous commodity exhibiting complex and often subtle differences in aroma, taste, flavor, acidity and mouthfeel in the cup[1]. The coffee sold to consumers is typically a blend composed of several arabica varieties with differing quality attributes, and originating from different producing countries. The blending of coffees with distinct but complementary quality attributes, and the specialized roasting techniques of roasters are important in producing distinctive tasting brands of coffee which are sold to consumers[2]. Thus, roaster and consumer demand for specific quality attributes tends to be highly specialized and individualistic. As a general rule, buyers favor higher quality arabicas for their mild and distinctive tastes. Cameroonian coffee is sold primarily in Europe, where buyers and consumers tend to demand higher quality coffee than do North Americans.

Because quality matters in coffee marketing, but the arabica situation poses unique problems in coordinating the quality attributes of supply with the preferences of roasters and consumers, the factors that determine quality are discussed below.

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[1] To illustrate, the coffee industry distinguishes between eighteen aroma profiles, sixteen flavor profiles, five taste profiles, and two mouth feel profiles in describing quality (Wrigley, 1988).

[2] De Graaf (1986) observed that by blending coffees, buyers are better able to control raw material prices, quality variation, lessen risk stemming from disruptions in supply, and increase marketing flexibility by not becoming overly dependent on coffee from a single source.

3.1.1. The Determinants of Quality

The inherent quality attributes of coffee beans are primarily determined at the farm level during production, and are affected by both environmental factors (altitude, soil characteristics, and rainfall) and cultivation practices (weeding, pruning, fertilization, pest and disease control). Thus, coffee quality varies from country to country, region to region and farm to farm. However, coffee undergoes a series of transformations as it moves through the marketing chain, each of which are important in determining its final quality as revealed in the cup.

Harvesting and initial processing (called washing) are critical quality-related activities in producing good quality arabica coffee[3]. A distinguishing feature of the arabica situation in Cameroon is that washing is an on-farm activity performed by individual producers. To produce washed arabica, cherries must be harvested as they ripen. Initial processing (washing) activities must begin within 24 to 36 hours of harvest to maintain bean quality and prevent spoilage, since coffee is highly perishable in its cherry state. But washing is a time dependent and delicate process, requiring specialized knowledge. The trick in washing is to regulate coffee's natural chemical reactions during decomposition without affecting coffee beans themselves (Coste, 1992; Wrigley, 1988). The first stage in the washing process is to quickly remove the cherry pulp from beans. After they have been pulped, coffee beans remain encased in a parchment skin and tightly fitting membrane

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[3] The production of unwashed arabica omits the initial processing (or washing) stage entirely. Cherries are simply left to dry on the tree, harvested in a single picking, and then directly hulled. Although it is cheaper for farmers to produce unwashed than washed arabica, it produces harsh and bitter tastes in the cup and is considered by buyers to be significantly inferior in quality to washed arabica. As a result, it has a much lower market value than washed coffee.

(silverskin), and are covered with a sticky mucilage which must be broken down during fermentation and rinsed away. If parchment is fermented too long, beans themselves begin to ferment which taints their taste. Although overfermentation is a matter of degree, seriously overfermented beans (particularly stinkers) represent a major quality problem because of their strong, undesirable tastes in the cup. Similarly, if parchment is underfermented or poorly rinsed, the mucilage residues may impart undesirable tastes to beans. Drying is the final stage in the washing process and a key quality-related process. The key task in drying is to rapidly reduce the moisture content of parchment in order to arrest fermentation before it extends to coffee beans themselves. Insufficient or unevenly dried parchment stores poorly, with adverse quality consequences. Improper harvesting and washing of coffee are the sources of the most serious quality problems in coffee marketing.

After it has been washed, parchment undergoes further processing. Secondary processing activities include removing the parchment and silverskin from beans through hulling; grading beans by size; sorting beans by density (weight) and color; and assembling coffee in bags marked for export. Most of these operations are performed mechanically. After secondary processing, coffee is generally referred to as "green coffee." Although secondary processing activities should not affect the inherent qualities of beans themselves, they are very important in controlling farm-level quality problems. It is much easier to identify improperly harvested and washed beans after the parchment skin has been removed from beans[4]. Through proper grading and sorting, many (if not all)

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[4] A list of bean defects, the cup quality problems they create, and the source of their quality problems is presented in Appendix I.

defective and inferior quality beans should be separated and removed from good quality beans. Color sorting, which is done by hand in North West Province, is particularly important in controlling farm-level quality problems because many beans discolor if poorly harvested or washed. Careless processing, sorting or handling during storage and transport, adversely affects coffee's quality and price.

After secondary processing in mills, green coffee is ready for sale on international markets. The manner in which coffee is sold and shipped also affects price. To maintain a consistent brand taste, it is important to roasters that the coffee shipments of sellers are reliable and of consistent quality over time. If an exporter defaults on contracts or makes misleading claims about quality, his product is discounted in price.

Finally, post-export processing activities include blending, roasting and grinding, and packaging for sale to consumers. These activities are exclusively carried out by roasters in coffee consuming countries, and are thus considered external to the Cameroonian arabica situation.

In summary, the behavior of producers, processors and marketing agents influences coffee quality. This creates a situation of interdependence the participants of the marketing system. Effective vertical coordination within the arabica coffee marketing system is critical in maintaining coffee quality and preserving its value to producers, buyers and consumers. In this sense, some institutions fit and others do not.

3.2 Economies of Scale in Processing and Marketing

Although increasing returns to scale are not pronounced in arabica production, as coffee moves through the marketing chain, it encounters progressively increasing returns

to scale in transportation, processing and shipping. There are economies of scale in transporting coffee between the collection points to which individual farmers deliver coffee and processing factories, and between factory and port. The scale requirements of mechanized mills require parchment to be aggregated (pooled) prior to processing[5]. Increasing returns to scale are pronounced in international shipping. Coffee is typically shipped abroad in containers that hold approximately 17 metric tons. This often requires storing coffee at mills or a central location until sufficient quantities and grades of coffee are available for shipment. Within a vertically integrated structure, the coffee from different mills must sometimes be mixed to create marketable lots of sufficient size.

Because coffee is progressively pooled as it moves through the marketing chain, by the time a lot is sold to buyers the output of numerous individual producers has been combined. This implies that the prices buyers pay for lots of coffee reflect the average quality pooled coffee, and not the quality produced by an individual producer. As will be discussed below, this creates problems in pricing coffee at the point of initial handling in the marketing chain. Pooling prior to milling also makes it impossible to track coffee from the farm to the international market. However, since green coffee is shipped in marked 60 kilo bags, it is relatively easy to track coffee from a mill to the international market.

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[5] To illustrate, a typical small-scale producer in North West Province may produce between 2 and 5 bags of coffee, or 100 to 250 kilos of green coffee in a season. But a union mill needs about 500 tons a year to operate on a cost-effective basis (Agrar und Hydrotecknik, 1984).

3.3 Transactions Costs

3.3.1. High Information Costs and Quality Measurement Problems

Given the multiple attributes of coffee quality and its complex and often subtle distinctions, it is not surprising that quality measurement problems and high information costs are ubiquitous in arabica marketing. The only accurate way to evaluate coffee quality is in the cup, through consumption. Sellers usually send samples--either actual lot samples or representative crop samples--to buyers and roasters for quality testing by their professional cup tasters. Based on these quality evaluations, buyers make price bids for the lots offered for sale. However, cup tasting skills are highly specialized and idiosyncratic. Cup tasters often use specialized roasting, grinding and brewing techniques, and personal criteria in evaluating quality. As a result, cup tasting is highly subjective process, based on the experience and memory of the cup-taster (Wrigley, 1988). Although there may be a diversity of opinion among cup-tasters about what constitutes desirable quality, there is a clear consensus about what constitutes bad, or undesirable quality[6].

The quality measurement problem is as follows. Quality can be accurately measured only at the end of the arabica marketing chain, after all processing and marketing activities have been completed. But in key respects, the quality attributes of beans are determined on the farm during production, harvesting and washing. However, it is inherently difficult to measure quality at the point of initial handling when farmers deliver their coffee to cooperatives for subsequent processing. The easily observed attributes of parchment such

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[6] In fact, many tasters are able to link undesirable quality attributes to specific on-farm harvesting or washing practices.

as appearance color, smell and moisture content provide only crude indicators about how farmers washed and harvested their coffee, though some poorly washed or dried coffee can be detected. Inspection of coffee beans themselves provides more accurate measures of quality, but it is only feasible to hand-hull and observe only a small sample of each farmer's parchment. Short of cup-tasting each farmer's coffee, it is virtually impossible to discern the complex and often subtle taste attributes that are important to buyers. Even if it were possible to cup taste each farmers' coffee at the point of initial handling, it is impossible to predict how downstream processing will affect final quality. In summary, the limited number of available or reliable measures of cup quality when coffee is in its intermediate parchment state are the source of high information costs.

There are opportunity costs for producers of high quality arabica, including time, effort and inputs. For farmers to invest in quality, they must have incentive to do so. The marginal benefits from improving quality must exceed the marginal costs. The typical manner in which markets reward producers for quality is to generate a dispersion of prices which reflect differences in quality (Bates, 1989). However, this is not possible for arabica because of measurement problems during the initial market transaction. High information costs present a pricing dilemma. How can individual farmers be rewarded for the quality of coffee they produce if the quality of their coffee cannot be accurately distinguished or measured when they deliver it to the market, and its eventual market value is unknown?

Contingent pricing, or two-payment, arrangements are the most common solution to this pricing dilemma (Bates, 1989). During the initial market transaction, a pricing formula or convention is used to make a partial payment to farmers. A second payment,

or bonus, is paid after quality has been measured and sales prices have been determined. The second payment communicates any quality premium (or discount) back to the individual producer, and thus rewards him for quality. But arabica marketing's economies of scale characteristics limit the effectiveness of contingent pricing in resolving high information cost problems. Since coffee is progressively pooled into greater quantities to realize economies of scale in processing and marketing, by the time it is sold to buyers it represents the combined output of the numerous individuals who have contributed to the pool. The sales price reflects the quality of the pool, and not that produced by an individual producer. The quality premium cannot be communicated back to individual farmers and is instead shared by the group. Furthermore, if there is to be a perceptible price benefit from quality improvement, the overall quality of pooled coffee must improve. In other words, quality improvement requires collective action by producers. As in any high information cost situation a potential for moral hazard exists. Incentives exist for individual producers to shirk on investing in quality, yet free-ride on the quality contributions of others in the pool. But in the arabica situation, one or a few producers of poor quality coffee may lower the quality of coffee produced by the pool, and thus undermine the efforts of others to improve quality[7].

A related pricing issue is the financing of coffee purchases from farmers. The flow of funds through the marketing chain is the reverse of the flow of coffee. International buyers typically pay for coffee once shipping documentation is received. Thus, actual payment for coffee is often received several months after farmers have delivered their

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[7] For example, a few overfermented stinker beans can ruin an entire bag of coffee.

coffee to the market. Crop purchases from farmers must be financed through loans, financial reserves, or some other arrangement. Ample evidence from Cameroon and other African countries indicates that delayed payment of farmers has severe production and quality disincentive effects for coffee producers, and adverse performance impacts in markets (Gellar et al., 1990; Carr, 1993).

Quality performance is affected by both individual and group actions at the farm level, and the actions of downstream processors and marketing agents. Because the number of available measures of quality increases after the parchment layer has been removed from beans (see Appendix I), secondary processing controls many of the quality problems associated with poor harvesting and washing. Buyers would pay more if the best possible coffee could be sent on at this point even if farmers had poor incentives to wash carefully. Incentives for secondary processors to grade and sort coffee well are important. But this presents less of a pricing dilemma than at the farm level, because a coffee mill produces coffee in sufficient quantity so that it can be tracked, enabling the quality premium to be communicated directly back to the mill level. Furthermore, there are several available measures of green coffee quality for which institutional arrangements (i.e., grading and sorting standards, cup taste evaluations prior to shipment) may be devised to reward (or punish) quality at secondary processing level.

Because producers and processors are interdependent, effective vertical coordination of activities within the arabica subsector is critical to both performance and profitability within the arabica coffee subsector. Klitgaard (1991, p. 31) aptly summarized the coordination problems posed by a situation of high information costs. He argued that "when markets do a bad job of distinguishing, certifying, and rewarding variations in

quality, markets will malfunction or even fail to exist." If quality can't be distinguished and rewarded, producers will typically make minimal investments in quality, since there are no payoffs to doing so. As a result, supply may be of poor quality, little demanded, and heavily discounted in the market. But because of low prices, producers have even less incentive to invest in or maintain quality. Prices and competitive markets may produce either a low level equilibrium or a spiral of deteriorating performance. In a situation of high information costs, effective vertical coordination depends on the ability of institutional alternatives to distinguish, certify and reward quality when markets fail.

3.3.2. Market Information Problems

Market information asymmetries between buyer and seller are typically associated with quality variation and measurement problems. Market participants have different levels of knowledge and different information acquisition costs. These costs include the costs of gathering, processing and interpreting information. In international arabica markets, overseas buyers tend to have greater knowledge about quality and demand characteristics, and better access to market information than do sellers. Similarly, exporters tend to have information advantages over producers. Klitgaard (1991) argues that in the presence of quality measurement and information problems, transacting parties may have incentive to mislead one another by concealing information. Thus, a buyer may profit from inducing a seller to think a product's quality is lower than it actually is, and vice versa. As a result it is costly for sellers to overcome information asymmetries and learn more about quality and demand, leading to moral hazard on the part of buyers. Institutional arrangements that increase the flow of information, and remove incentives to mislead, may mitigate

information problems.

Since the overwhelming share of Cameroonian coffee production (95 percent) is exported[8], information asymmetries and coordination problems are compounded. Cameroonian arabica growers (and processors) produce for an overseas market for which they have no first-hand experience. As a result, they also have little direct knowledge of the quality characteristics demanded by buyers and consumers, and in the absence of information, a poor awareness of the relationship between on-farm practices, quality and price[9].

An analogous example would be that of a wine producer who does not sample or taste the wine he grows. Although quality and taste attributes play a critical role in the demand and hence value of the wine produced by the vineyard, such a wine producer would have no basis to compare the taste attributes of his wine with those of other wines. Thus, he would have a limited ability to identify both the taste characteristics that are favored and disfavored by consumers, or know what steps should be taken in production and processing to produce a better tasting wine. Instead the vintner would have to rely on observable wine characteristics such as color or odor, or information and feedback from others in evaluating wine quality.

It is difficult to motivate producers to invest in quality or to sensitize them to the importance of coffee quality if they do not consume the coffee they produce. Thus, in

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[8] The small domestic market typically relies on inferior quality coffee (triage) that is little demanded abroad

[9] In a study of the agricultural sector in Cameroon, the World Bank (1989, p. 73) cited "a nearly absolute absence of regular information at the intermediate (farm and village) market level" as a key constraint on agricultural markets.

improving coffee quality there is a premium on education and information provision in order to familiarize arabica producers with quality issues and demand characteristics. Institutions are important in providing market information and quality incentives to the farm level.

Klitgaard (1991) also examined the implications of high information costs on the market information contained in the prices generated by competitive markets. Markets may fail to clear since they may not communicate much information about quality. In fact, Klitgaard contended that by assuming away quality issues, prices in the neoclassical model signal information only about "more or less,"and not "better or worse." Moreover, if prices are not widely disseminated or standard weights and measures are lacking, there may be considerable scope for traders to take advantage of the situation and earn noncompetitive profits in a situation of high information costs.

3.3.3. Transactions Costs in Exporting

Based on a comprehensive literature review of private sector marketing of agricultural commodities in Africa, including case studies of six high value food crops in five African countries, Jaffee and Morton (1995) provided a number of insights into the characteristics of African agricultural export markets. They observed that African exporters often experience significant transaction costs in export markets as the result of the great physical distance between the exporter and target market abroad; differing cultural and business practices between transacting parties; language differences; and the complex legal barriers and product standards that are found in overseas markets and which govern bilateral trade. In addition, there are costs related to "communications, market

assessments, legal and accounting fees, transport negotiations; and quality claims" (Jaffee and Morton, 1995, p.137). High transaction costs, or the costs of doing business, create high barriers to entry in export markets for new firms, especially for those which lack experience in exporting.

Also contributing to high transaction costs are the structural weaknesses that are characteristic of many agricultural markets in Africa. A poorly developed communications infrastructure makes it costly for exporters to communicate and contract with overseas buyers, collect market information and monitor buyer behavior. Poorly defined and enforced property rights and laws, as well as weak or politicized formal legal structures (including courts), increase contracting costs and particularly enforcement costs. An inadequate or poorly maintained transportation infrastructure often increases transportation costs, creates bottlenecks and delays in evacuating commodities, and increases the risk of quality deterioration during transit.

Thus, agricultural commodity export marketing activities in Africa take place within a business environment often plagued by high transactions and information costs, uncertainty and risk. Jaffee and Morton found that successful African exporting operations in high value agricultural commodities have typically developed extra-market trading networks to economize on transactions costs; provide exporters improved access to finance and other resources; improved information about overseas markets and quality preferences of consumers; and provide exporters with more assured market outlets. Depending on the characteristics of the commodity in question, these extra-market trading relations may be formal (long-term contracting, vertical integration by multinational firms), informal (ethnic, family or personalized networks) or a combination of both.

In international coffee markets, long-term trading relationships between suppliers and buyers are important in lowering transaction costs. Reputation plays a critical role in controlling quality measurement and information problems in coffee export marketing. To buyers, it is important that coffee be shipped when promised by suppliers and that it is of consistent quality. Earning a reputation as a supplier of consistent quality coffee requires that shipped lots of coffee match the size and quality attributes of the sample sent to be cup-tasted, and that there are minimal variations in quality over several marketing seasons. A reputation as a reliable and timely supplier of consistently high quality coffee gives a seller an ability to command a price premium. A bad market reputation means that coffee will be routinely discounted by buyers. Although a suppler may improve marketing performance or quality in any given year, reputation effects are perceived only over time. Although long-term trading relationships and reputation help lower transaction costs, uncertainty and risk, and assure marketing outlets, they also create barriers to entry into coffee markets for new suppliers.

3.3.4 Asset Fixity

Coffee trees are fixed assets with a life span of upwards of 40 years. Trees begin producing cherry in 3 to 4 years, and reach peak production after 6-8 years. It takes many years to recover the initial capital and labor investment. This results in relatively low price elasticity of supply in the short run (de Graaf, 1986). However, coffee farmers do have a measure of production flexibility since there are variable inputs of fertilizer and labor. A coffee tree will produce cherry even when left alone, although yields are low and bean quality is inferior. Fertilizer, which is an important component of coffee input costs, often

complements the production of other crops since smallholder producers typically intercrop coffee with food crops such as plantains and maize. Chemical spraying to protect trees from insects and disease represents a variable input specific to coffee production. Although coffee production does not require specialized skill or investments in production or initial processing, on-farm washing activities are very time dependent and require care. Finally, coffee is not a lumpy investment. A farmer can expand production one tree at a time. However, once established, farmers are typically reluctant to forego coffee production given the long productive life span of trees and their zero salvage value. Because trees are fixed assets, there will be some production as long as marginal revenue exceeds marginal cost, even if fixed costs are not covered (Johnson and Quance, 1972)

Asset fixity in processing machinery (hulling lines, catadors, grading machines) is relatively high, requiring a relatively large capital investment. Because arabica processing machinery has few alternative uses, it has low salvage value[10]. In the presence of asset fixity, there are opportunities for downstream marketing agents to affect the income stream of producers. Furthermore, given increasing returns to scale in secondary processing and shipping, the typical arabica market structure is one in which there are numerous producers (typically smallholders), but only a handful of processors and exporters. Since producers are locked into long-term arabica coffee production, and in NW Province farmers have few cash-crop alternatives, there is a risk that buyers use their market power. Thus, producers are susceptible to hold-up (asset losses). This helps to explain why much of the world's coffee is processed and marketed through marketing

[10] Although it may be used in some instances to process robusta coffee or and cocoa, production zones for these crops do not always overlap.

cooperatives.

Assets become fixed when acquisition costs are greater than salvage costs. Fixed assets are not the same as specific assets (Schmid, 1994a). While the fixed assets discussed in this section may be specific to the coffee industry, they are not specific to a particular supplier or subsequent user. As a result, they do not represent the type transaction-specific investments that are analyzed on Williamson's (1985) transactions cost approach.

The asset fixity attributes of arabica have important implications for international coffee markets. Because of weather related factors, coffee is prone to supply shocks. There has also been a trend of large supply relative to demand in the international market. Since supply is variable but demand is relatively stable, and income and price inelastic, world coffee prices can be highly volatile. De Graaf (1986) reported that although coffee consumption has increased at a steady, average annual rate of 2 percent, the demand for coffee has begun to stagnate in the major consuming countries. He estimated that income elasticity and price elasticity of demand for coffee in major consuming countries was about 0.3 and 0.2, respectively, at moderate prices[11]. However, when prices spike as a result of periodic supply shocks, quantity demanded decreases and does not always recover--contrary to neoclassical theory.

On the supply side, arabica coffee is widely grown in the tropical highlands of the

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[11] Although there has been a growth in demand for gourmet and specialty coffees in many consuming countries in recent years, this would primarily affect the higher quality segment of the market and presumably further dampen demand for average and below average quality coffee. However, potential niche markets exist for producers who can improve quality and supply high quality arabica.

world and is well suited to smallholder production. The vast majority of arabica farmers in Cameroon are smallholders, with average holdings of a hectare or less (USAID, 1990). Coffee yields are typically cyclical, with bumper crops occurring every 3 to 4 years under favorable climatic conditions. Flood, drought, disease and frost adversely affect yields. In bumper years, a coffee tree might yield 10 times more than in bad years. As a result, regional and global coffee production tends to be variable. Global coffee supply is heavily influenced by events in the major coffee producing countries of the world, particularly Brazil. Although Brazil is the world's largest arabica coffee producer with a global market share of 20-25%, coffee there is grown under relatively marginal climatic conditions[12]. Drought or frost strikes Brazil every five to 7 years on average and seriously affects global coffee supply. A disruption in production in a large coffee producing country such as Brazil or Colombia can cause a large spike in world coffee prices. But these spikes are typically short-lived, and prices fall after production has been restored.

Price cycles, when combined with the fixed asset characteristics of arabica, mean that the international coffee market has been plagued by a long-term trend in which the production has expanded more rapidly than demand[13]. Individual coffee producers

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[12] Brazilian arabica, most of which is unwashed, is typically used as a base blend by roasters. In normal years, Brazil dominates the lower quality segment of the international markets, making it very difficult for other producers of low-level coffee to compete. This underscores the importance of producing good quality coffee for export markets.

[13] International commodity agreements and supply retention schemes have been tried repeatedly over the years, but have inevitably failed due to cartel problems. Non-signatory countries typically have benefitted from higher prices by expanding production and exports. In addition, supply retention often leads to an accumulation of large stocks of unsold coffee in some countries such as Brazil and Colombia. When prices rise, strong incentives exist to sell unsold stocks.

typically respond to spiking prices by either intensifying production or planting more trees. This decision to plant more trees is multiplied by growers around the world. As supply recovers, world prices decrease. However, the full benefit stream from new trees begins several years after the individual investment decision was made. By the time these trees begin to produce, world prices may have fallen significantly. But coffee supply continues to expand as newly planted trees reach peak production, putting further downward pressure on prices and earnings.

Asset fixity problems lead arabica coffee producers into an overproduction trap, as described by Johnson and Quance (1972). Assets become fixed when acquisition costs and salvage values diverge. Although there are positive costs in establishing (acquiring) coffee trees, their salvage value is near zero. A producer' decision to invest in additional coffee trees is based on the anticipation that its marginal value product, or earnings, will exceed acquisition costs. However, over time coffee prices may fall, meaning that a tree's marginal value product also falls. If a tree's marginal value product falls to less than its acquisition cost (or marginal factor cost), losses result. But a producer minimizes his losses by continuing production because the marginal earnings from coffee are greater than a tree's salvage value, which is near zero. It is less costly to keep trees in production and earn something from coffee than to uproot a tree and earn nothing. As a result, overproduction mistakes are only partially corrected. If there is a subsequent disruption in global coffee supply which causes a spike in prices, the production trap conditions are recreated and the cycle of overproduction continues. By contrast, the neoclassical model assumes that acquisition costs and salvage values are equal. In this case, errors of overproduction are correctable without incurring losses on investment.

As a result of asset fixity in arabica coffee production, international coffee prices are ineffective in coordinating global coffee supply with demand, particularly over the medium and long-term. Furthermore, since regional coffee supply is unstable, it is difficult for a coffee exporter in one producing country to determine supply conditions affecting competitors in other countries, thus exacerbating information problems for coffee sellers.

3.4. On-Farm Vs. Centralized Washing

In many areas of the world, such as Kenya, initial processing takes place in central washing stations. Cherry is collected from farmers and delivered to the station for processing. There are low costs in detecting whether farmers properly harvested their coffee since the ripeness of cherries can be easily measured by their color. Furthermore, by washing coffee under one roof, the washing process can be closely monitored and controlled. As a result, there is considerably less variability in parchment quality than occurs when coffee is washed on the farm by numerous individual producers. Centralized washing factories also enable coffee to be washed on a sufficiently large scale for the parchment produced by a single factory to be milled separately as a single lot. This greatly reduces the information costs of detecting whether coffee has been properly washed. Cup tastes may be performed to determine whether a factory properly washed its coffee[14]. Furthermore, since it is possible to track the coffee of a single factory to the market, it is possible to backwardly communicate any quality premium to the initial processing level.

In contrast, on-farm washing greatly increases information costs because there are few

[14] Resta (1992) indicated that Kenya routinely tests the cup quality of coffee produced by each washing factory.

available or reliable measures of quality when coffee is in its intermediate parchment state. It is inherently difficult for a cooperative either to determine whether farmers properly harvested or washed during acceptance, or to monitor the harvest and washing practices of numerous and dispersed producers. On-farm washing is a defining characteristic of the Cameroonian arabica situation.

By vertically integrating washing and secondary processing activities, information costs can be substantially reduced. However, coffee cherry is extremely perishable. For centralized washing to be effective, it is critical that cherries are either collected from farmers or delivered by farmers to the washing factory station quickly, before they begin to spoil. Since coffee cherries weigh six times more than washed parchment, this generally requires that coffee is intensively produced in the region immediately surrounding the washing station, or a reliable transportation network exists so that coffee may be collected near the farm. Washing stations also represent a significant investment. The benefit stream from central washing depends on an assured supply of coffee from many farmers.

There are no central washing stations in NW Province. Their feasibility is doubtful given a poor transportation and communications infrastructure, dispersed production, and a lack of suitable locations with necessary water supplies (Sikod and Marsh, 1994). Although establishing a network of washing stations could potentially improve coffee quality in NW Province, it is doubtful whether there would be a sufficient number of farmers or reliable enough supply for washing stations to be effective. Thus, washing is strictly an on-farm activity in NW Province. Although in theory, small scale farmers are capable of producing high quality arabica on the farm, because of differences in the motivations and knowledge among farmers, technical constraints, and the high costs of

monitoring the washing activities of 35,000 farmers, the quality of farm-washed parchment varies significantly from producer to producer and is generally quite low. Since the establishment of cental washing stations is not a viable option in the foreseeable future, quality improvement efforts in NW Province focused on designing institutional arrangements and associated incentives that mitigated and resolved coordination problems flowing from the high information cost situation.

CHAPTER 4

Structure and Performance of the Administered Arabica Marketing System Prior to Reform

This chapter describes the pre-reform institutional structure of the arabica coffee marketing system in Cameroon, and evaluates its impact on subsectoral performance. The chapter serves as a base-line study to which performance of the reformed market structure will be compared. Real alternatives are compared rather than one structure to an ideal.

Prior to reform, export crop markets in Cameroon were administratively organized. The Cameroonian government dominated and controlled virtually all aspects of marketing through the legal monopoly accorded the parastatal National Produce Marketing Board in 1978[1]. The key institutional features of the administered arabica marketing system were:

- Administratively determined producer prices and marketing margins,
- Government licensing of buying agents and operation of a price stabilization fund,
- Exclusive rights for the Marketing Board to export coffee from North West Province and retain the residual earnings from sales, and,
- Cooperative governance rules that gave the government control over the affairs and activities of coffee marketing cooperatives.

This chapter is organized in two sections. The first describes the key institutional

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[1] The Marketing Board had monopoly rights to export cocoa, robusta coffee, arabica coffee (West Province excepted), and cotton. It was staffed by career civil servants and overseen by the Ministry of Industrial Development and Commerce (MINDIC).

features of the pre-reform arabica marketing structure. The second analyzes the impacts of this structure on subsectoral performance.

4.1. The Administered Market Structure: Institutions and Policies

4.1.1. Rules of Competition

The Marketing Board established the rules of competition governing all export crops. The Board had a legal monopoly over the domestic purchase of export crops and a monopsony in international marketing. It held title to (or owned) export crops as they moved through the domestic marketing chain. Actual processing and marketing activities were performed by buying agents who were licenced by the Board and authorized to operate only within prescribed specified areas[2]. Only these licensed buying agents could legally buy and process coffee.

Competition in the arabica subsector was tightly controlled. Arabica is grown in only two of Cameroon's ten provinces, West and North West. In each province, the government created a legal monopoly for a coffee marketing cooperative to purchase arabica from farmers. The Union Centrale des Coopératives Agricoles de l'Ouest (UCCAO) and the North West Cooperative Association, Ltd. (NWCA) were the sole licensed buyers of arabica in West and North West Provinces respectively. Cooperative marketing channels were organized around administrative boundaries. Each farmer was required to join and sell coffee to the local cooperative (primary society) licensed to

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[2] Private sector buying agents, often expatriate owned firms, played an important role in cocoa and robusta coffee marketing Private firms tended to be more influential in the Francophone areas of Cameroon than in Anglophone areas, which had a tradition of cooperative development and promotion.

operate in his administrative district. In turn, each local cooperative was required to market coffee through the cooperative union licensed to process coffee in each administrative zone. Marketing coffee outside the designated cooperative structure or across administrative boundaries was prohibited, and officially branded as smuggling.

4.1.2. Price Determination

Beginning in 1966, the government fixed producer prices for cocoa, robusta and arabica coffee. The objectives were to balance rural incomes across regions of Cameroon and to shield producers from volatile world market prices. The government's price determination strategy was to minimize variation in producer prices between seasons and export commodities. Prices were pan-territorial. All arabica producers were paid equivalent per kilo prices for their coffee. Producer prices were fixed by Presidential decree based on the recommendations of the Marketing Board and announced at the beginning of each coffee season. All licensed buying agents were obligated to pay this official price. Prices were announced with the official opening of the arabica marketing campaign on the first of January each year. The start of the marketing campaign was poorly coordinated with events on the farm, since arabica harvesting begins in early November in some of the low-lying regions of Cameroon.

Arabica pricing arrangements contained minimal quality distinctions. The government fixed different prices for washed and unwashed arabica, but only distinguished between "good" and "bad" and quality beans. No price distinction was made between average and better quality coffee. Thus, quality-related price differentials were also administratively determined. Since it also fixed robusta prices, the government determined domestic price

differences between arabica and robusta coffee.

In addition, the government determined residual bonus payments for arabica producers. Bonuses were typically announced at the end of the coffee campaign, but the timing of payments was often erratic. In theory, bonus payments were based on the actual sales value of each season's crop and were intended to reflect quality and marketing performance. In practice, they became institutionalized second payments to farmers and bore little relationship to actual marketing performance (World Bank, 1989). The Marketing Board was authorized to pay bonuses even if world prices fell below export parity prices, and occasionally mandated that cooperative marketing agents pay bonuses to farmers despite marketing losses (Gellar et al., 1990).

4.1.3. Cost Determination

The Marketing Board determined marketing margins at each stage of the marketing process and reimbursed the costs of its licensed buying agents through the payment of fixed per kilo cost allowances. For each export commodity, the Board established a schedule of intermediate marketing costs by estimating the average cost (per kilo) of the specific marketing services undertaken by its buying agents. In effect, the Board priced different marketing functions such as collection, assembly, transportation, processing. From cost schedules, the Board determined the per kilo cost allowances it would pay each of its buying agents to reimburse them for their marketing costs (plus a small profit). Although in principle these allowances were negotiated with each buying agent, the Marketing Board had the final say in fixing them.

The government's objective in regulating marketing margins was to extract surplus

export crop revenue to finance productive investment in developing the rural sector (USAID, 1990). The policy was also designed to further the government's objective of protecting farmers' economic interests with respect to the private sector (including cooperatives), whose motives were often viewed with suspicion (Gellar et al.). The government seemed to assume that the primary source of interdependence was unequal market power between producers and buyers, which resulted in large marketing margins. In an attempt to reduce these margins, the government created another administered margin and no incentive to reduce it.

In NW Province, the Marketing Board determined and paid NWCA a uniform cost allowance for every kilo of arabica it delivered. Once fixed, NWCA's cost allowance was not adjusted to account for quality or any other factor. Neither did NWCA's cost allowances distinguish between washed and unwashed arabica, or good and bad beans[3].

Beginning in 1980/81, the Board also fixed the cost allowances paid to cooperatives at each level of NWCA's federated structure. For example, NWCA's total cost allowance was fixed at a constant 132 CFA per kilo between 1982/83 and 1988/89. Although it supplied primarily administrative services and had no direct marketing role, the apex organization's allowance was 30.5 CFA per kilo. Each of NWCA's 40 affiliated primary societies was paid an allowance of 12.2 CFA per kilo for their acceptance and assembly services, and each of NWCA's 11 affiliated unions was paid an allowance of 89.3 CFA

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[3] Although a regional marketing board administratively determined cooperative cost allowances before the National Produce Marketing Board began its operations in 1978/79, union cost allowances distinguished between size grades and washed and unwashed coffee. Differentiated cost allowances were intended to provide incentives for unions to process coffee well, provide inputs to farmers, and encourage farmers to invest more resources in production and quality (Galabe and Mallet, 1990).

per kilo for their secondary processing services. Uniform cooperative cost allowances did not account for differences in economies of scale, costs structures and operating efficiency among cooperatives, particularly at the union level. This created opportunities for officials in large volume cooperatives to claim and distribute profits earned from economies of scale.

Transportation costs are an important component of total cooperative costs, particularly at the society level. The Marketing Board partially reimbursed cooperatives for their transportation costs by paying a fixed transport allowance expressed in tons per kilometer (Van der Laan, 1988). But, as the sole licensed buyers of arabica, societies and unions were required to collect all the coffee produced by their member farmers and societies. This sometimes entailed collecting only small quantities of coffee from remote locations that were accessible only by bad roads, resulting in high per kilo transportation costs. Despite considerable variation in the per kilo transport costs of different cooperatives, transport differentials were paid at flat rates throughout NW Province.

Personnel costs were the key component of cooperative costs. Salaries and benefits for cooperative staff were strictly governed by national labor rules. These rules linked salaries to governmentally defined job categories or grades. Salary increases were prescribed in annual salary schedules prepared by the government, and were linked to length of service only. The labor code also contained elaborate rules governing the hiring and dismissal of workers which generally favored the interests of employees over employers (Amin, 1994). Once an employee was hired, cooperatives had little control over subsequent personnel costs. Personnel costs effectively became part of a cooperative's fixed overhead costs.

The NWCA Apex and the Marketing Board periodically renegotiated cooperative cost allowances. These negotiations were often contentious. NWCA generally complained that fixed cost allowances were too low to cover its actual operating costs. The Board argued that if the allowance was insufficient it was because cooperative costs were too high. However, since fixed allowances were based on a calculation of average costs, and intended to cover operating costs only, a cost-conscious cooperative structure would have risked a reduction in its allowance. Furthermore, because NWCA was the Board's sole licensed arabica buyer in NW Province and performed all arabica buying and processing functions on it's behalf, the Board had few options other than to cover eventually any cooperative cost increases or losses. Instead of creating incentives for cooperatives to economize, administered cost determination procedures created incentives for cooperatives to increase costs.

4.1.4. The Price Stabilization Fund

At the heart of the administered export crop marketing system were price stabilization funds (*caisses de stabilisation)* for cocoa, robusta and arabica coffee. The arabica price stabilization fund was established in 1959. Its objective was to minimize variation in farm incomes between seasons by keeping producer prices relatively stable. The residual profits from international sales that accrued to the fund during periods of high world prices could be supposed to be used to bolster producer prices when world prices were low. Thus, the stabilization fund would absorb shocks from volatile world prices while producer prices remained stable.

Administratively determined fixed producer prices and marketing margins were crucial

to the operation of the price stabilization fund. Each season the government established an "equilibrium price" (*barème*) derived by adding together administratively fixed per-kilo producer prices and marketing margins. If the average arabica export price for a season exceeded the equilibrium price, the Marketing Board imposed a tax equal to the difference[4]. If the world price fell below the equilibrium price, the Marketing Board would draw upon the stabilization fund to pay buying agents the difference between the two prices. The government's apparent strategy was to set the equilibrium price (producer prices and marketing margins) at low levels relative to world prices so that stabilization funds were rarely (If ever) used to support domestic prices.

In addition to supporting producer prices, the price stabilization fund was intended to used to develop the arabica subsector. Although it was primarily managed by the Marketing Board, the presidential decree which authorized the National Produce Marketing Board's creation in 1978 also empowered the state Treasury to collect and centralize all monies in the fund. By virtue of this arrangement, most of the residual earnings from arabica exports could be used as the government saw fit, and were not restricted to supporting prices and market development (Gellar et al., 1990).

4.1.5. Quality Control

As discussed in Chapter 3, the high information costs and economies of scale characteristics of the arabica situation create special problems for a marketing system in

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[4] In addition to maintaining the stabilization fund, revenue from this tax was supposed to be used to distribute subsidized fertilizer and pesticides and to support rural development activities such as extension and the construction of feeder roads (USAID, 1990).

coordinating the quality of supply with that demanded by buyers. Since market prices don't resolve these problems, the quality outcome depends critically on the effectiveness of alternative institutional arrangements in distinguishing and rewarding producers and processors for the quality of coffee they produce.

In the pre-reform era, the Marketing Board was responsible for establishing of product quality standards and ensuring quality control. At the farm-level, the Board established parchment acceptance procedures and quality criteria to distinguish between "good" and "bad" beans. Again, no distinction was made between good and mediocre quality beans. When farmers brought their parchment coffee to primary societies (local cooperatives) for acceptance, weighing delegates employed by each society would randomly select a small (100 gram) sample of each farmer's parchment. The sample was then hulled by hand and tested for moisture. Through visual inspection, the delegate then removed defective beans (insect damaged, broken, rotten and discolored beans), and foreign matter (twigs, shells, etc.) from the sample. By weighing the remaining beans from the 100 gram sample, the delegate assigned a good (and bad) bean percentage to each farmers coffee. After converting the weight of parchment to its green bean equivalent[5], a farmer was paid either the good or bad bean producer price according to the percentage of coffee accepted as good or bad.

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[5] Hulled green coffee weighs less than parchment coffee. The Marketing Board reduced parchment weight by 20 percent to obtain its green bean equivalent weight. It is unclear how the Marketing Board decided upon this figure. A study of cooperative records in West Province by a French consulting firm showed that the tonnage of coffee sold abroad exceeded the green bean equivalent weight of parchment coffee by 8 percent (SEDES, 1982). By setting the green bean equivalent weight reduction too high, farmers were unfairly penalized (Langham and Ayissi, 1992)

Farm-level quality evaluation criteria did not include observable measures of parchment quality such as appearance or odor. Thus, administered parchment acceptance procedures at best only partially solved the high information costs of measuring whether coffee had been properly washed. In addition, the Marketing Board made no attempt to verify or enforce farm-level quality evaluation when unions accepted parchment from primary societies. Since farmers were paid according to good and bad bean percentages but initial quality evaluations were not enforced, there were potentially strong incentives for farmers to pressure weighing delegates to overvalue quality, or for weighing delegates to treat some individuals preferentially.

The Marketing Board only inspected the quality of processed green coffee--after farmers' parchment had been pooled and secondary processing by unions had been completed[6]. Based on a weighted scale of bean defects observed in a small sample taken from coffee lots assembled for export, the Board classified coffee into seven quality categories--choice-screened, extra-prime, prime, superior, average, marginal and triage (Agrer und Hydrotechnik, 1984). But it was doubtful these quality evaluations had any resonance with buyers. The Board was employing an archaic classification system used by the international coffee industry before improvements in communications enabled coffee to be traded on actual lot samples (Wrigley, 1988).

If secondary processing activities (hulling, sorting, grading, picking) had been performed correctly, most of the defective beans identified in the lot samples should have

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[6] Quality inspections took place at the union level just before coffee was transported to the Board's central warehouses in Bamenda, and at the port just prior to shipment. Union level quality inspections were eliminated in 1986 after the Marketing Board began experiencing financial difficulties.

been detected and removed. But the Board did not require unions to re-pick or re-sort inferior quality coffee. Furthermore, unions were paid the same per kilo cost allowance regardless of whether their coffee evaluated as choice-screened coffee or marginal. As a result, unions had little incentive to sort or pick their coffee well.

The Board did apply and enforce international grading standards in its quality inspections[7]. If a lot of coffee was rejected for failing these standards, a union was required to re-grade the coffee at its own cost. Although this may have created incentives for unions to grade coffee well, bean size does not distinguish between beans that are carefully washed and produce good tasting coffee and those improperly washed and tasting bad.

USAID (1990, p. 31) likened the Marketing Board's quality control procedures to "closing the barn doors after the horse had left". Although the finished cup quality of coffee is determined by the manner in which coffee is harvested and washed by farmers, and processed by unions, the Board applied quality standards only after these activities had been completed. By failing to distinguish and reward quality at either the farm or cooperative level, administered quality control arrangements did little to resolve quality problems associated with arabica's high information cost characteristics. Nor did administered institutions create incentives for producers and cooperatives to produce good quality coffee. Farmers were paid fixed producer prices regardless of the quality of coffee

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[7] During secondary processing, coffee is graded by bean size into five grades, A - F. Larger grade beans receive higher prices than smaller grade beans which are discounted in price. Although a Grade E exists, it is not a significant grade and refers to abnormally sized or shaped beans called "elephant beans". Triage (bad) beans are not sorted into grades.

they produced (bad beans excepted), and cooperatives were paid fixed cost allowances whether or not they applied and enforced quality standards. Since the Board had sole rights to retain the residual earnings from coffee sales (see below), it bore the costs of any price discounts associated with quality problems. In key respects, administered institutions contained incentives which favored the production of poor quality coffee.

4.1.6. Rights to Export Coffee and Retain Residual Earnings from Sales

The Marketing Board had exclusive rights to export all coffee produced in NW Province. Rules entitled producers to be paid only administratively determined prices plus any bonuses the government decided to pay, and entitled cooperatives to be paid only the government-determined cost allowances. Rules governing the price stabilization fund ensured that the government had sole claim to the residual earnings from all exports of arabica from NW Province.

For the most part, the institutional structure for marketing arabica in West Province was similar to that in North West Province. As the sole licenced coffee buyer in West Province, UCCAO was obligated to collect all the arabica produced by farmers in West Province and to pay them the official producer prices fixed by the government.

But institutional marketing arrangements in West and NW Province differed in key respects. Because the Marketing Board had sole rights to export coffee and retain the residual earnings from the sale of arabica in NW Province, NWCA was primarily a collection and processing agent of the Board, and was completely dependent upon it to reimburse its operating costs and finance crop purchases from farmers. But UCCAO in West Province had the right to by-pass the Marketing Board and independently export

arabica, and retain the residual profits from its sales[8]. As a result, UCCAO was responsible for covering its own marketing costs. However, UCCAO was required to pay the Marketing Board a fixed levy of 38 CFA per kilo on all its arabica exports, part of which was destined for the arabica price stabilization fund[9].

UCCAO's right to retain the residual earnings from sales abroad had important implications for cooperative performance and West Province arabica producers. UCCAO retained 20 percent its export earnings to establish a local arabica price stabilization fund and several reserve funds to finance crop purchases from farmers and cover marketing losses, and used the rest to invest in physical capital and providing services to its members (Shaefer-Kehnert, 1988). In addition to establishing credit and extension services, UCCAO procured imported inputs (fertilizer, pesticides) and farm equipment (hand pulpers, sprayers, handcarts) which it distributed to its members at subsidized prices. NWCA had no equivalent services.

In extending rights to UCCAO to independently export arabica and retain residual earnings, the government implicitly favored the interests of West Province cooperatives and producers over the interests of cooperatives and producers in North West Province, who were denied these rights. This was to have important implications for the design of

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[8] UCCAO obtained rights to export arabica in 1962. Gellar et al. (1990) believed this was a political concession designed to reconcile the influential Bamileke tribe who live in West Province with the central government. West Province was the site of armed revolt between 1957-1960, prior to Cameroon's independence.

[9] However, UCCAO is a large producer of robusta coffee, to which the Marketing Board had sole rights to market and retain residual earnings. Several studies show that the government's robusta cost allowances failed to cover UCCAO's costs. The World Bank (1989) reported that UCCAO used earnings from arabica to cover robusta losses. In effect, arabica producers subsidized UCCAO's robusta processing costs.

arabica marketing reforms (see Chapter 5).

4.1.7. Crop Financing

Because of arabica's elaborate processing and marketing requirements, it often takes several months for the revenue from sales to flow back to farmers. The ability of cooperatives to procure adequate crop financing and to pay farmers promptly is an important element in arabica marketing. Under the administered market structure, crop financing arrangements differed in West and NW Province.

In NW Province, NWCA was entirely dependent upon the Marketing Board to provide it with crop financing. Each season, the Board estimated NWCA's crop financing needs. Funds were disbursed to coffee cooperatives in installments during the course of the marketing campaign. The Marketing Board was concerned that if it provided full crop financing up front, there was a risk that NWCA would either mismanage the funds, or fail to reimburse any excess funds. However, the reliability of these cash disbursements was a recurrent source of conflict between farmers, cooperatives, and the Marketing Board. NWCA claimed that the funds disbursed by the Marketing Board were often late and insufficient (Gellar et al.,1990). As a result, payments to farmers were frequently delayed or unreliable.

Since the Marketing Board had exclusive rights to export arabica and retain residual earnings, it effectively owned coffee after it was delivered by farmers to cooperatives. Since the Marketing Board granted NWCA its physical capital, ownership rights were ambiguous. As a result, NWCA lacked collateral with which it could secure commercial loans when cash flow problems developed.

In West Province, UCCAO was able to was able to finance 80 percent of its coffee purchases from farmers from its own financial reserves because of its rights to independently export coffee and claim residual earnings. Since it held title its physical capital and effectively owned coffee, UCCAO also had sufficient collateral to obtain credit from commercial sources. As a result, UCCAO's payments to farmers were considerably more reliable than were NWCA's.

4.1.8 Cooperative Governance Arrangements

The government tightly controlled decision-making and management of coffee marketing organizations through the cooperative governance rules established by national cooperative law in 1973. The government appointed career civil servants to key management positions, organized the jurisdictional boundaries of cooperatives to conform with administrative boundaries, and participated in virtually all aspects of cooperative governance. Cooperative management and decision-making was hierarchically structured along a top-down chain of command. Although the presidents and boards of directors of each primary society, union and the Apex were elected by members, only individuals belonging to the national political party in power were eligible to be candidates. Elected cooperative officials, particularly at the union and Apex levels, often used their cooperative positions to further their political ambitions. Through its cooperative governance regime, the government was able to transform coffee cooperatives from member-governed, voluntary organizations that sought to protect the economic interests of their membership into effective instruments of government policy (Gellar et al., USAID, 1990). Members had little say in cooperative affairs.

4.1.9. Summary

Power in the administered market structure was heavily concentrated within the government bureaucracy. The government, through the parastatal Marketing Board, had the right to decide, determine, apply and enforce arabica marketing rules and procedures. The reach of the government was extended by a governance regime that effectively made coffee marketing cooperatives captive agents of the government. In many respects, the administered market structured detached domestic arabica markets in North West Province from the international market. This was particularly true at the farm level.

Administered marketing institutions reflected bureaucratic criteria and were designed to further government objectives. They were poorly adapted to the arabica situation of high information costs and economies of scale in processing and marketing. Specifically, the institutional features of the administered market structure contained no incentives to economize or invest in quality, and did not effectively link consumer taste preferences to on-farm and cooperative production practices. The detailed consequences of this structure are documented below.

4.2. Subsector Performance Prior to Reform

The interactions between situation and structure determine subsectoral performance. The performance impacts of the pre-reform institutions can be categorized into: 1) producer prices (incentives to produce), 2) marketing costs (incentives to economize), 3) distribution of earnings, 4) production, and, 5) quality (linking producer decisions with consumer preferences). The analysis focuses mostly on the period between 1978/79, the year in which the National Produce Marketing Board began its operations, through the

end of 1988/89. Although the Marketing Board continued to play an influential role in arabica marketing during 1989/90, this season marked the beginning of the reform process and is discussed separately in Chapter 6.

4.2.1. Coffee Prices

The incentives to produce and invest in quality contained in alternative institutional arrangements are critical in resolving problems of economic coordination that flow from arabica's high information cost characteristics (Chapter 3). This section analyzes the prices that emerged from pre-reform institutions by comparing nominal and real arabica producer prices; export and producer prices; and arabica and robusta coffee prices. The complete price information used in the analysis is presented in Table 4.1.

Focusing first on arabica producer prices, the results show that nominal producer prices (including bonuses) increased steadily from 165 CFA per kilo in 1971/72 to 520 CFA per kilo in 1985/86. Over this fourteen year period, producer prices increased by roughly 15 percent a year. Producer prices increased at a greater rate before the national Marketing Board began fixing prices in 1978/79. Between 1971/72 and 1977/78, arabica producer prices nearly doubled (from 165 to 325 CFA per kilo), but increased by only 60 percent (from 325 to 520 CFA per kilo) between 1977/78 and 1985/86. However, these nominal prices are misleading.

Real producer prices, which were calculated in terms of constant 1978 CFA using a price index from the IMF (1997), are included in Table 4.1, and are compared to nominal prices in Figure 4.1. The results clearly show that although nominally fixed producer prices may have steadily between 1971/72 and 1985/86, real producer prices exhibited a

Table 4.1: Administratively Determined Coffee Prices in Cameroon: 1971/72 - 1988/89. (All Prices in CFA per Kilo)

Year	WASHED ARABICA			ROBUSTA and UNWASHED ARABICA [1]			ARABICA - ROBUSTA DIFFERENTIAL	
	Export Price (FOB Douala)	Producer Price		Export Price (FOB Douala)	Producer Price		Export Prices	Nominal Producer Prices
		Nominal	Real [2]		Nominal	Real [2]		
1) Before the National Produce Marketing Was Board Established [3]								
1971/72	248	165	401	231	114	277	17	51
1972/73	284	175	381	231	119	259	53	56
1973/74	296	200	361	229	119	215	67	81
1974/75	324	190	296	244	123	192	80	67
1975/76	660	245	344	570	145	204	90	100
1976/77	1113	305	365	1025	195	234	88	110
1977/78	681	325	341	599	250	262	82	75
2) After the National Produce Marketing Board Was Established								
1978/79	613	360	360	608	280	280	5	80
1979/80	786	350	319	706	310	283	80	40
1980/81	573	350	288	521	320	264	52	30
1981/82	737	360	262	602	330	240	135	30
1982/83	928	370	231	695	350	218	233	20
1983/84	1,177	430	241	1,142	390	218	35	40
1984/85	1,350	495	256	1,174	460	237	176	35
1985/86[4]	1,412	520	249	1,013	470	225	398	50
1986/87	765	475	220	847	440	199	(- 82)	35
1987/88	727	475	198	576	440	183	151	35
1988/89	767	475	201	555	440	186	212	35

Notes: 1) Beginning with the 1978/79 season, the government fixed the same price for unwashed arabica and robusta coffee.
2) Real prices are expressed in constant 1978 CFA.
3) Although the government fixed national coffee prices between 1971/72 and 1977/78, coffee was marketed through provincial commodity marketing boards.
4) Producer prices include bonuses which were never fully paid.

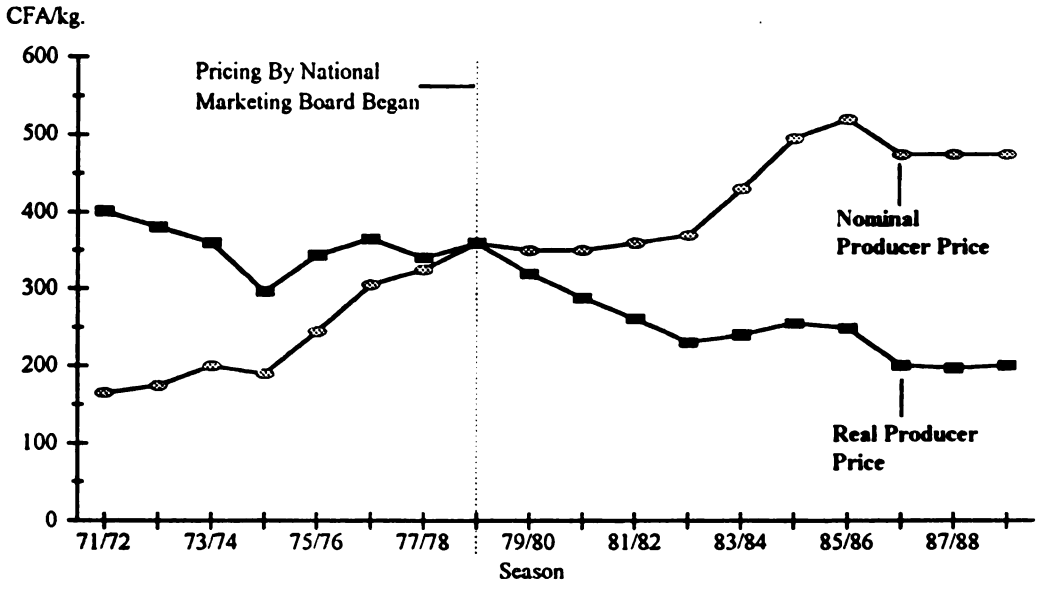

Figure 4.1: Nominal and Real Arabica Producer Prices during the Administered Market Era in Cameroon, 1971/72 - 1988/89.

steady decrease. The real arabica producer price in 1971/72 was 401 CFA per kilo, but only 249 CFA per kilo in 1985/86, representing a 62 percent decrease. Real producer prices continued to fall between 1986/87 and 1988/89. In 1988/89, the real producer price was 201 CFA per kilo, only half that of the 1971/72 season. The rate at which real producer prices declined was greatest after the national Marketing Board began pricing coffee in 1978/79. After falling from 401 CFA to 296 CFA between 1971/72 and 1974/75, real producer prices rebounded somewhat between 1975/76 and 1977/78. However, real producer prices declined in every year between 1978/89 and 1988/89 except 1983/84 and 1984/85, falling from 360 CFA to 201 CFA per kilo, an average annual decrease of 4.4 percent.

Administered pricing arrangements clearly failed to provide farmers economic

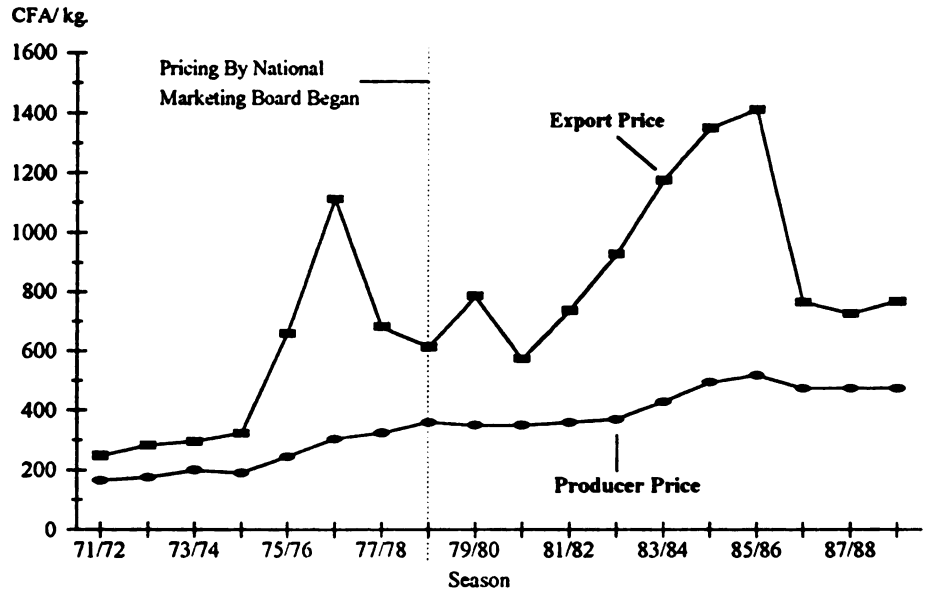

Figure 4.2: Arabica Export and Producer Prices in Cameroon, 1971/72 - 1988/89

incentive to produce arabica, and instead contained disincentives for production. Nor did administered provide farmers with incentives to produce good quality coffee. Given declining real returns to arabica, farmers would have maximized their earnings by making only minimal investments in quality, by either reducing input use or devoting only enough effort and care as was necessary for their coffee to be paid the good bean price[10].

Mean annual export prices (FOB Douala) and fixed producer prices are compared in Figure 4.2 and Table 4.1. The results show that the producer prices fixed by the government bore little relationship to export prices. Although the government may have

[10] Several studies show that farmers primarily applied arabica fertilizers to food crops that were intercropped with arabica (Hersenes and Ngenge, 1993; Gellar et al., 1990; Shaeffer-Kehnert, 1988).

been successful in stabilizing producer prices between 1971/72 and 1988/89, it did so by fixing prices at low levels relative to the export price. The discrepancy between producer and export was greatest during periods of high world prices. For example, between 1974/75 and 1976/75, the mean annual export price more than tripled from 324 CFA to 1,113 CFA per kilo. Over the same period, fixed producer prices increased by only 60 percent from 190 CFA to 305 CFA per kilo. Similarly, mean export prices increased rapidly from 573 CFA to 1,412 CFA per kilo between 1980/81 and 1985/86. However, nominal producer prices increased by only about 50 percent from 350 to 520 CFA per kilo over this period, and in real terms, declined by 14 percent from 288 to 249 CFA per kilo.

The apparent strategy of the Marketing Board was to fix producer prices at low levels to ensure that it would not have to draw upon the arabica price stabilization fund to support producer prices in periods of low world prices (Van der Laan, 1988; USAID, 1990). During periods of high prices, large surpluses accumulated within the arabica price stabilization fund, which the government and Marketing Board controlled. Langham and Kamajou (1992) and led USAID (1990) concluded that government producer pricing policies were designed to maximize government revenues.

Export prices fell by roughly half in 1986/86 and entered a period of prolonged slump, resulting in large marketing losses for the Marketing Board. However, the Board did not respond to this price shock by lowering producer prices. Instead, it maintained initial producer prices at a constant 475 CFA per kilo between 1984/85 and 1988/89[11]. As will be discussed in Section 4.2.6, this price proved to be unsustainable at lower world price

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[11] The Marketing Board announced producer bonuses in both the 1986/87 and 1987/88 seasons, but was unable to pay them.

levels, and payments to producers became increasingly unreliable.

Although a detailed analysis of robusta coffee marketing is beyond the scope of the dissertation, administratively-determined robusta prices are important for two reasons. First, Cameroon is one of the few countries of the world in which arabica and robusta production areas overlap. Thus, robusta is a competing cash crop with arabica in some areas of Cameroon[12]. Second, the government began to price inferior quality unwashed arabica and robusta equivalently beginning with the 1978/79 season.

The arabica-robusta price differential for both domestic producer prices and export prices is presented in Figure 4.3 and Table 4.1. The data show that before the National Produce Marketing Board began operations in 1978/79, the arabica-robusta price differential for domestic producer prices roughly paralleled the world price differential, and somewhat favored arabica coffee. Between 1971/72 and 1977/78, the mean arabica export price was 68 CFA per kilo higher than that of robusta, but arabica producer prices were on average 77 CFA per kilo higher than robusta producer prices. After the national Marketing Board began pricing coffee in 1978/79, arabica-robusta producer price differentials bore little relationship to export price differentials. Between 1978/79 and 1988/89 (excepting the aberrant 1986/87 season), mean arabica export prices exceeded robusta export prices by an average of 148 CFA per kilo. Over the same period, the

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[12] Arabica is relatively heat intolerant and generally grows best at higher, cooler altitudes in equatorial highlands, while robusta grows better in hotter and more humid altitudes. Conditions in Cameroon are such that either robusta or arabica can be grown at altitudes between 1,000 and 1,200 meters (de Graaf, 1986). Although robusta is a viable production alternative to arabica in some of the low altitude regions and valleys of arabica-producing regions of North West and West Province, arabica is not a viable alternative to robusta in the primary robusta producing areas of Cameroon.

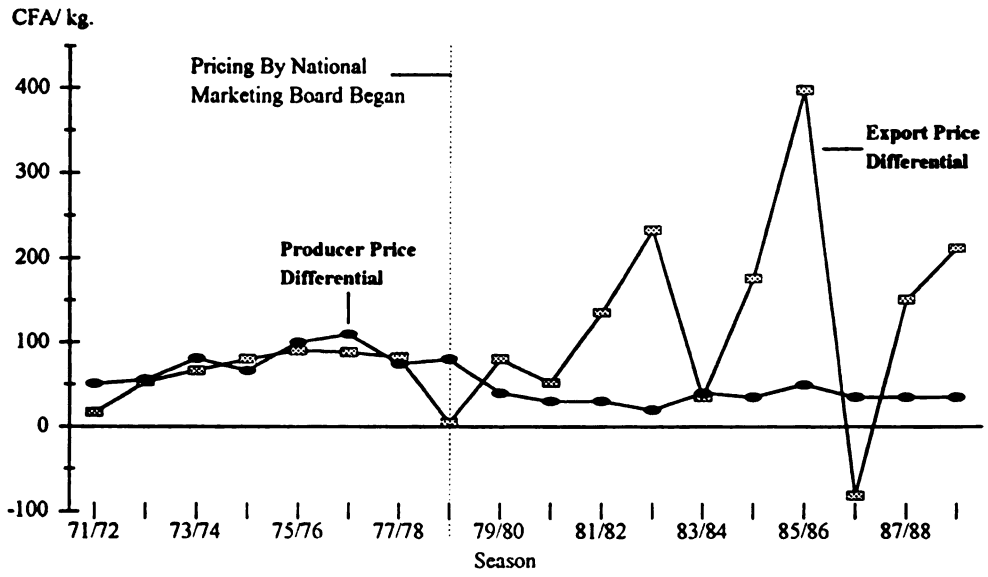

Figure 4.3: Arabica - Robusta Export and Producer Price Differentials during the Administered Market Era in Cameroon, 1971/72 - 1988/89

producer prices fixed by the government exceeded robusta prices by an average of only 40 CFA per kilo.

Although these results suggest that the government may have succeeded in balancing the incomes of robusta and arabica farmers in Cameroon, it did so by maintaining arabica-robusta producer price differentials at artificially low levels relative to export price differentials. Although both arabica and robusta producer prices declined in real terms after 1978/79 (Table 4.1), the decline in real arabica producer prices was more pronounced than that in robusta prices. Whereas real arabica prices decreased by 159 CFA per kilo between 1978/79 and 1988/89 (an average decrease of 4.4 percent a season), real robusta producer prices decreased by only 94 CFA per kilo over the same period (an average annual decrease 3.1 percent).

The government's pricing strategy seems to have implicitly favored robusta producers

over arabica producers. Since arabica generally commands significantly higher prices than robusta in international markets, the motivations underlying the government's pricing behavior are unclear. One possible explanation is that the government wished to promote the production of robusta coffee to increase its export earnings. Cameroon produces a much greater volume of robusta than arabica. Furthermore, the government's revenues from arabica were limited because UCCAO, which marketed most the arabica produced in Cameroon, could retain the profits from its arabica sales. However, arabica and robusta coffee marketing are not mutually exclusive activities.

An alternative explanation is that the government sought to minimize arabica and robusta producer price differences in keeping with its objective to balance rural incomes and development across different regions of Cameroon. However, USAID (1990) argued that by maintaining arabica-robusta producer price differentials at artificially low levels, the government achieved its objective at the cost of lower rural incomes than would have been the case had it passed a higher proportion of export prices to arabica producers.

Political motivations provide a more likely explanation for the government's producer pricing strategy. Whereas arabica coffee is grown in only North West and West Province, and West Province could independently export its arabica abroad, robusta production is more widespread in Cameroon. Robusta is an important cash crop in Center and Littoral provinces, key regions in Cameroon's peculiar regional politics[13]. Furthermore, influential

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[13] A number of observers have characterized Cameroonian regional politics as triangular. Traditionally, the predominantly Muslim North has aligned itself with the forest regions of the South against the interests of the West (Anglophone Cameroon, West Province and Littoral). However, politically important Douala, the largest city and economic capital of Cameroon, is located in Littoral Province.

vested interests (primarily French and Greek owned private firms) played an important role in marketing of robusta coffee, but not arabica. This suggests that patronage politics influenced the government's pricing strategy.

There are two processing techniques for arabica, the washed and unwashed method. Whereas the production of washed arabica is a delicate process requiring a lot of care and effort during harvesting and initial processing (washing), production of unwashed coffee eliminates the initial processing stage entirely. As a result, it is much cheaper for a farmer to produce unwashed than washed coffee. But, properly washed arabica usually commands significantly higher market prices than unwashed because it produces the spectrum of subtle tastes and cup characteristics in the cup that are desired by buyers. For growers to produce washed arabica, they must have economic incentives to do so.

Beginning with the 1978/79 season, the National Produce Marketing Board priced unwashed arabica and robusta equivalently. Thus, unwashed-arabica price differentials were the same as the arabica-robusta price differentials presented in Table 4.1 and Figure 4.3 after 1977/78. Galabe and Mallet (1990) argued that the objective of this policy was to counter incentives for mixing unwashed arabica and/or robusta coffee in washed arabica bags marked for export. This was apparently a common problem when significant price differentials existed. Here pricing and high information costs interacted. Differential pricing provided an incentive to efficient allocation of inputs, but since quality was difficult to measure, it just provided incentives to deceive (moral hazard).

Wyeth (1990) estimated washing costs to be 65 CFA per kilo, while the World Bank (1988) estimated them at between 90 and 100 CFA per kilo. Thus, 80 CFA per kilo seems a reasonable estimate of washing costs. However, between 1979/78 and 1988/89,

the average difference between washed and unwashed arabica was only 35 CFA per kilo (with a range between 20 and 50 CFA per kilo), significantly less than the estimated cost of washing. The government's pricing policies implicitly favored the production of inferior quality unwashed arabica and robusta. This, further eroded farmers' incentives to produce washed arabica, and to harvest and wash their coffee carefully.

Why the government would encourage the production of unwashed arabica over washed arabica is unclear. Galabe and Mallet (1990) suggested that it did so intentionally to circumvent washed arabica export quotas that were established by the International Coffee Agreement. These quotas were typically set at levels below total production, requiring that producing countries maintain stocks of unsold washed coffee. Producers such as Cameroon apparently found it profitable to sell larger grade and superior quality washed arabica under the quota, and to sell inferior quality unwashed arabica to countries that were not members of the coffee agreement[14]. If true, the government's pricing policies would have been consistent with an objective of maximizing revenues.

4.2.2. Cooperative Costs

Although incentives to economize on marketing costs are critical to the realization economies of scale in processing and exporting, administered cost determination institutions contained few incentives for cooperatives to control cost control (Section 4.1.3). This section summarizes available cooperative cost evidence from the pre-reform

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[14] These countries were located primarily in Eastern Europe and the Middle East, where consumers generally have less strict quality requirements than consumers in North America and Western European countries, which were part of the coffee agreement (de Graaf, 1986).

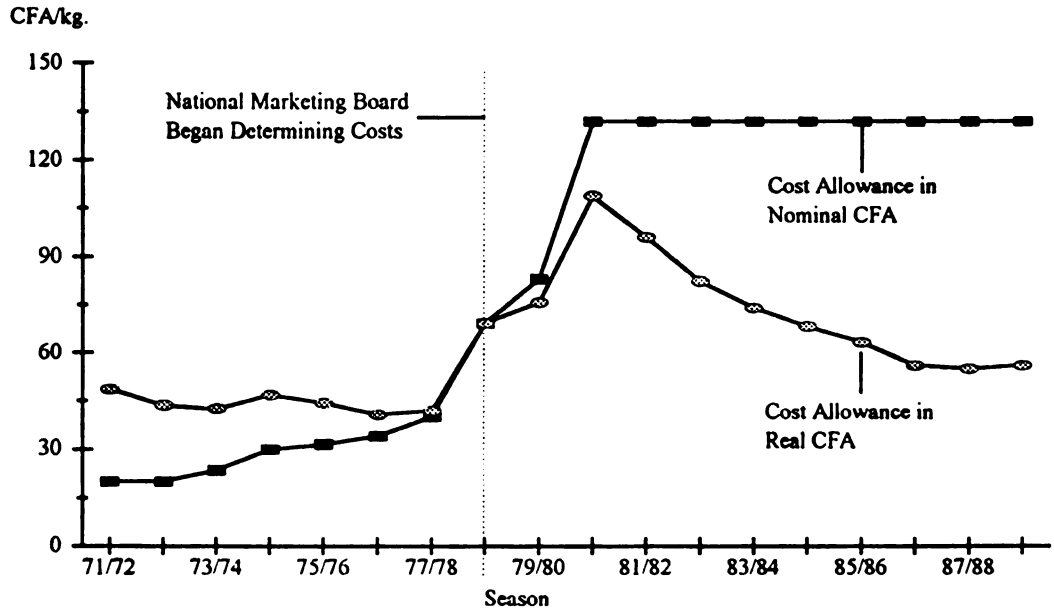

Figure 4.4: Nominal and Real Per Kilo Cost Allowances Paid Cooperatives in North West Province Between 1971/72 and 1988/89. (Real costs expressed in constant 1978 CFA).

period. Marketing Board costs are analyzed in the following section.

The fixed per kilo cost allowances paid to coffee cooperatives in NW Province between 1971/72 and 1988/89 are presented in Figure 4.4 and Table 4.2 (in the following section). The data show that nominal cooperative per kilo cost allowances increased gradually from 20 CFA to 40 CFA between 1971/72 and 1977/78, but more than tripled from 40 CFA to 132 CFA between the 1977/78 and 1980/81. NWCA's cost allowance did not change between 1980/81 and 1988/89. Figure 4.4 shows that in real terms, per kilo costs allowances eroded steadily during this time. The decline was greatest between 1980/81 and 1985/86, a period of sharply spiking export prices and high Marketing Board profits.

The large increase in the cost allowances between 1978/79 and 1980/81 was associated with changes in the organizational structure of the arabica subsector in NW Province. Before 1978, arabica was marketed through a provincial marketing board, which determined cooperative allowances. Cooperative unions were the sole licenced buying agents of arabica in NW Province, and the sole recipients of cost allowance payments. Primary societies covered their marketing costs by assessing a compulsory 1.5 percent commission on the producer price of coffee before paying farmers (Van der Laan, 1988)[15]. The apex organization distributed inputs and provided educational and coordinating services for the cooperative structure, and obtained its operating revenues from a 2 CFA per kilo levy on unions and non-coffee related activities.

In 1976, the government decided to merge all regional and commodity marketing boards into a central body, the National Produce Marketing Board. Beginning with the 1978/79 season, the national Board assumed complete responsibility for marketing all Cameroon's export crops abroad, with the exception of arabica from West Province. This was largely a nominal change since the core features of the administered market structure remained intact. However, the national Marketing Board was staffed almost exclusively by civil servants, while the regional marketing board had included cooperative officials and farmer representatives among its board of directors (Galabe and Mallet, 1990).

In 1978, unions decided that the NWCA apex organization should assume produce

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[15] To illustrate, a society's commission would have been 2.5 CFA per kilo in 1971/72 when the producer price was 165 CFA per kilo, and 5 CFA per kilo in 1977/78 when the producer price was 325 CFA per kilo.

marketing functions, apparently in an attempt to emulate UCCAO. The NWCA apex became the sole licensed buyer of arabica in NW Province. Accordingly, it began to negotiate and be paid the cost allowances determined by national Marketing Board. Unions effectively became sub-agents of the apex[16]. Although the new NWCA management was able to negotiate significant increases in its fixed cost allowance, it also launched an overly ambitious program of investment and overexpansion, particularly in senior management, that resulted in a serious liquidity problem (Van der Laan, 1988). Although NWCA's senior managers and board of directors were replaced, to bail NWCA out of its financial crisis, the Marketing Board increased NWCA's cost allowance from 83 CFA per kilo to 132 CFA in 1982/83--retroactive to the 1980/81 season. Instead of pressuring NWCA to lower its costs by reducing its cost allowance, the Board maintained NWCA's allowance at 132 CFA per kilo through the 1988/89 season. In effect, the Board sanctioned the Apex organization's overexpansion, and subsidized its marketing losses.

Several studies indicate that cooperative allowances were arbitrarily fixed. Galabe and Mallet (1990) reported that the increase in NWCA's cost allowance from 60 CFA to 83 CFA per kilo between 1978/79 and 1979/80 was based on an analysis of UCCAO's costs since NWCA lacked up to date accounts. Gellar et al. (1990) reported that the society allowance of 12.2 CFA per kilo between 1980/81 and 1988/89 was determined from cost information provided by only two of 40 primary societies, both of which were located in the same union area. By all accounts, the Apex allowance was too high was too high (Shaefer-Kehnert, 1988; World Bank, 1989). Although it had no direct role in coffee

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[16] For example, the NWCA Apex began to appoint and pay union managers.

marketing and mostly provided administrative services, the Apex organization received 23 percent (30.5 CFA per kilo) of the total cooperative cost allowance between 1980/81 and 1988/89. Personnel expenses represented the largest component of Apex costs (Van der Laan, 1988). In contrast, the UCCAO Apex sold coffee directly to buyers and employed more people than the NWCA Apex, but financed its operations by charging a 1 percent commission on the price of all its coffee sales (Galabe and Mallet, 1990). Expressed in per kilo terms, UCCAO's commission would have ranged from between 6 and 14 CFA per kilo between 1980/81 and 1988/89. Shaefer-Kehnert (1988) concluded that the NWCA apex was able to negotiate a favorable cost allowance because of its stronger bargaining power with the Board relative to unions and societies.

The World Bank (1989) contended that the Marketing Board's standard operating procedure was to fix cost allowances at levels that would keep small and inefficient buying agents in business. This appears to have been the Board's strategy in determining allowances for cooperative unions. Significant differences existed between unions in the age and condition of processing equipment they employed, operating efficiency and the area they served. Moreover, overhead costs are the primary source of economies of scale at the union level. The arabica tonnage handled by unions, and to a lesser degree societies, varied markedly. For example, between 1980/81 and 1982/83, the largest volume union handled an average of 1,495 tons of arabica per year, while the smallest volume union handled only 129 tons. Four unions averaged more than 1,000 tons of coffee, while five handled less than 500 tons. Although the per kilo overhead costs of large volume unions should have been significantly lower than those of small volume unions, each union was payed the same per kilo allowance of 89 CFA per kilo between

1980/81 and 1982/83[17]. Under the system of fixed cost allowances, high volume unions were able to earn large profits. Since producer prices were determined and paid independent of cooperative allowances, farmers had little incentive to monitor or influence how these profits were distributed. As a result, cooperative managers and elected officials had ample opportunity to use economies of scale to reward their clients with jobs, or further their own self-interests by increasing salaries or personal allowances. Because of overstaffing and high salaries, personnel expenses represented a large component of union and apex costs (Sumpter and Oakerson, 1992).

Cost allowance negotiations between the Marketing Board and NWCA were usually contentious. NWCA and its member cooperatives complained that their allowances were too low to cover actual operating costs. For example, when NWCA's total cost allowance was increased to 132 CFA per kilo in 1982/83, NWCA claimed that its true costs were 140 CFA per kilo. Galabe and Mallet (1990) believed that in light of the large increase in NWCA's total cost allowance between 1978/79 and 1980/81, the Marketing Board's fixed allowances should have adequately covered NWCA's actual costs. NWCA's claims to the contrary reflected its inability to control costs. However, there is little doubt that the financial situation of cooperatives deteriorated in the latter half of the 1980s. Although cooperatives maintained an increasingly expensive cost structure due to overexpansion and rising personnel costs, in real terms, cost allowances steadily declined between 1982/83 and 1988/89 (Figure 4.4). As discussed below, the tonnage of arabica handled by NWCA declined steadily over this period, fueling increases in cooperatives'

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[17] This implies that the total amount paid to individual unions ranged from a high of more than 133 million CFA per season to a low of 11.5 million CFA.

per unit costs. But the cooperative response was to pressure the Marketing Board to increase their cost allowances, instead of economizing and reducing costs.

4.2.3 Distribution of Arabica Earnings

The shares of annual mean export prices distributed to farmers, cooperatives and the Marketing Board (or government) in the pre-reform era are summarized in Table 4.2. The annual data have been somewhat loosely grouped according to export price levels. The results show that the relative shares of the export price received by producers and cooperatives increased when export prices were low, but fell significantly when export prices spiked. This result would be expected under price stabilization arrangements.

Based on studies of successful arabica-producing countries such as Kenya and Colombia, a 70 percent producer share of export prices is generally considered as reasonable within the coffee industry (Kristjanson et al., 1990; de Graaf, 1986). However, in Cameroon the producer share of the export price averaged only 46.6 percent between 1971/72 and 1988/89, and ranged from a low of 27.4 in 1976/77 to a high of 70.6 percent in 1971/72. When the National Produce Marketing Board priced coffee between 1978/79 and 1988/89, the producer share averaged 47.4 percent, with a low of 36.5 percent in 1983/84 and a high of 65.3 percent in 1987/88. However, the producer share was averaged only 42.7 percent before the world price shock in 1986/87. During the spike in when world prices between 1982/83 and 1985/86, the average producer share of export prices was only 37.3 percent. The results in Table 4.2 show that when the producer share approached the 70 percent level, the underlying cause was a in world coffee prices.

In contrast, the cooperative share of export prices increased over time, particularly

Table 4.2: Shares of Arabica Export Prices Distributed to Producers, Cooperatives and the Marketing Board Under Administrative Pricing Arrangements, 1971/72 - 1988/89. (All Prices in CFA per kilo)

Year	Mean Export Price	Distribution of Export Earnings Between Producers, Cooperatives and the Marketing Board					
		Producer Share		Cooperative Share		Marketing Board Share	
		Producer Price	%	Total Cost Allowance	%	Residual Earnings	%
A) Fixed Pricing before Creation of the National Marketing Board							
Mean: 1971/72 - 77/78	*515*	*229*	*44.5*	*29*	*5.6*	*257*	*49.9*
• 1971/72 - 74/75:	288	183	63.5	24	8.3	82	25.4
• 1975/76 - 77/78:	818	292	35.7	35	4.3	491	60.0
B) Fixed Pricing by the National Marketing Board:							
• Moderate Export Prices:							
1978/79	613	360	58.7	69	11.3	184	30.0
1979/80	786	350	44.5	83	10.6	353	44.9
1980/81	573	350	61.1	83	14.5	140	24.4
1981/82	737	360	48.8	83	11.3	294	39.9
Mean:	*677*	*350*	*51.7*	*80*	*11.8*	*242*	*35.7*
• High Export Prices:							
1982/83	928	370	39.9	132	14.2	426	45.9
1983/84	1,177	430	36.5	132	11.2	615	52.3
1984/85	1,350	495	36.7	132	9.8	723	53.4
1985/86	1,412	520	36.8	132	9.3	760	53.8
Mean:	*1,217*	*454*	*37.3*	*132*	*10.8*	*631*	*51.8*
• Fall in Export Prices:							
1986/87	765	475	62.1	132	17.3	158	20.6
1987/88	727	475	65.3	132	18.2	120	16.5
1988/89	767	475	61.9	132	17.2	160	20.9
Mean:	*753*	*475*	*63.1*	*132*	*17.5*	*146*	*19.4*

after the national Marketing Board began determining costs after 1978/79. However, the most striking feature of Table 4.2 is the large share of export prices retained by the Marketing Board, particularly during periods of high export prices.

Claims on residual profits are incompatible conflicts between farmers, cooperatives and the government (and its favored groups). The pre-reform structure clearly did not favor farmers. Instead, the consistently low producer share export prices prior to the 1986/87 indicates that government pricing policies implicitly taxed Cameroonian arabica producers. Although a detailed discussion of other export commodities is beyond the scope of the dissertation, USAID (1990) reported that the government's producer pricing policies in the cocoa and robusta subsectors paralleled that of the arabica subsector. This led it to conclude that the "not-so-hidden agenda of the government pricing policy was to tax the producers of export crops in the guise of contributions to the stabilization funds" (ibid., p.30). In fact, taxes on agricultural exports have traditionally been a key source of government revenue in Cameroon and other developing countries given limited alternative sources of revenue.

Although the revenues extracted from the arabica and other export crop subsectors were nominally destined to stabilize prices support rural development purposes, they were used by the Marketing Board and government for their own purposes. The World Bank (1989) estimated the Marketing Board's operating costs for the 1981/82 - 1985/86 period. The results are presented in Table 4.3. Although the data do not distinguish between cocoa, robusta and arabica marketing activities, they nevertheless provide clear evidence that the Marketing Board's costs increased over time despite stagnating production. In both absolute and per kilo terms, the Board's operating costs nearly quadrupled between

Table 4.3: Cocoa and Coffee Exporting Costs of the National Produce Marketing Board in Cameroon between 1981/82 - 1985/86.

	1981/82	1982/83	1983/84	1984/85	1985/86
Operating Costs (CFA Billion)	5.1	7.2	9.1	11.2	19.5
Volume of Cocoa and Coffee Exports (metric tons)	206, 376	199, 920	223, 555	195, 697	201, 362
Cost Per Kilo (CFA)[a]	**22.3**	**32.4**	**36.6**	**51.5**	**87.2**

Source: World Bank, 1989.

Notes: a) Assumes a 90% share of cocoa and coffee operations in total expenses.

1981/82 and 1985/86. Bureaucratic expansion, or what Galabe and Mallet (1990) called "empire building", represented the principal source of the Marketing Board's cost increases. Staffing levels within the National Produce Marketing Board between 1982 and 1987 are presented in Table 4.4. The results show that size of Board's bureaucracy expanded by 80 percent over this period, despite stagnant production. The increase in the number of higher salaried senior management and supervisory staff increased was disproportionately high, increasing by 108 and 111 percent respectively. The Marketing

Table 4.4: Growth in Staff at the National Produce Marketing Board, Cameroon, 1982 - 87.

	Senior Staff	Supervisory Staff	Clerks	TOTAL
September, 1982	63	179	1, 328	**1, 570**
September, 1987	131	377	2, 316	**2, 824**
Increase	**108%**	**111%**	**74%**	**80%**

Source: Galabe and Mallet, (1990).

Board cost evidence represents a clear example of prices determining costs (Leibenstein, 1987). In fact, bureaucratic expansion within the Marketing Board paralleled the general trend within the Cameroonian civil service. The Cameroonian government is highly bureaucratized and hierarchically organized. After oil was brought into production in 1978, and world cocoa and robusta prices entered a period of sustained high prices, the state bureaucracy grew at a rapid rate. USAID (1989) estimated that the size of the Cameroonian civil service grew at an annual rate of 10 percent between 1978 and 1988. Moreover, the civil service continued to expand despite the financial crisis caused by price shocks in Cameroon's principal export markets in 1986, increasing from 152,000 in 1985 to 180,000 in 1990 (USAID, 1990).

The revenue extracted from the export crop sector during the administered marketing era was used to help fuel the rapid expansion of the bureaucratic state. Events during the 1985/86 arabica campaign were indicative of government priorities. Although export prices reached a then record high of 1,412 CFA per kilo, the fixed producer price was only 520 CFA per kilo (including bonuses), and the NWCA cost allowance was maintained at 132 CFA per kilo. However, the Marketing Board's per kilo operating costs increased by 70 percent between 1984/85 and 1985/86 (Table 4.3). Even though the Marketing Board retained 760 CFA for every kilo of arabica it sold abroad and earned high profits in 1985/86, it was unable to pay either announced bonuses of 55 CFA per kilo to NW arabica farmers in full, or provide NWCA with adequate crop financing for purchasing arabica until late in the season. Patronage and self-interest seem to have been the dominant motivations within the Marketing Board.

4.2.4. Coffee Production and Resource Allocation

Previous sections of this chapter have discussed in detail the poor and deteriorating incentives to produce arabica that were contained in administered pricing arrangements. This section analyzes coffee production in the pre-reform era.

Cameroonian arabica production data for the 1971/72 - 1989/90 period are presented in Table 4.5 and Figure 4.5[18]. Both national and provincial data are provided. To account for annual variation in production, production data have also been expressed in terms of four-year moving averages.

The evidence shows a distinct trend of steadily decreasing arabica production under administered pricing arrangements. After reaching its peak of 32,300 tons in 1972/73, national arabica production fell by over half to only 15,900 tons in 1987/88. However, production varied substantially between seasons. The long term decline in production is most evident when tonnage is expressed in terms of four-year moving averages (Figure 4.5.b). Between 1974/75 and 1988/89, average national arabica tonnage declined by 32.1 percent from 28,925 to 19,650 metric tons, representing an average annual decrease of 2.3 percent. Cameroonian arabica production declined despite exceptionally high world coffee prices between 1980/81 and 1985/86,

Although provincial production generally mirrored the national trend, the decrease in average production was slightly more pronounced in North West than in West Province. Between 1974/75 and 1988/89, average arabica production in NW Province decreased by

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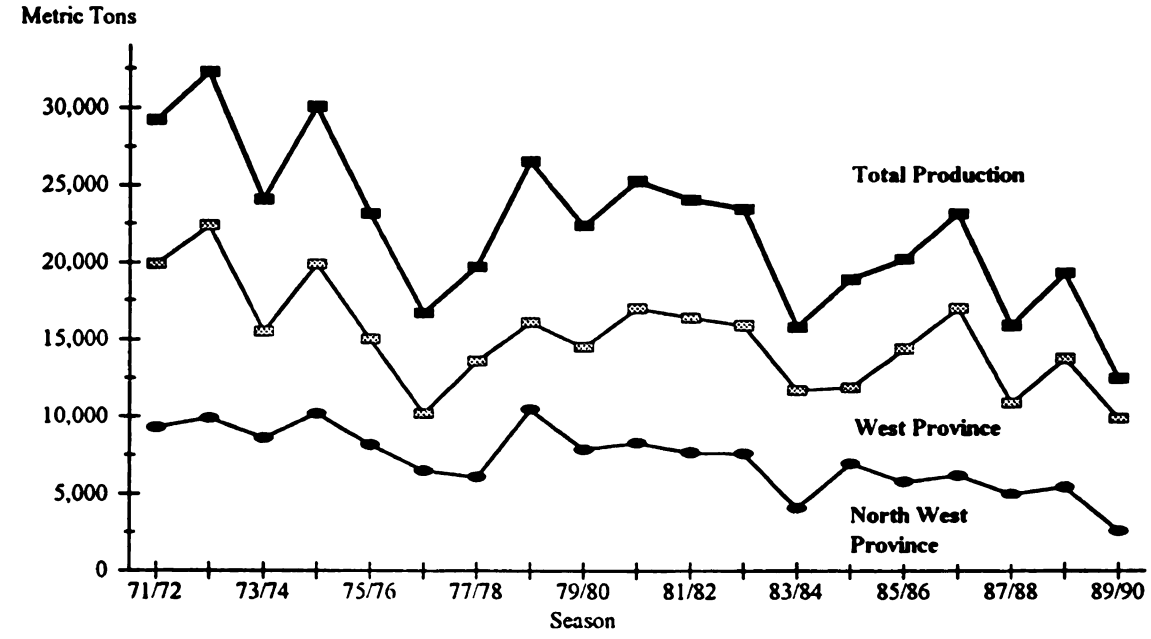
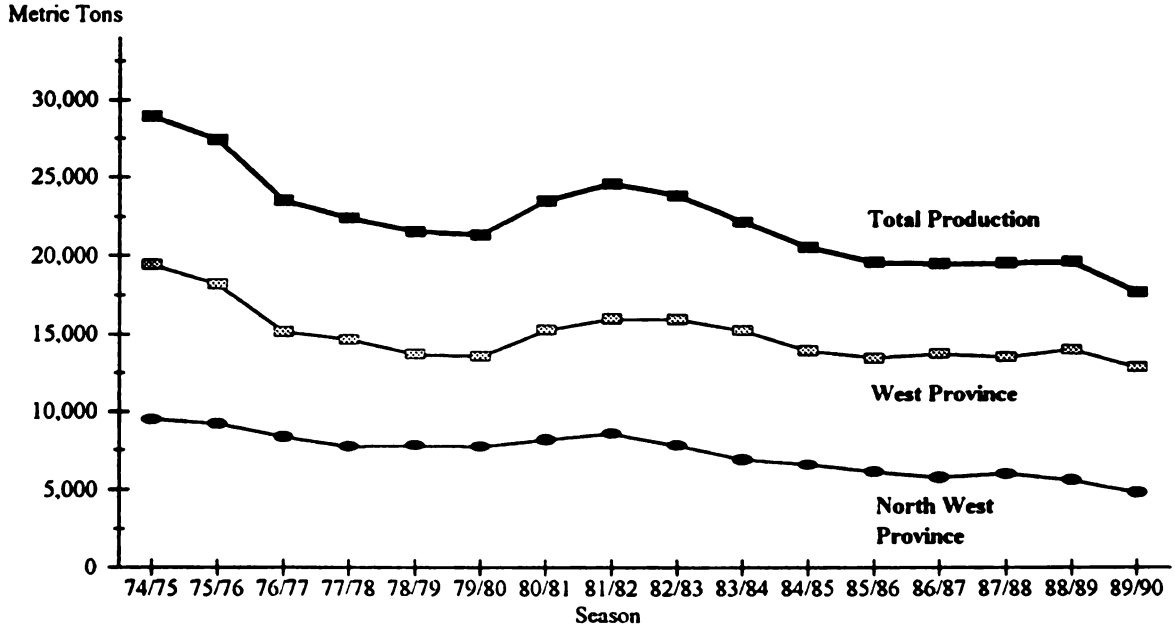
[18] Although the 1989/90 season is defined in the dissertation as being part of the transitional period of reform, 1989/90 production figures are included since production decisions in NW Province that year would have been influenced by the Marketing Board's inability to pay farmers in 1988/89.

Table 4.5: National and Provincial Arabica Production in Cameroon during the Administered Marketing Era, 1971/72 - 1989/90.

Season	North West Province		West Province		Total	
	Annual	4-Year Moving Average	Annual	4-Year Moving Average	Annual	4-Year Moving Average
A) Before National Produce Marketing Board Began Operations						
1971/72	9,300	--	19,900	--	29,200	--
1972/73	9,900	--	22,400	--	32,300	--
1973/74	8,600	--	15,500	--	24,100	--
1974/75	10,200	9,500	19,900	19,425	30,100	28,925
1975/76	8,200	9,225	15,000	18,200	23,200	27,425
1976/77	6,500	8,375	10,200	15,150	16,700	23,525
1977/78	6,100	7,750	13,600	14,675	19,700	22,425
B) After National Produce Marketing Board Began Operations						
1978/79	10,500	7,825	16,100	13,725	26,600	21,550
1979/80	7,900	7,750	14,500	13,600	22,400	21,350
1980/81	8,300	8,200	17,000	15,300	25,300	23,500
1981/82	7,700	8,600	16,400	16,000	24,100	24,600
1982/83	7,600	7,825	15,900	15,950	23,500	23,825
1983/84	4,100	6,925	11,700	15,250	15,800	22,175
1984/85	7,000	6,600	11,900	13,975	18,900	20,575
1985/86	5,800	6,125	14,400	13,475	20,200	19,600
1986/87	6,200	5,775	17,000	13,750	23,200	19,525
1987/88	5,000	6,000	10,900	13,550	15,900	19,550
1988/89	5,500	5,625	13,800	14,025	19,300	19,650
1989/90	2,600	4,825	9,900	12,900	12,500	17,725



A) Annual Production



B) Four-Year Moving Average

Figure 4.5: National and Provincial Arabica Production in Cameroon: 1971/72 - 1989/90.

41 percent from 9,500 tons to 5,625 tons, representing an annual decrease of 2.9 percent. Over the same period, average production in West Province decreased by only 28 percent from 19,425 tons to 14,025 tons, an annual decrease of 2 percent. The 1989/90 season witnessed a sharp fall in production in both provinces. Between 1988/89 and 1989/90, arabica production in North West Province fell by 53 percent from 5,500 to 2,600 tons. West Province production fell by 28 percent from 13,800 to 9,900 tons. Because the government continued to fix pan-territorial arabica prices in 1989/90, the more pronounced fall in production in North West Province was likely attributable to reliability of payments to farmers. Whereas the Marketing Board could not pay farmers in North West Province in 1988/89, UCCAO was able to self-finance coffee purchases and reliably pay its members.

The production evidence provides clear evidence that administratively fixed producer prices failed to provide farmers with adequate incentives to produce. Cameroonian arabica farmers responded to falling returns and declining real producer prices by producing less arabica. Unwashed production data from North West Province provide further evidence of the disincentive effects of the government's pricing policies. While the production of washed arabica exhibited a long-term decline, unwashed production steadily increased. Galabe and Mallet (1990) estimated that the proportion of unwashed arabica in total production in North West Province increased from 0.7 percent in 1970/71 to 13.5 percent in 1985/86. In fixing washed-unwashed producer price differentials at less than the estimated cost of washing, government pricing policies encouraged the production of inferior quality unwashed coffee.

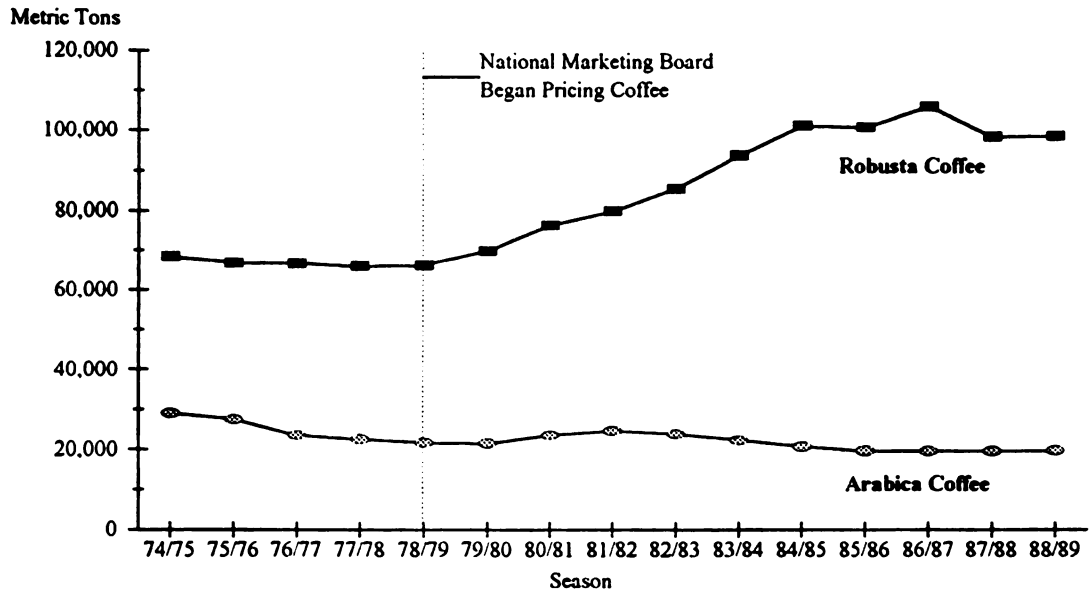


Figure 4.6: Arabica and Robusta Coffee Production in Cameroon, Four-Year Moving Averages, 1971/72 - 1988/89. (Metric Tons)

Arabica and robusta production during the administered market era are compared in Figure 4.6. The data are presented in terms of four year averages only to account for pronounced variation in annual robusta tonnage. While average arabica production fell by 32 percent (or 2.3 percent per year) between 1974/75 and 1988/89, average robusta production increased by 55 percent (or 5 percent per year) from 68,325 to 105,925 tons between 1974/75 and 1986/87, before falling by 7 percent to 98,600 tons in 1988/89.

The trend of increasing robusta production was particularly evident in North West Province. The Commonwealth Development Corporation (1990) reported that whereas NWCA handled no robusta coffee in 1977/78, it handled 585 tons in 1979/80, and 1,020 tons in 1988/89, despite the fact that agro-ecological conditions in NW Province generally favor arabica coffee. Because government coffee pricing policies implicitly favored the

interests of robusta producers over arabica producers, many producers expanded robusta production in regions where arabica and robusta production zones overlapped.

Government pricing policies clearly discouraged the production of washed arabica. Although many arabica farmers attempted to maximize earnings by producing cheaper unwashed coffee, others switched to producing robusta coffee. However, the long-term decline in arabica production suggests that dominant response to declining real returns to arabica prompted many farmers to invest less in coffee production and reallocate resources to other activities. Many arabica producers significantly expanded production of more profitable food crops which were not administratively priced (Kamajou and Nkwanou, 1987; Gellar et al., 1990). As farmers devoted fewer inputs to coffee and less effort to weeding and pruning trees, arabica yields decreased significantly. Coffee quality also deteriorated.

4.2.5 Performance in Cameroon and Kenya Compared

Further insight into the performance consequences of alternative institutions can be comparing structure and performance in Cameroon and Kenya, which almost exclusively produces arabica coffee. Although Kenya's arabica subsector was administratively organized, the Kenyan government's pricing strategies generally favored favor smallholder producers (Kristjanson, 1990; De Graaf, 1986). Whereas the average share of the export price received by producers in Cameroon was about 45 percent in the 1970s and 1980s, Kristjanson et al. (1990) reported that the share of export prices received by Kenyan

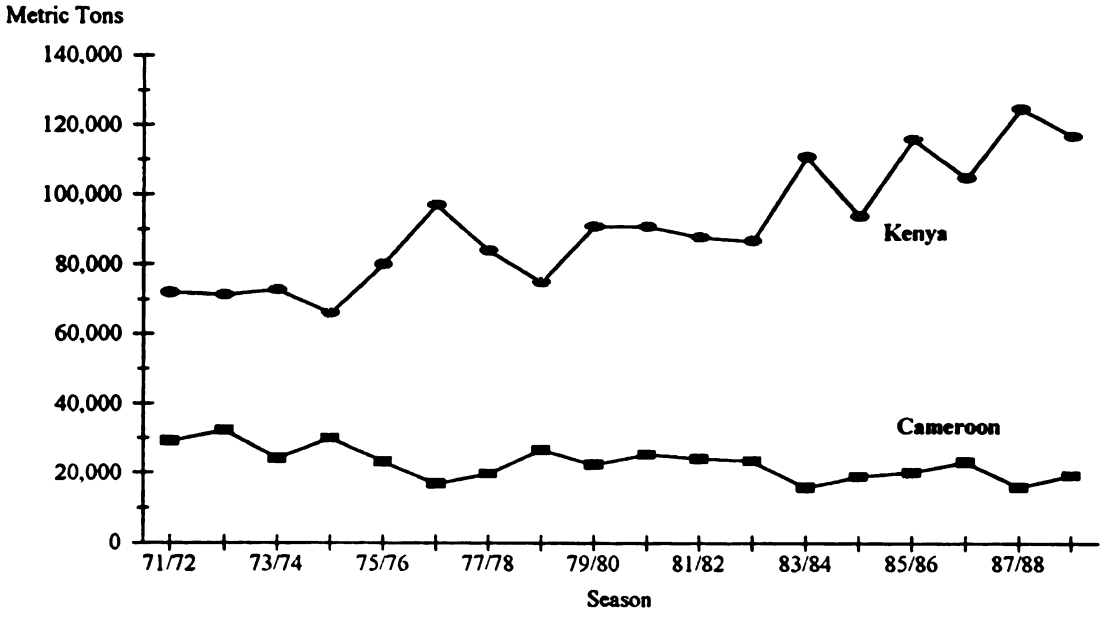


Figure 4.7: Arabica Production in Cameroon and Kenya, 1971/72 - 1988/89.

producers reached as high 85 percent in the 1970s, and averaged more than 70 percent in the 1980s. The Kenyan government's coffee pricing policies present a marked contrast to those of Cameroon.

Arabica production in Cameroon and Kenya between 1972 and 1989 are compared in Figure 4.7[19]. The evidence shows that whereas arabica coffee production was stagnant and tended to decline in Cameroon, Kenya production steadily expanded. The divergent production trends were most pronounced from the mid-1970s onwards, further underscoring the disincentive effects of the Cameroonian government's arabica pricing policies. Whereas Kenyan producers were the beneficiaries of rising world arabica prices,

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[19] Kenyan coffee production data were obtained from the FAO (1992).

in Cameroon profits were retained by the government and UCCAO.

Kristjanson et al., (1990) reported that in Tanzania, the share of producer prices as a percentage of arabica export prices averaged only 50 percent during the mid-1970s to mid- 1980s due to a combination of high taxes and high marketing margins. Thus, Tanzanian producer prices during this period were roughly equivalent to those in Cameroon. Although the area under coffee production nearly doubled in Tanzania between 1975 and 1990, arabica production stagnated, remaining static at approximately 50,000 tons.

To conclude, the incentives to produce contained in alternative institutional arrangements for marketing arabica coffee clearly have a profound impact on performance. The administered market structure in Cameroon seemed to contain perverse incentives for arabica production.

4.2.6 Coffee Quality

From an institutional perspective, quality performance is determined by the manner in which institutions interact with the high information cost characteristics of the arabica situation. More specifically, the quality outcome depends on the how successful institutional arrangements are in distinguishing and rewarding farmers and processors for the quality of coffee they produce, since market-generated prices fail to do so (Chapter 3). This section analyzes quality performance under administered marketing institutions.

Price differentials are a commonly used measure of quality. They are usually expressed in reference to the New York "C" coffee price, the most commonly used benchmark world price in the coffee industry. The NY "C" price provides a measure of average quality

coffee. Better than average quality coffee commands a price premium from buyers, while inferior quality coffee is discounted in price (See Chapter 8 for more detail).

Galabe and Mallet (1990) reported that coffee quality deteriorated significantly under administered institutional arrangements. Arabica exported from NW Province by the Marketing Board was routinely discounted in price for its poor and inconsistent quality and unreliable shipments (World Bank, 1989; USAID, 1990). Although price information from the pre-reform period is sketchy, in 1988/89 arabica from NW Province was discounted in price by 11 cents relative to the average NY "C" price of $ 0.70 (Gellar et al.)[20]. This represented approximately a 16 percent discount.

Another second indicator of the poor quality of Cameroonian arabica is observed by comparing Cameroonian export prices with Kenya's, which enjoys a market reputation as a producer of superior quality coffee. At one point in the 1987/88 season, Cameroonian arabica coffee was sold at 920 CFA per kilo (CIF France), while Kenyan arabica sold at 1,380 CFA per kilo (World Bank, 1989)[21]. However, Kenyan and Cameroonian markets are organized differently and a host of variables are reflected in the different prices. In particular, Kenyan arabica is centrally washed in washing factories, while in Cameroon it is washed on the farm. Nevertheless, the large difference in export prices demonstrates the negative effects that poor quality had on its Cameroonian export prices, and suggests that Cameroon could increase the value of its arabica exports by improving quality.

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[20] In figures more relevant to Cameroon, arabica was discounted by approximately 115 CFA per kilo.

[21] The CIF price of Cameroonian coffee is much higher than the average price of coffee for 1987/88 discussed previously. This likely reflects the fact that coffee prices tend to vary significantly even within a given coffee campaign.

The quality problems that plagued international marketing of Cameroonian arabica, and particularly coffee from North West Province, were the result of improper harvesting and washing techniques by farmers, and poor sorting, grading and handling by cooperatives. There were quality failures all along the chain from farmer, to union, to Marketing Board.

In 1984, the European Development Fund and National Produce Marketing Board commissioned a German consulting firm, Agrar und Hydrotecknik, to identify potential investments to improve the quality of arabica produced in North West Province. The quality problems observed by Agrar consultants provide a detailed glimpse of farm and cooperative level quality factors during the pre-reform era, and are summarized in detail below (Agrar und Hydrotecknik, 1984).

Farm-level production was hampered by input shortages and low earnings. Fertilizer use was far below recommended levels. The overwhelming majority of farmers in the study (90%) claimed that they could not afford to purchase adequate amounts of fertilizer, even though fertilizer prices were subsidized by the government. In addition, fertilizer was often unavailable when needed because of failures in the government's input distribution system. Availability problems were particularly severe for chemical inputs. Although the stated government policy was to distribute pesticides to farmers via cooperatives free of charge, in practice pesticides often arrived too late or in insufficient quantities to be used effectively--if they arrived at all[22]. The condition of farmers' coffee plots was generally poor. Many farmers did not adequately clear or weed their plots or prune their trees. As

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[22] Trees must be sprayed six or seven times during the growing season if pests and disease are to be effectively controlled. A lack of sprayers among farmers also was a problem cited by Agrar consultants.

a result of input availability problems and poor tree care, outbreaks of coffee berry disease resulted in production losses in many areas of NW Province. Finally, a large proportion of the trees in production were old. Although their yields were low, most farmers said they could not afford to plant new trees.

The harvesting practices of farmers were generally poor. Most farmers relied on family labor to harvest coffee because of the high cost of hired labor[23]. The Agrar study reported that even small children participated in the harvest. Considerable quantities of inferior quality overripe and unripe beans were routinely harvested, including rotten beans.

Washing is the most important quality-related activity in processing arabica, and a delicate and time-dependent process. Each stage in the washing process (pulping, fermentation, rinsing and drying) affects quality. Although improperly washed beans produce strong, unpleasant tastes in the cup, they are often difficult to detect at later stages of the marketing chain. Detection problems are particularly deep if coffee has been washed by individual farmers because there are few observable measures of bean quality when coffee is in its intermediate parchment state. This is the principal source of high information costs during initial handling when farmers bring their parchment coffee to cooperatives to be accepted.

The Agrar consultants observed that farmers' washing techniques generally poor. The

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[23] To illustrate, the Agrar study reported that the price of hired harvest labor ranged between 100 and 200 CFA per 12 kilo tin of cherry harvested, and that a laborer on average harvested 2 to 4 tins of cherry per day. If a harvester was paid 150 CFA per tin and harvested 3 tins (36 kilos of cherry), he would earn 450 CFA on a typical day. The green bean equivalent weight of 36 kilos of cherry is 5.75 kilos. At the 1984 good bean price of 410 FCFA per kilo, the maximum market value three tins of coffee before determining the good bean percentage would be 2,360 CFA. This implies that the cost of hired labor alone represented at least 19 percent of the value of a farmer's coffee.

first stage in washing is to remove the cherry pulp from beans. To maintain bean quality, this should begin within 24 to 36 of harvest. But the Agrar study found that, in general, only larger scale farmers possessed hand pulping machines. Most small scale farmers had to hire pulpers from these farmers. During the peak harvest, it was common for these farmers to wait 5 to 7 days before a pulping machine became available for hire. In the meantime, their cherries began to ferment and spoil. Consultants also observed that the pulping machines in use often damaged beans because they were almost all old, poorly set, or worn out.

Farmers often fermented their coffee improperly, usually by fermenting their coffee too long. Overly fermented beans are the source of washed arabica's most serious quality problems. In extreme cases, stinker beans may develop. Although it is possible to detect some poorly fermented beans through inspection after coffee has been hulled and sorted, stinker beans often escape detection until roasting[24].

Coffee should be thoroughly rinsed with clean water immediately after fermentation to remove residues that taint bean taste. But the Agrar consultants observed that farmers generally rinsed their parchment insufficiently, or with dirty water, because of water shortages created by a lack of easily accessible water points. Because water points were often as far as two kilometers away from the farm, farmers had to devote considerable effort to rinse their coffee properly--having to either carry heavy parchment to the water

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[24] Whether or not over-fermented beans can be detected during secondary processing depends on the degree of over-fermentation. Although many beans become discolored as the fermentation process deepens, not all stinker beans do, and thus easily escape detection (Coste, 1992; Wrigley, 1988). Undetected stinker beans release a nauseating odor during roasting and may spoil an entire batch of coffee.

point or water to the farm.

Drying is a critical stage in the washing process. The trick in drying is to quickly lower the moisture content of parchment to 12 percent so that the fermentation process extends to beans themselves, and tarnishes their quality. Drying is typically a 10 to 15 day process. Considerable care is required to ensure that all beans dry evenly and do not overheat in the sun or take on moisture at night. Once again, the Agrar study reported that the drying methods employed by NW farmers were generally less than ideal. Farmers generally did not dry their coffee sufficiently and many (estimated at 30 percent) dried their coffee on inappropriate drying surfaces such as the ground and fertilizer sacks. Finally, the Agrar consultants observed that because of unreliable cooperative payments, it was common for farmers to store coffee in sub-optimal home conditions for up to two months before taking it to primary societies for acceptance.

The clear conclusion that may be drawn from these observations of farm production practices, is that arabica farmers were producing poor quality coffee at low levels of production. Farm-level quality problems were partly the result of resource constraints such as a lack of available water supplies, hand pulpers and appropriate drying surfaces. However, improper harvesting and washing were the primary source of quality problems. This implies that farm-level quality problems were primarily behavioral in nature. Farmers generally had a poor awareness of proper washing techniques; the importance of quality in international marketing; or that their production practices affected quality and price. By failing to distinguish and reward quality, administered marketing institutions failed to provide arabica farmers in NW Province with sufficient incentives and information to encourage investments in quality.

Farm level quality problems were compounded by poor handling and processing by cooperatives. The Agrar consultants were apparently unable to observe society personnel accepting coffee from farmers. However, farm-level studies in West and North West Provinces by Rassas (1992) and Langham and Ayissi (1992) provide insight into behavior during acceptance[25]. Farmers interviewed by Rassas reported that the criteria used by weighing delegates in evaluating quality were often subjective, inconsistent or arbitrary. Long waiting times during delivery, non-transparent weighing procedures (i.e. hidden or inaccurate poorly set scales), and deliberate or unintentional arithmetic errors in recording farmers' sales were common problems. As a result, many farmers made informal payments to weighers so that their coffee would be weighed and its quality evaluated favorably during acceptance (Rassas, 1992). This implies that even the limited quality criteria contained in administered acceptance and pricing institutions were not faithfully applied, and were ineffective in controlling farm-level quality or countering incentives for individuals to behave opportunistically.

After acceptance, primary societies assemble and store coffee, and arrange for it to be transported to unions. Agrar consultants found weaknesses in the way societies handled coffee that increased the risk of quality deterioration. Coffee was often stored in close proximity to fertilizer and poorly ventilated, and many societies employed a "first in-last out" method of storage.

Secondary processing at the union level was considerably more problematic. If

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[25] Although these studies took place after the administered marketing era ended (as defined by the dissertation), they occurred while administered acceptance procedures were still in place. As a result, the studies provide insight into society-level acceptance behavior under administered institutional arrangements.

performed properly, secondary processing can control many farm-level quality problems, since the number of observable measures of bean quality increases significantly after the parchment skin of coffee is removed through hulling. Grading and density sorting should separate good beans from some types of undesirable beans (i.e., broken, immature, and underweight beans) and remove foreign matter (twigs, stones, chaff, etc.). Handpicking, during which discolored beans are separated from normal color beans, is an especially important union activity in controlling farm-level quality problems. If coffee is well picked, many (if not all) improperly harvested and washed beans should be removed from good beans.

Agrar consultants concluded that union secondary processing activities were generally performed inadequately. For the most part, union processing machinery was worn out, outdated and prone to long and costly breakdowns. Only four of the eleven union mills in NW Province had satisfactory operating performance. Specific problems included (Agrar und Hydrotecknik, 1984):

- Excessive wear and tear to processing equipment because union's lacked destoning machines.
- Milling lines frequently broke down and stood idle due to inadequate preventative maintenance and a lack of spare parts. In addition to increasing per unit operating costs, long production delays also adversely affected quality by extending processing activities into the rainy season.
- Quality losses were associated with poor handling and storage practices by unions.
- Union sorting and grading operations were inefficiently performed due to a combination of poor plant management, poorly trained mill operators, and the poor condition and layout of processing machinery. Beans were often damaged during hulling. Catadors, which use air pressure to sort beans by density, were often poorly adjusted and maintained. Screens in graders were often clogged and worn out. As a result, coffee was inconsistently sorted and often failed to meet international grading standards.

- Poor sorting and grading of coffee increased the importance of handpicking in controlling quality problems, but also made coffee more difficult to pick. Although handpicking is a costly and tedious task, pickers were paid a flat fee for every bag of coffee they picked. Agrar consultants believed this arrangement created incentives for pickers to fill bags of coffee as quickly as possible instead of investing care and effort in picking coffee well.

As a result of farm-level and cooperative level quality problems, the coffee offered for international sale was of generally low quality, and often contained too many defects to meet international standards. Poor coordination between cooperatives and the Marketing Board and unreliable shipments further deepened quality problems. As a result, coffee from NW Province was price discounted by buyers.

Quality problems also plagued UCCAO's arabica exports from West Province, but were less severe than in NW Province. Although fixed producer prices contained the same quality disincentives for West and North West arabica producers alike, in 1988/89 the arabica from West Province sold by UCCAO was discounted in price by only 7 to 11 percent (5 and 8 cents a pound), while the Marketing Board sold arabica from NW Province at a 16 percent discount (Gellar et al., 1990).

The difference in performance was related to UCCAO's right to independently market coffee abroad and retain the residual earnings from sales. As discussed previously, UCCAO used some of its financial resources to provide services to its members and invest in physical capital. UCCAO's unions employed state-of-the-art machinery to process coffee (Agrar und Hydrotecknik, 1984)[26]. As a result, UCCAO had the capacity to grade

[26] For example, UCCAO had a central conditioning plant in which coffee beans are electronically sorted by color. Although the relative benefits of electronic sorting over hand picking may be a moot point, no such machinery existed in NW Province.

and sort its coffee more consistently than NWCA. Arabica farmers in West Province used more fertilizer and were better endowed with specialized farm equipment than farmers in North West Province (Shaefer-Kehnert, 1988)[27]. Farmers in West Province produced a much larger proportion of large size beans than farmers in North West. Larger grade A - C beans comprised 66.7 percent of the arabica processed by UCCAO between 1984/85 and 1988/89 (Agrer, 1992). Although information for the same period is lacking for NWCA, Galabe and Mallet (1990) reported that grades A-C represented only 51.9 percent of NWCA's tonnage between 1979/80 and 1983/84.

Finally, by participating in international marketing and acquiring information, UCCAO realized it needed to take to take a pro-active role in addressing quality problems and funded a farm-level quality education program that apparently yielded positive results (Gellar et al., 1990). General persuasion and sense of community had some effect even if high information costs meant that there was little individual incentive to wash carefully. In contrast, NWCA had no direct contact with international buyers and there was virtually no flow of market information between the Marketing Board, cooperatives and farmers.

To conclude, the administered market structure in NW Province failed to resolve coordination problems flowing from arabica's high information cost characteristics. Administratively fixed producer prices and acceptance procedures clearly did not distinguish and reward the production of high quality coffee, and instead discouraged farmers from investing in quality. Farm-level quality control procedures during

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[27] Shaefer-Kehnert (1988) estimated that between 1981 and 1984, the average ratio of fertilizer input to members of UCCAO was 321 kilos per member, but only 124 kilos per member within NWCA. Fertilizer input per kilo of coffee produced was 1.13 kilos within UCCAO, but only 0.5 kilos within NWCA.

acceptance were poorly applied and enforced. Farmers delivered substantial quantities poor quality parchment that escaped detection at the point of initial handling. Because of the lack of controls or sanctions on the cooperative weighing delegates during acceptance, even the low information cost measurements were not fully utilized. Although problem beans are easier to detect in green coffee state, this did not happen due to poor sorting, grading and picking during secondary processing at the union level.

Although Cameroonian arabica coffee was price discounted in international markets as a result of quality problems, this had little direct impact on producer prices or cooperative allowances--neither of which were linked to export prices. Under the administered pricing and cost determination arrangements, a producer or cooperative that invested resources in improving quality received the same price as a producer or cooperative that made only minimal investments in quality.

4.2.7. Collapse of the Administered Marketing System

After the world prices of Cameroon's principal exports (oil, cocoa and coffee) fell precipitously in 1986, Cameroon tumbled into a severe economic crisis. Between 1984/85 and 1989/90, the government's oil revenues fell from 722 billion CFA to 232 billion, and its export earnings from cocoa and coffee fell from 237 billion CFA to 110 billion CFA (USAID, 1990). Because of this loss in revenue, the government could no longer support the high costs of the expanded bureaucratic state and deficits rapidly mounted.

To cope with its deteriorating financial situation, the government transferred the money in the various crop price stabilization funds into the general treasury and used it for other purposes. After years of accumulating surpluses, the arabica stabilization fund was empty

when it was needed to support producer prices and marketing costs beginning in 1986/87. Gellar et al. (1990) reported that France's Caisse Centrale de Cooperation Economique estimated that the reserves in the Marketing Board's various stabilization funds should have totaled 83 billion CFA (or roughly $300 million) in 1987/88. Instead, the Board had amassed a 30 billion CFA (or $109 million) deficit.

Despite the deepening financial crisis, the government and Marketing Board were slow to react, and maintained fixed producer prices and licensed buying agents' cost allowances at previous levels. The Board responded to its financial crisis by not paying its clients. By the 1989/90 season, the administered marketing system was virtually bankrupt, and arrears to exporters, commercial banks, cooperatives and producers totaled 58 billion CFA (or roughly $211 million) (USAID, 1990).

In the arabica subsector, the Marketing Board's payments to NWCA and arabica farmers in North West Province became increasingly more erratic and unreliable after 1986/87. Payment difficulties culminated during the 1988/89 season, when the Board was unable to pay either arabica producers or NWCA. By December 1989, the arrears owed arabica farmers and NWCA totaled 3.9 billion CFA ($14 million), or an average of 275,000 CFA ($1000) per arabica growing household (USAID, 1990). The financial crisis gripping the arabica subsector was less severe in West Province. Although UCCAO also incurred substantial marketing losses after world coffee prices fell in 1986, the financial reserves it had accumulated through its rights to retain the residual earnings from its coffee sales enabled it to better cope with the price shock. As a result, UCCAO continued to reliably pay its members.

NW farmers were understandably disillusioned and angry about the Marketing Board's

payment difficulties, and many lost interest in arabica production. Ironically, the Marketing Board was in many respects immune to farmers' dissatisfaction and complaints since it did not directly interact with farmers. Under administered marketing relationships, NWCA and its affiliated unions and primary societies were agents of the Marketing Board's. Because NWCA-affiliated cooperatives collected coffee from farmers and paid them, they were largely blamed for payment problems. This further eroded any lingering trust and confidence farmers may have had in these organizations.

4.3 Conclusions

Administered marketing institutions functioned poorly in the context of the arabica situation's high information costs and economies of scale in processing and marketing characteristics. Poor and distorted incentives resulted in a long term trend of deteriorating performance characterized by declining production, deteriorating quality and rapidly increasing costs. Administered institutions produced behavior among market participants that yielded poor performance at each stage of the marketing chain. Specifically, the following interrelationships between institutional structure and performance were identified:

- Declining arabica coffee production in NW Province, even in periods of record high world prices, was attributable to administered producer prices that provided poor production incentives and taxed farmers at such a high rate that real producer prices exhibited a long-term decline.

- Although some areas of NW Province had the potential to produce high quality coffee, arabica from NW Province was significantly price discounted by buyers as a result of quality failures all along the marketing chain--from producers, to cooperatives, to the Marketing Board. Because administered institutions did not adequately distinguish and reward quality at the farm level, and existing measures of parchment quality were not enforced to control quality during acceptance, the manner in which farmers harvested and washed their coffee was inconsistent with the production of high-quality coffee. Since administratively fixed cost allowances were linked to volume only and contained no premiums or discounts for quality, cooperatives invested insufficient care in handling or processing coffee well. Instead of providing incentives for farmers and cooperatives to invest in quality, administered institutions discouraged them from doing so. Since it had sole rights to claim residual profits from international sales, only the Marketing Board obtained any premium from quality improvement or bore the costs of quality discounts.

- Because of declining production and rising costs, excessive marketing costs plagued the arabica marketing system. Fixed cost allowances were paid to cooperatives irrespective of differences in economies of scale or operating efficiency. Cooperative governance arrangements were such that cooperatives and officials were agents of the Marketing Board and not farmers. Since producer prices were administratively determined independently from cooperative costs, farmers had little incentive to pressure cooperatives to control costs, or hold cooperative officials accountable. Cooperatives were sheltered from competitive pressures to control costs since they

were the sole authorized buyers and processors of coffee in their administrative regions. These arrangements also left the Marketing Board with little choice other than to cover the cost increases and losses of its cooperative agents. Cooperatives tended to become dominated local Big Men. Instead of providing incentives to economize and realize economies of scale for benefit producers, administratively determined marketing margins created incentives for local Big Men to use economies of scale to promote their self-interests or reward patronage. High personnel expenses due to over-staffing were common problems, particularly at the apex and union level where economies of scale were greatest.

- The Marketing Board's costs increased dramatically over time. Although administratively determined producer prices and marketing margins were nominally intended to stabilize coffee prices and farm incomes, and develop the rural sector, they were instead used by the government to extract profits from the arabica subsector. The Marketing Board (and government) used these profits to help fuel bureaucratic expansion, or empire-building.

- Although the government could maintain the increasingly expensive administered marketing system due to the profits generated by a sustained period of rising and record high world coffee prices, after world prices plummeted in 1986/87, the system collapsed under the cumulative weight of rising costs and declining production.

CHAPTER 5

Post-Reform Subsector Structure: Institutions and Policies

As discussed in the previous chapter, the crisis gripping the arabica subsector was symptomatic of the general economic in Cameroon. The reform process began in 1989 when Cameroon and World Bank agreed to a structural adjustment program. A clause in this agreement committed the government to rapidly privatizing arabica markets in North West Province. Private traders would be allowed to compete with the Marketing Board in buying and selling coffee[1]. However, USAID/Cameroon was concerned that virtually bankrupt coffee marketing cooperatives in North West Province would be unable to compete in a suddenly privatized market, and if they failed, a 35 year tradition of independent cooperative development would be lost (Oakerson, 1994c). Thus, USAID/Cameroon assumed the lead role in reforming the arabica subsector. The official vehicle for reform was the *Program of Reform of the Marketing Sector* was implemented between August, 1990 and June, 1994.

USAID/Cameroon's approach to reform was distinguished by its institutional perspective. The central premise underpinning this approach was that profitability and

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[1] This clause was specific to arabica in North West Province only. UCCAO would continue to have monopoly buying and selling rights in West Province. Privatization of the arabica market in NW Province was apparently intended to serve as a test case, with potential applications to other provinces and commodities in the future (Green, 1994a).

productivity within the arabica subsector could be restored by creating incentives for cooperatives to economize, and for both farmers and cooperatives to invest in improving and controlling quality. This required a fundamental reshaping and restructuring of existing marketing institutions and cooperatives so they would function better in the context of arabica marketing's high information costs and economies of scales situational characteristics. Over the long-run, reform planners believed that it would cheaper and more effective to transform the existing institutional infrastructure for marketing arabica than to dismantle it and build a new one.

This chapter describes the key institutional features of the reformed market structure that was introduced in North West Province between 1990 and 1994. Although the purpose and objective of the key features of the original institutional design will be discussed, they were never fully implemented. The primary objective of the Chapter is to describe the nominally reformed institutional structure and its anticipated performance impacts. The reforms as implemented and their impacts on performance will be analyzed in Chapters 6 through 8.

5.1. Structure of the Reforms

The reform program included both a national policy reform component, and a cooperative restructuring component specific to North West Province. National policy reforms privatized arabica markets throughout Cameroon and sharply restricted the government's role in arabica marketing. They affected UCCAO in West Province and NWCA in North West Province alike. These reforms also established a policy environment that enabled the implementation of institutional reforms specific to NWCA.

The cooperative restructuring component was designed to give NWCA the ability to compete in a privatized market. This entailed reforming marketing and governance institutions and restructuring relationships within the vertically integrated cooperative structure. A key feature of the reform design was that it deferred privatization until after a transitional period of cooperative strengthening and reform implementation was completed. Whereas NWCA received considerable financial and technical support from USAID during the transitional period, UCCAO in West Province received no support. This reflected USAID's objective to level the competitive playing field between NWCA and UCCAO[2], but meant that UCCAO would have to adjust to the privatized market on its own.

5.1.1. Policy Reform at the National Level

At the national level, policy reforms were designed to promote and introduce competition throughout the domestic arabica marketing system and remove price distortions. Specific reforms included[3]:

- The elimination of the arabica price stabilization fund managed by the Marketing Board and government.

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[2] Because UCCAO had rights to export arabica independently and retain the residual earnings from its sales during the administered marketing era, it had a well-established marketing capacity and significantly greater financial resources than NWCA (Chapter 4).

[3] A subset of national-level policy reforms targeted NWCA specifically, but were conditions precedent to the disbursement of USAID funds. They included the transfer of equipment and other assets owned by the Marketing Board in NW Province to NWCA, and the repayment of arrears owed arabica farmers to arabica farmers and NWCA with donor provided funds.

- The elimination of cooperative buying monopolies in North West and West Province. All buyers, cooperative and private, were permitted to operate anywhere arabica was available for sale in Cameroon. It was anticipated that lower barriers to market entry and the removal of controls on commodity movements would foster competition between cooperatives and the private sector.

- Authorization for all qualified buyers, processors and exporters to sell arabica to any foreign buyer independently without government restrictions. Early in the reform process, NWCA was granted rights to arabica independently and retain the residual earnings from sales.

- Authorization for cooperatives and private buyers to price coffee autonomously without government interference.

- The elimination of export duties and charges, which dismantled the system of administered marketing margins. Although the reform agreement called for the introduction of a graduated tax which would be linked to world prices, the government resisted its implementation and it was never introduced.

- The enactment and dissemination of a revised national cooperative law which greatly reduced the government's involvement with cooperatives.

The reforms sought to exclude the Marketing Board from playing a direct role in arabica marketing in North West Province. The Board initially resisted ceding full export rights to NWCA. But the structural adjustment program called for a major restructuring of the Board which led to its eventual abolishment in late 1991[4]. A much reduced government agency, the National Cocoa and Coffee Board (NCCB), was eventually established whose role was restricted to representing Cameroon in international coffee meetings and providing market information services. But because of the Marketing Board's restructuring and extreme financial difficulties, it withdrew from arabica marketing during the 1989/90 season. This fundamentally altered the power structure

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[4] A study conducted by the French development agency, the Caisse Centrale de Cooperation Economique (CCCE), in July 1990 recommended that the Marketing Board be abolished. In December 1990 the government signed a loan agreement with the CCCE in which it pledged to abolish the Board within one year (Oakerson, 1994c).

within the arabica subsector. In North West Province, NWCA assumed responsibility for making, applying and enforcing arabica marketing rules.

Many of the core elements of the administered marketing structure remained in place during the transitional period of reform. NWCA and UCCAO retained their legal buying monopolies in their respective provinces, the government continued to fix a pan-territorial arabica producer price, and marketing margins were administratively determined (but by cooperatives). The key institutional changes were that NWCA's officially acquired rights to export arabica and retain residual earnings in June 1991, and the price stabilization fund (which was already bankrupt) was abolished.

Autonomous pricing, elimination of buying monopolies and unrestricted exporting rights represented the core features of national privatization reforms. The original reform agreement called for these reforms to be enacted prior to the 1992/93 marketing campaign. However, they encountered substantial resistance within the government and were not implemented on schedule. It was only through extensive lobbying and by agreeing to provide funding and technical assistance to establish an arabica market information system (AMIS) within the National Cocoa and Coffee Board, that USAID obtained a commitment from the government to implement core privatization reforms prior to the 1993/94 season, a year behind schedule[5]. Implementation issues are discussed

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[5] The government's stated reason for resisting reform in 1992/93 was its concern that farmers would be disadvantaged in their dealings with coffee buyers in a privatized market (Eriksen and Bloch, 1994). However, a more likely explanation was that the government was not fully committed to, or was incapable of, undertaking reform. USAID and other donors had previously thwarted the attempts by elements in the government to derail the reform effort at the end of 1991. In any event, AMIS gave the government a highly visible stake in the reform effort.

in greater detail in Section 5.3.

Reform of the national cooperative law was an important element of the reform design. Reform planners believed that policy reforms which sought to privatize arabica marketing arabica would have only a limited impact on performance if the government continued to supervise and control the affairs of coffee cooperatives--the principal arabica marketing organizations in Cameroon. Furthermore, cooperative law reform was essential to enabling the implementation of cooperative restructuring reforms.

Briefly, the new law sought to return cooperatives to the control of members. It reaffirmed principles of voluntary governance and democratic self-governance. The law contained only minimal requirements for individuals to form new cooperatives, meaning farmers and individuals could organize collectively as they chose. Existing cooperatives were required re-write their rules of association and by-laws, and reconstitute themselves from the base upwards. Restrictions on cooperatives' areas of operations were removed.

The new legislation sharply constrained the government's authority to intervene in cooperative affairs, and placed supervisory functions in the hands of membership. The governmental agency which had oversight responsibilities under the old cooperative policy regime was abolished. The government's role in the new policy regime was restricted to registering cooperatives only. Registration criteria essentially required cooperatives to prove that they were financially solvent and self-supporting.

However, implementation difficulties also plagued the cooperative law reform process. The new law was enacted by Presidential implementing decree in November, 1992, several years behind schedule. However, the law became effective only in September 1993, after the government had established a registration service in each province and a national

dissemination campaign had been completed. Resistance within the government to relinquish control over cooperatives was overcome only through the concerted efforts of donors in Cameroon. However, implementation difficulties at the national level delayed the implementation key governance reforms within NWCA.

5.1.2. Cooperative Restructuring Reforms

Under the administered marketing arrangements, cooperatives in North West Province functioned as agents of the Marketing Board. Farmers had two choices in marketing their parchment--either to sell through the officially sanctioned cooperative marketing channel or to sell to private traders operating in the unsanctioned parallel market at a steep discount. Once coffee was accepted by cooperatives, coffee ownership was transferred to the Marketing Board. A farmer's participation in arabica market ended. A producer received the same producer price irrespective of variation in quality, or the cost of cooperative marketing services. In such circumstances, farmers had little reason to take an interest in how cooperatives would handle and process their coffee, or to demand cost control and accountability from cooperative officials. Farmers had little understanding of the importance of quality in world markets, and a limited awareness of the market value of their coffee.

Cooperative restructuring sought to introduce market-like institutions and relationships within the NWCA structure. This involved linking farmers to the world market by means of their cooperatives, empowering them to participate collectively in cooperative governance, and introducing greater accountability and transparency in cooperative decision-making. The objective of cooperative restructuring was to transform

the structure of the North West Cooperative Association (NWCA) from a centralized, government-dependent organization that was dominated by local big men, into a decentralized, self-governing and self-supporting organization which provided marketing services at cost to its member farmers. This focus on organizational change was intended to restore the legitimacy of cooperatives in the eyes of farmers, and also to enable the implementation of new marketing rules.

The key focus the reform effort was to restructure relationships and incentives within the existing cooperative hierarchy of primary societies, cooperative unions and apex organization. This vertically integrated structure was consistent with progressively greater economies of scale in processing and marketing. Marketing functions within the reformed cooperative structure were distributed as follows:

- Farmers grew, harvested and washed coffee.
- Primary societies collected and weighed farmers' parchment, evaluated its quality according to reformed parchment acceptance procedures, paid farmers, assembled (bagged) coffee and arranged for it to be transported to unions.
- Cooperative unions collected and weighed the parchment of their affiliated societies, verified their quality evaluations, provided secondary processing services (i.e., hulling, grading, sorting, and handpicking), assembled green coffee in bags marked for export, notified the apex organization when lots were available for sale, and arranged for green coffee to be transported to NWCA's warehouses in Bamenda.
- The NWCA apex marketed unions' coffee abroad, bore legal responsibility for all coffee it sold, and procured crop financing for the entire cooperative structure. In addition, the apex provided services to unions such as input procurement and distribution, engineering support, as well as education and financial management services to both unions and societies.

The key functional change in the reformed cooperative structure was that the Apex organization assumed the national Marketing Board's overseas marketing and crop

financing functions.

Reform sought to fundamentally redistribute decision-making authority, or power, within the reformed cooperative structure. Oakerson (1994c) described the key cooperative marketing decisions as follows:

- Who determines producer prices, including the initial prices paid farmers and the distribution of a residual earnings?
- Who makes sales decisions?
- Who decides how costs are allocated within the cooperative hierarchy?
- Who specifies and enforces quality standards within the cooperative structure?

Within the vertically integrated cooperative structure there are two key market transactions. The first occurs at the beginning of the marketing chain when farmers deliver parchment for acceptance and payment. The second occurs at the opposite end of the marketing chain, when coffee is sold to buyers in the international market. All intermediate activities and transactions (between societies and unions, and unions and the apex) occur within the cooperative structure, and are administratively organized. The principle underlying institutional reform was to redistribute decision-making authority (power) between primary societies and the apex--the two levels of the cooperative structure that participate directly in the key marketing transactions.

Reformed institutional arrangements gave societies the authority to determine producer prices, claim the residual earnings from sales (at least as originally proposed), and enforce quality standards at the farm-level subject to the verification of unions. The costs of marketing services provided by unions and the apex were assigned to societies. However, institutional reforms sought to provide farmers and their elected with a strong

voice in the cost determination process. The NWCA apex was given authority to sell coffee abroad (subject to approval by unions). Since it interacted directly with buyers in the international markets and had access to better market information, the Apex was also assigned authority to set quality standards for the entire cooperative structure.

Transactions within the cooperative structure were reorganized through the adoption of "internal marketing arrangements". These were a set of negotiated contracts between societies, unions and the apex which set forth rules governing cooperative marketing functions, responsibilities and relationships[6]. The core features of the reformed institutional structure were new rules governing affiliation and membership (competition), the determination of costs and prices, the distribution of residual earnings and parchment acceptance (quality). These institutional reforms were designed to create incentives for farmers and cooperatives to invest in quality, and for cooperatives to economize and improve the vertical coordination of their marketing activities.

5.2. Key Institutional Features of the Reformed Market Structure

5.2.1. Determination of Costs and Producer Prices

At the heart of the reformed market structure in North West Province were new cost determination (budgeting) and producer pricing rules which linked producer prices to cooperative costs[7]. These reforms were critical to improving incentives to produce and

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[6] Specific components of the internal marketing arrangements were rules governing membership and affiliation, cost budgeting and coffee pricing, the distribution of residual earnings, parchment acceptance at the society and union levels, accounting, processing and marketing.

[7] The complete budgeting and pricing procedures are outlined in Appendix II.

invest in quality, and creating incentives for cooperatives to economize so that farmers might benefit from economies of scale. Moreover, these reforms sought to fundamentally alter principal-agent relationships within the cooperative structure to the benefit of farmers. The key elements of "society-level pricing" arrangements were:

- Provision of cooperative services to members at cost. At the beginning of each season, each society, union and the apex estimated the amount of coffee it expected to handle, and prepared budgets to estimate the costs their marketing functions and services. These costs were expressed on a per kilo basis based on estimated tonnage. Detailed budgets were submitted to cooperative general assemblies for discussion and approval in annual budgeting exercises[8].

- The determination of producer prices separately by each primary society. Since these arrangements linked producer prices directly to cooperative costs, it was anticipated producers would have strong incentives to pressure cooperatives to control and reduce costs in order to obtain higher initial prices. In turn, variation in producer prices would generate price competition among societies and unions. Internal and external pressures to control costs would were expected to give cooperative managers strong incentive to economize.

- Assigning rights to claim and distribute residual earnings to societies. Since the general assemblies of societies include all members, these rules would give farmers rights to claim and distribute any profits. As a result, farmers would benefit from price improvements in the world market and any quality premium (discount) would be communicated to farmers.

Prices were calculated as follows. Before the beginning of each season, the Apex Marketing Department forecast the mean per kilo export price it expected to receive during the season using available market information. Initial producer prices were derived by subtracting port and shipping costs and the budgeted marketing costs of the apex, each

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[8] Before implementing these arrangements, new rules had to be introduced to require that each cooperative was financially independent, self-supporting, and self-governing. Especially important was that cooperative (society, union, apex) be responsible for hiring and paying managers and determining staff salaries. Before reform, the government appointed and paid the General Manager of the NWCA, and the apex organization appointed and paid union managers.

union and society from NWCA's export price forecast. All prices and costs were expressed on a per-kilo basis. Thus, initial producer prices at the society-level would vary with the unique costs estimated by each society and the union. Since every franc saved by cooperatives would ultimately wind up in farmers' pockets, society-level pricing arrangements were intended to provide farmers with strong incentives to demand cost control and hold cooperative management more accountable.

Budgeting exercises were a key feature of reformed cost determination arrangements. General assemblies are the largest and most representative governing body in each cooperative, and the primary means by which cooperative members exert control[9]. The requirement that general assemblies approve all budgets was intended to open the cost determination process to member scrutiny. In addition to providing a forum in which managers would have to justify and defend costs to members, budgeting exercises were designed to give farmers (and their elected delegates) a role in determining both the level and price (cost) they were willing to pay for cooperative marketing services.

However, there were potential weaknesses in these new arrangements. Since internal costs were calculated on a per kilo basis, accurate crop estimates were essential. A cooperative that overestimated tonnage would budget unrealistically low per-kilo costs and experience difficulties in covering actual operating costs. Since rules entitled cooperatives to receive only their budgeted per-kilo costs during a given season, any

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[9] The general assembly of a society is comprised of all members of a society. Union and apex general assemblies are made up of representatives elected by the general assemblies of societies and unions respectively. The number of representatives in the union (apex) general assembly is typically apportioned according to the tonnage of a society (union).

losses would have to be recovered during the following season at the expense of lower producer prices. In contrast, underestimated tonnage would inflate per-kilo overhead (fixed) costs, and result in a lower initial producer prices. In addition to hampering the ability of a society to offer competitive prices, inflated per-kilo costs could create an opportunity for cooperatives to retain part of residual earnings instead of distributing them to producers.

A more fundamental weakness of the reformed cost determination procedures was their failure to distinguish between per kilo overhead and variable costs. Whereas per kilo variable costs do not vary with tonnage, per kilo overhead costs (primarily personnel-related expenses) do. This created an opportunity for cooperative managers to manipulate tonnage estimates and budgets to obfuscate true costs or mislead delegates. This would lessen pressures on them to reduce costs and thus undermine incentives to economize.

Late in the reform implementation process, reformer planners proposed an alternative method for distinguishing, accounting for and paying fixed and variable costs which they believed would better promote cost control, particularly at the union and apex levels. Under this revised proposal, cooperatives would be required to recover overhead costs separately from variable costs. Membership or subscription fees would be established at each level of the cooperative structure and used to cover overhead costs[10]. Per-kilo variable costs (direct marketing costs) would be subtracted from the forecast export price. Residual earnings would be directly distributed to members in bonus payments.

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[10] Societies would establish an annual fee for members, unions a fee for affiliated societies, and the apex a fee for affiliated unions Union (apex). Membership fees could be adjusted to reflect the number of members in each society (union).

The expected advantages of this cost recovery system relative to the one that was actually implemented included (Oakerson, 1994a):

- Costs could be easily compared from year to year, and between cooperatives;
- Cooperatives would be exposed to greater pressure from membership to discipline and control overhead costs;
- The cooperative structure would have a stable source of revenue to cover its core capacity independent of variation in coffee harvests and sales revenues;
- Cooperative managers would have limited opportunities to divert profits or expropriate cost savings from farmers by concealing and manipulating per kilo overhead costs.

However, this alternative arrangement was proposed just as society-level pricing arrangements were being implemented, after a long and at times bitter implementation impasse. As a result, it did not receive much consideration or support from NWCA[11].

For farmers to evaluate producer prices, they require comparative price information from other societies. Participants in budgeting exercises need comparative cost data. The apex organization is ideally placed to acquire price and cost information from unions and their affiliated societies since it must coordinate its activities with those of unions. However, the flow of information from the apex to societies must go through unions, creating an opportunity for union officials to impede information flows. Initially at least, the Arabica Market Information System greatly facilitated the flow of world and domestic price information to the farm-level. But the market information system had to rely on

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[11] Some cooperative officials argued that since large farmers would pay the same membership fees as small farmers, the membership fee system was not equitable. The collection of membership dues was also a potential problem, although in theory dues could be deducted from producer payments.

cooperatives to supply up-to-date and reliable price information to be fully effective.

Oakerson (1994c) believed that the greatest weakness in the new price and cost determination arrangements was the potential for price collusion among unions. Opportunities for collusion were created by union managers sharing information about estimated costs in monthly coordination meetings with the apex. Furthermore, cooperative governance arrangements were such that the society presidents comprised unions' boards of directors, and union presidents comprised the NWCA (or apex) board of directors. By colluding to minimize cost and price variation, it would be possible for union officials to retain their privileged status and to create economic profits by inflating costs and depressing producer prices. This was a particular problem in NW Province given its tradition of patrimonial politics characterized by patron-client relationships.

Budgeting exercises and society-level determination of prices were designed to counter incentives for collusion. Since cooperative costs were reflected in initial producer prices, farmers would have incentive to act collectively through their societies to monitor and control union activities and hold management accountable. A further check on potential collusion was provided by the new cooperative law, which created a supervisory committee comprised of elected farmers or delegates to monitor the financial activities of each cooperative (society, union or apex). This committee had authority to impose sanctions on cooperative officials. Still, the ability of farmers and supervisory committees to monitor and hold cooperative officials accountable depended critically on the price and cost information they received.

5.2.2. Rules of Affiliation and Competition Among Primary Societies

The effects of competition are well known in economics. As discussed above, policy reforms at the national level enabled private traders to buy and sell arabica free of government restrictions. Potentially, this would expose NWCA and its member cooperatives to competition from other buyers. New rules of affiliation (association) specific to NWCA were intended to create internal competition within the cooperative structure, particularly at the society and union levels. Competitive pressures were critical in reinforcing incentives to economize within cooperatives, as well as bottom-up governance relationships within the cooperative structure.

Reformed rules of affiliation gave farmers rights to join societies of their choosing, organize new societies, or opt out of societies altogether. These rules also gave societies rights to affiliate with unions of their choice (subject to the approval of members) or opt out of NWCA altogether, and unions the right to opt out of NWCA (subject to the approval of member societies).

The only restriction on exit rights was a requirement that exit occur only between marketing years. This requirement was important to the functioning of society-level pricing arrangements. Since budgeted cooperative costs and initial producer prices were calculated from estimated tonnage, it was important that cooperatives have an assured supply of coffee. Without such an assurance, there was a risk that tonnage estimates would not inaccurate. Equally important, NWCA needed an accurate tonnage estimate to determine how much crop financing it needed to procure, and commercial banks needed assurance that NWCA would market sufficient quantities of coffee to repay crop financing loans. Affiliation protocols were renegotiated annually to facilitate exit between

marketing seasons.

Exit options, and the threat thereof, increase the power of voice (Hirschman, 1970). Thus, exit rights were intended to enhance the ability of farmers to pressure cooperative managers to reduce and control costs and counter incentives for "rent-seeking" among cooperative officials. The ability of a cooperatives to retain its members would depend on its performance. Exit rights meant that poorly performing and high cost cooperatives might fail in a privatized market.

Together, society-level pricing and affiliation rules were expected to create both external competitive pressure on cooperatives from private traders, and internal price competition amongst cooperatives. Over time it was expected that competition would reconfigure the cooperative structure itself. Over the short term, it was anticipated that the number of primary societies in North West Province would increase as farmers took advantage of new rules to re-establish village-level societies, which was the mode of cooperative organization that had dominated before the government mandated society mergers and required that cooperatives' jurisdictional boundaries conform to administrative boundaries (see Chapter 7). Over the longer term, it was expected that competition would lead to a significant restructuring of production at the union level. Specifically, large tonnage and/or cost-efficient unions would drive small tonnage and inefficient unions out of existence. The ability of a union to survive in a competitive environment would depend on its ability to control costs and realize economies of scale[12]. If reform was successful, the problem of excess processing capacity in North West

[12] The reforms do not preclude small, high cost unions from contracting out its processing services to more efficient, lower cost unions.

Province would be resolved. Economic forces would determine the optimal configuration of unions.

However, transportation costs would likely constrain the effective use of the exit option, particularly at the farm and society levels. Under society-level pricing, transportation costs should represent the key source of price variation between societies in a given union area, since society costs represent only a small share of total cooperative costs. For a small-scale arabica farmer, the added costs of transporting parchment to a more distant society could well offset any price benefits derived from changing society affiliation. The marginal costs of a society changing union affiliation would likely be even greater, given the large distances that separate some unions. Thus, one would predict that most of the societies that changed union affiliation would be located near union boundaries.

5.2.3. Distribution of Residual Earnings

The original reform design vested societies with rights to claim and distribute residual earnings. This would give farmers the right to decide how profits would be distributed since they directly interact with societies and participate in their governance. Directing profits to the farm level was also important to improving incentives to produce at the farm level and reinforcing incentives for cooperatives to economize. Since cooperatives would have no claim to profits, they would be required to keep their costs within the limits prescribed in approved budgets. In addition, cooperatives would have to earn any share of profits from farmers. Vesting societies as residual claimants was an important institutional feature in both establishing bottom-up governance relationships within the cooperative

structure, and countering the "big man" tendencies of cooperative officials. If rights as residual claimant were vested in either the apex or union, the share of the residual earnings received by farmers would be administratively determined at the levels of the cooperative structure least exposed to direct farmer scrutiny, creating opportunities for rent-seeking by apex or union officials (Oakerson, 1994c).

However, societies were never fully vested with residual claimant rights. During the transitional reform period, rules entitled the apex and unions to retain a 25 percent share of residual earnings, and societies to retain a 50 percent share. When the core institutional reforms were adopted in 1993/94, reform designers continued to argue that societies should be vested with full rights as residual claimant, but did not press the issue when the NWCA Board of Directors balked. Instead, NWCA revised rules governing the distribution of residual earnings and losses to enable the apex and unions to stake a claim and decide how profits would be distributed. In 1993/94, the rules governing the distribution of earnings read as follows (NWCA, 1993b).:

> "A positive difference between the FOB (world) forecasted price and actual sale price shall be the property of the entire [Cooperative] Structure. A negative difference (i.e. when the sales price is less than FOB) has to meet with prior approval from the Apex Board of Directors and the result is the obligation of the entire structure. Payments will be made to Unions when the sales contract is completely executed and sales proceeds are received by NWCA and after any loans are deducted. In paying profits, all costs of the sale, unsold stocks (if any) and any contingent liabilities must be fully accounted for."

Although these rules were apparently designed to give cooperatives opportunity to establish financial reserves and build investment capital, they clearly failed to establish rights as residual claimants in societies, and created considerable opportunity for apex and union management to decide how profits would be distributed. In fact, rules governing

the distribution of residual earnings were revised further in 1995/96 such that "the distribution of surpluses/losses shall be proposed by the Apex Board of Directors and approved by the General [Assembly]" (NWCA, 1995b). This indicates that reform was only partially successful in reforming governance relationships and redistributing decision-making authority within the cooperative structure. Cooperative officials at the upper levels of the cooperative hierarchy were able to resist fully divesting power.

5.2.4. Rules to Distinguish and Reward Quality: Parchment Acceptance and Pricing Procedures

Vesting societies with rights to claim residual earnings was also part of the institutional solution to the quality problems flowing from arabica's high information cost characteristics. This arrangement sought to link producer prices and export prices. Thus, residual payments to farmers would communicate any quality premium realized in the market to producers, and partially reward them for investments in quality.

The original institutional design erroneously assumed that coffee could be tracked from societies to the world market. This implied that the quality premium could be communicated to the smallest organizational unit within the cooperative structure. But the quality premium would reflect the overall quality of coffee produced by all the farmers in the society pool. As such, reformed pricing arrangements could not fully resolve the pricing dilemma associated with high information costs, since they were unable to distinguish and reward the quality produced by individual farmers. The high exclusion cost characteristics of the quality premium meant that incentives would remain for some individuals to shirk and free-ride on the quality contributions of others in the society pool.

Reform designers anticipated that social capital factors might counter these incentives, particularly if farmers re-organized into smaller-scale, village-level societies. If farmers realized that the actions of a few of their neighbors in the society (or village) pool could undermine their individual efforts to improve quality and receive a higher quality premium, they might have strong incentives to monitor and influence their harvesting and washing practices. Although cooperatives might be unable to monitor the washing practices of numerous and dispersed producers, individual farmers could monitor the behavior of others in a society. Social pressures and sanctions might counter incentives for individuals to shirk and free-ride. Moreover, members of village society would likely have a strong sense of community and obligation to the group. This could potentially inspire some farmers to harvest and wash coffee better. Finally, farmers would have incentive to monitor society activities, and demand that quality standards were impartially applied and enforced.

Early during reform implementation, reform planners realized that it was only feasible to track coffee from unions to the market[13]. Tracking coffee from the society level would have required unions to process and assemble each society's coffee separately, meaning that economies of scale in secondary processing would be sacrificed. But tracking coffee from the union level meant that sales prices would reflect the average quality produced by the union pool, which encompassed a much larger number of producers. This magnified

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[13] The original institutional design proposed that NWCA market the coffee of each union separately. This proposal was dropped on the advice of a marketing consultant who argued that union-by- union marketing would fragment NWCA's already small total production into very small quantities, and thus unnecessarily increase transaction costs. However, it would be relatively simple for NWCA to track internally each union's coffee.

the high exclusion cost characteristics of the quality premium, thus creating more opportunity for individual producers, as well as societies, to shirk and free-ride on the quality contributions of others in the pool. Moreover, the overall quality of the union pool would have to improve in order to realize higher prices. Although this would require a broader collective response from individual producers, the payoff to an individual's investment in quality would also be more diffuse. The presence of economies of scale in secondary processing considerably weakened the ability of reformed pricing arrangements to distinguish and reward individual producers for investments in quality.

Nevertheless, reformed pricing arrangements enabled producers to realize at least some price benefit from quality improvements. They also created potential incentives for farmers to pressure unions to grade and sort coffee well since residual payments would reflect a union's quality performance. However, social capital factors assumed greater importance in controlling farm-level incentive and behavioral problems caused by remaining high information costs. Unless farmers internalized that they were interdependent with other farmers and cooperatives in the union pool, the larger pool size might constrain the formation of social capital.

However, NWCA never calculated and distributed residual payments on a union-by-union basis. It instead calculated them based on the average price of all the coffee it sold during the season. NWCA was concerned that if world coffee prices improved unexpectedly during the course of a marketing season, poorly performing unions which failed to collect and process coffee quickly might be unfairly rewarded under union-by-union residual distribution arrangements. This is what occurred during the 1992/93 season. NWCA argued that distributing residual payments on an average price basis

enabled unions to pool risks in dealing with the world market, and would thus avoid having a single union bear the burden of an untimely sale (Oakerson, 1993c). But the distribution of residual payments on an average price basis implied that the quality premium would reflect the average quality produced by all farmers and unions in North West Province. For there to be a perceptible price benefit from quality improvement, the overall quality of the provincial (or all-NWCA) pool would have to improve. In addition to magnifying quality incentive problems at the farm and society levels, this created opportunity for some unions to shirk and free-ride on the quality contributions of other producers and cooperatives in the provincial pool. Distributing residual earnings on an average price basis further weakened the ability of the reformed institutional structure to resolve arabica's inherent high information cost problems. Although this meant social capital factors would have to assume even greater importance in improving quality at the farm-level, the larger pool size might further undermine their effectiveness. Compounding matters, rule changes that enabled the Apex and unions to stake a claim to residual earnings further weakened the link between residual payments and the quality premium.

Realizing that it was impossible to design pricing arrangements that adequately resolved high information cost problems, reform also introduced new parchment acceptance procedures to improve quality control at the farm level[14]. Briefly, the new acceptance procedures used observable parchment attributes (the number of defects in a small sample, appearance or color, and odor) so that societies could evaluate and classify farmers' parchment quality during weighing. The procedures contained three quality

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[14] Appendix III provided a detailed description of the new parchment acceptance procedures.

distinctions--good (Class I), average (Class II), and poor (Class III). Parallel parchment acceptance procedures were introduced to govern unions' parchment acceptance from societies so that union officials could verify that societies were properly applying and enforcing quality standards. This was intended to counter possible incentives for society weighing delegates to over classify the parchment quality of some individuals.

The quality measures contained in the new acceptance procedures provided only crude indicators of how farmers washed coffee. Still, they could improve farm-level quality control by identifying some of the quality problems (some stinkers, badly overfermented or insect-damaged beans) associated with extremely poor washing and drying techniques. Moreover, even though available measures of parchment quality were only poorly correlated with final cup quality, they provided an institutional means to distinguish quality at the farm level. The bottom line was that by observing quality attributes and separating poor from better quality parchment before secondary processing, quality could be improved, if not fully achieved because of some non-observable attributes.

As originally conceived, the reform design proposed that NWCA market coffee to buyers on a class-by-class basis. This would make it possible to link residual payments to parchment quality distinctions made during acceptance, and thus provide a way to create market-based price incentives that rewarded producers for quality. However, a marketing consultant involved in the reform project argued that it was unlikely that buyers would discern significant quality differences between the three classes if unions properly graded and sorted coffee (Resta, 1992). Furthermore, NWCA already marketed its coffee on a the basis of five size grades (A, B, C, D and F). Introducing three additional class distinctions would unnecessarily fragment NWCA's already small tonnage into 15

categories (16 including triage)[15]. Any price benefits derived from marketing coffee by class could be offset by the higher transaction costs this would create (ibid). The consultant argued that quality would improve most if NWCA devoted more resources and effort to processing coffee well, and focused less attention on trying to create incentives for farmers to produce superior quality coffee. By doing this, NWCA could achieve a reputation as a reliable supplier of average quality coffee in the near term. It would take many years for NWCA to earn a reputation as a supplier of superior quality, which the consultant considered to be a doubtful objective given the poor harvesting and washing practices of North West producers. Based on this argument, NWCA decided not to market coffee by class, and largely abandoned applying and enforcing new parchment acceptance procedures during the 1992/93 season[16].

However, the consultant's argument seemed to ignore that parchment acceptance procedures represented an institutional means of resolving the farm-level quality problems posed by arabica's high information cost characteristics. The importance of the procedures was that they provided a way, albeit imperfect, to distinguish quality at the point of initial handling where information costs were highest. Without such an arrangement, farmers would have little incentive to devote resources towards improving quality since their efforts would be unrewarded. If no quality distinctions were made

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[15] If poor quality Class III coffee was sold as triage, only 11 categories would be created. However, the original reform proposal called for NWCA to sell coffee on both a union-by-union and class basis. Had this been implemented, 166 categories of coffee (11 unions multiplied by 5 size grades and 3 classes, plus triage) would have been created-- or 111 if Class III was sold as triage.

[16] These procedures had been nominally introduced during the 1990/91 season, and emphasized during the 1991/92 season.

during farm-level acceptance, the consultant's prediction that arabica farmers in NW Province would be unable to produce superior quality coffee would likely become a self-fulfilling prophesy. This highlights a key problem in implementing institutional reform. The anticipated impacts of reform on performance are often realized only over the long-run as more and more actors respond to changed incentives. However, in the near-term, undesirable behavioral patterns and performance continue.

Although the quality distinctions in the reformed acceptance procedures might not generate price differences in the market, they could nevertheless provide a way to devise pricing arrangements that differentially rewarded producers for their parchment quality. Institutional arrangements that both distinguished and rewarded parchment quality would generate incentives for individual farmers to invest more in improving measurable parchment quality, provided the marginal benefits exceeded the marginal costs of doing so. If sufficient numbers of farmers responded favorably to improved quality incentives, this could lead to some improvement in cup quality--even if the relationship between measurable parchment quality and cup quality was poorly defined. Alternatively, Oakerson (1994c) proposed that cooperatives could use the acceptance procedures to identify and target education efforts to producers of poor quality coffee.

But once again, NWCA only partially used available parchment quality measures to differentially reward producers. After experiencing a number of quality claims by buyers in 1992/93, NWCA modified parchment acceptance procedures in 1993/94 to control for inferior quality Class III coffee by processing, marketing and pricing it separately from

better quality coffee[17]. But NWCA continued to price, process and market average (Class II) and good (Class I) coffee together. Although this arrangement penalized producers of poor quality coffee, it rewarded producers of average and good quality coffee equivalently. This weakened producer incentives to invest in quality. In fact, the incentive effects of this arrangement were little different than the good bean/bad bean distinctions that existed prior to reform. As implemented, improved quality control during acceptance and social capital factors were the primary factors motivating farmers to improve quality.

Although some senior staff members realized the importance of differentially pricing mediocre and good quality coffee, NWCA never did so. The reasons for this are unknown. Inertia an overly cautious management approach are possible explanations. Uncertainty and/or a failure to reach consensus about how to devise appropriate pricing arrangements are others[18]. But a more fundamental explanation is that decision-makers within NWCA failed to understand fully the quality and pricing dilemma posed by the high information cost characteristics of the arabica situation.

Whatever the explanation, delays in reform implementation were a likely contributing factor. The core institutional reforms were implemented only during the final year of the reform project, a year behind schedule. The original reform implementation design anticipated an initial year of learning and experimentation under full reform, followed by a

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[17] NWCA also sought to improve quality awareness at the farm level by initiating a grass roots education campaign in 1993/94. This suggests that cooperative officials and donors only belated realized the importance of social capital factors in resolving the farm-level quality problem.

[18] In observing the reform process, it seemed that NWCA's management was intent on linking any pricing arrangements to actual sales prices.

second year which would refine and extend the reform process. Although NWCA adopted the core institutional reforms during 1993/94, many details were omitted to facilitate their implementation. But there was no opportunity to modify the institutional arrangements that were implemented.

5.2.5. Crop Financing and Coordination

The remaining internal marketing arrangements were related to crop financing arrangements and the coordination of cooperative marketing functions, particularly between unions and the apex. Briefly, they included:

- Processing Procedures that outlined union responsibilities and rules to follow in hulling, sorting, calibrating, storing, and assembling (bagging) coffee for export. Unions were required to apply and enforce parchment acceptance procedures, and to store and process inferior Class III coffee separately from class I and II parchment (which were processed together). The procedures also established grading and sorting standards.

- Marketing Procedures that outlined the NWCA Apex's marketing responsibilities and selling procedures. Included were rules governing the preparation of coffee samples that NWCA sent to buyers for quality testing. The NWCA Marketing Department was responsible for verifying that the lots prepared for sale by unions were consistent in quality to the samples sent to buyers. The rules stated that the apex would attempt to market each union's coffee separately, but coffee failing to meet the quality standards established by union "type" samples would be marketed

as stock coffee (mixed lots of coffee from various unions). The procedures also assigned any indemnities and costs resulting quality claims to the union which was responsible for the quality problems. Finally, the procedures required the apex to provide regular sales information and sales progress reports to unions.

- Internal Finance and Accounting Procedures that contained rules for cooperatives to follow in requesting funds for coffee purchases. These rules detailed proper accounting and financial reporting procedures. Since NWCA procured crop financing through commercial bank loans, the rules also spelled out the repayment obligations of societies, unions and the apex. Interest charges were allocated within the cooperative structure as follows. Societies incurred interest charges until they transferred parchment to unions, unions incurred interest charges until lots of green coffee were ready for sale, and the Apex incurred interest charges until payment was received from buyers. These arrangements were intended to create incentives for all cooperatives to complete their marketing activities as rapidly as possible to minimize interest cost. A *Code of Conduct for Accounting Staff* described the bookkeeping and accounting responsibilities of cooperative managers.

5.3. Reform Implementation Problems

Implementing the reforms proved to be a very difficult and contentious process. By its very nature, institutional reform requires that the stakeholders who benefitted under previous arrangements must sacrifice their vested interests out of a conviction that the

reforms are in their long-term interests. But the payoffs to reform are often uncertain and lie in the future. Moreover, reform often requires that individuals learn new patterns of behavior and expectations that may run counter to those that existed before. As a result of these factors, institutional reforms encounter powerful forces of resistance and inertia. The arabica reform experience in Cameroon was no exception.

The implementation of reformed market structure in North West Province was dependent upon the government's prior enactment of key national-level policy reforms. However, the initial enthusiasm that accompanied the reform agreement quickly wore off, and key national privatization reforms encountered stiff resistance from elements within the government. In studying the general reform process in Cameroon, van de Walle (1989; 1991) raised serious questions about both the government's commitment to reform and its capacity to implement it. He argued that the Cameroonian political system was based upon strategic alliances between competing economic and political elites. Those in power maintained the ruling alliance and accommodate elites by controlling and distributing resources. Patronage, rent-seeking and privilege were the glue that holds the state together. As a result, power within the government tended to be highly personalized. Thus, reforms which sought to redistribute income and decentralize power and decision-making authority ran counter to the core logic and sociological and political foundations upon which the state is built, and threatened to unravel ruling alliances.

It was only by intensively monitoring the entire reform process, intervening when necessary to head off opposition, engaging in dialogue and compromising, that USAID/Cameroon was eventually to secure government commitment to privatize prior to the 1993/94 season, a full year behind schedule. However, larger political forces were

also at play.

The reform period between 1989 and 1993 was marked by political unrest as well as continuing economic crisis. Cameroon haltingly began democratizing its single party state during this period. Opposition to the ruling party quickly centered in North West Province. When the government attempted to block a key opposition party from forming in 1991, violence broke out in the provincial capital of Bamenda which resulted in some deaths. To pressure the government into reforming politically, opposition leaders called for general strikes ("ghost towns") that virtually shut down economic activity in North West Province for weeks at a time in 1991 and 1992. Events culminated in the disputed presidential election that took place in October, 1992. After it was announced that President Paul Biya had retained power, rioting broke out in parts of North West Province and a two-month state of emergency was declared in the Province[19]. But although these political events likely contributed to the government's wavering commitment to reform, they might paradoxically help to explain why it eventually committed to reform. Given the extent of the opposition to the ruling party in North West Province revealed in presidential elections, the government may have decided that the costs of protecting its remaining interests in the arabica subsector in North West Province were too high, and its political capital could be expended more effectively elsewhere[20].

Within NWCA, similar political dynamics to those at the national-level were at play,

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[19] Official election results showed that roughly 90 percent of North West voters had voted for opposition parties.

[20] The government may also have been attempting to return to good graces of the American government, which had suspended aid to Cameroon to in protest irregularities in the election process.

and the implementation of key cooperative restructuring reforms also met resistance. The central implementation problem was how to introduce institutional and restructuring reforms in the context of a cooperative structure that was accustomed to top-down management, driven by incentives to inflate costs, tied to the government through the employment of civil servant managers, and often used as a source of economic rent by elected officials or local "big men" (Wessen, 1994)[21]. Although USAID/Cameroon eventually overcame resistance within NWCA, it had to expend considerable effort in doing so. USAID had some financial leverage over NWCA, which was dependent upon its assistance. However, inclusive dialogue between USAID, reform designers and officials from all levels of the cooperative structure was critical to breaking the implementation impasse. The importance of dialogue was that it achieved a common understanding among those who had to carry out reform concerning the aggregate benefits reform sought to create, as well as the institutional means necessary to achieve it (Oakerson, 1994c)[22].

Problems in coordinating and sequencing national policy and cooperative restructuring reforms contributed to implementation difficulties. The implementation impasse at the national level had a ripple effect at the NWCA level, and prevented key cooperative restructuring reforms from being implemented on schedule. An entire year was lost to

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[21] The members of the NWCA board of directors belonged to the ruling party and included several national parliamentarians.

[22] As observed in Chapter 2, the reform implementation design had scheduled regular meetings to for reform participants to discuss and evaluate the reform process. But during much of the implementation phase these meetings could not be held because of the political disturbances in NW Province. After the meetings became more regular in mid-1993, the pace of reform implementation picked noticeably.

implementation difficulties, and with it, a chance to refine and extend the reforms that were actually implemented. It was possible to implement the key elements of the reformed market structure only during the final year of the reform program. With the 1993/94 coffee season looming, key reforms had to be adopted rapidly.

Implementation deadlocks and time constraints meant that compromise was necessary to keep the reform effort going. Although USAID/Cameroon insisted that NWCA adopt the core features of the reformed institutional design (society-level pricing and new parchment acceptance rules), it compromised on institutional details. The original reform design was never fully implemented. The points of compromise included the vesting of societies with rights to claim residual earnings, the linking price differentials to new parchment acceptance procedure, and calculating and distributing residual payments on a union-by-union basis. A common refrain in this chapter was that NWCA's failure to adopt these rules considerably weakened the effectiveness of the reformed market structure--as implemented-- in resolving fully problems posed by arabica marketing's high information cost and economies of scale characteristics. In compromising on institutional detail, incentives to economize and improve quality were weakened. The predicted impacts of reform on performance changed as well.

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INSTITUTIONAL ECONOMICS OF ARABICA COFFEE MARKETING IN CAMEROON

VOLUME II

By

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CHAPTER 6

Structure and Performance During the Transition to Reform, 1989/90- 1992/93

Although the process of reforming the arabica coffee structure began with the 1989/90 coffee marketing season, full market privatization and price reform was deferred until a transitional period of cooperative restructuring was completed prior to the 1993/94 season[1]. The purpose of the transition was to strengthen cooperatives within the North West Cooperative Association, Ltd. (NWCA) so that they might successfully compete in the privatized market. This entailed improving NWCA's technical and marketing capacity, reducing cooperative costs, and laying the foundation for the implementation of new internal marketing arrangements within the cooperative structure. During the transitional period, reforms and cost reductions were programmed by USAID/Cameroon and implemented by NWCA in a top-down manner. After reform, changes in performance were intended to be institutionally and incentive driven. This chapter analyzes structure and performance during the transitional period to reform. Later chapters analyze performance after full reform.

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[1] Full implementation of the institutional reforms had originally been slated for the 1992/93 season. However, implementation difficulties at the national level, and to a lesser degree the cooperative level, delayed reform implementation a full year.

6.1. Structure

The reform period began in 1989 with the implementation of Cameroon's structural adjustment program. Under pressure from the World Bank, the Marketing Board sharply reduced coffee prices prior to the 1989/90 season in order to address its financial crisis and better align domestic and world coffee prices[2]. A clause in the structural adjustment agreement committed the Cameroonian government to opening arabica coffee markets in North West Province to private traders in 1989/90. However, UCCAO would remain the sole licensed coffee buyer in West Province and retain its legal monopsony. Concern about the survival of the network coffee marketing cooperatives (i.e., NWCA) in NW Province in a suddenly privatized market prompted USAID/Cameroon to become involved in, and eventually take the lead, in reforming arabica markets.

During the transitional period of cooperative strengthening and reform implementation between 1989/90 and 1993/94, most of the key features of the administered marketing system were maintained, albeit in slightly altered form. UCCAO and NWCA retained exclusive rights to buy coffee from growers in West and NW Province, respectively. The government continued to establish pan-territorial coffee prices by ministerial decree through the end of the 1991/92 season. In 1992/93 it established a national minimum coffee price, which became the de facto official price.

The key institutional change was that rights to export arabica independently and to retain and distribute the residual income from sales were transferred from the Marketing

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[2] Although the Board had a say in determining prices in 1989/90, because of its financial difficulties it effectively withdrew from marketing arabica, and was eventually abolished in 1991.

Board to NWCA[3]. As a result, NWCA obtained export rights similar to those of UCCAO in West Province. With rights to sell coffee independently and claim the proceeds from its sales, NWCA and its affiliated unions and societies became responsible for their own marketing costs. Although the government no longer established fixed cooperative cost allowances (marketing margins), both UCCAO and NWCA continued to determine administratively uniform per kilo margins for their member cooperatives to reimburse them for their marketing services (see below). Whereas NWCA received substantial financial and technical support from USAID/Cameroon during the transitional reform period, UCCAO in West Province received no donor support.

6.2 Performance During Reform

This section discusses price, production and cooperative marketing costs during the reform period, focusing most of its attention on efforts to reduce costs. Quality during the transitional period of reform is discussed in Chapter 8.

6.2.1. Producer Prices

Under pressure from the World Bank, the government reduced the official arabica producer price by 47 percent from 475 CFA to 250 CFA per kilo prior to the 1989/90 season. The government maintained the producer price at a constant 250 CFA per kilo through the 1991/92 season.

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[3] The transfer of export rights to NWCA did not proceed smoothly since the government and Marketing Board were reluctant to cede them. Although NWCA eventually marketed the entire 1989/90 crop, it could only sell this coffee during the following season since it did not receive official export rights until June 1991.

At this lower price, washed arabica coffee production was only a marginally profitable activity at best, and was a money losing proposition for many (Wyeth, 1990). Assuming low levels of input use and yields of 300 kilos of green coffee per hectare, Wyeth calculated the financial breakeven price for producing washed arabica to be 389 CFA per kilo if labor was valued at the prevailing daily rural wage rate of 800 CFA, 269 CFA per if labor was valued at half the rural wage rate (400 CFA per day), and 149 CFA per kilo if labor was valued at zero. This meant that farmers who had to hire labor could scarcely make a profit on coffee.

However, Wyeth's results were sensitive to assumptions about equipment owned by farmers, input use levels and yields. For example, his analysis included equipment costs of approximately 50 CFA per kilo for wheelbarrows, sprayers and handpulpers, which were unavailable to most coffee producers in NW Province. On the other hand, his assumed yield of 300 tons per hectare seems to have too optimistic.

From Wyeth's analysis, the best possible return to arabica coffee that a farmer could receive at prices of 250 CFA per kilo was roughly 150 CFA per kilo (i.e., labor valued at zero and no equipment costs). This implies that the green bean equivalent value of a 58-kilo bag of parchment coffee was approximately 7,000 CFA (or roughly $25). Field interviews in 1993 indicated that at this lower arabica price, food crops such as potatoes, beans and maize were more profitable production alternatives than coffee. As a result, farmers allocated greater resources to the production of food crops than arabica.

Unreliable payments to farmers compounded the disincentive effects of the lower coffee price. The price reduction followed on the heels of the Marketing Board's nonpayment of NW arabica farmers and cooperatives in 1988/89. In both 1989/90 and

1990/91, nearly bankrupt coffee cooperatives in NW Province experienced severe difficulties in financing crop purchases from farmers. Although donors eventually provided financing for NWCA's 1989/90 and 1990/91 crop purchases, funds arrived only at the end of the harvest season. As a result, producer payments were delayed by several months[4]. Faced with low prices and uncertain payment for their coffee, many NW coffee producers continued to sell their coffee to local traders at price discounts of between 30 and 50 percent (Gellar et al., 1990; Rassas, 1992). Many of these traders were from West Province, who later delivered coffee to cooperatives in West Province for immediate payment in full. However, in some cases these traders were influential farmers or cooperative officials from NW Province who were aware of ongoing discussions between NWCA and donor organizations about potential financial assistance.

The 1992/93 season was characterized by considerable price uncertainty. Although originally anticipated to be the first under full reform, market privatization and price reforms were deferred until 1993/94. Instead, the government established a minimum national arabica price of 200 CFA per kilo in 1992/93. This price was announced only in late April 1993, after most coffee had been harvested. For most of the season, cooperatives paid producers partial advances after acceptance since the official arabica price was not known. Field reports indicated that informal traders continued to buy large quantities of coffee in some areas of NW Province by offering prices that were higher than cooperatives advances. Since these traders were entitled to receive the minimum price and any residual payments later paid by cooperatives, they effectively purchased farmers'

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[4] Arrears owed NW farmers by the Marketing Board were paid in late 1991 with donor provided funds.

coffee at a discounted price.

6.2.2 Coffee Production

Total arabica production data, as measured by the amount of coffee collected by UCCAO and NWCA in West and NW Provinces respectively, before and during reform are summarized in Figure 6.1. As discussed below, using cooperative tonnage figures understates the actual amount of coffee produced in NW Province but overstates production in West Province, since private traders were buying coffee in NW Province and delivering it to UCCAO[5]. Nevertheless, cooperative tonnage figures represent the only way to compare performance between provinces.

The data show that arabica production fell steeply after national arabica prices were nearly halved to 250 CFA per kilo in 1989/90. In 1988/89, NWCA marketed 5,527 tons of arabica. But in 1989/90, NWCA handled only 2,609 tons in 1989/90, 53 percent less than in 1988/89 (Figure 6.1). NWCA's tonnage declined an additional 18 percent to 2,141 tons between 1989/90 and 1990/91. NWCA collected 61 percent less coffee from producers in 1990/91 than in 1988/89.

Although the coffee tonnage handled by NWCA more than doubled to 4,609 tons in 1991/92, this was due to an unexpectedly large bumper harvest. After the producer price

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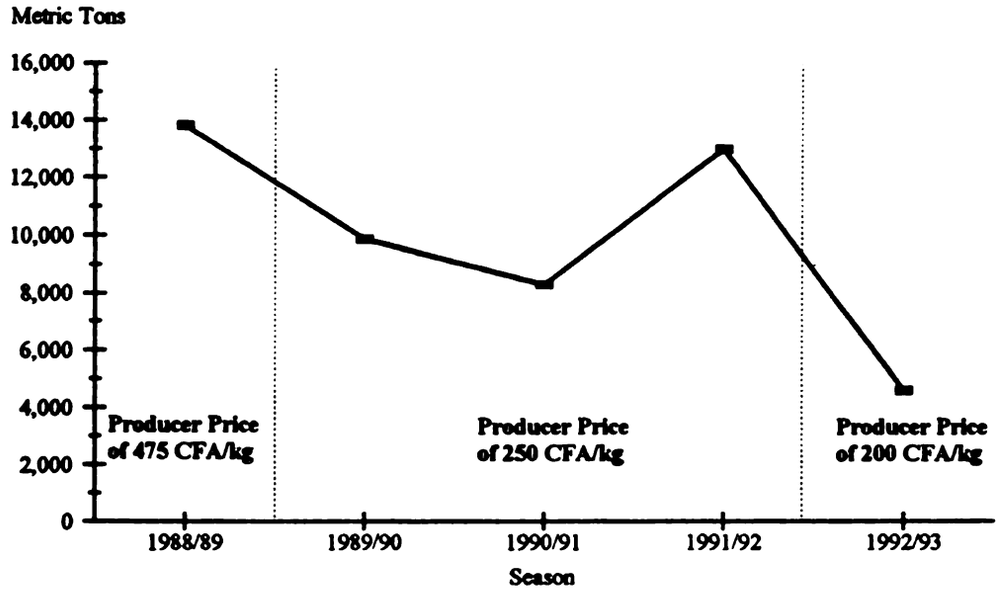
[5] NWCA estimated that 1,000 tons of coffee flowed into West Province in both 1989/90 and 1990/91. If the cooperative tonnage data for 1989/90 and 1990/91 data is adjusted to reflect this outflow, NWCA and UCCAO would have experienced a roughly parallel decrease in tonnage in both 1989/90 and 1990/91. In 1989/90, UCCAO's and NWCA's adjusted tonnage would have decreased by 36 and 35 percent, respectively. In 1990/91, UCCAO's and NWCA's adjusted tonnage would have decreased by 18 and 13 percent, respectively.

A) North West Province



B) West Province

Figure 6.1: Arabica Production in Cameroon During Reform, 1988/89 - 1992/93.

was lowered from 250 to 200 CFA per kilo in 1992/93, NWCA's tonnage fell by 48 percent to 2,401 tons. Although cooperative payments to NW producers were reliable, NWCA believed that because of price uncertainty during the season, there continued to be a significant outflow of coffee from NW into West Province in 1992/93 (personal communications, 1993).

When expressed in terms of four-year averages, the mean annual arabica tonnage handled by NWCA was 5,625 tons during the last years of the administered marketing era (1985/86 - 1988/89) when prices averaged more than 475 CFA per kilo. However, when producer prices were fixed at 250 CFA per kilo or less during the reform period(1989/90 - 1992/93), the mean annual arabica tonnage handled by NWCA was only 2,940 tons per year, or 48 percent less than the pre-reform level. If the exceptionally large 1991/92 harvest is excluded, the average mean annual arabica tonnage handled by NWCA during reform was only 2,384 tons, or 58 percent less than the pre-reform level.

The arabica tonnage handled by UCCAO in West Province cooperatives also fell steeply after fixed producer prices were reduced in 1989/90, but less precipitously than in NW Province (Figure 6.1). Whereas UCCAO handled 13,822 tons of arabica in 1988/89, its tonnage fell by 28 percent to 9,885 tons in 1989/90 and an additional 16 percent to 8,300 tons in 1990/91. UCCAO's 1990/91 arabica tonnage was 40 percent lower than in 1988/89, while NWCA's was 61 percent lower. Both UCCAO and NWCA were required to pay member farmers the fixed national price of 250 CFA per kilo in 1989/90 and 1990/91. However, UCCAO was able to reliably pay its members by virtue of the financial reserves it had accumulated through its rights to export coffee and retain profits from sales during the administered marketing era (see Chapter 4). Bankrupt coffee

cooperatives in NW Province experienced severe difficulties in paying farmers. An outflow of coffee from NW Province to West Province explains the larger decrease in the arabica tonnage handled by NWCA than UCCAO in 1989/90 and 1990/91.

Due to the bumper harvest, UCCAO's tonnage increased by 57 percent from 8,300 tons in 1990/91 to 13,005 tons in 1991/92. However, after the producer price was lowered to 200 FCFA per kilo in 1992/93, UCCAO's arabica tonnage fell steeply to 4,585 tons in 1992/93, a decrease of 65 percent (vs. 48 percent in NW). UCCAO's comparatively large decrease in tonnage raises doubts about NWCA's claim that significant quantities of coffee flowed from North West into West Province due to price uncertainty in 1992/93. Instead, the evidence suggests the cross border flow of coffee was sharply reduced in 1992/93, since NWCA was able to procure adequate crop financing and reliably pay farmers.

The 47 percent reduction of the fixed national arabica price in 1989/90 had a strong disincentive effect on arabica production in Cameroon, particularly in NW Province, where cooperatives experienced difficulties in paying producers. Because of the poor returns to arabica coffee at lower price levels, farmers reallocated resources to the production of more profitable food crops. Arabica farmers allocated less effort to weeding, pruning and harvesting, and further reduced use levels of expensive inputs such as fertilizer and chemical sprays[6]. However, because of arabica's fixed asset characteristics, many farmers kept trees in production to minimize losses. In the words of one society leader in the Nso area, many farmers "continued to grow coffee because they

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[6] Although coffee farmers could purchase subsidized fertilizer, it was used primarily on food crops intercropped with coffee.

had the trees and cheap family labor" even though arabica production was no longer profitable (Field interviews, July 1993). Whereas coffee yields in NW Province were estimated at between 250-300 kilos per hectare in 1988/89 (World Bank, 1990), in 1993, average yields in NW Province were estimated at only 100 kilos per hectare (Hersenes and Ngenge, 1993).

6.2.3 Cooperative Costs Before Reform

As discussed in Chapter 4, administrative marketing institutions contained perverse incentives to economize. As a result, the pre-reform era was characterized by a long-term trend of rapidly rising per kilo marketing costs due to the cumulative effect of declining arabica production and the failure of marketing organizations to control costs. Although per kilo costs increased by the greatest amount within the national Marketing Board, which used the profits it extracted from the arabica subsector for its own expansion, per kilo cooperative costs also increased. Eventually, the administered marketing system collapsed because it had become too bloated and expensive to maintain.

The withdrawal of the Marketing Board from arabica marketing in 1989/89 greatly reduced total arabica marketing costs in NW Province. Although NWCA assumed the Board's marketing functions, an entire tier of the arabica subsector's administrative hierarchy was eliminated. However, the steep fall in arabica production in 1989/90 significantly increased NWCA's per kilo marketing costs. This led reform designers to conclude that NWCA's costs were excessively high given the small quantity of coffee it handled, and that cost reduction was critical to restoring profitability within the arabica subsector (Gellar et al., 1990; USAID, (1990). A primary focus of cooperative

strengthening and restructuring efforts during the transitional period of reform was to reduce marketing costs. In a privatized market, NWCA's ability to compete would depend on its ability to control costs since reformed pricing sought to link directly producer prices and cooperative costs.

The transitional period of reform was designed to shelter NWCA from competition while it restructured and reduced costs. Transitional cost determination procedures differed only marginally from the pre-reform period. After the Marketing Board withdrew from arabica marketing, the NWCA Apex organization assumed the administrative function of determining uniform per kilo cost allowances for the entire cooperative structure. This included determining the relative shares of the total cost allowance paid to member unions and societies. As was the case previously, per kilo cost allowances did not distinguish for differences in tonnage (economies of scale), transportation costs or operating efficiency among individual unions and societies, or for quality.

Available cooperative cost information from 1989/90 through 1991/92 is summarized in Table 6.1. However, the results should be viewed with some caution. The data distinguish between the fixed per kilo cost allowances determined by NWCA and NWCA's estimates of its true marketing costs. Because to poor bookkeeping and financial reporting procedures within the cooperative structure, NWCA apparently relied on rough cost estimates and guesses in determining per kilo cost allowances and apparently did not know its actual costs were[7]. As a result, an analysis of cost allowances

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[7] USAID provided NWCA with technical assistance to improve its financial management capacity, bring cooperative accounts up to date, and to introduce standardized and simplified accounting procedures within the cooperative structure--particularly the society level.

alone does not present an accurate of true cooperative costs. However, the accuracy of NWCA's true marketing cost estimates are also questionable, since they were used primarily to seek financial assistance from donor organizations to cover marketing losses. Furthermore, the annual export prices and producer prices in Table 6.1 are quoted in terms of washed good beans, while NWCA's estimated its true per kilo marketing costs from total arabica production, which includes unwashed and triage (bad beans) coffee that fetch lower prices than washed good beans.

The 1990/91 data were plagued by significant discrepancies in reported tonnage. Whereas NWCA's total arabica production for 1990/91 was previously reported as 2,140 tons, NWCA used a seasonal production figure of 1,667 tons in estimating its true 1990/91 per-kilo costs. This discrepancy likely reflected the large stocks of unsold coffee that NWCA accumulated during the 1990/91 season. Since it was impossible to reconcile 1990/91 cost and tonnage data from available information sources, per-kilo costs for the 1990/91 season were calculated using uses both tonnage[8]. Given the weaknesses in the data, the results presented in Table 6.1 should be treated as indicators of NWCA's costs only.

NWCA fixed the total cooperative cost allowances at a constant 197 CFA per kilo between 1989/90 and 1991/92. The Apex share, which included transportation and export costs, was 74 CFA per kilo. Each of the 11 cooperative unions was paid a fixed allowance of 100 CFA per kilo, and each of NWCA's 40 primary societies was paid 23

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[8] Since NWCA used the 1,667 ton figure in its financial accounts, this figure is featured prominently in the text. Results obtained by using the higher tonnage figure are presented within parentheses.

Table 6.1: Summary of Cooperative Arabica Marketing Costs, North West Province: 1989/90 - 1991/92. (Costs and Prices in FCFA per kilo).

	1989/90	1990/91		1991/92
1) Fixed Cost Allowances				
Estimated arabica tonnage (metric tons):	5,000	5,000		4,500
Total Cooperative Allowance:	197	197		197
• Apex (includes export costs)				
• Unions	74	74		74
• Primary Societies	100	100		100
	23	23		23
Fixed Producer Price:	250	250		250
Break-even Sales Price:	447	447		447
2) Actual Performance				
Actual arabica tonnage:	2,609	1,667[1]	2,140[1]	4,609
Avg. Sales Price (FOB Douala):	342	460	460	274
True Cooperative Marketing Costs (estimated by NWCA):	310	391	311	197
Actual Break-even Sales Price:	560	641	561	447
Loss:	(218)	(181)	(101)	(173)
Marketing Costs as a Percentage of Sales Price:	**91%**	**85%**	**68%**	**72%**

Source: NWCA, Ltd., Hersenes and Ngenge (1993).

Notes: 1) NWCA estimated its actual per kilo cost based on a tonnage figure of 1,667. However, in section 6.2.2 arabica production was reported as 2,140 tons in 1990/91. Per kilo cost estimates have been adjusted to reflect this higher tonnage.

CFA per kilo. Since the government required NWCA to collect all coffee produced in NW Province and pay farmers the official 250 CFA per kilo (washed good bean) producer price, NWCA's breakeven sales price was 447 CFA per kilo in 1989/90, 1990/91 and 1991/92.

In both 1989/90 and 1990/91, NWCA seriously overestimated its arabica tonnage. Although NWCA forecast that it would handle 5,000 tons of coffee in both 1989/90 and 1990/91, its actual tonnage was 48 percent less than estimated in 1989/90, and 65 percent less than estimated in 1990/91 (55 percent if revised). As a result, NWCA's true per kilo costs marketing costs were much greater than prescribed in per kilo cooperative cost allowances. According to NWCA, its true marketing costs were 310 CFA per kilo in 1989/90 and 391 CFA per kilo in 1990/91 (311 CFA per kilo if revised). This implies that NWCA's true per-kilo cooperative costs exceeded the fixed cost allowance by almost 60 percent in 1989/90, and by nearly 100 percent in 1990/91 (60 percent if revised). Compounding matters, world coffee prices fell to record lows during the 1989/90-1991/92 period[9]. Although NWCA claims its per kilo cost allowances accurately reflected its true unit costs in 1991/92, it sold the 1991/92 crop at a mean export price of only 274 CFA per kilo, a mere 24 CFA per kilo more than the official producer price.

NWCA sustained heavy marketing losses during the early years of the reform the period. It lost 218 CFA on every kilo of arabica it sold in 1989/90, 181 CFA per kilo sold in 1990/91 (101 CFA if revised), and 173 CFA per kilo sold in 1992/93. If NWCA's true cost estimates were accurate, this would indicate its marketing losses for the 1989/90 and

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[9] As discussed in Chapter 8, price discounts due to poor quality further depressed NWCA's export prices.

1991/92 period would have totaled nearly 1.7 billion CFA (or roughly $5.7 million). International donors, principally USAID, eventually covered these most of NWCA's losses.

NWCA's true estimated per-kilo costs represented 91 percent of the 1989/90 season's sales price, 85 percent of the 1990/91 sales price (68 percent if revised), and 72 percent of the 1991/92. Had market-based pricing arrangements been in effect which linked producer prices to cooperative costs, producers would have received only 32 CFA per kilo for their coffee in 1989/90, 69 CFA per kilo in 1990/91 (149 FCFA if revised), and 77 CFA per kilo in 1991/92. At these prices, arabica production would have been a highly unprofitable activity, and diversification out of arabica would have accelerated greatly. In covering NWCA's marketing losses, donors effectively subsidized producer prices in NW Province during the early years of reform.

Relatively detailed cost information is available for cooperative unions. Union secondary processing operations are the most labor-intensive and costly component of total cooperative marketing costs. The findings of a 1992 audit of cooperative union accounts for the 1988/89 and 1990/91 seasons are summarized in Table 6.2. The mean per kilo cost of the 11 cooperative unions affiliated with NWCA was 230 CFA in 1989/90, and ranged from a low of 138 CFA to a high of 382 CFA per kilo. In 1990/91, the mean union cost was 247 CFA per kilo (224 CFA if revised), and ranged between 150 and 299 CFA per kilo[10]. However, NWCA paid each union a cost allowance of only 100 CFA per

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[10] The cost ranges that are presented exclude 3 unions that process large amounts of robusta coffee. Per kilo cost estimates in the range of 500 to 1000 CFA strongly suggested that robusta production costs were assigned to arabica coffee.

Table 6.2: Audited Cooperative Union Costs for the 1989/90 and 1990/91 Seasons.

	1989/90		1990/91[1]	
Actual Costs –Sum of All Unions (CFA '000):	Fixed: Variable: Total	343,394 258,936 602,330	Fixed: Variable: Total	259,771 152,346 412,117
True Cost (CFA/kg.):	Fixed: Variable: Total	132 99 231	Fixed: Variable: Total	156 91 247
• Range among unions[2]:	Low: High:	138 382	Low: High:	136 299
Share of Fixed Costs In Total Union Costs:		**57%**		**63%**

Source: NWCA, Ltd.

Notes: 1) 1990/91 per kilo costs reflect production of 1,667 tons--the figure used in the audit.
2) Union per kilo cost ranges exclude three unions which process a large proportion of robusta coffee.

kilo.

The audit results suggest that NWCA's true per kilo marketing costs may have been even greater than reported above. If one assumes union costs represent 50.7 percent of total cooperative marketing costs, which is what NWCA assumed in determining the union share of the total cooperative cost allowance, the mean audited union cost results indicate that true cooperative costs may have been as high as 455 CFA per kilo in 1989/90 and 488 CFA per kilo in 1990/91 (442 CFA if revised). If accurate, cooperative marketing costs alone would have exceeded the average sales price of 342 CFA per kilo in 1989/90 and 460 CFA per kilo sales price in 1990/91. The results provide a strong indication that if NWCA hadn't been financially supported by USAID, it would have been unable to pay its

members and would likely have gone out of business. Moreover, it is highly doubtful that NWCA would have survived in a suddenly privatized market.

Overhead costs, and specifically personnel-related costs, were the largest component of total union costs[11]. In 1989/90, fixed costs represented 57 percent of total union costs in 1989/90 and 63 percent in 1990/91 (Table 6.2). During the administered marketing era, cooperatives were often used by local Big Men to reward clients with jobs (Chapter 4). Although cooperatives may have been able to support a large number of employees and high overhead costs when annual coffee production averaged more than 5,700 tons between 1984/85 and 1988/89, they could not maintain the same cost structure at the sharply lower production levels observed in 1989/90 and 1990/91[12].

Overstaffing was a problem throughout the cooperative structure. A financial analysis of NWCA performed for USAID in 1991/92 concluded that the NWCA Apex was overstaffed by 60 percent. Apex costs could be reduced by 46 per cent (between 15 and 20 CFA per kilo) if unnecessary staff were laid off without a loss in operating efficiency (Sumpter and Oakerson, 1992). Even greater cost savings were possible by laying off staff at lower levels of the cooperative structure, and particularly the union level. However, Cameroonian labor laws severely constrained the ability of coffee cooperatives to control labor costs by reducing salaries or laying off staff (Gellar et al, 1990, Amin,

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[11] Personnel-related expenses included both staff salaries and benefits, as well as a variety of travel and other types of personal allowances for cooperative managers and elected officials.

[12] If apportioned over 5,700 tons, mean union fixed costs would have been only 60 and 46 CFA per kilo in 1989/90 and 1990/91 respectively.

1994)[13]. In late 1989, labor rules were altered slightly to permit employers to negotiate temporary salary reductions to cope with the economic crisis gripping Cameroon. Although NWCA cut all salaries and medical allowances across the board by 25 percent prior to the 1990/91 season (Table 6.2), any per kilo cost savings were offset by falling coffee tonnage.

Cooperative unions operated at fraction of their operating capacity, further increasing per unit overhead costs. The 11 cooperative unions affiliated with NWCA have a total processing capacity estimated at between 12,000 and 15,000 tons per year. However, NWCA's unions processed an average of only 2,375 tons in 1989/90 and 1990/91, or at a mere 15 to 20 percent of total capacity. Even with the bumper harvest in 1991/92, unions operated at only 34 percent capacity. Agrar and Hydrotecknik (1984) estimated that the typical union in NW Province had to process 500 tons per season to be cost-effective. In 1989/90, only one of the 11 cooperative unions in NW Province processed more than 500 tons, and four unions processed between 282 and 391 tons. Each of the six remaining unions processed less than 160 tons of coffee, including three which processed 60 tons or less. The 1990/91 season exhibited parallel results. The large excess processing capacity relative to the actual tonnage of coffee processed by unions is a clear indication of unrealized economies of scale at the union level.

Poor coordination within the cooperative structure also increased cooperative costs.

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[13] Although coffee marketing is highly seasonal, labor laws made it difficult for cooperatives to hire employees on a seasonal basis. Labor rules also contained complicated procedures for hiring and firing employees and mandated severance payments in the event of layoffs and stiff damage payments to employees in the event of wrongful termination.

The arrears problem and unreliable cooperative payments to farmers had a ripple effect throughout the cooperative structure during the early reform period. Since many farmers' deferred coffee deliveries to cooperatives until payment was assured, coffee only trickled from farmers to cooperatives. This increased cooperative operating costs by extending the time required for cooperatives to collect, process and market coffee. Production delays and operating inefficiencies further contributed to high cooperative costs. Breakdowns were common, and union hulling lines often stood idle for long periods due to a lack of spare parts.

6.2.4. Cost Reductions During Reform

Cost reduction was critical to restoring profitability and generating incentives to produce within the arabica subsector, particularly in an era of depressed world coffee prices. Since reformed pricing arrangements linked producer prices to cooperative costs and operating efficiency, every franc saved by cooperatives could potentially be distributed to farmers in the form of higher prices. Cost reduction was also important in restructuring relationships and incentives within the cooperative structure. By requiring cooperative officials who had a stake in the pre-reform institutions and cooperative structure to sacrifice income and rents for the benefit of farmers, cost reduction efforts helped to reorient principal-agent relationships within the cooperative structure. However, as discussed above, there was only modest progress at best in reducing costs during the early years of reform. It was only in the late stage of the transitional reform period that cost

reduction efforts gathered pace[14].

NWCA significantly reduced its overhead costs, and particularly personnel expenses, after the government enacted a new national labor code laws in late 1992[15]. The reformed code was designed to give enterprises, particularly those in financial difficulty, greater latitude in hiring, firing and paying employees (Amin, 1994). Under the new law, firms were permitted to hire employees on either a temporary, occasional, or seasonal basis. Wages and salaries were negotiated between employers and employees. Finally, the new law permitted labor contracts to be amended at either employer or employee initiative, and reduced the damages payable in the event of wrongful termination.

It was only after the new labor code was enacted that NWCA began to dismiss unneeded staff. USAID provided funds for severance payments to cushion the impact of these layoffs, reflecting its objective to minimize the social costs of adjustment to a privatized market. In early 1993, NWCA's 11 cooperative unions laid off 87 of 166 total employees, a reduction of 52.4 percent of the permanent union work force. The NWCA apex laid off 21 of 54 employees (38.9 percent). However, Apex level layoffs fell short of the 60 percent reduction target recommended by technical assistance (Oakerson,

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[14] The slow pace of NWCA's cost reduction efforts was a source of friction and controversy between USAID, technical assistance and NWCA, and a contributing factor to difficulties in implementing reform. USAID threats to withdraw assistance its to NWCA helped to stimulate cost reduction efforts.

[15] Reform of national labor laws was a condition precedent of Cameroon's structural adjustment reforms. The reformed labor code was enacted much later than was originally anticipated. Whereas USAID pressured NWCA to reduce costs significantly as a show of good faith during reform implementation, NWCA took a more cautious approach, arguing that its hands were tied in reducing personnel costs until the national labor code was revised.

1993b). Some individuals identified for dismissal were able to retain their positions because of their close ties to influential Board members and social status. Among participating societies, 24 out of 45 employees, or 53.3 percent, were laid off[16].

In addition to layoffs, the salaries and benefits of retained cooperative employees were sharply reduced. Under heavy pressure from USAID, NWCA abolished "sitting fees" in late 1991. Although in principle elected cooperative officials were not entitled to a salary, in practice they awarded themselves generous personal allowances, including fees for attending cooperative meetings. These various allowances and fees represented a significant component of cooperative costs[17]. Finally, cooperatives changed the terms of employment of many of their employees from a permanent to seasonal basis to reduce costs.

Variable operating costs were also significantly reduced during reform. By negotiating better rates with transporters and made better use of their fleets of trucks, NWCA was able to reduce transportation costs. NWCA considerably shortened the marketing campaign by improving the reliability of payments to farmers as well as the coordination of its coffee collection, processing and marketing activities, and thus significantly reducing marketing costs.

Improved union operating efficiency was a significant source of cost savings. A key

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[16] The staff layoffs were reported at a cooperative meeting in May 1993. Information from only a fraction of the then 40 societies was available. The lack of complete information from societies reflects information shortcomings within the cooperative structure, not uneven participation in personnel reductions among societies.

[17] In 1990/91, USAID estimated that NWCA's losses totaled 180 million FCFA ($650,000). Sitting fees alone totaled 30 million FCFA ($110,000), one sixth of the season's total losses.

focus of technical assistance was to improve NWCA's technical and managerial capacity, particularly at the union level. In early 1992, all union hulling lines were repaired, refurbished and upgraded with USAID-provided funds. A store of spare machinery parts was established at the NWCA Apex. Four union mills were electrified, greatly reducing costs. By reducing the incidence of costly mill breakdowns and easing processing bottlenecks, operating costs were reduced.

The success of efforts to reduce union costs is seen in Table 6.3, which compares 1989/90 audited costs with budgeted costs in 1992/93. Figure 6.2 presents the same information, but also includes 1990/91 cost information. Whereas total union costs were 602.2 million CFA in 1989/90, total budgeted union costs in 1992/93 were only 236.4 million CFA, representing a 61 percent decrease. Overhead costs, the largest component of which were personnel-related expenses, represented the greatest source of union cost savings. Total union overhead costs were 343.3 million CFA in 1989/90, but only 89.6 million CFA in 1992/93, a decrease of 74 percent. While the share of overhead costs in total union costs was 57 percent 1989/90, it was reduced to 38 percent in 1992/93. Unions were also successful in reducing variable costs. Mean per kilo union variable costs in 1992/93 were 57 percent lower than in 1989/90.

The results in Table 6.3 highlight the beneficial impacts of increasing tonnage in lowering per unit union costs. In its initial 1992/93 budgets, NWCA forecast it would handle 3,384 tons of coffee, 30 percent more than in 1989/90. In per kilo terms, mean total union costs in 1992/93 were 70 CFA per kilo (70 percent less than in 1989/90) and mean overhead costs were 26.5 CFA per kilo (80 percent less than in 1989/90). But if expressed in terms of constant 1989/90 tonnage, mean total union costs and overhead

Table 6.3: Comparison of Cooperative Union Arabica Marketing Costs, North West Province, Cameroon: 1989/90 Vs. 1992/93. (Expressed in CFA)

1989/90 (From Audited Union Accounts)		**1992/93** (From Union Budget Estimates)	
TOTAL COSTS (All Unions):		**TOTAL COSTS** (All Unions):	
Fixed Costs:	343,394,000	Fixed Costs:	89,632,358
Variable:	258,936,000	Variable	146,775,164
Total:	602,330,000	Total:	236,407,522
MEAN PER KILO COSTS:		**MEAN PER KILO COSTS:**	
Tonnage:	2,609	Tonnage:	3,384
Total Costs:	230.8 (Range[1]: 138 - 382)	Total Costs:	69.9 (Range: 44 - 126)
Fixed Costs:	131.6 (Range: 58 - 258)	Fixed Costs:	26.5 (Range: 15 - 74)
Variable Costs:	99.2 (Range: 51 - 125)	Variable Costs:	43.4 (Range: 28 - 64)
Share of Fixed Costs as a % of Total Costs (All Unions):	**57 %**	**Share of Fixed Costs as a % of Total Costs (All Unions):**	**38 %**

Source: Documents provided by NWCA, Ltd., technical assistance

Notes: 1) Ranges among unions for the 1989/90 season exclude unions handling substantial robusta tonnage.

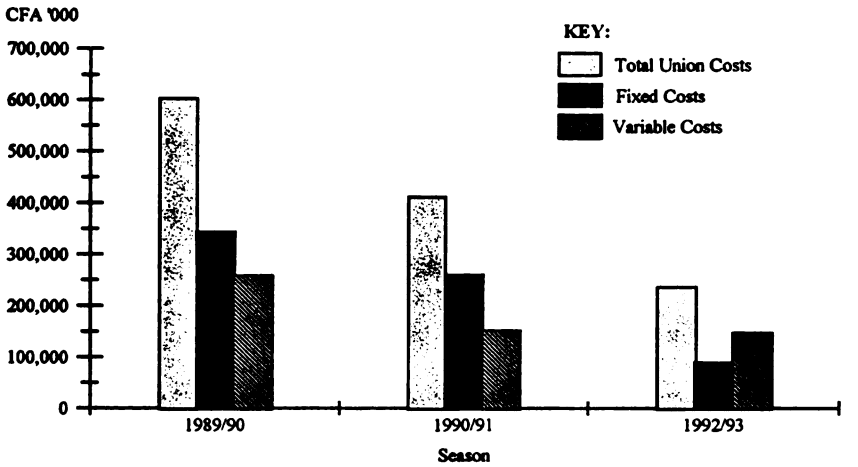

Figure 6.2: Cooperative Union Costs during Reform, 1989/90, 1990/91 and 1992/93. (Total Costs for all Unions, CFA Francs)

costs in 1992/93 would have been 91 and 43.4 CFA per kilo, respectively. These results provide evidence of economies of scale at the union level.

Although cooperatives prepared budgets in 1992/93 in anticipation that reformed pricing arrangements would be implemented, the Cameroonian government and USAID failed to reach an agreement that would allow autonomous coffee pricing 1992/93. Thus, midway in the 1992/93 marketing campaign, NWCA again determined uniform per-kilo cost allowances for the cooperative cost structure based on its analysis of cooperatives' budgets. But, USAID made it clear to NWCA that it would not cover any marketing losses in 1992/93.

NWCA fixed the total cooperative allowance at 96 CFA per kilo in 1992/93. The Apex, union and society allowances were 23 CFA, 60 CFA and 13 CFA per kilo,

respectively. The apex allowance was the same as it had originally budgeted. However, the cost allowance that NWCA fixed for unions was 10 CFA per kilo less than the mean total cost unions had previously estimated in budgets, and the society allowance was 4 CFA per kilo less. But, NWCA lowered its original estimated tonnage by 50 percent in determining 1992/93 cost allowances. As a result, the 1992/93 allowances fixed by the Apex were significantly lower than the per-kilo costs individual societies and unions had budgeted at the beginning of the season. In interviews with cooperative managers at both the society and union level, it was clear that some unions and most societies had to reduce costs drastically to reach their fixed allowance level[18]. Pressures to reduce costs were greatest at the society level and in some low tonnage and high cost unions. High tonnage unions, as well as a few high tonnage societies, felt less pressure to reduce costs because they could apportion their overhead costs over greater tonnage. The apex organization was relatively sheltered from pressures to reduce costs.

Although pressures to reduce costs were differentially borne within the cooperative structure, NWCA's fixed cost allowances were successful in promoting significant cost reductions in 1992/93. NWCA realized a net profit on its coffee sales during the season, despite low production and depressed world prices. Whereas the breakeven price (export costs, cost allowances plus the fixed producer price) was 350 CFA per kilo, NWCA sold

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[18] To cut costs and avoid losses, Nso and Oku-Noni Unions established salary levels in the range of 12,000 to 15,000 FCFA ($45-55) per month for society managers and changed their terms of employment from permanent to seasonal. In contrast, in the high tonnage Kom area, society managers continued to be employed on an annual basis and salaries were maintained at a range between 60,000 and 90,000 FCFA ($220-325) per month.

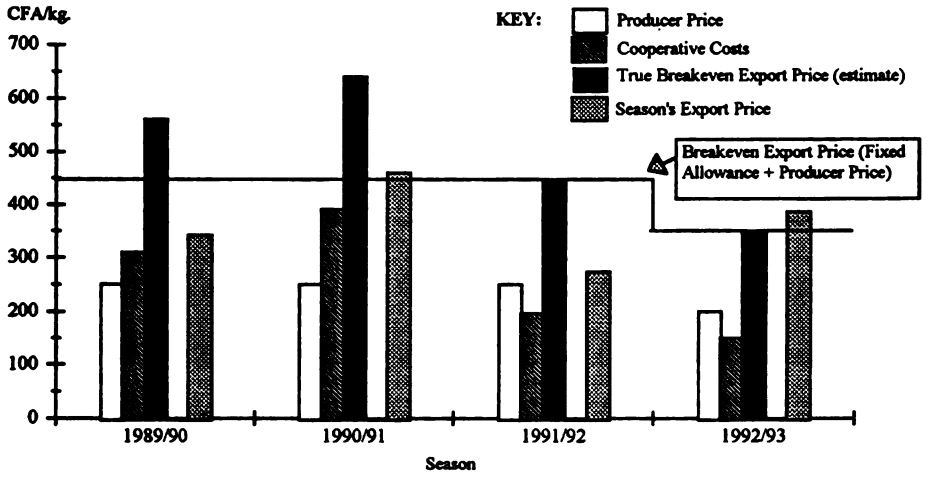

Figure 6.3: Cooperative Marketing Costs and Prices During Reform, North West Province: 1989/90 -1992/93.

coffee at an average price of 386 CFA per kilo, a net surplus of 36 CFA per kilo (Figure 6.3). NWCA augmented this surplus to 47 CFA per kilo with income from non-coffee sources, and distributed it to cooperatives and producers in residual payments. Farmers were paid an average bonuses of 27 CFA per kilo. Cooperatives retained 20 CFA per kilo, which was more or less evenly split between the Apex, unions and primary societies. The profits realized during the 1992/93 season represented the first tangible benefits from reform efforts, particularly for producers.

6.3. Conclusion

The reform of arabica marketing institutions took place under very difficult conditions. To deal with the financial crisis in the arabica subsector, the Cameroonian government

sharply reduced producer prices in 1989/90, and maintained them at low levels through the 1992/93 season. This further undermined already poor incentives to produce, and arabica production fell sharply during the reform period. The 1989/90 through 1992/93 period was also time of growing political unrest centered in North West Province as Cameroon haltingly moved towards embracing multiparty democracy. Wavering commitment to reform within the government and NWCA seriously delayed the implementation of key institutional reforms. It was only in the latter stages of the transitional period that reform efforts gathered pace.

The 1989/90-1992/93 period was also characterized by a serious slump in the world coffee market. Although the withdrawal of the Marketing Board from the arabica marketing eliminated a costly tier from the arabica marketing structure, NWCA's per kilo marketing costs increased significantly during the early years of reform due to declining coffee production and the slow pace of cost reduction efforts. Because of very low export prices related to weak world coffee prices, NWCA lacked sufficient revenue to maintain both its high cost structure and pay producers official producer prices. As a result, it incurred large marketing losses between 1989/90 and 1991/92. If donors hadn't subsidized these losses, NWCA either would have gone out of business or would have been able to pay producers only extremely low and unprofitable prices (if at all). The cost evidence strongly suggests that NWCA and its affiliated cooperatives would not have survived sudden privatization of the arabica subsector, justifying USAID's gradual approach to privatization.

Whereas the primary concern at the beginning of the reform process was NWCA's ability to survive in a privatized market, by undertaking painful reforms, NWCA

significantly improved its performance and had emerged as a competitive market force by the end of the reform period. As seen in Figure 6.3 above, NWCA's ability to pay farmers' bonuses in 1992/93, despite continuing low export prices and coffee production, was directly attributable to its efforts to reduce its per kilo marketing costs. If NWCA could sustain this cost performance, the reforms could be judged a success.

CHAPTER 7

Impacts of Reform on Cooperative Costs, Producer Prices and Production

The key objectives of institutional reform were to reduce cooperative marketing costs and to improve the quality of coffee produced by NW Province farmers. Cost reduction was critical to improving producer prices and thus both farm incomes and incentives to produce. Reform sought to create incentives for farmers to demand cost control from their cooperatives and to empower them to act collectively in cooperative governance. This entailed a fundamental restructuring of relationships between farmers and their cooperatives, and within the cooperative structure itself.

This chapter analyzes the impacts of reform as actually implemented on cooperative costs, producer prices and production during the 1993/94 and 1994/95 seasons. However, the chapter begins with a discussion of organizational restructuring within the North West Cooperative Association (NWCA) since cost and price performance under reform depends critically on the ability of farmers to act collectively within restructured cooperatives. Implementation detail is included because detail matters.

7.1. Institutional Reforms Implemented in 1993/94

The 1993/94 season was the first coffee marketing campaign conducted under full reform. At the national level, arabica coffee markets were opened to competition,

restrictions on commodity movement were eliminated, and coffee buyers (including cooperatives) were permitted to price coffee autonomously. The new cooperative law, which gave farmers the right to organize cooperatives as they chose and removed the state's supervisory authority over cooperatives, was disseminated and implemented in late 1993. These national policy reforms affected both NWCA in NW Province and UCCAO in West Province.

The key institutional changes specific to NW Province were the implementation of new procedures for determining costs and producer prices within NWCA. These procedures functioned as follows:

- Prior to the season, each primary society estimated the tonnage of coffee it would handle during the season. These estimates formed the basis of union and Apex tonnage estimates.
- The Apex Marketing Department estimated the average export price per kilo it expected to receive during the upcoming season.
- Each cooperative (societies, unions and the apex) budgeted its estimated marketing costs, quoted on a per kilo basis and reflecting estimated tonnage. Once approved, cooperatives were entitled to receive only these estimated per kilo costs from the revenues from sales.
- The initial producer prices paid farmers were calculated by subtracting the budgeted cost estimate of each society, union and the Apex from the estimated export price for the season. Thus, producer prices would reflect unique society and union costs.
- After each season's coffee had been sold, residual earnings were calculated as the difference between actual and estimated export prices. If NWCA realized a net profit, the distribution of shares between cooperatives (societies, unions and the Apex) and farmers was determined in cooperative general assembly meetings. Cooperatives were required to recover losses incurred during a season in the following season's budgeted costs.

The linking of initial producer prices and cooperative costs was critical in creating

internal and external pressures on cooperatives to economize. Under society-level pricing arrangements, producer prices vary with society and union costs. If a society or union is successful in reducing or controlling costs, it can offer higher initial prices to its members. This provides individual farmers with strong incentives to demand cost control from their cooperatives, and hold cooperative officials accountable for their performance.

Cost budgeting procedures were a key element in introducing decentralized, bottom-up governance within the cooperative structure. These procedures required all budgeted costs to be approved by membership in general assemblies meetings. This was intended to give farmers a key voice in the budgeting process, and to compel cooperative management to explain and justify their estimated costs to members. By introducing more democratic and transparent cost determination procedures within the cooperative structure, reform sought to enable farmers to decide the price they were willing to pay for cooperative services, and to make cooperative management accountable to membership.

Although farmers participate directly in governing primary societies, they participate in union and apex governance only through elected representatives[1]. Therefore, monitoring and information costs are higher for individual farmers at the union and apex level than at the society level. Thus, one would expect farmers to have a greater ability to control costs and hold management accountable at the society level than at the union and Apex levels.

Reform also sought to introduce competitive pressure on cooperatives to control costs. National reform of cooperative governance policies gave farmers the right to join

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[1] The general assembly of each society elects delegates to union general assembly, and a president who sits on the union board of directors. The general assembly of each union elects delegates to the NWCA (apex) general assembly and a union president who sits on the NWCA board of directors.

cooperatives of their choice, form new societies, or opt out of the cooperative structure entirely. In addition, societies were given rights to change union affiliation or market coffee outside the cooperative structure. This meant that cooperatives would be exposed to potential competition not only from private traders, but also from rival cooperatives. To remain competitive in the privatized market environment, cooperatives managers would have to control costs and improve marketing services in order to retain the loyalty and trust of members.

Over the long term, the reforms anticipated that price competition between cooperatives would winnow out high cost and inefficient cooperatives, particularly at the union level. As farmers, acting through their societies, tried to maximize prices by seeking lower cost unions, higher cost unions would have to cut costs drastically or risk going out of business[2]. Intra-union competition was expected to reduce to total processing capacity in NW Province, and enable more efficient unions to capture unrealized economies of scale.

7.2. Cooperative Governance Reforms: Farmers and their Cooperatives

Although society-pricing arrangements were intended to enable farmers to act collectively in controlling cooperative costs, a key assumption of reform planners was that institutional reform would have little effective impact on performance without a fundamental restructuring of marketing and governance relationships within cooperatives

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[2] Alternatively, unions could shut down their processing lines but contract for lower cost processing services with more efficient unions on behalf of its affiliated societies.

themselves. In essence, reform sought to reverse the effects of nearly two decades of strict state control and return cooperatives to the control of members by introducing decentralized, bottom-up governance relationships within the cooperative structure. Restructuring at the primary society level was a particularly important element in transforming principal-agent relationships within the cooperative structure since it is only at this level that farmers directly interact with cooperatives and participate in their governance.

During the administered marketing era, the marketing relationships between the Marketing Board, apex, unions, and primary societies were hierarchically organized. Cooperatives were agents of the Marketing Board. Cooperative managers were insulated from member scrutiny and accountable to higher levels of the administrative hierarchy, and ultimately the state. There were no incentives for cooperatives to control costs or operate efficiently. Cost overruns were usually covered by the Marketing Board or used by managers to justify increases in fixed per kilo cost allowances. Since fixed producer prices were paid independently of cooperative costs, farmers had little incentive to demand that cooperatives controlled their costs or to hold management accountable. Cooperatives tended to be dominated by local "Big Men" who used their position to accumulate and distribute profits.

Administered cooperative governance arrangements further constrained the ability of farmers to act collectively at the local level and to influence cooperative affairs. The Cooperative Law of 1973 gave the government authority to supervise cooperatives and to control virtually all aspects of their internal affairs. The state appointed civil servants to key management positions, and approved virtually all personnel and investment decisions.

The law required that the jurisdictional boundaries of cooperatives correspond to administrative subunits. Farmers were required to join and market their coffee through the designated primary society in their area. Each society was required to market its coffee through the designated union serving their district. Each union in North West and West Provinces was required to market its coffee through NWCA and UCCAO, respectively.

The character of farmer-cooperative relationships and the composition of primary societies in North West Province was fundamentally changed by the government. To achieve congruity between cooperative jurisdictional boundaries and administrative boundaries, the government mandated two rounds of primary society mergers between 1973 and 1986, which reduced their number from 251 to 40. Whereas farmers had traditionally organized their primary societies in small and cohesive village groups, merged societies served a much larger geographic area and grouped several villages together. Their membership was both larger and more heterogeneous than village-based societies. Individual farmers lost their ability to monitor their primary societies[3]. It follows that the ability of farmers to monitor and influence union and apex affairs was even more limited. Cooperatives tended to be aloof from membership, contributing to an erosion of trust between farmers and their cooperatives (USAID, 1990; Gellar et al., 1990).

The reformed cooperative law that was implemented and disseminated in 1993 created an enabling environment for cooperatives to be self-governing and financially self-

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[3] The management and daily activities of a merged society were headquartered in a single village--often quite distant and inaccessible to individual farmers. In interviews, a common complaint among farmers was that they often trekked to the society office to resolve a problem or meet with a manager, only to find the offices locked. But, managers complained that they were constantly traveling--to and from the union, or from village to village to conduct society affairs.

supporting and independent. The government's involvement with cooperatives was limited to registration functions. Supervisory authority was vested in elected farmer groups. Equally important, the new law permitted all cooperatives to operate anywhere in Cameroon, and gave farmers the ability to join cooperatives of their choice, form new ones, or exit cooperatives entirely. The new law also required each cooperative to become registered (or officially recognized) by the government before the end of February 1994. In effect, the registration process required that all cooperatives in Cameroon reconstitute themselves, and re-federate from the society-level upwards. All cooperatives were required to revise their rules of association and by-laws in accordance with the new law, bring accounts up to date and into balance, and hold general elections. This gave farmers the opportunity to restructure and reorganize cooperatives as they chose, or form new ones.

Farmers in NW Province demonstrated a preference to re-establish smaller, village-oriented primary societies. During the registration process the number of primary societies affiliated with NWCA increased from 40 to 73 (see Table 7.1). Most of the new societies had once been independent, but had lost their identity through mergers. In interviews conducted during and after society-level restructuring, a common theme voiced by farmers was that they formed new societies to improve their ability to monitor and govern their cooperatives. Farmers complained that merged societies were too large and non-responsive to local village issues and interests. Societies with a checkered financial past, or plagued by ethnic rivalries tended to sub-divide (Wessen, 1994). In isolated cases, society restructuring was dominated by local "big men", who played on village level sentiments to advance their own interests or political ambitions.

Table 7.1: Primary Society Restructuring in North West Province during Reform (1993).

Union	Number of Affiliated Societies Before Reform	Number of Affiliated Societies After Reform	Change	Coffee Tonnage Handled by Union
A) Areas of Greatest Restructuring (≥ 8)				
Oku-Noni	3	14	+11	High
Nso	6	14	+8	High
B) Areas of Moderate Restructuring (2 - 5)				
Kom	6	11	+5	High
Mbengwi	3	7	+4	Low
Moghamo	3	5	+2	Low
Nkambe	5	7	+2	High
C) Areas of Least Restructuring (≤ 1)				
Bamenda Central	3	4	1	Low
Santa	4	4	0	High
Ndop	3	3	0	Low/Medium
Bali	2	2	0	Low
Pinyin	2	2	0	Low
NWCA Total:	**40**	**73**	**+33**	--

In subdividing societies, farmers sought to reverse the effects of mergers and re-organize into smaller groups. They demonstrated a desire to re-establish control over their primary society and acquire greater representation in union and apex affairs. However, restructuring was uneven in different union areas of NW Province (Table 7.1). Three quarters (24 of 33) of the new societies formed in just three union areas (Oku-Noni, Nso and Kom). These union areas encompass three of the four strongest coffee-producing areas within NW Province, and had experienced the greatest reduction in the number of societies through mergers. Society level restructuring was much less pronounced in low coffee production areas of NW Province where coffee is a less

important contributor to farm incomes[4].

In a number of areas of NW Province, union officials actively discouraged and intervened in society-level restructuring. Although five new societies formed in the Kom area, there was a clear sentiment among Kom farmers for greater restructuring. However, the union denied formal society affiliation to any farmer group that had estimated less than 40 tons of coffee for the 1993/94 season. Instead, Kom allowed these groups to process coffee at the union as "users of union services" (user groups).

Little or no society restructuring occurred in four union areas (Bamenda Central, Santa, Pinyin, Ndop, and Bali). Although there were strong indications in 1993/94 field interviews that groups of farmers in each of these areas were interested in forming new societies, union management discouraged them from doing so. Since the re-registration process occurred when cooperatives were preparing for the 1993/94 marketing campaign, many unions cited time constraints in persuading farmers not to form new societies, but promised to assist farmer groups in forming new societies prior to the 1994/95 season.

Despite the strong indications that society-level restructuring would continue throughout North West Province, this never occurred. The number of societies affiliated with NWCA remained constant at 73 in 1994/95, although several additional user groups apparently formed (personal communications with NWCA, May 1995). A potentially unequal power relationship exists between unions and these new user groups. In refusing to recognize new societies, unions were able to deny farmer groups representation on union governing boards and voting rights in general assembly meetings. In addition, user

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[4] Although Mbengwi and Moghamo are low tonnage unions with moderate restructuring, both unions process a higher tonnage of robusta than arabica coffee.

groups are not necessarily entitled to be paid residual bonus payments under union by-laws.

Such intervention at the Union level raises doubts about the effectiveness of cooperative governance reform in re-orienting authority relations between societies and unions. While Oku-Noni and Nso Unions stand out as unions which assisted restructuring (Table 7.1), many other unions resisted farmers' attempts to form new societies[5]. By impeding society level restructuring, union officials were able to maintain their control over affiliated societies and resist ceding decision-making authority to societies and farmers.

The re-registration process also required all cooperatives to hold new elections. Elections held in late 1993 resulted in considerable turnover among elected officials at all levels of the cooperative structure. New Presidents were elected in five of eleven unions[6]. Seven of the thirteen members of the Apex Board of Directors were replaced, and a new NWCA President was elected. The election results further demonstrate a desire among farmers for greater responsiveness and accountability from cooperative officials.

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[5] The design of the reform program anticipated potential resistance to cooperative restructuring at the union and Apex levels. Plans for a grass-roots cooperative law dissemination campaign within the cooperative structure were incorporated into the reform program to make farmers aware of their new rights. Although a Provincial cooperative law dissemination seminar sponsored by USAID did take place and was attended by some representatives of primary societies, the NWCA dissemination campaign never took place due to a disagreement over funding between NWCA and USAID. That many farmers had incomplete knowledge and poor awareness of the new rights accorded them under the new cooperative law, likely contributed to the success of many unions in impeding society-level restructuring.

[6] The presidents of Nso and Oku-Noni Union, which encouraged society restructuring, were re-elected.

Governance reform did not anticipate that society restructuring and elections alone would alter relationships between farmers and their cooperatives. Rights of societies to change union affiliation or to opt out of the cooperative structure entirely were integral to enabling both competition between cooperatives and market entry by private traders. In the presence of competition, the threat to exit would create strong incentives for cooperative officials to be more responsive and accountable to membership.

However, by the end of 1995 only one society, Menka, had changed union affiliation. Menka Society represents a special case. Under the old cooperative governance regime it was required to market coffee through Moghamo, the union serving its administrative district. Due to poor road conditions, Menka society had to evacuate its coffee by a circuitous route that ran directly past Mbengwi Union. But it was prohibited from delivering coffee to Mbengwi since it was located in different administrative district. After the new cooperative law lifted administrative boundary restrictions on cooperative affiliations and commodity movements, Menka quickly affiliated with Mbengwi Union.

In field interviews, more than one union manager scoffed at the idea that farmers in a society dominated by one ethnic group would reaffiliate with a union in another area that was dominated by a rival ethnic group. Social and cultural factors would effectively counter economic incentives for a society to change its union affiliation. However, field reports in 1994 indicated that one informal farmer group in a remote area of Kom chose to market its coffee through Oku-Noni Union which was more accessible by road--despite strong rivalries between Kom and Oku people.

Two seasons under reform is an insufficient amount of time to evaluate whether social and cultural factors will outweigh economic factors in influencing farmers' decisions to

join rival societies, or societies to affiliate with different unions. Over time, cost (and price) differences between cooperatives should strongly influence the decision to re-affiliate. Farmers and societies would be expected to re-affiliate with lower-cost union only if the price benefits to doing so exceed the economic and social cost of reaffiliation.

7.3. Cooperative Costs

This section analyzes the impact of reform on cooperative marketing costs. Union costs are discussed in detail since their secondary processing activities are the most costly component of total cooperative marketing costs and the primary source of unrealized economies of scale. The reforms anticipated that budgeted union costs would exhibit significant variation due to the large differences in coffee tonnage handled and in operating efficiency.

As discussed above, the success of reform in controlling costs and improving prices depends critically on the ability of farmers and their elected representatives to influence the union and apex levels, and hold their management accountable for their costs. Thus, an analysis of cooperative costs after reform implicitly evaluates whether reformed institutional arrangements changed behavior within the cooperative structure, or transformed principal-agent relationships so that societies were accountable to farmers, unions were accountable to societies, and the apex was accountable to unions and societies.

7.3.1. Pre-Devaluation Costs in 1993/94

Beginning with the 1993/94 season, all coffee cooperatives in NW Province determined their costs in budgeting exercises. However, several factors complicated the cost determination process in 1993/94. After NWCA finalized crop financing arrangements prior to the season, many cooperatives revised their budgeted initial costs to account for interest charges. Budgeting exercises also took place in the midst of cooperative elections and society restructuring. In many cooperatives, budgeting exercises were completed prior to elections. In many cases, newly constituted boards of directors and general assemblies revised these initial cost estimates. As a result, initial 1993/94 cooperative costs were determined through an iterative budgeting process.

On January 12, 1994, the CFA franc was devalued by 50 percent relative to the French Franc. Devaluation occurred just as the 1993/94 marketing campaign was entering its peak activity. To account for the inflationary effects of devaluation, all NW coffee cooperatives revised their costs. It took the Apex several weeks to revise its costs. Unions and societies finalized their post-devaluation cost revisions only very late in the 1993/94 season-- after almost all coffee had been collected from farmers and processed. In effect, unions and societies were able to adjust their initial budgeted cost estimates to reflect actual, end-of-season costs. Since cooperative managers knew their initial cost estimates would not be binding, the cost revision process considerably weakened pressures control costs[7].

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[7] Since cost revisions were completed only after fieldwork was completed in late April, 1994, it is not certain whether revised costs were approved by both boards of directors and general assemblies, or boards of directors only. However, budgeting procedures did not require general assembly approval of revised costs.

Table 7.2: Pre-Devaluation Cost and Coffee Tonnage Estimates of North West Province Coffee Cooperatives during the First Year of Reform, 1993/94.

Cooperative Level	Budgeted Costs (CFA/kg.)	Estimated Tonnage (Good Beans)
Apex Marketing Costs	**55**	3,000
• Port charges	32	
• Apex costs	23	
Unions (Mean):	**67.6**	**275.9**
• **High Tonnage Unions**		
Kom	65	937
Nso	69	476
Oku	70	375
Nkambe	70	301
Santa	70	298
Mean:	*68.8*	*477.4*
• **Low Tonnage Unions**		
Ndop[1]	70	260
Moghamo	60	106
Bamenda	64	99
Pinyin	70	75
Mbengwi	70	60
Bali	66	48
Mean:	*66.7*	*108*
Societies (Mean)	**17.4**	--
• **Range**	**8 - 37**	--
Total Mean Marketing Costs	**140**	--
• Cooperative Costs Only	108	

Notes: 1) Ndop is considered to be a small tonnage union based on historical production totals.

Pre-devaluation initial cooperative costs and tonnage estimates for the 1993/94 season are summarized in Table 7.2. The results show that total mean cooperative marketing costs were estimated to be 140 CFA per kilo in 1993/94, 10 CFA per kilo less than in 1992/93. These savings were the result of NWCA's ability to reduce per kilo port and export charges by 21 CFA per kilo between 1992/93 and 1993/94 (from 54 to 32 CFA per kilo)[8]. Initial cooperative costs increased between 1992/93 and 1993/94. Whereas the total cost allowance for cooperatives in 1992/93 was 96 CFA per kilo, mean total cooperative costs were estimated to be 108 CFA per kilo in 1993/94--despite the fact that NWCA estimated it would handle 35 percent more coffee in 1993/94 than in 1992/93 (3,000 vs. 2,215 tons).

Depreciation and interest charges explain part of this increase. NWCA cooperatives began to include depreciation costs in their budgets in 1993/94[9]. In 1993/94, NWCA financed its crop purchases through loans procured from commercial banks at interest rates of 16 to 23 percent. Previously, it financed coffee purchases with interest-free funds provided by donors. Nevertheless, the 35 percent increase in estimated coffee tonnage should have offset additional depreciation and interest charges and lowered per kilo fixed costs. The 1993/94 results indicate that cooperative costs inched upwards during the first

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[8] Whereas previously NWCA had paid a per kilo commission to UCCAO (the West Province cooperative) to handle port activities on its behalf, in 1993/94 NWCA found a transit agent to expedite its coffee shipments at a much reduced cost. NWCA also discovered that it had routinely been overcharged by shipping agents and by the government for services and fees.

[9] Under the administered marketing arrangements, cooperatives had no title to plant or equipment. The transfer of assets from the Marketing Board to NWCA was not completed until the middle of 1993.

year of reform.

The budgeted initial cost of the NWCA Apex remained constant at 23 CFA per kilo between 1992/93 and 1993/94, again despite higher estimated tonnage. Although the Apex board of directors mandated in budgeting exercises that management lay off employees to reduce its costs to 19 CFA per kilo, this did not occur during the 1993/94 season[10]. Under society-level pricing arrangements all unions and societies are required to pay the Apex cost. Thus, the Apex was relatively immune to competitive pressures to cut costs.

Because of economies of scale in secondary processing at the union level, it was anticipated that reformed cost determination procedures would produce a significant difference among unions' initial per kilo costs. Large tonnage unions would enjoy a distinct cost advantage over low tonnage unions since their overhead costs are apportioned over greater tonnage. Differences in operating efficiency and transportation costs would also contribute to union level cost variation. However, initial 1993/94 union costs estimates only ranged between 60 and 70 CFA per kilo (Table 7.2). Six of the eleven cooperative unions estimated costs of 70 CFA per kilo, and a seventh union estimated costs of 69 CFA per kilo. Although the mean estimated tonnage of the five high tonnage unions was 4 1/2 times larger than that of the six lower tonnage unions, their mean per kilo costs of the low tonnage unions was 2 CFA per kilo higher (Table 7.2). Three of the four unions with the lowest costs were low tonnage unions. Thus budgeted

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[10] Although some highly paid employees were identified to be laid off, these individuals were able to resist being dismissed because of their cultural status, close ties to influential people within the cooperative, and the threat of legal action.

union costs in 1993/94 did not reflect economies of scale[11]. Instead of creating cost efficiencies, the evidence suggests that the higher tonnage of some unions sheltered management from pressures to reduce and control costs.

One possible explanation for the convergence of union costs is that managers had ample opportunity to share information on preliminary cost estimates in monthly union-apex management coordination meetings prior to submitting budgets to boards of directors and general assemblies for final approval. Instead of independently budgeting actual costs, unions were able to compare their initial per kilo cost estimates to those of other unions, and adjust them (or their tonnage estimates) to minimize differences. Through collusion, 70 CFA per kilo may have emerged as a union reference price, or the cost that the system would bear yet minimize competition[12].

The mean per kilo cost budgeted by NWCA's 73 societies was 17.4 CFA per kilo in 1993/94, ranging from a low of 8 CFA per kilo to a high of 37 CFA per kilo. Most societies' (53 percent) cost estimates fell in the range of 13 CFA and 18 CFA per kilo,

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[11] For example, Kom Union's estimated tonnage was 19 ½ times higher than Bali Union's (937 tons vs. 48 tons), but its estimated per kilo cost was only 1 CFA per kilo lower than Bali's (Table 7.2). Kom, with a permanent staff of 18, had an employee-tonnage ratio of one employee per 52 tons. The employee- tonnage ratio of Bali, which had a permanent staff of 3, was one employee per 16 tons. However, a higher level and quality of services may have accounted for some of Kom Union's higher costs.

[12] For example, the preliminary cost estimate of one union in November, 1993, was 126 CFA per kilo based on an estimated tonnage of 48 kilos. By December, this union's final cost estimate had been lowered to 70 CFA per kilo and its tonnage estimate raised to 75 tons. Three other unions that had estimated costs estimates between 60-62 CFA per kilo in November, presented final internal cost estimates of around 70 CFA per kilo in December. Kom Union's estimated costs increased from 60 to 65 CFA per kilo between November and December, largely because its Board of Directors reintroduced sitting fees for attending cooperative meetings.

clustering between 13 CFA and 15 CFA per kilo. Transportation costs were the primary source of cost variation between societies. Where society costs varied, the costs of relatively distant or remote societies were higher than societies in relatively close proximity to the union[13]. Societies in the low-tonnage Mbengwi and Moghamo areas estimated relatively high costs. Societies in these areas must collect and transport small quantities from sections and evacuate coffee to unions over poor roads.

There was little or no cost variation among societies in five of the eleven union areas. Although in some cases budgeting procedures were faithfully followed and estimated costs reflect true costs, field evidence indicates that in several instances unions directly intervened in determining costs for their affiliated societies. Although union management actively promoted reform at the society and farm level in some areas, in other areas reforms were resisted and union officials were reluctant to devolve decision-making authority to societies. Although the costs of societies in the Oku-Noni area exhibited variation, the union established cost ranges for its societies related to differences in transportation costs. Oku Union's decision to intervene in society budgeting processes was directly attributable to society restructuring that increased the number of Oku area societies from 3 to 14. Since society restructuring occurred simultaneously with the budgeting exercises, it was impossible to train new society managers adequately about reformed budgeting and accounting techniques.

In summary, the performance of cooperative budgeting and cost determination

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[13] Sabongary Society in the Nkambe area had the highest estimated costs. This society is the most remote society in NW Province, located 150 kilometers from the union mill and accessible only by a road in poor, and frequently impassable, condition. Bali Central Society, located next door to the union, had the lowest estimated cost.

procedures during the first year of reform was mixed. Some cooperatives applied the new marketing rules faithfully, while others did not. But it is easy to overstate the impact of newly introduced marketing rules on behavior and performance in the short term. A learning process involving experience with and internalization of new rules accompanies any process of institutional change. Inertia and path dependence must be overcome.

7.3.2. Post-Devaluation Costs in 1993/94

The 50 percent devaluation of the CFA franc relative to the French franc on January 12, 1994, significantly altered cooperative cost structures. In addition, the Cameroonian Government increased fuel prices by 40 percent shortly after devaluation, which increased transportation costs. These events occurred at the beginning of the peak coffee harvest.

Since Cameroonian coffee is sold in French Francs, the immediate effect of devaluation was to double the CFA value of coffee sales. The impact of devaluation on domestic costs and prices was less certain. Devaluation would be expected to have impact on costs because of its differential effects on the prices of newly imported goods, goods imported prior to devaluation, domestic goods produced with imported inputs, and non-tradable goods and services. That said, it was immediately apparent that devaluation inflationary impact in Cameroon.

To account for devaluation, coffee cooperatives revised their budgeted initial costs. This proved to be lengthy process. Most societies and unions had already completed their coffee marketing activities before finalizing their revised costs[14]. As a result, revised

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[14] When field research ended on April 30, 1994, only a handful of cooperatives had completed revising their costs.

1993/94 post-devaluation costs were adjusted to reflect actual tonnage and marketing costs. This significantly weakened institutional pressure on cooperatives to keep their costs within the limits prescribed in initial budgeting exercises.

Initial 1993/94 budgeted cooperative costs (in pre-devaluation CFA) and tonnage estimates are compared to revised costs (in post-devaluation CFA) and actual tonnage data in Table 7.3. The data show that the actual tonnage of coffee handled by NWCA in 1993/94 was only 5 percent less than estimated. Mean total revised cooperative costs were 47 percent higher than initial, pre-devaluation costs. Total Apex marketing costs, which include both port charges and apex costs, increased by 40 percent. Whereas port charges increased by 43 percent, apex per-kilo costs increased by 35 percent. The savings in port charges NWCA had realized at the beginning of the season could not be sustained.

Primary societies were relatively successful in minimizing post-devaluation cost increases. Mean revised society costs increased by 33 percent over initial costs. Since societies require fewer inputs and less equipment than unions and the apex in performing their marketing functions, transportation costs likely accounted for much of increase in society-level costs. The revised costs of individual societies revealed no clear pattern. In some cases, societies simply doubled their initial cost estimates. In four union areas (Bali, Central, Santa and Oku), revised society costs exhibited less variation than did initial estimates. This may indicate union involvement in the cost revision process. Revised society costs in other union areas (Kom, Nso and Moghamo) exhibited greater variation than did initial estimated costs.

The increase in post-devaluation costs was greatest at the union level. Mean revised union costs were 53 percent higher than pre-devaluation estimates. The mean increase in

Table 7.3: Cooperative Costs and Coffee Tonnage in 1993/94: Before and After Devaluation of the CFA Franc, North West Province

	Cooperative Costs (CFA/kg.)			Coffee Tonnage (Metric Tons)		
	Before Devaluation	**After Devaluation**	**Change**	**Initial Estimate**	**Actual**	**Difference**
Apex	**55**	77	**40 %**	3,035	2,885	- 150
• Port costs	32	46	43 %			
• Apex costs	23	31	35 %			
Union Mean	**67.6**	**103.3**	**53 %**	**275.9**	**262.3**	**- 13.6**
• **High Tonnage Unions**						
Kom	65	115	77 %	937	747	- 190
Nso	69	100	45 %	476	437	- 39
Oku	70	97	39 %	375	342	- 33
Nkambe	70	121	73 %	301	299	- 2
Santa	70	112	60 %	298	462	+ 164
Mean:	*68.8*	*109*	*58 %*	*477.4*	*457.4*	*- 20*
• **Low Tonnage Unions**						
Ndop	70	93	33 %	260	256	- 4
Moghamo	60	96	60 %	106	48	- 58
Bamenda	64	100	56 %	99	127	+ 28
Pinyin	70	118	69 %	75	76	+ 1
Mbengwi	70	100	43 %	60	49	- 11
Bali	66	84	27 %	48	42	- 6
Mean:	*66.7*	*98.5*	*32 %*	*108*	*99.7*	*- 8.3*
Society Mean	**17.4**	**23.1**	**33 %**	--	--	--
• Range	8 - 37	15 - 70	--	--	-	--
Total Marketing Costs (Mean)	**140**	**203.4**	**46 %**	--	--	--
• Cooperative Costs Only	108	157.4	47 %			

cost was higher in large tonnage unions (58 vs. 32 percent) than in low tonnage unions (Table 7.3). Once again the data provide no evidence that union cost differences were associated with economies of scale, providing further evidence that high tonnage muted incentives for union management to reduce costs.

However, revised union costs exhibited much greater variation than did initial cost estimates. Whereas initial union costs ranged between 60 and 70 CFA per kilo, and clustered around 69-70 CFA per kilo, revised post-devaluation union costs ranged between 84 and 121 FCFA per kilo, a difference of 37 CFA per kilo[15]. Bali Union, the smallest tonnage union, remained the lowest cost union. Nkambe Union became the highest cost union, witnessing a 51 CFA (73 percent) cost increase during the revision process. Given Nkambe Union's remote location, vast area, and high transportation costs one would expect it to have higher costs than other unions.

A comparison of individual unions' revised and budgeted initial costs provides additional insight into the management response to reformed cost determination procedures. In particular, the greater variation in union-level post-devaluation revised costs raises further doubts about the accuracy and transparency of unions' initial cost estimates, and the effectiveness of reformed cost budgeting procedures in promoting cost discipline in unions.

Since Ndop, Nkambe and Pinyin Unions' successfully predicted the amount of coffee

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[15] Although union costs are a key influence on initial producer prices under society-pricing procedures, because revised cooperative costs were not determined until after cooperatives had accepted coffee from farmers, post-devaluation cost variation at the union level would not have affected farmers' marketing decisions during the 1993/94 season. However, they would be expected to impact farmers' decisions in the following coffee season.

they would process in 1993/94 (Table 7.3), errors in estimated tonnage should not have contributed to any increase in their revised per kilo costs. Ndop Union's revised costs increased by only 33 percent cost relative to its initial costs, one of the lowest increases in NW Province. In contrast, Pinyin and Nkambe Unions' revised costs increased by 69 and 73 percent respectively relative to their initial costs, among the highest increases of all unions. This suggests that the Pinyin and Nkambe Unions initial budgeted costs failed to predict their true costs accurately.

The actual tonnage handled by Santa and Bamenda Central Unions exceeded initial estimates by 55 percent and 28 percent respectively, yet their revised post-devaluation per kilo costs increased by more than the union mean (Table 7.3). This raises suspicions that these unions took advantage of the cost revision process to increase overhead costs (i.e., personnel costs). Had these unions' overhead costs not increased in response to devaluation, their higher than estimated tonnage would have offset post-devaluation cost increases by lowering per-kilo overhead costs.

In contrast, the actual tonnage processed by Nso and Oku-Noni Unions was 8 and 9 percent less than had initially been estimated, and 13 percent less in Bali. This shortfall in tonnage should have increased per kilo overhead (fixed) costs. However, the increase in revised costs relative to pre-devaluation initial costs for Nso, Oku-Noni and Bali Unions were less than the overall union mean (Table 7.3). Oku-Noni and Nso Unions were the two unions that experienced the greatest amount of society restructuring (see Section 7.2). As a result, the management of Oku-Noni and Nso unions may have been more responsive to pressure by farmers to control costs than was the management of unions where society-level restructuring was much less pronounced.

The results from Kom Union provide insight into institutional factors that may have influenced union cost revision process. Although the highest tonnage in NW Province, Kom was one of the highest cost unions after revising its costs. Its 77 percent increase in revised costs was the highest of all unions. When costs are calculated on a per-kilo basis, overhead costs are directly influenced by the tonnage of coffee a cooperative handles (or estimates it will handle). Manipulating estimated tonnage upwards decreases per-kilo overhead costs, making them to appear lower than they actually are. This creates possible incentives to create rents by inflating tonnage estimates to conceal or obfuscate overhead high costs, which are largely for personnel. Kom Union had very high personnel costs, and played an interventionist role in both society restructuring and the cost determination process. There were strong indications in field interviews conducted in early 1994, that Kom Union significantly inflated its initial tonnage estimate by altering the tonnage estimates of member societies. This enabled Kom Union to support a high overhead cost structure yet estimate a competitive initial cost of 65 CFA per kilo[16].

Although Kom's strategy may have paid off during budgeting exercises, reformed cost and pricing arrangements require each cooperative to claim only its initial per-kilo costs from revenues from sales. Deficits result if a union fails to keep its costs within the limits prescribed in budgets or overestimates tonnage. In 1993/94, Kom Union handled 747 tons of coffee, 190 tons (20 percent) less than its initial 937 ton estimate. This large

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[16] By manipulating its estimated tonnage upwards, Kom Union also hoped to influence cooperative elections. As NWCA was revising its articles of association and trying to decide how to apportion the 13 seats on the NWCA Board of Directors between 11 cooperative unions, Kom Union argued vehemently that it was entitled to the two extra seats because of its large tonnage. Although this proposal was defeated, the Kom Union president was elected as NWCA president.

shortfall, combined with an inability to control costs, likely explains the large increase in Kom's revised costs relative to initial budgeted costs.

There is no evidence that other unions manipulated tonnage estimates to lower per kilo cost estimates. Nevertheless, the lack of correlation between post-devaluation cost increases and differences in estimated and actual tonnage provides suggests that the management of some unions may have manipulated their cost estimates during budgeting exercises either to reduce pressures for cost reduction by obfuscating true costs or to minimize cost differences and competition between unions. These strategies proved to be unsustainable over the long run since reformed institutions required cooperatives to cover their actual costs. Those unions that accurately budgeted and successfully controlled costs were more successful in minimizing post-devaluation cost increases than were unions that attempted to manipulate their per kilo cost estimates during the budgeting process. If devaluation had not forced cooperatives to revise costs during the 1993/94 season, cost differences between unions would have surfaced during 1994/95 budgeting exercises.

However, there is an alternative explanation for the large cost increases of some unions. It became apparent very early in the season that 1993/94 would be a very profitable year. Devaluation immediately doubled the local currency value of NWCA's coffee exports. In addition, world coffee prices rose dramatically during the season due to severe frost in Brazil. As cooperatives were revising their costs, a financial windfall was developing in the arabica subsector. During the cost revision process, union officials had opportunity to claim part of these windfall profits for themselves by inflating their revised costs (rather than passing them to farmers). If true, this would indicate that farmers' ability to monitor union affairs and hold cooperative officials accountable was severely limited. The

evidence suggests that in several cases prices may have determined costs (Liebenstein, 1987), which is what had happened prior to reform.

7.3.3. Costs in 1994/95

Only limited information is available about cooperative costs during the 1994/95 season, particularly at the society level. Although initial 1994/95 costs will be expressed on a per kilo basis, the tonnage estimates on which these costs were based are not known[17]. However, NWCA's actual arabica tonnage increased between 1993/94 and 1994/95, and producer prices favored increased production. One can only surmise that if societies followed tonnage estimation procedures faithfully, NWCA's estimated tonnage in 1994/95 should have been higher than in 1993/94. Because of incomplete data, the analysis seeks to identify trends in the cost data only.

It is important to highlight a key changes in government policy that affected 1994/95 cooperative costs. In October, 1994 the government of Cameroon unexpectedly imposed taxes amounting to 16 percent tax on all arabica exports that occurred after July 1, 1994. On January 16, 1995, the export tax on arabica was increased to 26 percent by Presidential Decree[18]. Complicating matters, the higher tax was made retroactive to July 1, 1994. Similar to the CFA devaluation of the previous year, the tax increase was

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[17] The information that is available was provided by the NWCA Apex in response to a request for information in May, 1995. The inability of the NWCA Apex to easily access and assemble detailed cost information is indicative of severe information weaknesses in the cooperative structure.

[18] Additional fees and levies assessed on the FOB price increased the total tax burden to 26.8 percent of the value of arabica exports.

announced just as peak arabica harvest was beginning, and after cooperatives had determined their budgeted costs and initial coffee prices. The retroactive part of the tax increase created difficulties for cooperatives since they had already paid farmers based on 1993/94 marketing results. Cooperatives were required to pay taxes on coffee for which their accounts had already been closed. Once again, cooperatives had to revise their initially budgeted costs. Since many cooperatives were slow to complete revisions, institutional incentives for cost control were again weakened.

1994/95 per-kilo cooperative marketing costs are summarized in Table 7.4. The 26 percent tax on arabica exports greatly increased NWCA's total marketing costs. Based on NWCA's export (FOB Douala) price forecast of 1,800 CFA per kilo for the 1994/95 season, export taxes (and miscellaneous levies) totaled 482 CFA per kilo. Port charges more than doubled between 1993/94 and 1994/95. However, 1994/95 port cost information should be viewed with caution since the NWCA Apex apparently began to include crop financing charges among port charges instead of Apex costs. Nevertheless, in 1994/95 export taxes and per kilo port charges amounted to roughly 30 percent of the estimated export value of NWCA's coffee.

Total per kilo cooperative costs increased by 41.7 percent to 223 CFA per kilo significantly between the end of 1993/94 and 1994/95 (Table 7.4). The Apex's initial 1994/95 per-kilo cost increased by 17 CFA kilo to 48 CFA, representing an increase of about 55 percent. NWCA argued that this increase was directly attributable to the costs of sending an eight person delegation from NWCA to Europe to visit coffee roasters and buyers. Otherwise, its per-kilo marketing costs remained the same (personal communications, 1995). However, the Apex's decision to remove finance charges from

Table 7.4: Comparison of Cooperative Costs between 1993/94 and 1994/95: North West Province, Cameroon. (CFA per kilo)

Cooperative Level	1993/94 (Revised)	1994/95 (Budgeted)	Change
Apex Marketing Costs	**77**	**625**	**712 %**
• Export Tax	--	482	--
• Port charges	46	95	107 %
• Apex costs	31	48	55 %
Unions (Mean):	**103.3**	**145.5**	**40.8 %**
• **High Tonnage Unions**			
Kom	115	155	34.8 %
Nso	100	100	0
Oku	97	115	18.6 %
Nkambe	121	165	36.4 %
Santa	112	130	16.1 %
Mean:	*109*	*133*	*22 %*
• **Low Tonnage Unions**[1]			
Ndop	93	145	55.9 %
Moghamo	96	125	30.2 %
Bamenda	100	175	75.0 %
Mbengwi	100	195	95.0 %
Bali	84	150	78.6 %
Mean:	*98.5*	*158*	*64.6 %*
Societies (Mean)	**23.1**	**29.5 (est.)**	**27.7 %**
• Range	15 - 70	No data	--
Total Mean Marketing Costs	203.4	800	293 %
• Cooperative Costs Only	**157.4**	**223**	**41.7 %**

Notes: 1) Pinyin Union has been excluded due to a lack of cost information for 1994/95.

its 1994/95 budget should have offset some of the costs of the marketing trip. More importantly, assuming NWCA had estimated higher tonnage in 1994/95, constant per kilo costs would indicate that apex costs increased.

The initial mean costs of societies increased by approximately 28 percent to 30 CFA per kilo between 1994/95. However, this figure is a rough estimate only, extrapolated from an NWCA claim that the average initial price paid farmers in 1994/95 was 1,000 CFA per kilo (personal communications, 1995). Cost information for societies is available from only two union areas, representing only 16 of the NWCA's 73 primary societies. Bali Union's two societies estimated internal costs of 56 CFA per kilo in 1994/95, more than double their revised 24-26 CFA per kilo costs of 1993/94. The costs of Nso Union's fourteen societies ranged between 32 and 51 CFA per kilo in 1994/95, compared to 17 to 37 CFA per kilo in revised 1993/94 costs. Societies had borne the brunt of cooperative cost reduction efforts during the transitional period of reform (Chapter 6), cutting costs and services to the bone. Thus, part of the increase in society costs may have reflected farmers' willingness to pay for expanded society services.

The mean initial cost for unions increased by nearly 41 percent to 145.5 CFA per kilo between the end of 1993/94 and 1994/95. However, it is difficult to evaluate these results without union tonnage estimates. If unions estimated higher tonnage than in 1993/94, actual cost increases would have been even higher than those presented. Union costs exhibited greater variation in 1994/95 than in 1993/94. In 1994/95 union costs ranged between 100 CFA and 195 CFA per kilo. In 1993/94, the initial cost estimates of unions varied by only 10 CFA per kilo and revised costs varied by 37 CFA per kilo. These results provide no evidence of price collusion at the union level in 1994/95. Instead, it appears

that union budgets reflected true costs.

In contrast to the 1993/94 results, larger tonnage union unions were more successful than small tonnage unions in minimizing cost increases in 1994/95. Whereas the mean initial cost of the five largest tonnage unions increased by 22 percent, the mean initial cost of small tonnage unions increased by nearly 65 percent. The cost advantage of high tonnage unions relative to low tonnage unions suggests that the variation in 1994/95 union costs was related to differences in economies of scale.

NWCA argued that increasing cooperative costs in 1994/95 were attributable to inflation in post-devaluation Cameroon (personal communications, May 1995)[19]. However, a large part of post-devaluation cost increases should have been captured in revised 1993/94 costs. An alternative explanation for rising cooperative costs in 1994/95 is that windfall profits in 1993/94 undermined incentives to reduce and control costs within the cooperative structure. Given expectations that 1994/95 would also be a year of high world coffee prices, the management of some cooperatives may have perceived an opportunity to inflate costs, yet still offer producers very attractive producer prices.

Nso Union's 1994/95 costs provide support for this argument. Alone among the 11 unions in NW Province, Nso Union's per kilo costs did not increase between 1993/94 and 1994/95-- remaining constant at 100 CFA per kilo. The management of Nso Union adopted an aggressive marketing strategy to strictly control costs in order to maximize

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[19] NWCA's Finance and Accounting Office reported that variable costs such as fuel, jute bags, twine and marking ink doubled at the union level between the CFA devaluation in January 1994 and May 1995. In addition, the price of spare parts for union mill machinery and farm inputs such as fertilizer and pesticides more than doubled (personal communications, May 1995).

producer prices and enhance competitiveness (personal communications). As a result, Nso Union was the lowest cost union in NW Province in 1994/95. Oku-Noni Union was comparatively successful in controlling costs, becoming the second lowest cost union in NW Province. Nso and Oku-Noni were the union areas in which the greatest amount of society-level restructuring occurred in 1993 (see Section 7.2). Santa Union was also relatively successful in controlling 1994/95 costs, but experienced no society restructuring. However, Santa received 55 percent more coffee than it had initially estimated in 1993/94, yet experienced a high (60 percent) increase in revised per kilo costs. Although Santa was able to minimize cost increases in 1994/95, it failed to do so in 1993/94.

The relationship between society restructuring and union costs after reform is summarized in Table 7.5 and Figure 7.1. There was little if any difference in the average cost performance of unions which experienced little or moderate society restructuring. However, the cost performance of Nso and Oku-Noni Unions, where the greatest amount of society restructuring occurred, was markedly better than in unions where society-level restructuring was much less pronounced.

The initial 1993/94 costs of both Nso and Oku-Noni Unions were among the highest in NW province. Their 1993/94 budgeting exercises took place as societies were restructuring and union governing bodies were in a state of flux. After restructuring was complete, Nso and Oku-Noni Unions were more successful than other unions in controlling post-devaluation per kilo cost increases related to devaluation. This is observed by comparing 1994/95 costs to pre-devaluation initial costs of 1993/94 (Table 7.5). Whereas nominal per kilo costs increased by an average of 55 percent in Nso and

Table 7.5: Relationship between Union Costs and Primary Society Restructuring in North West Province, 1993/94 - 1994/95. (Costs expressed in CFA per kilo)

Union	Initial 1993/94 Costs[1]	Revised 1993/94 Costs	1994/95 Costs	Change (%)	
				Revised 93/94 Vs. 94/95 Costs	Initial 93/94 Vs. 94/95
A) Areas of Greatest Society Restructuring (≥8)					
Oku-Noni	70	97	115	18.6 %	64.3 %
Nso	69	100	100	0	44.9 %
Mean:	***69.5***	***98.5***	***107.5***	***9.1 %***	***54.7 %***
B) Areas of Moderate Society Restructuring (2-5)					
Kom	65	115	155	34.8 %	138.5 %
Moghamo	60	96	125	30.2 %	108.3 %
Mbengwi	70	100	195	95.0 %	178.6 %
Nkambe	70	121	165	36.4 %	135.7 %
Mean:	***66.3***	***108***	***160***	***48.1 %***	***141.3 %***
C) Areas of Least Society Restructuring (≤ 1)					
Bamenda	64	100	175	75.0 %	173.4 %
Santa	70	112	130	16.1 %	85.7 %
Ndop	70	93	145	55.9 %	107.1 %
Bali	66	84	150	78.6 %	127.3 %
Pinyin	70	118	N/A	--	--
Mean:	***68***	***101.4***	***150***	***47.9 %***	***120.6 %***
All Unions (Mean):	**67.6**	**103.3**	**145.5**	**40.9 %**	**115.2 %**

Notes: 1) Initial 1993/94 costs are expressed in pre-devaluation CFA.

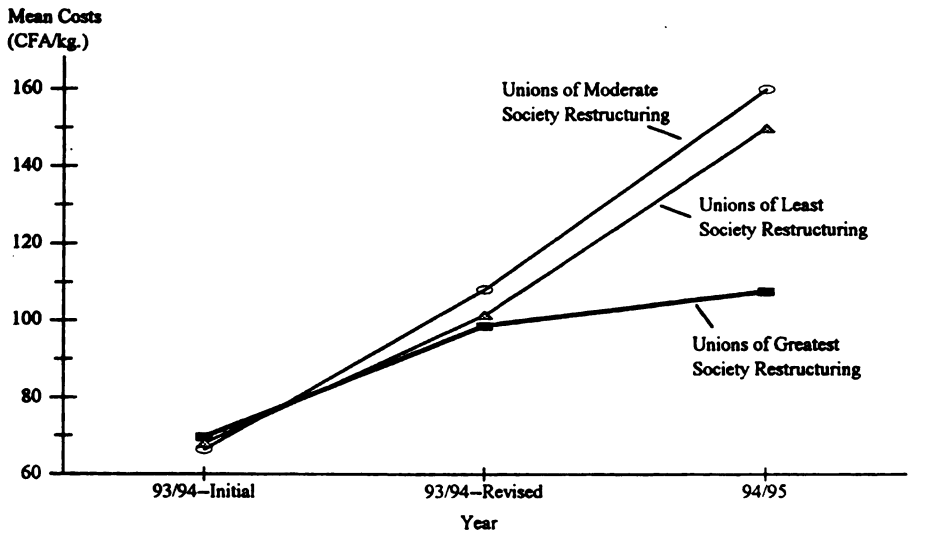

Figure 7.1: Relationship Between Cooperative Union Costs and Society-Level Restructuring, North West Province: 1993/94 - 1994/95.

Oku Unions between the beginning of 1993/94 and 1994/95, the average per kilo costs of eight unions where less society restructuring took place increased by 131 percent.

The difference in performance between Nso and Oku relative to other unions was most pronounced in 1994/95, the second year of reform. While 1993/94 budgeting exercises took place amidst the confusion and uncertainty of society-level restructuring and cooperative elections, all societies would have had an opportunity to participate in and to influence the budgeting process in 1994/95. In 1994/95, Nso and Oku-Noni Unions costs increased by an average of only 9.1 percent over revised post-devaluation 1993/94 costs, well below the average cost increase of 48 percent increase in the eight other unions (Pinyin excluded).

The cost performance of Kom Union presents an interesting contrast to Nso and Oku-

Noni. The five new societies that formed in the Kom area were previously sections of very large societies, and had been well-represented in union governing bodies. Since Kom Union refused to acknowledge several other farmer groups as societies, it was able to deny these groups representation on the union board of directors and voting rights in general assembly meetings. Thus, society restructuring did not fundamentally alter pre-existing society-union relations. The cost results indicate that Kom area farmers had little leverage in influencing union costs. Despite its large tonnage, Kom Union's 1994/95 costs were 139 percent higher than its initial 1993/94 estimate, and 35 percent higher than its revised post devaluation 1993/94 costs (Table 7.5).

The analysis strongly suggests that cost control at the union level was positively correlated with society restructuring. With increased representation and voice, farmers belonging to Nso and Oku-Noni Unions were better able to control costs. Responding to pressure from membership, the management of these unions sought to minimize per kilo cost increases after reform and take advantage of economies of scale. If sustainable, Nso and Oku-Noni Unions' ability to control costs should create competitive pressures for other unions to also improve cost control in the future.

7.3.4. Real Cooperative Costs after Reform

To this point, cooperative cost performance has been discussed in nominal terms only. To account for the effects of the CFA devaluation and inflation on costs, real cooperative costs were calculated in constant pre-devaluation 1993/94 CFA using a consumer price

index for published by the International Monetary Fund (1997)[20]. The results are presented in Table 7.6. Figure 7.2 compares nominal and real per kilo cooperative costs for the 1992/93 and 1994/95 period. The evidence in Figure 7.2.A. clearly shows the trend of increasing nominal per kilo cooperative costs after reforms were implemented in 1993/94. The disproportionately large increase in union costs fueled the increase in total cooperative costs. The increase in nominal costs was particularly pronounced after devaluation of the CFA franc in early 1994.

Expressing costs in real terms provides further evidence that cooperative costs increased significantly after reform (Table 7.6, Figure 7.2.B). Between the beginning of 1993/94 and 1994/95, total real cooperative costs increased by 45 percent. Actual real cost increases would have been even greater than indicated if NWCA's tonnage estimate increased between 1993/94 and 1994/95. Societies were relatively more successful in minimizing real cost increases than were the Apex and unions. The disproportionately large real cost increases observed at the apex and union level, are inconsistent with the assumption of unrealized economies of scale. Given increasing coffee production after reform (see Section 7.5), one would have expected unions and the apex to have been able to restrain per kilo cost increases after devaluation by achieving economies of scale.

The results indicate that cooperatives were relatively successful in minimizing mean real per kilo cost increases during 1993/94 cost revisions, but failed to control costs in 1994/95. Despite the fact that 1994/95 budgeting exercises occurred shortly after

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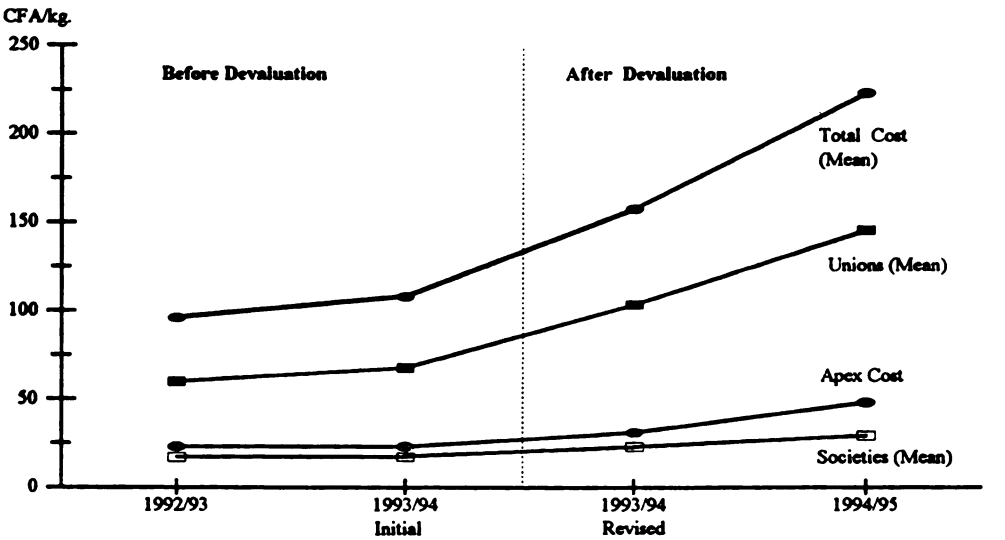
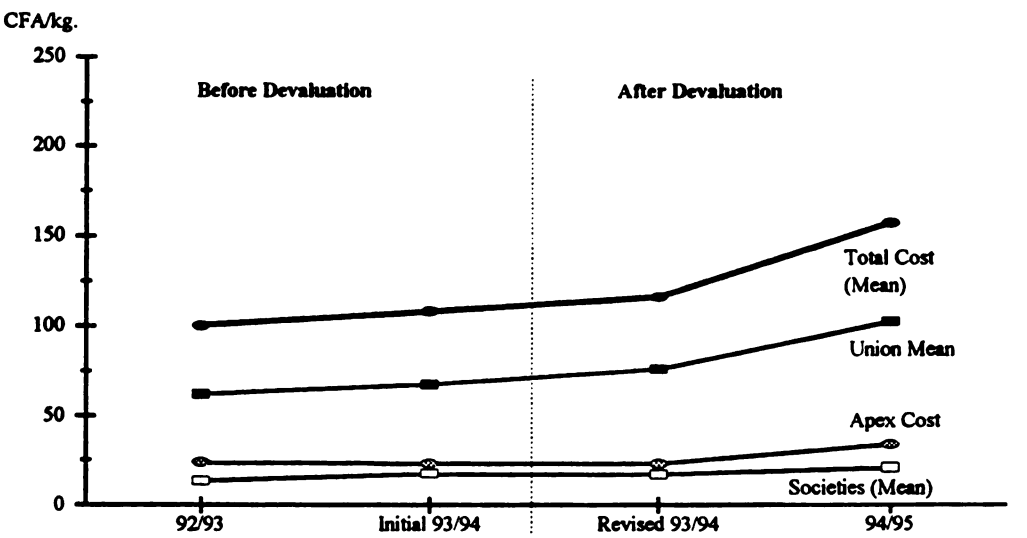
[20] Real costs were calculated using January 1, 1994 as a base period. To account for mid-season cost revisions, revised 1993/94 costs were deflated by the CPI for 1994. Although this may understate real revised 93/94 costs, it is reasonable to assume that revised costs accounted for much of the effects of devaluation.



A) Nominal Costs



B) Real Costs

Figure 7.2: Nominal and Real Cooperative Costs After Reform, North West Province, Cameroon: 1992/93 - 1994/95.

Table 7.6: Real Cooperative Costs After Reform, 1993/94 - 1994/95. (In constant pre-devaluation 1994 CFA)

	1993/94 Costs			94/95 Costs	Change	
	Initial	Revised	Change		94/95 Vs. Revised 93/94 Costs	94/95 Vs. Initial 93/94 Costs
Mean Society Costs	17	17	0	21	23.5 %	23.5 %
Apex Costs	23	23	0	34	47.8 %	47.8 %
Mean Union Costs	68	76	11.8 %	102	34.2 %	50.0 %
Total Mean Coop. Costs	108	116	7.4 %	157	35.3 %	45.3 %

1993/94 cost revisions were completed, real estimated per kilo total costs in 1994/95 were 35 percent higher than revised 1993/94 costs. This strongly suggests that the windfall returns to arabica coffee in 1993/94, and high expectations for another profitable year early in 1994/95, weakened incentives for cooperative managers to economize in 1994/95. Instead, cooperatives apparently manipulated their 1994/95 budgeted costs to claim a share of residual profits. This was especially the case at the apex and union levels. These results raise doubts about the effectiveness of institutional reform in empowering farmers and their elected representatives to control costs at the apex and union levels.

7.3.5 Conclusion: Cost Performance after Reform

Reform of cooperative governance arrangements and cost and price determination procedures sought to fundamentally alter the character of principal-agent relationships within the cooperative structure to the advantage of farmers. Within the cooperative

structure, members transact and directly participate in governance only at the society level. Since farmers can directly scrutinize their societies, they are better able to hold management accountable. A commonly held opinion among society officials in 1993/94 field interviews was that while societies took cost control seriously in budgeting exercises, unions and the apex did not. The cost evidence supported this view that farmers were more effective in controlling costs at the society level than at the union and apex levels, where farmer participation is more indirect.

It is more costly for farmers to monitor behavior and performance at the union and apex levels than at the society level. As a result, there is less pressure on management from membership to control costs. This situation was aptly summarized in the following observation of one society President during a January, 1994, interview: "Elected society delegates don't fight as hard in union meetings, and elected union delegates fight even less hard in Apex General assembly meetings". Principal-agent problems within the cooperative structure persisted after reform.

Oku-Noni and Nso Unions, which experienced the greatest degree of society restructuring, were more successful than other unions in controlling costs after reform. However, in other union areas management limited the amount of society restructuring. Farmers were less successful in controlling costs in these areas. This suggests that with increased representation and voice in union affairs, the ability of farmers to control costs and hold management accountable was enhanced.

Nevertheless, budgeting procedures decentralized power within the cooperative structure and gave farmers and their elected delegates a voice in the cost determination process. Since producer prices are linked to costs under society-level pricing

arrangements, low-cost cooperatives were able to pay their members higher prices. Over time this should create strong incentives for farmers to demand cost control even in areas where no society restructuring occurred. In the early stages of reform, farmers had little familiarity with new rules and remained accustomed to the administratively determined prices and cost allowances of the past. As farmers internalize reformed price and cost determination rules and acquire a deeper understanding of the relationship between cooperative costs and prices, one would expect that they will make more effective use of their voice and exit options and exert greater pressure on cooperative management to control costs, despite attempts by management to resist.

However, experience suggests that information plays a critical role in the ability of farmers (and their representatives) to participate effectively in budgeting exercises, particularly at the union and apex levels. General assembly participants in budgeting exercises need to have knowledge of past costs and comparative cost information from other cooperatives in order to reach informed decisions about which costs they find acceptable and appropriate. Without access to this information, they have a limited ability to detect whether costs have really increased or to decide if cost estimates are too high. Observation of several budgeting exercises in 1993/94 at different levels of the cooperative structure left the impression that only limited historical cost information, and virtually no cost information from other cooperatives, was made available to general assemblies[21]. As a result, general assembly approval of budgets was in many instances a

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[21] Given how societies and unions revised costs in 1993/94 after devaluation, again revised costs to account for the export tax in 1994/95, and how the apex was unable to provide society cost and price information in 1994/95, there is little reason to believe that the flow of cost information between cooperatives improved noticeably in 1994/95.

formality.

Under society-level pricing arrangements, initial producer prices directly reflect cooperative costs. To generate external (or competitive) pressures on cooperatives to control costs, it is critical that farmers have access to price information. However, price and cost information is asymmetrically distributed between levels of the cooperative structure[22]. Since it is far more likely that farmers will come into contact with members of neighboring societies than with farmers who live in different areas of NW Province, the costs of acquiring information within a given union area are low. Farmers generally have a good awareness of the prices and costs of other societies in their area. However, because of distance and poor communications, the costs to individual farmers (and societies) of acquiring information from other unions or the apex are high. This creates the opportunity for cooperative officials at the union and apex levels to manipulate and control the flow of information to farmers and thus defuse pressure from membership to control costs.

Weakness in the design of society-level pricing procedures may have contributed to the limited ability of farmers to control costs at the union and apex levels. As implemented, cooperative costs did not distinguish between overhead and variable costs. Per-kilo overhead costs vary with tonnage, decreasing as tonnage increases and vice versa. Although per-kilo variable costs may be directly compared from year to year (and between cooperatives), per-kilo overhead costs may be compared only if tonnage is known. In the

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[22] Only the apex interacts directly with all eleven unions, and the President of each union sits on its board of directors. Societies interact directly only with the union to which they are affiliated, and have no formal relationships with the apex and other unions.

absence of adequate tonnage information, budgeted per-kilo costs contain little information about whether overhead costs changed or not. For example, if both overhead costs and tonnage increased by 10 percent between marketing seasons, per-kilo overhead costs would remain constant.

The failure of society-level pricing procedures to distinguish between overhead and variable per-kilo costs creates an opportunity for management to obfuscate overhead costs by manipulating tonnage estimates, or to conceal cost increases in the context of expanding production. Another problem may occur if actual tonnage exceeds estimated tonnage. In this case actual per-kilo overhead costs are lower than were initially budgeted. Without pressure from membership, managers may have little incentive to pass the difference on to farmers since society-level pricing arrangements entitle a cooperative to claim its initially budgeted per kilo costs. Although farmers should realize a cost savings from their increased production, they may bear the same per kilo cost no matter how much they produce given the failure of reformed pricing arrangement to distinguish between per-kilo overhead and variable costs (Oakerson, 1994a).

Although overhead costs are the source of economies of scale at the apex and union levels, it takes an educated membership to ask management why it did not achieve economies of scale and pass them on to producers[23]. The evidence strongly suggests that the ability of societies to control costs at the union and apex level and to achieve economies of scale was constrained by a lack of transparency in the new cost

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[23] Although grass roots education efforts during the reform project continually stressed to farmers that excess union and apex costs took money from their pockets, whether or not NWCA sustained this message after the project ended is unclear. Available evidence suggests that it has not (personal communications with NWCA, 1995).

determination procedures, and by weaknesses in the information provided to farmers by cooperatives during budgeting exercises.

Finally, under per-kilo cost arrangements, the manner in which management allocates overhead costs between different marketing activities may affect members' perceptions of cost levels. Hypothetically, union personnel costs totaling 35 CFA per kilo might appear to be unacceptably high to membership. However, if the same costs are allocated to several activities (i.e. administration, hulling, grading and sorting, picking salary, transportation) they may appear more palatable to members.

Two events external to the reform process likely affected cost performance after reform. First, devaluation introduced a large degree of uncertainty and confusion into the cost determination process. Second, world prices spiked immediately after reformed cost and price determination procedures were implemented. Since all stood to gain from windfall profits in the arabica subsector, the incentives for membership to demand cost control, and exert pressures on management were likely muted.

However, reformed cost procedures were designed to create internal and external pressures on cooperatives to economize. External pressures would be generated by price competition between unions and changes in producer marketing patterns. Competitive pressures on cooperatives would be expected to intensify over time. Although the cost analysis has raised doubts about the effectiveness of reform in fostering internal pressures for cost control within cooperatives, it is impossible to predict with certainty what the future will hold from the vantage point of only two years.

7.4. Producer Prices

Under society-level pricing arrangements, initial producer prices are calculated by subtracting budgeted cooperative marketing costs from NWCA's forecasted average export price for the season. All costs and prices are expressed in per kilo terms. At the end of the season, after all coffee has been sold, NWCA calculates the actual average per kilo export price it received during the season based on actual tonnage. After deducting budgeted initial per kilo cooperative costs from the actual price, the residual profits from sales are distributed to producers and cooperatives in the form of bonus payments. The distribution of any losses among societies, unions and the apex are decided within the cooperative structure[24]. These losses must be recovered in the following season's budgeted costs.

7.4.1. Prices in North West Province

Producer prices in North West Province for the 1993/94 and 1994/95 seasons are summarized in Table 7.7. Focusing first on initial 1993/94 budgeted costs and prices, the results show that primary societies offered producers prices that ranged from a low of 238 to a high of 271 CFA per kilo. The mean initial producer price in NW Province was 260 CFA per kilo in 1993/94. This represented a 30 per cent increase over the minimum arabica price (200 CFA per kilo) established by the government in 1992/93, but only a 13

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[24] The original reform design gave societies the right to claim all of the residual income from sales. As such, farmers themselves would decide the residual share received by cooperatives. In practice these rights were never clearly defined in cooperative marketing protocols, allowing the apex and unions to claim part of the residual before distributing it to societies (see Chapter 5).

percent increase over the mean final price (which include bonus payments) of 227 CFA per kilo. These initial 1993/94 prices were offered producers during the first half of the 1993/94 marketing season only.

If grouped by union area, initial producer prices exhibited only limited variation. The mean producer prices offered by societies in different union areas varied by 20 CFA per kilo. As expected, prices were lowest prices in the Nkambe area, where the mean price was 247 CFA per kilo. Societies in the Nkambe Union are dispersed over a vast area with a poor transportation infrastructure, and incur high transportation costs. The highest mean price (267 CFA per kilo) was offered in the Bali area, where transportation costs are low.

If the two union areas with the lowest mean producer prices are ignored, the mean producer prices offered in the remaining nine union areas differed by only 8 CFA per kilo. As discussed previously, initial budgeted union costs did not exhibit much variation and tended to converge in the range of 69-70 CFA per kilo. This muted variation in the producer prices offered in different union areas. Transportation cost differences between societies account for much of the variation in initial producer prices.

Since Cameroonian coffee is traded in French francs, the 50 percent devaluation of the CFA Franc relative to the french franc on January 11, 1994, immediately doubled the export value of NWCA's coffee in local currency[25]. But it was not until the end of January, during the middle of the peak harvest, that NWCA revised its export price forecast. Pending the completion of cooperative cost revisions, NWCA also doubled

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[25] At the time of devaluation, NWCA had yet to ship or receive payment for any 1993/94 coffee.

Table 7.7: Producer Prices in North West Province after Reform, 1993/94 and 1994/95. (CFA per kilo)

	1993/94[1]			1994/95[2]	
	Initial Costs and Prices	Revised Costs and Prices	Final Costs and Prices	Initial	Final
Export Price					
• Forecast	400	875	--	1800	
• Actual	--	--	1,114		1500
Apex and Export Costs	55	77	173	625	544
• Taxes	--	--	76	482	402
• Port Charges	32	46	46	95	95
• Apex Costs	23	31	31	48	47
• Apex Residual Payment	--	--	20		
Union Cost (Mean)	67.6	103.3	103.3	145.5	
• Residual Payments	--	--	20	--	
• Range:	60 - 70	84 - 121	104 - 141	100 - 195	
Society Cost (Mean)	17.4	23.1	23.1	29.5	
• Residual Payment	--	--	20	-	
• Range:	8 - 37	15- 70	35 - 90	N/A	
Producer Price (Mean)	**260**	**671.6**	--	**1000**	**781**
• **Including Residual Bonus Payment**	--	--	**774.6**		**Loss: 219**
• Range -- Low:	238	607	710	969	
High:	271	690	793	1059	

Notes: 1) Initial costs and prices for 1993/94 are in pre-devaluation francs. Although the forecast export price and initial producer prices were doubled shortly after devaluation, revised cooperative costs and final prices were not determined until the end of the 1993/94 season.
2) 1994/95 mean society costs and price ranges are rough estimates only.

initial producer prices. Thus, initial producer prices in 1993/94 reflected cooperatives' pre-devaluation initial cost estimates for most of the 1993/94 season. However, NWCA had arranged crop financing using pre-devaluation initial prices. Since it could not procure additional loans to cover higher post-devaluation producer prices, cooperatives continued to pay initial pre-devaluation prices to producers as advances during coffee acceptance.

Although revised 1993/94 cooperative costs and prices exhibited significantly greater variation than did initial costs and prices (Table 7.7), these prices were determined after virtually all coffee had been accepted from farmers. Thus, the variation in revised costs and prices would not have affected farmers' production and marketing decisions during the 1993/94 season. However, final 1993/94 producer prices, which included residual payments, directly reflected revised costs.

During the 1993/94 season, NWCA sold 2,689 tons of washed arabica good beans abroad, less than the 3,000 tons it had estimated. As a result of devaluation and rapidly rising world prices, this coffee was sold at an average price of 1,114 CFA per kilo--239 CFA per kilo more than NWCA's revised export price forecast of 875 CFA per kilo[26]. Although NWCA had been already sold and shipped most of its 1993/94 coffee before the government's 16 percent export tax on arabica went into effect on July 1, 1994, it was nevertheless was required to pay taxes amounting to 76 CFA per kilo in 1993/94. This reduced the profit realized from sales from 239 to 163 CFA per kilo. The apex, each

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[26] An additional 340 tons of washed arabica coffee was rejected by overseas buyers and sold to local buyers at discounted prices. NWCA also sold 158 tons of bad beans and 58 tons of unwashed arabica at an average sales prices of 511 and 1,000 CFA per kilo, respectively.

union and each society retained 20 CFA per kilo of this profit. Thus, the final 1993/94 prices in Table 7.7 reflect a 103 CFA per kilo residual payment to farmers.

In 1993/94, the mean final price paid NW producers was 775 CFA per kilo. In contrast, the final mean 1992/93 producer price was only 227 CFA per kilo. Prices ranged from a low of 710 CFA per kilo and a high 793 CFA per kilo--an 83 CFA difference. If grouped together on a union basis, mean final prices were lowest in Nkambe (748 CFA per kilo) and highest in Bali (792 CFA per kilo), a difference of 44 CFA per kilo. If the two lowest price union areas are ignored, the mean final producer prices of the remaining nine unions differed by 34 CFA, compared to a difference of only 8 CFA per kilo in initial pre-devaluation price estimates. The variation between producer prices that failed to materialize during 1993/94 budgeting exercises did so in final 1993/94 prices. If producers were aware of these price differences, one would expect there should be greater competitive pressures between cooperatives in 1994/95.

It is difficult to assess 1994/95 prices. As of May, 1995, late in the marketing year, the NWCA apex had complete price information for only two unions (Bali and Nso)[27]. Although the NWCA Apex is ideally placed within the cooperative structure to compile and distribute the price information for member cooperatives, and was required to provide weekly price information to the government-operated Arabica Market Information System (AMIS), it apparently did not do this. This raises serious doubts about the ordinary coffee producer's awareness of prices offered in different areas of NW Province.

According to NWCA, the mean initial price offered NW producers in 1994/95 was

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[27] A subsequent request for price information in July, 1997, was unsuccessful.

1,000 CFA per kilo (personal communications, May, 1995). Despite the 26 percent export tax, this represents a nearly 30 percent increase over the final mean price paid in 1993/94. The greater variation in initial 1994/95 union costs with respect to the 1993/94 season strongly suggests that producer prices varied significantly in NW Province in 1994/95. For example, Bali Union's two societies offered producers a price of 969 CFA per kilo. Nso Union's fourteen societies offered initial prices ranging between 1040 and 1059 CFA per kilo. Since union costs were lowest in the Nso area but relatively high in the Bali area, a price range between 969 and 1059 CFA per kilo represents a reasonable approximation of 1994/95 initial prices in NW Province[28].

However, the 1994/95 marketing year proved to be difficult. At the beginning of the year, NWCA anticipated that the trend of rising world prices observed during the latter half of the 1993/94 would continue through the 1994/95 season[29]. However, the boom in world coffee prices in 1993/94 was the result of frost in Brazil, and was short-lived. NWCA had originally forecast an export price of 2,300 CFA per kilo, but was forced to revise this forecast down 1,800 CFA per kilo as world prices levels began to fall. Buyers' price offers remained were well below this forecast during the 1994/95 campaign, and the government's export tax further lowered the net value of NWCA's coffee exports.

Although it faced significant net losses, NWCA maintained its 1,800 CFA per kilo

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[28] Experience from 1993/94 suggests the prices offered by a few remote, low tonnage societies in the high cost Kom, Nkambe and Mbengwi areas were significantly lower than 969 CFA per kilo.

[29] At the beginning of the 1993/94 season, NWCA sold coffee at prices ranging between 950 and 1,000 CFA per kilo. NWCA's final 1993/94 sale received a price of 2,300 CFA per kilo. Shortly after this, NWCA sold coffee forward at a price of 2,800 CFA per kilo.

export price forecast for the entire 1994/95 season. NWCA attempted to sell its coffee to local buyers to avoid paying export taxes, and deferred international sales in hopes that world prices would rebound. This never occurred. By the end of December, 1995, NWCA had yet to sell all of the 1994/95 crop. Because of the slow pace of sales, NWCA lacked sufficient funds to purchase coffee from farmers after the loans it had procured for crop financing were exhausted late in the season. Cooperative payments to farmers became unreliable towards the end of the 1994/95 campaign.

NWCA's actual mean sales price for the 1994/95 season was only 1,500 CFA, well short of the 1,800 CFA per kilo forecast it made at the beginning of the season. After accounting for taxes, NWCA lost 219 CFA per kilo on its 1994/95 coffee sales (Table 7.7). Under reformed producer pricing arrangements, cooperatives would have been required to cover these losses in their initial 1995/96 costs. As a result, losses from the 1994/95 season would be reflected in lower 1995/96 initial producer prices.

7.4.2. Distribution of Residual Sales Income

In 1993/94, NWCA realized a residual profit of 163 CFA per kilo on its coffee sales. The NWCA board of directors and general assembly recommended that this surplus be distributed between cooperatives and producers as follows--20 CFA per kilo each for the Apex, unions and primary societies and 103 CFA per kilo for farmers. Residual payments to farmers represented 63 percent of profits while coffee cooperatives retained 37 percent.

Although some unions retained less than their recommended 20 CFA per kilo share and paid higher bonuses to farmers, others retained more than 20 CFA per kilo share and paid lower than recommended bonuses to farmers (personal communications with NWCA,

May 1995). Once again, the responsiveness of unions to farmers varied. Although the management of some unions sought to maximize payments to producers, in others, management appears to have placed its own interests first. Given that most unions completed revising their post- devaluation costs late in the season when the results of the 1993/94 campaign were largely known, it is difficult to justify an argument that the decision by some unions to withhold part of the residual share of societies and farmers was to compensate for cost overruns related to inaccurate cost and tonnage estimates. Although information is sketchy, experience from the 1992/93 season suggests that in some cases unions may have used their residual shares for purposes such as capital investment, erasing past debts or building financial reserves, while others apparently used their shares to reward cooperative officials and employees with bonuses[30].

Although internal marketing arrangements (protocols) negotiated between unions and the apex required that the distribution of residual payments be approved by both the board of directors and NWCA general assembly, no equivalent protocols were negotiated between societies and unions. The ambiguity of union-level rules governing the distribution of residual income raises questions about the transparency of union decisions. Rules that permit the apex and unions to decide how residual income will be distributed vest discretion in the levels of the cooperative structure least exposed to direct farmer pressure. This opens the door to possible opportunistic behavior by officials at either level and reduces incentives for cost control.

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[30] For example, Oku-Noni Union used its 1992/93 residual share to re-roof its mill and improve acceptance platforms. Nso Union purchased a "tipper" (truck) to transport coffee. However, there was little apparent evidence of similar capital improvements in other union areas.

In the original reform design societies had sole rights as residual claimants. Cooperatives were entitled to receive only their budgeted per kilo service costs. By assigning societies ownership of residual profits, farmers would decide the share of the residual for cooperatives and have a voice in how it would be used. This was a key element in bottom-up cooperative governance. In changing rules for distributing residual profits, the apex and unions were able to claim a share of residual profits. Apex and union boards of directors and governing bodies decided the share of the residual to which farmers were entitled. This short circuits farmers' ability to hold cooperative officials accountable and exert counter pressure to control opportunistic and rent-seeking behavior in cooperatives. As implemented, rules governing the distribution of residual profits weaken incentives for cost control. In summary, the evidence from 1993/94 raises further doubts about the degree to which principal-agent relationships between farmers and cooperatives changed after reform.

In 1994/95, NWCA realized a loss of 219 CFA per kilo. The original reform design proposed that deficits be distributed in proportion to the share of each cooperative's budgeted costs in total cooperative costs. Although this method of sharing losses does not change the magnitude of total losses, it does create different incentive effects for cooperatives[31]. However, in early 1996, the NWCA apex assigned full responsibility for the 219 FCFA per kilo loss to unions (*NWCA Marketing Newsletter # 33*, January 31,

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[31] If deficits are shared within the cooperative structure, managers would have strong incentives to control costs to avoid losses. In addition, cooperative officials would be accountable for losses in the next budgeting exercises. To improve producer prices, general assembly delegates would have powerful incentives to demand cost control from cooperatives.

1996). In effect the apex absolved itself from any responsibility for marketing losses, despite the fact that the losses were the result of the Apex's mistake in forecasting the 1994/95 export price. Although it is not known how unions decided to deal with this loss, it is likely they passed on the full amount of 1994/95 marketing losses to primary societies, the level of the cooperative structure with the least direct involvement in international coffee marketing. Pressures for cost control would be disproportionately borne by societies in 1995/96 budgeting exercises, while unions, and particularly the apex, would have been relatively immune to pressures to control costs.

7.4.3. Producer Prices as a Share of Export Prices

A key objective of reform was to link domestic producer prices to export prices. By reducing cooperative marketing costs it was anticipated that the share of the coffee export price received by producers would increase after reform. Average annual export prices (FOB Douala) and producer prices in NW Province between 1982/83 and 1994/95 are presented in Figure 7.3. The time series includes price information from the administered marketing era, the transitional period of reform and the first two years after reform. Mean producer prices are presented for the 1992/93-94/95 period.

The results show a significant change in the producer price trend after reform. Under society-level pricing arrangements producer prices and export prices moved in a parallel manner. The widening gap between export and producer prices in 1994/95 was directly attributable to the implementation of the 26 percent export tax (discussed above). Under administrative pricing arrangements prior to reform, producer price trends bore little resemblance to export price.

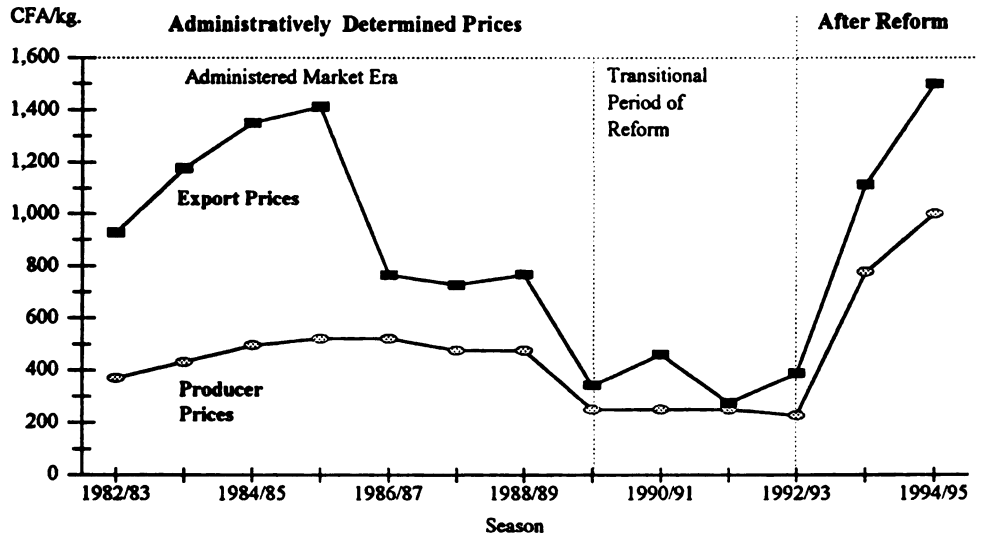

Figure 7.3: Coffee Export and Producer Prices in North West Province, Cameroon: 1982/83 - 1994/95: Before and After Reform

The most striking aspect of Figure 7.3 is the difference in the behavior of producer prices during periods of high export prices before and after reform. Under administrative pricing arrangements, producers benefitted little from the boom in export prices between 1982/83 and 1985/86. But under society-level pricing arrangements in 1993/94, farmers were the primary beneficiaries of the sharp rise in export prices related to devaluation of the CFA franc and rising world coffee prices. The mean share of export prices received by producers was 70 percent in 1993/94 (Table 7.8), but would have reached as high as 82 percent if the government and cooperatives hadn't claimed part of 1993/94 profits. Export taxes and cooperative bonuses represented 7 and 5 percent respectively of NWCA's average export price in 1993/94.

Table 7.8: Producer Prices Expressed as a Share of Export Prices after Reform, North West Province, Cameroon.

	1992/93	1993/94		1994/95	
		Initial	Final	Initial	Actual
Export Price:	386	400	1,114	1800	1500
Mean Producer Price:	227	260	775	1000	781
Range:	--	237 - 271	710 - 793	969 - 1069	--
Producer Price As a % of Export Price:	**59 %**	**65 %**	**70 %**	**56 %**	**52 %**
• Range:	--	59 - 68 %	64 - 71 %	54 - 59 %	--

The mean producer share of NWCA's export initial 1,800 CFA export price forecast in 1994/95 was only 56 percent. But if NWCA had not overestimated producer prices, the producer share would have been only 52 percent (Table 7.8). The lower producer share of 1994/95 export prices was directly attributable to the government's implementation of the 26 percent export tax. Total mean cooperative marketing costs (including port charges) represented 18 percent of NWCA's initial 1994/95 export price forecast. In taxing the value of arabica exports, the government appropriated part of the profits from coffee production away from farmers and cooperatives. These profits could be used to reward government clients[32]. Despite the tax, producer prices were higher than in 1993/94. If NWCA had accurately forecast the 1994/95 export price, the mean producer price in NW Province would have been 781 CFA per kilo, about the same as the

[32] The government, under pressure from France and the European Community, lowered the export tax on arabica coffee to 13.5 percent prior to the 1996/97 season (Daviron and Losch, 1997).

final mean price in 1993/94 (Table 7.8).

However, it is in periods of low world prices that the adverse effects of the tax would be most keenly felt. For example, if the 26 percent export tax had been in effect at the beginning of the 1993/94 season, the mean initial producer price would have been only 160 CFA per kilo instead of 260 CFA per kilo. Producers would have received only 40 percent of NWCA's forecast export price. At this price level, arabica production would have unprofitable for farmers. The government's export tax clearly threatened to erase the gains enjoyed by farmers under society-level pricing arrangements.

Producers clearly benefitted from rising export prices in the first two years of reform. However, Figure 7.3 highlights the unpredictability and volatility of annual export prices. In linking producer prices and export prices, society-level pricing procedures will create greater volatility in farm prices and incomes. A small coffee producer such as NWCA is a price-taker in the international coffee market. Although high world prices may have blunted incentives for cost control during the first two years of reform, cost reduction and control within cooperatives, and particularly unions, will be critical in protecting farm incomes during periods of low world prices.

7.4.4. Producer Prices in West Province

At the beginning of the reform process, the ability of the network of coffee cooperatives in NW Province to survive in a privatized market was of paramount concern. Specifically, it was feared that NWCA would have a distinct disadvantage in competing with UCCAO in West Province, which had amassed significant financial resources and marketing experience during the administrative marketing era by virtue of its right to sell

coffee autonomously and retain the income from sales. Whereas reform sought to restructure relationships within NWCA and introduce more market-friendly arabica marketing institutions within NWCA, UCCAO was required to adapt to both the privatized market and reformed cooperative governance regime on its own. Over the long-term, it was anticipated that reform would lead to substantial restructuring among West Province's cooperatives.

Beginning in 1993/94, NWCA implemented reformed cost determination and pricing procedures. UCCAO continued to determine administratively producer price and cooperative cost allowances in negotiations between union managers and Boards of Directors, and the UCCAO Central Office.

Producer prices in West and Northwest Provinces in 1993/94 and 1994/95 are compared in Table 7.9. UCCAO's initial 1993/94 price was only 8 CFA per kilo lower than NWCA's mean initial price. NWCA calculated its price based on an export price forecast of 400 CFA and mean marketing costs of 140 CFA per kilo. UCCAO forecast an export price of 451 CFA per kilo and estimated marketing costs of 198 CFA per kilo. Since NWCA was able to reliably pay producers in 1993/94 and offer higher prices than UCCAO, there were few economic incentives for cross-border coffee trading.

After devaluation NWCA doubled producer prices, and began to revise costs. UCCAO's management took a more conservative approach after devaluation, and raised producer prices to only 400 CFA per kilo. As of February 1994, the mean producer price offered by NWCA in NW Province was 120 CFA per kilo higher than UCCAO's in West Province (Table 7.9). In response to these higher prices, several NWCA unions began buying coffee directly from Western producers to increase their tonnage and lower their

Table 7.9: Initial Producer Prices in West and North West Province After Reform. (CFA per kilo)

Year	Prices in West Province	Prices in North West Province
1993/94		
• Before Devaluation (Nov. 93)	253	Mean = 260 (Range= 237 - 271)
• After Devaluation (Feb. 94)	400 - 425	Mean = 520 (Range = 474 - 542)
• End of Season[1]	650 - 675	780 - 820
1994/95[2]	875 - 900	969 - 1059

Notes: 1) Prices quoted by Arabica Marketing Information System (AMIS) for the week of December 26 - 30, 1994.
2) Prices were obtained in May 1995 through personal communications.

per kilo costs. In addition, private traders began to buy coffee from Western producers at higher prices than offered by UCCAO and market it through NW coffee cooperatives at a profit--a reversal of the pre-reform situation.

NWCA's ability to pay higher prices than UCCAO in 1993/94 was the result of its lower costs and better operating efficiency. However, UCCAO officials did not take price competition from NWCA seriously, and accused USAID of unfairly subsidizing producer prices in NW Province. In their view, NWCA would be unable to sustain higher prices after USAID's assistance to NWCA ended in June 1994 (personal communications and Green 1994). But the results in Table 7.9 show that NWCA continued to pay producers

higher prices than UCCAO through the 1994/95 season[33].

The price comparison supports a conclusion that because reform gave farmers within NWCA a key role in cost determination and price setting processes, NWCA and its member cooperatives were more responsive to farmers' interests than were coffee cooperatives in West Province--at least in the first years after reform. Within UCCAO, the determination of costs and prices remained highly centralized at the top of its hierarchy, among managers insulated from farmer contact and control[34]. Senior UCCAO officials exhibited a paternalistic attitude towards member farmers. In a February, 1994, interview the general manager of one UCCAO union was asked why UCCAO did not respond to competition from NWCA by raising its producer prices to a more competitive

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[33] Despite its marketing losses in 1994/95, NWCA continued to offer higher prices than UCCAO during the 1995/96 season. But there was a steep drop in prices between 1994/95 and 1995/96. According to Arabica Market Information System price quotes for the week of February 26, 1996, producer prices offered by NWCA ranged between 400 and 500 FCFA per kilo compared to the UCCAO price of 400 FCFA per kilo.

[34] UCCAO is a marketing association of six cooperative unions and a central office. There is no network of small-scale local cooperatives equivalent to primary societies in NW Province. Instead, farmers deliver coffee to union service centers, which are in turn grouped into sections. Centers and sections have no financial autonomy and function as logistical and administrative subunits for the union. Farmers in each center elect a committee to oversee its affairs, send a president to sit on the section board of directors and elect delegates to section general assemblies. Section general assemblies also elect a committee--the president of which sits on the union board--and delegates to the general assembly. Decision-making authority is vested in union-level governing bodies. Gellar et al. (1990) reported that due to the large size of unions (total membership in the four UCCAO unions ranged between 13,000 and 28,000 members) farmers were poorly represented in union governance and had a very limited ability to monitor or influence affairs. Union boards of directors tend to be dominated by local notables and politicians. Prior to reform, the UCCAO apex played an interventionist role in union affairs. Government-appointed civil servants occupied many of UCCAO's key management positions.

level. His response was that 400 CFA per kilo (the UCCAO price at the time) was "all that farmers expected and enough for them to be satisfied" (Interview, February 16, 1994).

However, evidence from 1993/94 showed that national level policy reforms and competition were creating pressures for restructuring within UCCAO. These reforms enabled UCCAO cooperatives to begin laying off staff to reduce costs and ease financial difficulties[35]. Green (1994) and Oakerson (1994) report that after the new cooperative law was enacted, member unions rid themselves of civil servants who had been appointed to key management positions within UCCAO. In addition, the power advantage between the UCCAO Apex and its member unions shifted to the advantage of unions.

Three private firms also began buying arabica coffee in West Province in 1993/94. Over time one would expect that competition from private firms and NWCA will create strong pressures for UCCAO to restructure in order to reduce costs and improve efficiency. In fact, in response to price competition, one UCCAO union broke ranks with other unions and responded to competition by raising its producer prices to 450 CFA per kilo during the 1993/94 season. This suggests that NWCA's price advantage over competitors observed during the early years of reform may be short-lived. Over time, price competition from UCCAO, or private firms who might enter the NW Province arabica market, should intensify pressure on NWCA cooperatives to control and reduce costs.

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[35] Eighty-four of 185 employees were laid off in 1993 at the apex alone.

7.5. Coffee Production After Reform

Previous sections focused on cooperatives' response to reform. This section analyzes the farm-level supply response to reform. A lack of information precludes an analysis of the effects of reform on coffee production in West Province. As a result, the analysis focuses almost entirely on North West Province.

With higher prices and improved economic incentives stemming from reform, one would expect an expansion of arabica coffee production after reform. Pre-devaluation initial prices would have had the greatest influence on growers' production decisions in 1993/94 since devaluation occurred as coffee was being harvested, after production decisions had been made. The beneficial effects of devaluation and rising world prices on producer prices were perceived in final 1993/94 prices and initial 1994/95 prices, and thus would be expected to have had a strong influence on production decisions in 1994/95.

The tonnage of washed arabica coffee collected by NWCA between 1989/90 and 1994/95 is summarized in Table 7.10 and Figure 7.4. The results show a significant expansion in production after reform in 1993/94. NWCA handled 3,038 tons of washed arabica in 1993/94, an increase of 34 percent over the 2,229 tons it handled in 1992/93. NWCA's tonnage increased an additional 27 percent to 3,845 tons between 1993/94 and 1994/95. Between 1992/93 (the last year of fixed prices) and 1994/95 (the second year after reform) the tonnage of washed arabica handled by NWCA increased by 72 percent.

However, annual tonnage figures should be viewed with some caution since a variety of agro-climatic factors affect arabica output in any given season. For example, the 1992/93 season was characterized by an exceptionally large harvest. To account for seasonal variation in production, tonnage data for NW Province are also expressed in 4-

Table 7.10: Washed Arabica Production in North West Province During and After Reform: 1989/90 - 1994/95.

Year	Producer Prices (CFA/kg.)		Washed Arabica Production (Metric tons)	Change In Production from Previous Year
	Initial	Final		
A) Transitional Period of Reform: Fixed Prices				
1989/90	250	250	2,247	--
1990/91	250	250	1.841	- 18 %
1991/92	250	250	4,464	+ 142 %
1992/93	200	227	2,229	- 50 %
B) After Reform: Society-Level Pricing				
1993/94[2]	260 (520)	775	3,038	+ 36 %
1994/95	1,000	1,000	3,845	+ 27 %
C) Tonnage Expressed as 4-Year Moving Average				
1989/90 - 1992/93	--	--	2,695	--
1990/91 - 1993/94	--	--	2,893	+ 7 %
1991/92 - 1994/95	--	--	3,394	+ 17 %

Notes: 1) Price in parentheses reflects doubling of 1993/94 initial producer prices in the middle of the season to account for CFA devaluation.

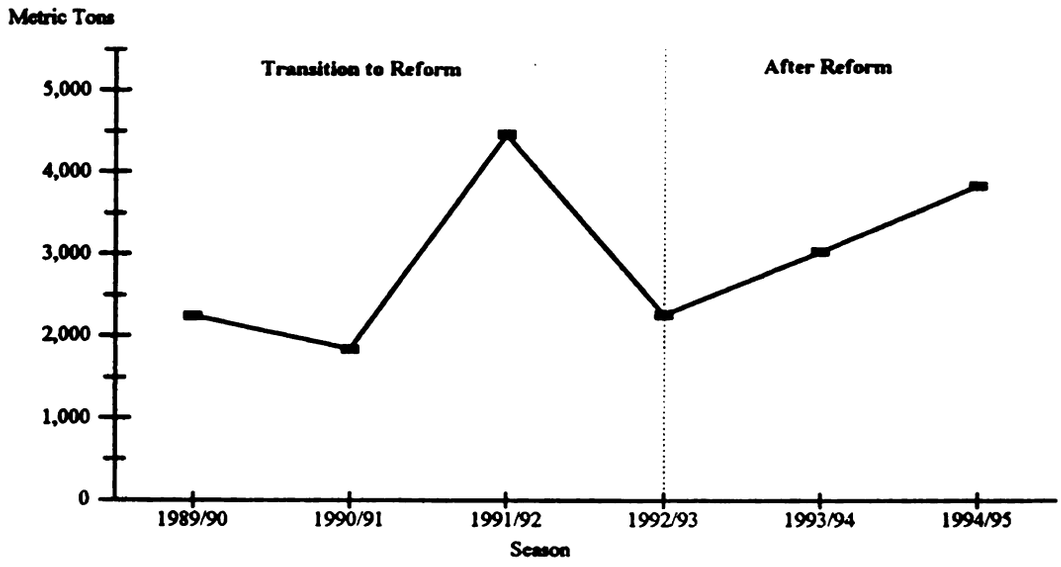

Figure 7.4: Washed Arabica Coffee Production in North West Province, Cameroon, 1989/90 - 1994/95: During and After Reform

year moving averages in Table 7.10. The results show that the average annual washed tonnage handled by NWCA during the transition to reform (1989/90 - 1992/93) was 2,695 tons. Average annual production for the 1990/91-1993/94 period, which includes the first year of reform, increased by 7 percent to 2,893 tons. For the 1991/92-1994/95 period, which includes the first two seasons after reform, average annual production was 3,394 tons. This represents a 17 percent increase over the 1990/91-1993/94 period, and a 26 percent increase over the 1989/90-1992/93 (transition) period.

NWCA's annual tonnage data between 1977/78 and 1994/95 is presented in Figure 7.5. The time series includes the administered marketing era, the transitional period of reform and the first two years after reform. The results clearly show the long term decline in coffee production under the administratively determined fixed producer prices that

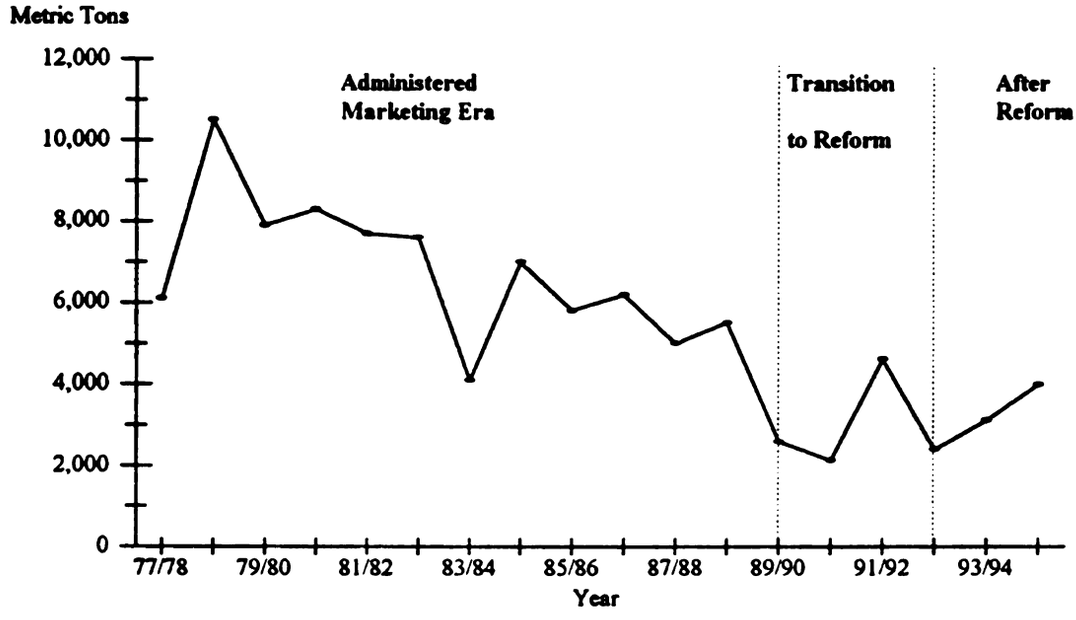

Figure 7.5: Arabica Coffee Production in North West Province, Cameroon: 1977/78 - 1994/95: Before and After Reform.

characterized both the administered marketing era and transitional period of reform. However, tonnage increased in both 1993/94 and 1994/95 after society-level pricing arrangements were implemented. This was the only time that tonnage increased in consecutive marketing seasons during the 1977/78-1994/95 period (Figure 7.5)[36].

The evidence supports a conclusion that after experiencing years of eroding returns to arabica production, coffee farmers responded to improved price incentives after reform by expanding output. However, provincial production is measured by the tonnage of coffee handled by NWCA and does not distinguish to what degree NWCA's increased tonnage reflects an expansion in farm-level production or changes in inter-regional coffee

[36] The same observation holds true for the 1971/72 through 1994/95 period.

marketing patterns. This topic is analyzed in more detail in the following sections.

7.5.1. Impact of Reform on Regional Marketing Patterns

The tonnage of coffee handled by cooperative unions in North West Province between 1992/93 and 1994/95 is presented in Table 7.11. The tonnage patterns of individual unions changed significantly after reform. For example, Ndop Union's coffee tonnage in 1993/94 increased by nearly five times (or 370 percent) over its tonnage in 1992/93--an exceptionally large increase. However, tonnage increased by only 3 percent in Nkambe Union between 1992/93 and 1993/94, and decreased in three low tonnage union unions (Moghamo, Bali and Mbengwi).

Revenue from arabica is a more important component of farm incomes in some areas of NW province than others. It continues to be the principal cash crop in high tonnage areas of the Province but has been displaced in importance by robusta coffee and food crops in low tonnage areas. Overall, annual production showed greater variability in low tonnage unions than in high tonnage unions, since only a small change in absolute tonnage translates may translate into a large change in percentage terms. At first glance, the results in Table 7.11 suggest that arabica tonnage increased by a greater proportion in small tonnage unions than in large tonnage unions. However, the exceptionally large tonnage increase of Ndop Union skews the results for low tonnage unions. If Ndop is excluded, tonnage increased by an average of 27 percent in high tonnage unions compared to 31 percent in low tonnage unions between 1992/93 and 1993/94 (the first year after reform). Between 1993/94 and 1994/95 (the second year of reform), tonnage increased by an average of 31 percent in high tonnage unions and 29 percent in low tonnage unions.

Table 7.11: Union Washed Arabica Coffee Tonnage Between 1992/93 and 1994/95: Changes Since Adoption of Society-Level Pricing. (Metric tons)

Union	1992/93 Tonnage	1993/94 Tonnage	*% Change 92/93-93/94*	1994/95 Tonnage	*% Change 93/94-94/95*	*% Change 92/93-94/95*
A) High Tonnage Unions						
Kom	627	786	*25 %*	837	*7 %*	*34 %*
Nso	397	466	*17 %*	808	*73 %*	*104 %*
Santa	282	483	*71 %*	545	*13 %*	*93 %*
Nkambe	306	316	*3 %*	429	*36 %*	*40 %*
Oku-Noni	285	357	*25 %*	538	*51 %*	*86 %*
Sub-Total	1897	2408	*27.0*	3157	*31 %*	*66 %*
B) Low Tonnage Unions						
Ndop	57	269	*370 %*	222	*-18 %*	*288 %*
Bamenda	83	136	*64 %*	169	*24 %*	*104 %*
Pinyin	38	80	*109 %*	104	*29 %*	*170 %*
Moghamo	54	52	*- 6 %*	67	*29 %*	*23 %*
Bali	49	45	*- 9 %*	73	*62 %*	*48 %*
Mbengwi	51	48	*- 6 %*	53	*11 %*	*5 %*
Sub-Total	332	630	*90 %*	688	*9 %*	*107 %*
• Excl. Ndop	275	361	*31 %*	466	*29 %*	*69 %*
All Unions	**2,229**	**3,038**	*36 %*	**3,845**	*27 %*	*72 %*

In 1994/95, the average tonnage of high tonnage unions was 66 percent higher than in 1992/93, compared to 69 percent in low tonnage unions. The results do not indicate a significant difference in marketing patterns in high and low tonnage unions in NW Province.

Previously in the dissertation, it was observed that when NW cooperatives could not reliably pay farmers during acceptance, a significant amount of coffee flowed out of North West into West Province, where payments were more reliable. After the reliability of cooperative payments to NW farmers improved significantly after reform, incentives for producers to sell coffee to traders at a discount were eliminated. Furthermore, after devaluation of the CFA franc, NWCA began to pay its producers significantly higher prices than UCCAO in West Province. Whereas previously price incentives had favored a cross-border flow of coffee from North West into West Province, after reform the reverse was true.

To determine the degree to which NWCA's increased tonnage after reform was attributable to a coffee flowing into NW Province from West Province, the tonnage of unions which border on and have easy access to West Province was compared to the tonnage of unions located in the interior regions of NW Province. The results in Table 7.12 show that tonnage increased by a greater amount in unions which had easy access to West Province than in other union areas of North West Province, particularly in 1993/94 (the first year after reform). Tonnage increased by an average of 67 percent among the five unions with good access to West Province between 1992/93 and 1993/94, but by only

Table 7.12: Union Coffee Production Patterns in North West Province After Reform in Relation to Their Access to West Province: 1992/93 - 1994/95.

Union	1992/93 Tonnage	1993/94 Tonnage	*% Change 92/93-93/94*	1994/95 Tonnage	*% Change 93/94-94/95*	*% Change 92/93-94/95*
A) Unions with Easy Access to West Province						
Ndop	57	269	*370 %*	222	*-18 %*	*288 %*
Pinyin	38	80	*108 %*	104	*29 %*	*170 %*
Bamenda	83	136	*64 %*	169	*24 %*	*104 %*
Nso	397	466	*17 %*	808	*73 %*	*104 %*
Santa	282	483	*71 %*	545	*13 %*	*93 %*
Sub-Total	857	1,434	*67 %*	1,848	*29 %*	*116 %*
B) Unions with Poor Access to West Province						
Oku-Noni	285	357	*25 %*	538	*51 %*	*89 %*
Bali	49	45	*- 9 %*	73	*62 %*	*48 %*
Nkambe	306	316	*3 %*	429	*36 %*	*40 %*
Kom	627	786	*25 %*	837	*7 %*	*34 %*
Moghamo	54	52	*- 6 %*	67	*29 %*	*23 %*
Mbengwi	51	48	*- 6 %*	53	*11 %*	*5 %*
Sub-Total	1,372	1,604	17 %	1,997	25 %	46 %
All Unions	**2,229**	**3,038**	*36 %*	**3,845**	*27 %*	*72 %*

Notes: 1) Figures in metric tons.
2) Italics indicate change in tonnage.

17 percent in unions with poor access[37]. In the two years after reform (1992/93-1994/95), each of the five unions that experienced the greatest increase in tonnage each had easy access to West Province. Tonnage increased by an average of 116 percent in these unions compared to an average increase of only 46 percent in the six unions with poor access to West Province.

Evidently, much of NWCA's increased tonnage in 1993/94 was attributable to a change in the flow of coffee between West and North West Provinces. Tonnage information from West Province, although limited, lends support to this claim. In a February, 1994, interview, the general manager of one UCCAO union estimated that the total tonnage of coffee processed by UCCAO would be only 3,500 tons of coffee in 1993/94, nearly 1,000 tons less than in 1992/93. If accurate, this estimate implies that UCCAO's tonnage decreased in the first year after reform, while NWCA's increased significantly.

It is believed that the traders and wealthy farmers who had long been active in informally trading coffee between provinces continued to account for much of this cross-border trade. However, many inexperienced and enterprising individuals also entered the market (personal communications with NWCA, 1995). Moreover, some unions in North West Province capitalized on their ability to offer higher prices by actively purchasing coffee from West Province farmers. Bamenda Central Union was a case in point. To compensate for declining coffee production in the urbanized Bamenda area, the union had

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[37] Tonnage in the Ndop area increased by an astonishing 370 percent between 1992/93 and 1993/94. In many respects, Ndop has easier access to West than to other areas of NW Province. Whereas the Ndop area is separated from other areas of NW Province by rugged mountains, the Ndop plain extends into West Province.

a tradition of buying coffee wherever it could to augment its tonnage and lower per kilo costs. Even during the era of fixed producer prices Bamenda Central attempted to buy coffee in rival union areas such as Ndop, Bali, Mbengwi and Moghamo[38]. Early in the 1993/94 season, Bamenda Central began to buy aggressively coffee from West Province. After significant price differences between West and North West Province emerged in mid-season, high-cost Pinyin Union, which was under strong pressure to achieve its estimated tonnage and budgeted per kilo costs, followed suit[39].

However, marketing patterns changed in 1994/95 (Table 7.12). Between 1993/94 and 1994/95 the tonnage of the five unions with easy access to West Province increased by an average of 29 percent. Tonnage among the six unions with poor access to West Province increased by an average of 25 percent--roughly the same amount. However, Nso Union accounted for most of the increased tonnage of the five union with easy access to West Province. If Nso is omitted from the calculations, tonnage among the four remaining unions with good access to West Province increased by an average of only 9 percent. Four of the six union areas with the highest tonnage increases in 1994/95 (Bali, Oku, Nkambe and Moghamo) had poor access to West Province. Coffee flowing into North West Province from West Province appears to have had less of an impact on union tonnage in 1994/95 than it did in 1993/94. Instead, production increases in 1994/95

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[38] A union that directly purchases coffee can potentially offer farmers higher prices than can societies because it does not have to pay society costs.

[39] Traders who delivered coffee from West Province to primary societies in North West would have been entitled to receive residual bonus payments. The same would not be true of coffee purchased directly by unions. Union management could distribute the profits realized from the coffee it purchased from West Province as it wished.

appear to have been a farm-level response to high final prices in 1993/94 and initial prices in 1994/95.

The evidence supports a conclusion that a significant part of NWCA's increased tonnage after reform, and particularly in 1993/94, was attributable to a reversal in the flow of coffee between West and North West Province. However, the trend of increasing tonnage after reform was not solely attributable to a shift in regional marketing patterns. Oku-Noni and Kom are both relatively isolated unions located in the interior of North West Province. Between 1992/93 and 1993/94, the tonnage of both these unions increased by 25 percent (Table 7.12). Throughout NW Province the care with which farmers cleared and weeded their plots and pruned their trees improved noticeably in 1993/94 relative to the 1992/93 season[40]. Evidence of increasing tonnage increased in both high and low tonnage unions, and unions with both good and poor access to West Province suggests that producers responded to improved price incentives by expanding production.

7.5.2. Relationship Between Union Costs and Production

In 1993/94, initial pre-devaluation per kilo costs exhibited little variation among unions and tended to converge within a narrow range (Section 7.3.2). Given the costs of transporting coffee to more distant union areas, one would not expect differences in union costs to have had much influence on where coffee was delivered for processing in 1993/94. It was only at the end of the 1993/94 season, after devaluation-related cost

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[40] This is discussed in more detail in the context of bean size in Chapter 8.

revisions were completed, that significant cost variation among union costs emerged. 1994/95 union costs exhibited even greater variation. This cost (and price) variation would be expected to have influenced marketing patterns in 1994/95.

Table 7.13 compares changes in initial union costs with changes in union tonnage between 1993/94 and 1994/95 and the entire post-reform period (1992/93 - 1994/95). The results are presented in both absolute and relative terms. Unions were ranked in inverse order to the amount that their per kilo costs increased after reform (1992/93-1994/95), and grouped by their relative success in controlling costs relative to the mean for all unions. 1994/95 costs are compared to revised, post-devaluation 1993/94 costs.

The results in Table 7.13 show that between 1993/94 and 1994/95, tonnage increased by an average of 42 percent in the unions that were comparatively successful in controlling costs, but by only 20 percent in unions that failed to control costs. The results from some unions stand out. Nso Union's tonnage increased by 73 percent in 1994/95, the largest increase in NW Province. Nso's management adopted a strategy of maximizing producer prices by strictly controlling costs in 1994/95, and its per kilo costs did not increase between 1993/94 and 1994/95. Oku-Noni was the second lowest cost union in NW Province in 1994/95 and witnessed a tonnage increase of 51 percent--nearly twice the average for all NW Province. In contrast, Kom Union's costs increased markedly during cost revisions in 1993/94 and continued to increase in 1994/95. Its tonnage increased by only 7 percent between 1993/94 and 1994/95. Ndop Union was one of the lowest cost unions in 1993/94, and witnessed an exceptionally large increase (370 percent) in tonnage between 1992/93 and 1993/94 (see Table 7.12). However, Ndop Union failed to control costs in 1994/95 and its tonnage fell by 18 percent.

Table 7.13: Changes in Union Costs and Arabica Tonnage After Reform: 1992/93 -1994/95.

Union[1]	I) 1993/94 - 1994/95				II) 1992/93 - 1994/95			
	Increase in Costs[2]		Increase in Tonnage		Increase in Costs		Increase in Tonnage	
	CFA per kilo	%	Tons	%	CFA per kilo	%	Tons	%
A) Unions Comparatively Successful in Controlling Costs After Reform								
Nso	0	*0 %*	342	*73 %*	40	*67 %*	411	*104 %*
Oku-Noni	18	*19 %*	181	*51 %*	55	*92 %*	253	*89 %*
Moghamo	29	*30 %*	15	*29 %*	65	*108 %*	13	*23 %*
Santa	18	*16 %*	62	*13 %*	70	*117 %*	263	*93 %*
Mean:	24	*16 %*	150	*42 %*	58	*96 %*	235	*77 %*
B) Unions Comparatively Unsuccessful in Controlling Costs After Reform								
Ndop	52	*56 %*	(- 47)	*(-18%)*	85	*142 %*	165	*288 %*
Bali	66	*79 %*	28	*62 %*	90	*150 %*	24	*48 %*
Kom	40	*35 %*	51	*7 %*	95	*158 %*	210	*34 %*
Nkambe	44	*36 %*	113	*36 %*	105	*175 %*	123	*40 %*
Bamenda	75	*75 %*	33	*24 %*	115	*192 %*	86	*104 %*
Mbengwi	95	*95 %*	5	*11 %*	135	*225 %*	2	*5 %*
Mean:	62	*63 %*	32	*20 %*	105	*174 %*	102	*87 %*
• Excluding Ndop	64	*64 %*	46	*28 %*	108	*180 %*	89	*46 %*
Mean– NWCA	**44**	***43 %***	**86**	***27 %***	**81**	***134 %***	**161**	***72 %***

Notes: 1) Unions are ordered by the amount that their cost increased between 1992/93 and 1994/95. Pinyin Union has been omitted due to a lack of 1994/95 cost data.
2) Change in costs reflects difference between revised, post-devaluation 1993/94 and 1994/95 costs.

The results from other unions show a less distinct relationship between costs and tonnage. Although Bali Union's costs rose by a disproportionately large amount (79 percent) in 1994/95, it experienced the second highest increase in tonnage in NW Province at 62 percent. But, Bali was the lowest cost union in NW Province in 1993/94, and it paid the highest producer prices. Although Bali was unable to control costs in 1994/95, it still was able to pay higher prices than neighboring unions such as Bamenda Central and Mbengwi. With only limited opportunities for Bali producers and traders to market coffee in lower cost union areas, Bali Union's tonnage increased in 1994/95 despite rising costs.

Similarly, Nkambe Union was relatively unsuccessful in controlling costs in 1994/95. Despite being one of the highest cost unions, its tonnage increased by 36 percent--the fourth highest increase in NW Province. However, the Nkambe area's remote location, high transportation costs and poor road networks may have sheltered the union from competitive pressures. Thus, Nkambe's tonnage increase in 1994/95 was likely the result of farmers responding to improved price incentives.

Bamenda Central's per kilo costs nearly tripled between 1992/93 and 1994/95, increasing from 60 CFA to 175 CFA per kilo, yet its tonnage more than doubled from 83 to 169 tons. However, as discussed above Bamenda Central is a special case. The significant increase in Bamenda Central's tonnage after reform is likely explained by its coffee purchases from West Province. Although Bamenda Central's costs were not competitive with other unions in NW Province in 1994/95, its was able to offer higher prices than UCCAO in West Province.

The evidence strongly suggests that union tonnage increases were positively associated with the relative success of unions in controlling costs. To statistically test the

relationship between the changes in initial union costs and tonnage after reform, the data in Table 7.13 were analyzed using simple regression techniques. The model was specified with the absolute change in tonnage (in metric tons) as the dependent variable and the absolute change in initial union costs (in CFA per kilo) as the independent variable. Union costs serve as a proxy variable for producer prices. The model was run using the change in costs and tonnage for the entire period after reform (1992/93-1994/95) and between 1993/94 and 1994/95 seasons[41]. The key findings are summarized in Table 7.14.

The coefficient for the change in initial union cost variable was statistically significant and negative for both the entire post-reform period (1992/93 - 1994/95) period and 1993/94-94/95 period. The results show that a 3.2 ton decrease in union tonnage was associated with a 1 CFA per kilo increase in initial union costs between 1992/93 and 1994/95. In other words, the increase in tonnage was less pronounced in unions that were relatively unsuccessful in controlling initial cost increases than in unions that were relatively successful in controlling initial cost increases between 1992/93 and 1994/95.

Regression results for second year of reform only (the 1994-1994/95 period) were remarkably similar to those for the entire reform period (1992/93-1994/95) (Table 7.14). The initial union cost coefficient remained statistically significant and negative. Increases in union tonnage between 1993/94 and 1994/95 were inversely related to union costs.

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[41] The regression results were not statistically significant when the changes in union tonnage and costs were expressed in percentage terms. A relatively small absolute change in the tonnage of a small union can translate into a relatively large percentage change, and vice versa. The exceptionally large increase in tonnage experienced by Ndop Union between 1993/94 also skewed the results. In any event, traders and farmers in NW Province would be expected to base their marketing decisions on differences in actual prices offered by societies rather than the percentage by which union costs increased.

Table 7.14: The Influence of Union Costs on Coffee Marketing Patterns in North West Province After Reform: Simple Regression Results. (10 observations)

A) Over Two Years: 1992/93 - 1994/95			
Dependent Variable: Change in Tonnage 92/93 - 94/95 (metric tons)			
Independent Variable	Coefficient	*t*-statistic	Probability
Intercept:	425.6	4.06	0.00
Change in Internal Cost 92/93 - 94/95 (CFA/kg.)	-3.2	-2.17	0.02
R^2: 0.48			
B) Between 1993/94 and 1994/95 Only			
Dependent Variable: Change in Tonnage 93/94 - 94/95 (metric tons)			
Independent Variable	Coefficient	*t*-Statistic	Probability
Intercept	192.8	3.79	0.00
Change in Union Cost[1] 93/94 – 94/95 (FCFA/kg.)	-2.62	-2.66	0.03
R^2: 0.47			

Note: 1) Measured as the difference between 1994/95 and revised, post-devaluation 1993/94 costs. Measuring the change in union costs as the difference between 1994/95 and initial, pre-devaluation 1993/94 costs does not alter the regression results.

However, the magnitude of the change in the cost variable was slightly less for the 1992/93-1994/95 period (-2.6 vs. -3.2 CFA per kilo). The R^2 result indicates that 47 percent of the variation in the change in union tonnage was associated with variation in change in union costs between 1993/94 and 1994/95. The relationship between union costs and tonnage was also statistically tested for the 1992/93 and 1993/94 period only, but yielded no significant results. This was expected. Whereas union per kilo costs, and by extension producer prices, exhibited substantial variation in 1994/95, this was not the case in 1993/94.

The regressions for both periods were also run including a dummy variable (DUMMY WEST) designed to test whether an inflow of coffee from West Province affected the results[42]. For both the 1992/93-1994/95 and 1993/94-1994/95 time periods the DUMMY WEST variable was not statistically significant and had no affect on either the significance or sign of the change in the cost variable. Differences in initial union costs appear to have had a greater impact on regional coffee flows than did proximity to West Province after reform.

The evidence supports a conclusion that coffee tonnage increased by a greater amount in unions that controlled costs than in unions that failed to control costs. Under society-level pricing arrangements, coffee tended to move from high cost union areas to lower cost areas. However, the data do not explain how coffee moved between union areas. Within the three-tiered cooperative structure of primary societies, unions and an Apex organization, the NWCA Apex is ideally placed to gather and disseminate society price information since it directly interacts with all eleven unions. However, NWCA's inability to provide complete producer price information suggests that farmers' had little awareness of price variation in NW Province. In addition to facing high information gathering costs, transportation costs constrain the ability of the average farmer to market coffee outside their union area. However, businessmen with established trade networks, greater mobility, and/or resources (including access to transportation) would have an advantage over farmers in collecting price information. Similarly, influential members of cooperatives and elected officials at the union and apex level would likely have access to more complete

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[42] Unions were coded as 1 if they had good access to West Province and 0 if not.

price information than the average farmer. As a result, traders and enterprising cooperative officials likely accounted for much of the movement in coffee between high and low cost areas after reform. Individuals could purchase coffee directly from farmers in high-cost areas by offering higher prices than local societies, and subsequently deliver it at a net profit to societies or unions elsewhere in NW Province which were offering higher prices.

7.5.3. Conclusions

The results from the first two years after reform show that coffee production, as measured by the amount of coffee collected by coffee cooperatives, increased significantly in NW Province. Arabica farmers responded to improved price incentives by expanding production. However, it is an open question whether this increase in production can be sustained over the long term. The implementation of society-level pricing arrangements coincided with devaluation of the CFA franc and a period of high world coffee prices. Both of these events were exogenous to the reform effort but raised producer prices. Luck played a role in the early success of the institutional reforms.

However, there are strong reasons to believe that NWCA will be unable to sustain the high prices it paid producers during the 1993/94 and 1994/95 seasons. Under society-level pricing arrangements, producer prices are directly linked to marketing costs and export prices. The spike in world prices in 1993/94 and 1994/95 enabled NWCA to pay high producer prices despite rising cooperative costs and the government's implementation of the 26 percent export tax on arabica in 1994/95. But spikes in world prices are typically short-lived. As export prices fall, high export taxes and increasing

cooperative cost increases can be sustained only by lowering producer prices, thereby lowering producer incentives. Under society-level pricing arrangements, marketing losses such as those incurred by NWCA in 1994/95 must be recovered by cooperatives during the following season at the expense of lower producer prices.

NWCA's ability to sustain production increases over the long-term depends critically on the success of reformed marketing institutions in promoting cost control. Although the evidence from the first two years after reform raised doubts about farmers' ability to act collectively in controlling cooperative costs (particularly at the apex and union levels), society-level pricing procedures enable farmers to participate in the cost determination process. In the context of declining producer prices, one would expect farmers to have stronger incentives to demand cost control and accountability from their cooperatives.

Regional marketing patterns shifted after reform. NWCA's ability to reliably pay higher prices than West Province induced a shift in inter-provincial flow of coffee, particularly during the first year after reform. Coffee began flowing into North West from West Province, the reverse of the pre-reform pattern. NWCA's price advantage created strong incentives for some cooperatives in North West to lower their per kilo costs by augmenting their tonnage with coffee purchased in West Province. In the first two years after reform, NWCA enjoyed a strong competitive position. But over the longer term it is not clear whether NWCA will be able to continue to pay higher prices than UCCAO. The technical assistance and cost reductions supported by USAID during the transition to reform, gave NWCA a head start in adapting to the privatized arabica market. Early in the post-reform period there were signs that UCCAO cooperatives were beginning to restructure and lower costs. For NWCA to maintain its competitive advantage over

UCCAO, it must continue to control costs and reliably pay producers.

Within NW Province, coffee began flowing from high-cost cooperative areas to low-cost areas offering higher prices. This was particularly true during the second year of reform (1994/95) after substantial cost differences emerged between cooperative unions. This shift in marketing patterns provides early evidence that reform may be successful in promoting cost (and price) competition between unions. The results from Nso and Oku-Noni Unions are particularly noteworthy. As evidenced by their high degree of society-level restructuring, these unions were receptive to reform. By controlling costs, Nso and Oku-Noni unions were able to pay their members relatively high prices, and both unions witnessed exceptionally large increases in tonnage.

Whether competition will promote improved cost control in high-cost union areas at the union level is not clear after just two coffee seasons. But if unions such as Nso and Oku can maintain their price advantage by continuing to control costs over time, one would expect that competition will increase the pressure on high-cost unions in neighboring areas such as Kom, Nkambe and Ndop to lower costs. If this happens, there should be a restructuring of production at the union level as high-cost and inefficient cooperatives either improve their performance or go out of business. This will depend on continued implementation of society-level determination of producer price and costs. However, experience also suggests that reform will not have its full expected impact unless cooperatives, and particularly the Apex and unions, provide timely and adequate cost and price information to producers.

CHAPTER 8

Impacts of Reform on Coffee Quality

The primary objective of institutional reform was to introduce new governance arrangements and marketing institutions within the vertically integrated cooperative structure that would create incentives for cooperative officials to control costs and maintain coffee quality, and for producers to expand production and improve coffee quality. The impacts of reform on cooperative costs, producer prices and arabica production were discussed in Chapter 7. This chapter analyzes the impacts of reform on coffee quality.

8.1 Cooperative and Farm Level Reforms: Expected Impacts on Quality

The characteristics of the arabica situation differ at the farm and cooperative level. Since there are few available measures of bean quality when coffee is in its intermediate parchment state, it is inherently difficult to detect whether coffee has been properly harvested and washed at the point of initial handling when farmers deliver their parchment to cooperatives for acceptance. However, it is much easier to measure bean quality after coffee has been hulled, graded and sorted during secondary processing. As a result, high information cost problems are deeper at the farm than cooperative level. This section restates the quality problem posed by the arabica situation, and reviews the farm and

cooperative level reforms that were implemented to improve quality.

8.1.1 Farm-Level Reforms to Improve Quality

The inherent quality attributes of coffee beans are determined during production, harvesting and washing (initial processing). Improperly harvested and washed coffee produces undesirable tastes in the cup that significantly lowers its value to traders and roasters. In North West Province, coffee is washed exclusively by individual farmers. Because it is performed by 35,000 dispersed arabica producers, it is impossible for cooperatives to monitor individual farmers' washing practices. Although the quality of coffee produced by farmers may vary significantly, it is inherently difficult to measure its quality when farmers deliver parchment to cooperatives for subsequent processing. The appearance and odor attributes of parchment provide only crude measures at best of whether coffee was properly harvested, washed and dried. Although the visual attributes of coffee beans themselves provide more detailed and accurate measures about quality, these attributes are easily observed only after the parchment layer encasing beans has been removed through hulling. Even if it were possible to observe all of a farmer's beans during acceptance, inspection would still be an imperfect measure of quality. The quality problems associated with poor washing practices are often a matter of degree. Inspection alone is insufficient to detect subtle quality differences between beans.

The actions of downstream processors also affect coffee's eventual cup quality. Coffee quality is adversely affected if it is improperly stored and handled as it moves through the marketing chain. More importantly, secondary processing is a key quality-related function. If coffee is properly graded by size and sorted by density and color,

many (if not all) of the defective beans associated with poor farm-level production practices should be separated from good beans. But, at the point of initial handling it possible to know how effective secondary processing will be in controlling farm-level quality problems. The full spectrum of coffee's quality attributes can be accurately measured only through the cup taste, which occurs at the end of the marketing chain. Before quality is measures, coffee has been grown, harvested, washed, dried, hulled, graded, sorted, stored, transported and shipped, roasted, ground and brewed. Each of these activities may affect final cup quality. The high information cost characteristics of arabica create an institutional dilemma. How can producers be rewarded for invests in quality if the quality of their coffee cannot be reliably ascertained and measured?

Progressively greater economies of scale in transportation, processing and marketing further deepen and compound farm-level information costs. To realize economies of scale, coffee is pooled into greater quantities as it moves through the marketing chain. An individual producer's coffee is pooled with that of others before being transported by a society to a cooperative union; coffee from different societies is pooled by unions prior to secondary processing; and unions assemble processed green coffee into graded lots before they are sold and shipped to buyers. Since buyers determine the price they will pay for a lot of coffee based on their quality evaluations of representative lot samples, sales prices reflect lot quality. But since coffee was progressively pooled, this implies that sales prices reflect the average quality produced by the numerous individual producers who contributed to the pool. This has important ramifications on quality improvement efforts.

To realize a price premium from quality improvement, the overall quality of lots offered for sale must improve. But overall quality will improve perceptibly only if the

numerous individual within a pool invest in improving the quality of coffee they produce. Unless he is rewarded for his efforts, an individual producer will have no incentive to invest greater resources in improving quality. Because of high information costs and economies of scale in marketing, market-generated prices fail to distinguish or reward an individual producer's quality contribution. It is only possible to track coffee only after it has been hulled, graded, bagged and marked for export by cooperative unions[1]. As a result, sales prices can be communicated backwards to the union level only, a level at which coffee has already been highly aggregated. The quality premium, if any, has high exclusion cost characteristics which create incentives for individuals to shirk on investments in quality and to free ride on the quality contributions of others. Put another way, the information cost of distinguishing coffee quality when delivered to the first handler provides an opportunity for moral hazard.

Institutions are critical in overcoming problems of economic organization posed by high information costs. The effectiveness by which alternative institutional arrangements distinguish and control for quality, reward individual producers for investments in quality, and discourage free riding strongly influences farmers' motivation to produce good quality coffee. As documented in Chapter 4, administered marketing institutions were ineffective in controlling quality at the farm-level and failed to generate quality incentives for producers. In NW Province, the Marketing Board had sole claim to any quality premium perceived in sales prices. Under administered pricing arrangements, producers could

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[1] Tracking an individual's or society's coffee would require that it be separately processed and sold to buyers. This would be prohibitively expensive since it would sacrifice economies of scale.

maximize returns by making minimal investments in quality yet still receive the fixed national coffee price. The harvesting and washing techniques of farmers were generally poor, and farmers had little awareness that their actions affected quality or price.

Reform designers viewed quality improvement at the farm level to be primarily a behavioral problem, requiring that farmers collectively change their production, harvesting and washing techniques. Institutional reform sought to provide producers with improved incentives and information to motivate them to invest more resources in production, take greater care in harvesting and washing, and to demand quality control from cooperatives during downstream processing and marketing. Quality improvement was viewed as an inherently long term process, or the cumulative outcome of individual producers responding to institutional incentives. However, reforms only partially resolved problems related to high measurement and information costs, as well as the high exclusion cost characteristics of the quality premium that flow from economies of scale in processing and marketing (see Chapter 5).

The reform program relied on a package of institutional reforms and incentives to improve quality at the firm level. By linking producer prices to cooperatives costs, society-level pricing arrangements sought to improve the profitability of arabica production by enabling farmers to realize benefits from cost savings. These arrangements were also intended to communicate world price signals to the farm level. New parchment acceptance procedures were critical to starting the quality improvement process. During acceptance, parchment quality was classified coffee as good, average and poor--Class I, II and III, respectively--based on number of defects beans in a 100 gram sample, and the overall appearance and odor of parchment. Although these attributes of parchment quality

were poor predictors of final cup quality and only crude measures of whether coffee was properly harvested and washed, reformers nevertheless believed they provided a method of measuring and to distinguishing quality differences in the parchment by produced farmers, and improving quality control at the point of initial handling.

The quality distinctions contained in the reformed acceptance procedures were also intended to provide an institutional means for NWCA to price classes of coffee differentially, and thus reward individual producers for investments in quality. Unlike administered pricing arrangements, this would create different prices for poor, average and good quality beans. However, NWCA never differentially priced average and good quality coffee differently. During reform implementation, a marketing consultant argued that if NWCA properly sorted and graded its coffee, buyers would be unlikely to discern quality differences among the three classes of coffee. If NWCA attempted to market different classes of coffee separately to buyers, its already small tonnage of coffee would be unnecessarily fragmented into small quality categories which had little meaning to buyers. Any benefits from quality improvement that were derived from implementing the new quality classification arrangement would be offset by the higher transactions costs they created. Although this advice seemed to ignore the critical role of institutional arrangements in resolving information cost problems (i.e., distinguishing and differentially rewarding individual producers for quality), it was nevertheless embraced by senior NWCA management. NWCA instead used the acceptance procedures to strictly control for inferior quality (Class III) parchment, which it processed, sold and priced separately from better quality parchment. Although acceptance procedures continued to distinguish average (Class II) from good (Class I) quality parchment, there were no corresponding

differences in price. As implemented, reformed acceptance and pricing arrangements failed to use fully available measures to distinguish and differentially reward average and good quality parchment. This effectively provided producers with stronger incentives to produce mediocre than good quality coffee. Although this did not fundamentally change the incentives that were in place prior to reform, reform introduced parallel parchment acceptance procedures at the union level, so that unions could verify that societies were properly enforcing quality standards.

By enabling cooperatives and producers to retain the residual income from coffee sales, reform sought to give producers the ability to benefit from quality improvement in the form of residual payments. But because of economies of scale in processing and marketing, the quality premium still reflected the average quality of coffee in the pool, and not an individual's contribution[2]. Given the high exclusion cost characteristics of the quality premium, incentives for individuals to free ride on the quality contributions of others remained. Reform anticipated that social capital factors might counter incentives to free ride at the farm level, provided farmers were aware that they were interdependent with other farmers. If farmers understood their ability to receive a quality premium depended upon improving the collective (pooled) quality of coffee they produced, a sense of group obligation might encourage them to invest more in quality. Similarly, if individuals realized that the actions of a few could undermine their efforts to improve quality by lowering the quality of the pool, they would have strong incentives to monitor

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[2] Since NWCA decided to distribute sales receipts based on the average price received for all coffee it marketed, the quality premium reflected the average quality of coffee produced by all NW arabica producers.

the harvesting and washing practices of their neighbors. Group pressure and social sanctions might counter incentives for individuals to shirk on quality.

Although the process of social capital formation is not well understood, reform designers believed that an improved flow of market information to the farm level was fundamental to increasing farmers' understanding of the nature of their interdependence. At a more basic level, an improved information flow might improve farmers' knowledge of proper harvesting and washing techniques, the quality problems associated with improper techniques, and the importance of quality in influencing price.

Reform also anticipated that with rights to organize their cooperatives as they chose (via cooperative law reform), farmers would re-organize into smaller, village-level primary societies. Because of the central importance of the village group in rural African social organization, it was anticipated that society restructuring would strengthen the role of social capital factors in resolving high information cost problems[3]. The formation of village-based primary societies would also improve the ability of individual farmers to monitor the quality performance of their cooperatives. If farmers were aware that the actions of a few cooperative officials could undermine their individual and group effort to improve quality, they would have strong incentives to pressure their cooperatives to apply and enforce quality standards.

Finally, although reform designers believed that the farm level quality problem was primarily behavioral in nature, they also realized that resource constraints also were a contributing factor. To alleviate these constraints, project funds were used to purchase

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[3] Most members of a small village society would know each other and have formed expectations about others behavior.

imported handpulpers and tarpaulin drying surfaces, and sell them to farmers at subsidized prices.

8.1.2 Cooperative-Level Reforms to Improve Quality

As discussed above, information cost problems are deeper at the farm level than at the latter stages of the marketing chain, where there are more reliable measures of quality. Secondary processing is the most important quality-related cooperative marketing function. Although consistent grading and sorting controls many farm-level quality problems and increases the value of coffee to buyers[4], inconsistently graded and sorted coffee is sharply discounted in price. Most sorting and grading standards are performed mechanically, according to internationally defined standards. It is relatively easy to detect whether coffee has been consistently size graded[5]. After sorting and grading, it is also relatively easy to identify and remove many of the defective beans that taint cup quality. Although some problem beans, and particularly stinkers, may still escape detection, it is nevertheless possible to control some of the more serious quality problems by cup tasting lot samples before shipment[6]. There are a number of available and reliable measures of

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[4] A project marketing consultant suggested that through improvements in secondary processing, NWCA might be able to become a reliable producer of average quality coffee. However, sustained and significant improvements in farm level quality would be required for NWCA to achieve a reputation as a producer of high quality coffee (Resta, 1992).

[5] Bean size can be measured by sifting coffee through a series of screens with progressively smaller size holes.

[6] Although there is no guarantee that testing cup quality prior to shipment prior will accurately reflect the final cup taste evaluation of buyers, it should detect some of the stronger, undesirable tastes that significantly lower coffee's value to buyers.

green coffee quality that might be used to in designing institutions that distinguish and reward the quality produced by cooperatives.

Pricing problems associated with economies of scale are also less pronounced at the cooperative than farm level. Since it is possible to track green coffee from unions to the market, it is also possible to backwardly link sales prices to unions. At the union level, any quality premium or discount related to secondary processing does not exhibit high exclusion cost characteristics, making it possible to direct price penalties or premiums to individual unions, and by extension, to the members of a union pool.

Finally, all processing and marketing functions within the vertically integrated cooperative structure are administratively organized. Improving vertical coordination within the cooperative structure is amenable to hierarchy. However, this is not the case at the farm level, where the fundamental institutional problem is how to coordinate the quality of coffee produced by 35,000 independent arabica producers with the preferences of buyers and consumers.

As discussed in Chapter 4, cooperative level quality problems prior to reform were more technical, and relatively less behavioral, in nature than at the farm level. Union processing lines were in generally poor condition, poorly configured and poorly maintained. Equipment was prone to breakdown, leading to long production delays due to a lack of spare parts. Technical inefficiency was a key source of cooperative level quality problems. A key focus of the technical assistance provided to NWCA during reform was to improve union technical and managerial capacity. Union mills were refurbished and rehabilitated at the beginning of the 1992, greatly improving their effectiveness. A store of spare parts was established at the Apex to reduce production delays. Prior to the 1993/94

season, all union hulling lines were reconfigured. This further improved their effectiveness in sorting coffee, and made coffee much easier to pick. Union level education and training programs designed to improve managerial capacity supported technical improvement efforts.

Behavioral problems also contributed to cooperative level quality problems. During the administered marketing era, all primary societies and unions were paid uniform per-kilo cost allowances, which did not distinguish for quality. Because quality factors did not affect their returns, cooperative officials had little incentive to invest resources in handling or processing coffee well, or to expend effort in applying or enforcing quality standards. They could instead maximize earnings by making minimal investments in quality. Since producer prices were fixed and paid independently of cooperative costs, there were no countervailing pressures from members on cooperative employees and managers from members.

In the reformed structure, each cooperative was responsible for covering its own costs from sales proceeds. By extending rights to claim residual earnings to cooperatives and producers, the effectiveness by which cooperatives maintained and controlled quality would affect both cooperative returns and the prices received by their members. Producers would thus have strong incentive to demand quality control from cooperatives. Similarly, with rights to independently market coffee abroad and interact with buyers, the Apex would acquire better knowledge of the type of quality problems influencing marketing performance and which cooperatives were the origin of problems. Pressures from the Apex might create incentives for union and society management to better control quality.

However, NWCA failed to devise internal arrangements which would penalize individual societies or unions for poor quality, despite the fact that annually negotiated internal marketing arrangements between the apex, unions and societies defined quality standards and each cooperative's responsibilities. Nor did NWCA take full advantage of the quality information contained in sales prices. Instead of linking residual payments to the actual prices buyers paid for an individual union's coffee, NWCA calculated and distributed residual payments based on the average price of coffee received for all its sales during the season. As a result, the quality premium (discount) reflected the quality of all coffee produced in NW Province, and did not distinguish or reward the quality produced by specific unions. This weakened incentives for the cooperatives and farmers in the provincial pool to control quality, and created opportunity for some cooperatives to shirk in applying and enforcing quality control standards, yet free ride on the efforts of other cooperatives to improve quality. It was only in 1993/94 that responsibility for paying indemnities assessed by buyers was assigned to the union responsible for the quality problems.

8.2 Price Differentials as a Measure of Quality

Price differentials are commonly used measures of coffee quality. This section analyzes the impacts of reform on quality by comparing NWCA sales prices with the world (NY "C") price of coffee during and after reform[7].

Price premiums and discounts are expressed in reference to a world coffee price. By

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[7] A lack of contract data precludes an analysis of price differentials during the administered marketing era.

convention, the coffee industry uses the New York Grade "C" (NY "C") price as the benchmark world price. The NY "C" price reflects supply and demand conditions in the world market. It represents the average price of coffee from 18 mild arabica producing countries that is traded each day on the New York Coffee, Sugar and Cocoa Exchange, expressed in terms of cents per pound. The NY "C" price serves as a measure of average quality coffee. While coffees that are above average in quality or which possess distinctive taste attributes command a price premium from buyers with respect to the NY "C" price, below average coffees are discounted in price[8]. Grade C refers to beans of average size. The coffee industry uses standard formulas to price larger grade A and B beans at a premium relative to Grade C beans, and to discount smaller grade D and F beans.

The sales price of coffee reflects its overall quality. Although the inherent cup quality attributes (taste, aroma, body) of brewed coffee are primarily determined at the farm-level during production, harvesting and washing, the actions of downstream processors also affect the finished quality of green coffee. The consistency of coffee (within a lot, between lots and between seasons) is an important aspect of quality to buyers. The most distinctive tasting coffee will be discounted in price if it is unevenly graded or poorly sorted. Marketing also affects sales prices. A buyer will discount the coffee of a seller who cannot be relied upon to deliver the desired quantity and quality in timely fashion.

Thus, price differential reflects the manner in which coffee was grown, harvested and

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[8] Field interviews with coffee marketing consultants involved in the reform effort indicated a common practice among coffee buyers is to use the NY "C" price as a reference price in determining the quality premiums and discounts they pay a particular seller . For example, a buyer might apply a two percent discount relative to the NY "C" price to coffee evaluated as slightly below average in quality.

washed on the farm and subsequently handled, processed and marketed by cooperatives. Although a composite measure of quality, price differentials are poor measures of the specific factors that influence quality. Because they reflect the quality of processed green coffee, and secondary processing plays a critical role in controlling farm-level quality problems, price differentials are more amenable to the study of cooperative-related quality factors than farm-related factors. The cup taste provides the only accurate measure of how coffee was produced, harvested, and washed.

Price differentials are also influenced by market factors that affect buyer and roaster demand for the specific qualities of green coffee. Roasters blend coffees of different qualities and origins to produce the distinctive tasting brews they market to consumers. Since roasters generally use below and average quality coffee as base stock in a blend, they usually purchase lower quality coffee in bulk. Superior quality coffees which possess distinctive quality attributes (taste, aroma, body, etc.) are used by buyers to complement other coffees and add distinctive tastes to a blend, and are in strong demand. In addition, demand among consumers for specialty (or gourmet) coffees has increased in recent years.

Suppliers such as NWCA, which markets relatively small quantities of poor to mediocre quality coffee, often find it difficult to attract buyers' and roasters' interest. Traders generally buy NWCA coffee and resell it to roasters on the spot market. This means that NWCA competes for buyers with other producers of mild arabica located primarily in Central and South America. Roasters use spot market purchases to fill shortfalls in supply from traditional suppliers, or to procure coffee of specific grades or qualities required to maintain a consistent quality blend. As a result, demand for NWCA's coffee is highly variable, and is strongly influenced by supply and demand conditions in the

world market.

Whereas global demand for coffee is relatively stable, supply is variable. The international coffee market is generally flooded with lower quality coffee, but has a more limited supply of highly demanded premium quality coffees. As a result, the price premiums paid for better quality coffees tend to be stable even when supply conditions in the market vary. But price differentials (discounts) for average and poor quality coffees tend to be sensitive to varying market conditions (Resta, 1992). Supply shocks in one area of the world, and particularly Brazil which is prone to frost, may have a profound affect on global coffee supply and world prices. As the supply of lower quality coffee in the market tightens, buyers and roasters must scramble to fill shortfalls from their usual suppliers. The coffee of a small producer such as NWCA becomes more attractive, implying a decline in the price discount. In contrast, during periods of large supply buyers rely on their usual suppliers. Large quantities of coffee flood the residual market and prices fall. NWCA's coffee becomes attractive to buyers only at lower prices, implying an increase in the price discount.

Although there is no standard currency or weight defined in the international coffee trade, most coffee in the world is traded in US dollars (Marshall, 1985). This is particularly true for countries in Central and South America, which are Cameroon's principle competitors. Cameroon and other CFA zone countries in Africa trade coffee in French Francs (FF). Although movements in the Franc-dollar exchange rate should be accounted for when buyers calculate NWCA's sales prices in french francs, NWCA believes that the FF-US $ exchange rate affect its price differential (personal communications). Why this would be the case is unclear. NWCA sells most of its coffee

to French and German buyers. It is conceivable that a change in the franc-dollar exchange rate may affect the price of Cameroonian coffee relative to its competitors for traders who deal in other currencies. For example, if a strong, or appreciating franc, made Cameroonian coffee more expensive relative coffee traded in dollars, it would become attractive to traders only at a lower sales price, implying an increase in the price discount. In the case of a weak, or depreciating French Franc, the opposite would be true[9]. However, there is insufficient empirical evidence theoretical support to validate this claim.

To conclude, price differentials are influenced by both market and quality factors--and not quality alone. To the degree that price differentials reflect quality, they reflect overall coffee quality. Thus, price differentials are used in this study primarily as a means to evaluate the impacts of reform on quality at the cooperative level.

8.2.1 Derivation of NWCA - NY "C" Price Differentials

The NWCA-NY "C" price differential represents the difference between the NWCA sales price and NY "C" price. A negative differential indicates a price discount and a positive differential indicates a premium. This section explains the adjustments that were made to NWCA contract prices in deriving NWCA-NY "C" price differentials.

NWCA's sales contracts specify shipment periods during which coffee must be transported to the port, shipped and delivered. The specified shipment period may vary from as little as one to two months to several months after a sale has been transacted. NY "C" prices are quoted daily on both a spot market basis for immediate delivery, and

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[9] Any change in the price differential would have to be less than or equal to the relative change in prices.

futures basis for March, May, July, September and December delivery. To calculate the NWCA - NY "C" price differential, the NY "C" price quote that best corresponded to the shipment period specified in NWCA's sales contracts was selected. For example, if NWCA made a sale in February for May/June delivery, the relevant NY "C" price for the study would be the May delivery price quoted in the the international press on the day of the sale.

Whereas NY "C" prices are expressed in cents per pound, Cameroonian coffee is priced in French Francs (FF) per 100 kilos. NWCA contract prices were converted from kilos to pounds, and then from French Francs to cents per pound using the FF - US dollar exchange rate on the day of the sale.

Cameroon typically produces a large proportion of grade B coffee but only a small proportion of grade C, which in Cameroon is reserved for desirable small beans known as peaberries. As a result, grade B is considered by the coffee industry to be Cameroon's standard (average) grade coffee, and Cameroonian coffee prices are typically quoted in terms of Grade B[10]. Buyers price grade B and C coffee produced in NW Province equivalently. As a result, NWCA's grade B prices may be directly compared to the NY "C" price.

Average annual price differentials were calculated by multiplying the prices and quantities specified in the sales contracts of a given year, and dividing the sum by total tonnage. Annual price differentials provide an aggregate quality measure for each season's crop. The annual data were adjusted to account for forward sales that NWCA

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[10] Whereas larger grade A beans command a standard premium, smaller grades D and F are discounted with respect to Grade B.

made at the end of the 1992/93 and 1993/94 seasons for delivery in 1993/94 and 1994/95, respectively[11]. NWCA's coffee is priced based on samples it provides to buyers. The forward sales in late 1993 and 1994 were transacted before the contracted coffee was harvested. This implies that the price of coffee sold forward reflected the quality of crop samples for the season in which the sales were transacted instead of the quality of the season's crop that was actually delivered. To link forward sales to the seasonal crop samples upon which they were based, the contracts of coffee sold forward for delivery in 1993/94 and 1994/95 were assigned to the 1992/93 and 1993/94 seasons, respectively.

8.2.2 Annual NWCA - NY "C" Price Differentials During and After Reform

Mean annual NWCA-NY "C" price differentials for each marketing season between 1989/90 and 1993/94 are presented in Table 8.1a. The results show a progressive decline in the discount in every marketing season except 1991/92. The price differential declined in both absolute terms (measured in cents per pound) and in relative (percentage) terms after reform began in 1989/90. When expressed in terms of CFA, the data show that the discount improved from 120 CFA per kilo to only 14 CFA per kilo in 1993/94. Lower price discounts were a key contributing factor in NWCA's improved price performance during and after reform (discussed in Chapter 7).

Full reform was not implemented until 1993/94. The 1993/94 coffee crop was sold at an overall discount of 2.5 percent relative to the NY "C" price in 1993/94, an

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[11] In September and November, 1993, NWCA contracted to sell 1150 tons of the 1993/94 crop for delivery between May and August, 1994. In addition, in July 1994, NWCA contracted to sell 180 tons of its 1994/95 contract for delivery in February/March 1995.

Table 8.1: Annual NWCA Contract Price - NY "C" Price Differentials, 1989/90 - 1993/94. (figures weighted by tonnage)

A) Sales by Crop Year[1]:

	1989/90	1990/91	1991/92	1992/93	1993/94
Tons Sold:	2,161.3	1642.1	4261.3	2010.0	2,689.0
Mean NY "C" Price (¢ / lb):	82.5¢	82.1¢	59.7¢	67¢	90.5¢
Mean FF - US $ Exchange Rate:	5.09	5.73	5.10	5.65	5.75
NWCA-NY "C" Price Differential (¢ / lb):	**-21.4 ¢**	**-7.5 ¢**	**-10.9 ¢**	**-3.7 ¢**	**-2.2 ¢**
• In CFA/kg.	-120	47	-61	-23	-14
Percent Difference:	**-25.9%**	**-9.2%**	**-18.3%**	**-5.6%**	**-2.5%**

B) Adjusted for Forward Sales[2]:

	1989/90	1990/91	1991/92	1992/93	1993/94
Tons Sold:	2,161.3	1642.1	4261.3	3160.0	1,719.0
Mean NY "C" Price (¢ / lb):	82.5¢	82.1¢	59.7¢	71.6¢	111¢
NWCA - NY "C" Price Differential (¢ / lb):	**21.4 ¢**	**- 7.5 ¢**	**- 10.9 ¢**	**- 4.0 ¢**	**+ 2.3 ¢**
Percent Difference:	**- 25.9%**	**- 9.2%**	**- 18.3%**	**- 5.6%**	**+ 2.1%**

Source: NWCA, Ltd. Sales contract data.

Notes: 1) Reflects actual prices at which each season's crop was sold.
2) Assigns 1150 tons of coffee sold forward for delivery in 1993/94 harvest to the 1992/93 crop year, and 180 tons of coffee sold forward for delivery in 1994/95 to the 1993/94 crop year.

Figure 8.1: Yearly NWCA Sales - NY "C" Price Differentials, Adjusted for Forward Sales, 1989/90 - 1993/94.

improvement of 23 percent over the 1989/90 season. These data are consistent with a conclusion that the reform of arabica marketing institutions in NW Province improved quality and enabled NWCA to obtain higher prices. However, the evidence is not conclusive because no time series data are available on the pre-1989/90 trend[12].

The appropriateness of adjusting the data for forward sales was supported by the fact that the 1993/94 forward sales were price discounted at the same overall rate as the 1992/93 crop. The adjusted results for 1993/94 show all contracts based on 1993/94 crop samples. The results in Table 8.1.b show that coffee sold based on 1993/94 crop samples was sold at an overall premium of 2.1 percent. However, the 1994/95 forward sale was

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[12] NWCA estimated that the 1988/89 crop was sold at an overall discount of 11 cents per pound, a discount of between 10 and 15 percent. Since this is only a rough estimate it is of limited value in making comparisons.

transacted in the context of rapidly increasing world (NY "C") prices and commanded an exceptionally high premium relative to other 1993/94 sales. This suggests that the premium was influenced by supply conditions in the world market.

The variability in the price differential between 1989/90 and 1991/92 is more difficult to explain. Factors unrelated to the reform process likely contributed to the increase in NWCA's price discount in 1991/92. That year was marked by political instability centered in North West Province. General strikes (called 'ghost towns') virtually halted economic activity in the Province for months at a time, and severely impeded the movement of coffee. Buyers' fears that 1991/92 crop shipments from NWCA might be unreliable may have induced them to sharply discount prices.

The price differential improved noticeably between 1989/90 and 1990/91, even though institutional reforms had yet to be implemented. Sources within USAID suggest that part of the improved price discount may have been the result of a single buyer bidding up NWCA's sales price to increase its market share in NW Province (personal communications). In addition, the French franc depreciated noticeably against the dollar between 1989/90 and 1990/91 (Table 8.1.a), even though most sales for the two seasons were transacted only a few months apart. Correspondingly, the NWCA - NY "C" price differential improved noticeably. When the Franc appreciated significantly against the dollar between 1990/91 and 1991/92, there was a worsening of NWCA's price differential. Although the explanation for this is uncertain, it the evidence tends to support NWCA's claim that movements in the FF-US $ exchange rate affects its price differential.

In conclusion, both institutional and market factors appear to have contributed to NWCA's improved sales price performance during and after reform. Nevertheless, to the

degree that the NWCA-NY "C" price differential measures quality, the adjusted results in Table 8.1 imply that the overall quality of coffee marketed by NWCA in 1993/94 was more or less average, a significant improvement over the 1989/90 season.

8.2.3 Price Differentials by Coffee Grade

Percentage price differentials for each grade of coffee relative to the NY "C" price are presented in Table 8.2 and Figure 8.2 for the 1989/90-1993/94 period. Inspection of Figure 8.2 shows a parallel movement of price differentials across grades. As with the aggregate price differential, the results show improving price differential for all grades of coffee in all years except 1991/92.

As expected, the magnitude of price discounts were related to bean size. Grade A coffee received a small premium relative to standard grade B coffee, grade D coffee was discounted with respect to grade B coffee, and the smallest size grade F was sharply discounted relative to both grades B and D. These results reflect buyers' and roasters' preferences for larger grade beans. Smaller grade coffee, particularly grade F, is more difficult to sort than larger grade coffee, and thus may contain more inferior quality beans.

In every year, excepting the 1993/94 season adjusted for forward sales, the aggregate price discount for all NWCA's sales was less than the discount for grade B, the grade that is comparable to the NY "C" price (Table 8.2). This indicates that the large proportion of smaller grades D and especially F in total sales lowered the overall value of NWCA's arabica coffee. However, the 1993/94 season witnessed an increase in the share (56.5) of

Table 8.2: Percentage NWCA-NY "C" Price Differentials by Grade With and Without Adjustment for Forward Sales, 1989/90 - 1993/94.

A) Sales by Crop Year -- No adjustment for Forward Sales:

	1989/90	1990/91	1991/92	1992/93	1993/94
Price Differential	%	%	%	%	%
All Coffee:	-25.9	-9.2	-18.3	-5.6	-2.5
• **Grade A**	-17.2	-5.9	-15.5	-1.9	-0.8
• **Grade B**	-19.7	-7.3	-14.3	-3.1	-1.6
• **Grade C**	-21.7	-7.6	-14.7	-3.4	-1.2
• **Grade D**	-27.5	-9.3	-18.2	-5.9	-2.9
• **Grade F**	-35.7	-13.9	-31.9	-11.9	-6.4
Distribution of Grades in Seasonal Production (% of total production):					
• **Grades A, B and C**	–	50.2	53.6	50	56.5
• **Grades D, F**	–	49.8	46.4	50	43.5

B) Adjusted for Forward Sales:

	1989/90	1990/91	1991/92	1992/93	1993/94
Price Differential	%	%	%	%	%
All Coffee:	- 25.9	- 9.2	- 18.3	- 5.6	+ 2.1
• **Grade A**	- 17.2	- 5.9	- 15.5	- 2.3	+ 1.3
• **Grade B**	- 19.7	- 7.3	- 14.3	- 3.5	+ 1.9
• **Grade C**	- 21.7	- 7.6	- 14.7	- 3.6	0
• **Grade D**	- 27.5	- 9.3	- 18.2	- 5.8	+ 3.2
• **Grade F**	- 35.7	- 13.9	- 31.9	- 11.2	+ 2.5

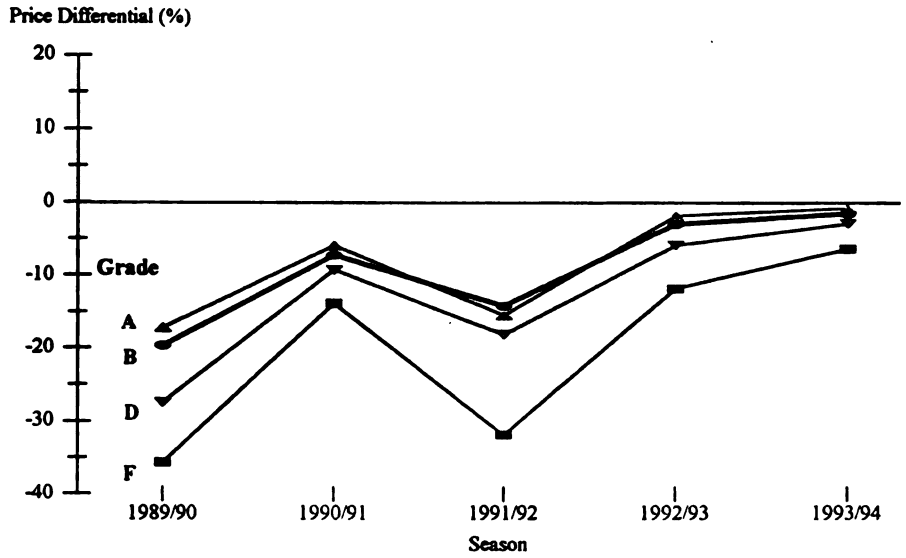

Figure 8.2: Percentage NWCA-NY "C" Price Differentials by Grade, Unadjusted for Forward Sales, 1989/90 - 1993/94.

larger grades A, B and C in total production[13]. This suggests that increasing bean size may have contributed to the improvement in the 1993/94 price differential.

Although grade price differentials tended to move up and down as a group in each season, interannual price variation was greatest for the smallest grade F (Figure 8.2). The price differential between grade A and F ranged between 18.5 and 16.4 percent in 1989/90 and 1991/92 respectively (the years of the highest price discounts), but by only 8 percent and 10 percent in 1990/91 and 1992/93 when overall price discounts were relatively low.

The greater price variation for inferior grade F coffee relative to other grades is consistent with the observation that buyer demand for NWCA's coffee was influenced by

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[13] Factors that affected bean size are discussed in more detail in Section 8.5.3.

supply conditions in competing countries that produce average to below average coffee. In the event of a reduction in world coffee supply, NWCA's inferior grade coffee become more attractive to buyers who were trying to compensate for shortfalls in alternative sources of supply. This would explain the decrease in the grade price differential.

The price dispersion between grades decreased markedly in 1993/94. Surprisingly, after adjusting the data to account for forward sales, the results show that grades D and F were priced within 1.5 percent of grade A if the 1994/95 forward sale is excluded, but at a premium if that sale was included in the analysis (Table 8.2). The reason for this is that NWCA began selling lots of mixed grades at average prices during the 1993/94 season. As such, sales contracts made no price distinctions between grades. For the season, 63 percent (1699 of 2689 tons) NWCA's total sales were sold at average prices. Nearly 90 percent of the coffee sold during the 1993/94 marketing year (excluding forward sales transacted in 1993) was sold at average lot prices. As such, the 1993/94 results reflect average lot pricing and do not imply a significant improvement in the quality of grades D and F coffee relative to grades A-C.

8.3 Institutional Factors that May Have Influenced the Price Differential

The analysis of annual NWCA - NY "C" price differentials suggests that the overall quality of NWCA's green coffee improved from well below average at the start of the reform process in 1989/90 to more or less average after reforms were fully implemented in 1993/94. However, it is impossible to ascribe the improvement in the NWCA-NY "C" price differential to specific institutional reforms since price differentials represent composite measures of coffee quality. This section identifies reform-related factors that

may have contributed to the improvement observed in annual price differentials between 1989/90 and 1993/94. The following section presents an econometric analysis of the NWCA-NY "C" price differential.

The reform experience in Cameroon suggests several factors that may have influenced the NWCA-NY "C" price differential. They include: 1) improved quality and/or quality control at the farm or cooperative level, 2) improved coordination of marketing functions within the vertically integrated cooperative structure, and 3) improvements in NWCA's capacity to market coffee abroad. The improvement in the price differential in 1993/94 relative to previous years is of particular interest because 1993/94 was the first marketing campaign conducted under full reform.

New parchment acceptance procedures that were designed to improve quality control at the farm-level may have contributed to improved coffee quality. Although nominally introduced during the 1990/91 season, it was only during the 1991/92 season that reformed acceptance procedures were emphasized within the cooperative structure. As a result, the 1991/92 season was primarily a time of experimenting with and learning about the new acceptance procedures. Although field reports indicated an improvement in the appearance of parchment delivered by farmers in some areas of NW Province, the new acceptance rules were unevenly understood, applied and enforced at the society level (Oakerson, 1993a). Parchment acceptance rules were not emphasized or enforced during the 1992/93 season because of disagreement between NWCA and reform designers concerning their effectiveness in promoting quality improvement[14]. After quality claims by

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[14] NWCA began to doubt if the new parchment acceptance rules would affect quality because of the points raised by the marketing consultant in 1992. The consultant

buyers plagued the marketing of its 1992/93 crop, NWCA placed a strong emphasis on promoting, applying and enforcing society parchment acceptance procedures at farm-level in 1993/94.

Prior to the 1993/94 season, the quality distinctions made during society-level acceptance were not maintained during secondary processing. Although farmers' parchment was classified according to quality, all classes were mixed before secondary processing. In 1993/94, NWCA modified union parchment acceptance and processing procedures to control for inferior quality Class III coffee. This coffee was processed, marketed and priced separately from better quality coffee. Since 1993/94 was the first season in which society-level parchment acceptance procedures were partially linked to downstream cooperative secondary processing and marketing activities, it is doubtful the procedures had much of an impact on the NWCA-NY "C" price differential in prior seasons. But the possible impacts of the new acceptance procedures on producer behavior and farm-level quality should be viewed with caution, since incentives for farmers to invest greater effort and resources in improving quality were considerably weakened by NWCA's failure to devise and implement institutional arrangements which differentially rewarded producers of good and average quality coffee.

An improved flow of market information through the cooperative structure to the farm level may have contributed to a growing awareness among farmers about the importance

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argued that if cooperatives processed (sorted and graded) parchment well, the quality distinctions would not be recognized by buyers. But reform designers maintained that the new acceptance procedures were a critical institutional innovation in encouraging quality control at the farm level. This disagreement could not be resolved before the start of the 1992/93 campaign.

of quality in international marketing and its impact on prices. NWCA's preparations for the 1993/94 campaign included an intensive grass-roots education program to both explain and promote parchment acceptance procedures and society-level pricing arrangements, as well as to educate farmers about coffee quality and the workings of the international coffee market. However, at the beginning of the reform process farmers had very limited knowledge of quality issues, and much of the quality improvement efforts during reform implementation centered on improving quality control within cooperatives.

Higher producer prices and improved economic incentives at farm-level may have induced some arabica producers to invest more effort in coffee production and washing in 1993/94. Bonus payments to producers at the conclusion of the 1992/93 season were immediately followed by implementation of society-level pricing arrangements in 1993/94. Under these arrangements, primary societies and farmers could claim part of the residual income from sales. As a result, the quality premium would be distributed to producers in the form of bonus payment, enabling producers to benefit from improvements in quality. However, the free-rider problem remained since producers of average quality coffee received the same premium as producers of good quality coffee, despite contributing less towards quality improvement. As a result, the new producer pricing arrangements would be expected to have had a only a modest impact in eliciting a farm-level quality response.

The reform experience strongly suggests that quality control improved within the cooperative structure. Parchment acceptance procedures paralleling those at the society level were also introduced at the union level in to enforce societies' quality evaluations. Union hulling lines were refurbished during the early part of 1992, and later reconfigured prior to the 1993/94 season. This improved the efficiency with which equipment sorted

and graded coffee, and reduced the incidence of lengthy breakdowns. In obtaining rights to independently market coffee abroad and retain the residual from sales, cooperative returns were linked to operating performance. This may have provided cooperative officials with incentives to improve their processing services. Reform also contributed to a growing awareness of the importance of quality within the cooperative structure. Beginning in 1993/94, NWCA introduced new rules that made unions responsible for quality claims and related indemnities..

Experience also suggests that improved vertical coordination of cooperative marketing functions contributed to the improvement in the price differential over time. The marketing rule of thumb is that coffee should be collected, processed and marketed by cooperatives as quickly after harvest as possible to preserve its freshness. The flow of coffee from farmers to cooperatives is a key aspect of vertical coordination. The sooner farmers deliver coffee to cooperatives, the more quickly it can be assembled and transported to cooperative unions for secondary processing. The sooner secondary processing is completed, the more flexibility NWCA has to market coffee and obtain better price offers. Payments to farmers were severely delayed during the 1989/90 and 1990/91 seasons due to a lack of available crop financing, and disrupted during the 1991/92 season due to cash flow problems[15]. But, in both 1992/93 and 1993/94 NWCA was able to procure adequate crop financing and pay farmers promptly. This provided incentives for farmers to deliver their coffee to cooperatives rapidly after harvest, thus enabling cooperatives to collect and process coffee quickly during the dry season. As a

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[15] In addition, arrears owed farmers by the Marketing Board were not repaid until the 1991/92 season.

result, NWCA could market fresher coffee to buyers. In 1993/94, NWCA obtained crop financing from commercial sources at high interest rates. Cooperatives had strong incentives to collect, process and sell coffee as quickly as possible to minimize interest charges.

Finally, improved marketing skills and experience may have contributed to an improvement in the price differential. At the beginning of reform, NWCA had neither experience in overseas marketing, nor a marketing identity amongst buyers. Although the Cameroonian government extended rights to NWCA to market coffee independently abroad in 1989/90, it was only in 1991 that these rights became official. NWCA sold the entire 1989/90 and 1990/91 crops (3802 tons) to only two buyers, both of which had been important clients of the Marketing Board. A single buyer purchased 70 percent of NWCA's coffee. Beginning in 1991/92, technical assistance was provided to NWCA to develop its marketing capacity. A marketing department was established within the NWCA Apex in 1992/93. As it gained marketing experience, NWCA was able to identify and sell coffee to new buyers (both brokers and traders) and reduce its reliance on specific buyers. Through repeated interaction with buyers, NWCA's marketing skills and market knowledge improved. By the 1993/94 season, the Marketing Department's main priority was to improve coffee quality at both the farm and cooperative level in order to enhance market prices.

In conclusion, an argument can be made that institutional reform improved the quality of NWCA's coffee during and after reform. However, most farm-level reforms were not implemented or enforced until the 1993/94 season. Thus, it is doubtful that the quality of coffee produced by farmers improved noticeably before the 1993/94 season. There is

more evidence to suggest that cooperative quality performance improved noticeably as result of reform, particularly after 1991/92. Technical improvements to union mills, improved vertical coordination within the cooperative structure, and greater marketing experience and knowledge were the primary factors underlying cooperative level quality improvement. Although, it is unclear to what degree either specific institutional factors or market factors unrelated to the reform process influenced the price differential, some directional evidence is available.

8.4. Impact of Reform at the Cooperative Level: Econometric Analysis

To determine the degree to which movements in the NWCA-NY "C" price differential were attributable to quality improvement induced by institutional change and market factors external to reform, NWCA sales contract data were analyzed with multiple regression techniques[16]. Since 1993/94 was the first marketing campaign conducted under full reform, identification of the factors that influenced price differentials during that season are of particular interest in measuring the impacts of reform on quality.

Although the regression model attempted to distinguish between quality and market related factors that affected the NWCA - NY "C" price differential, quality measurement problems complicated the analysis. Specifically, an accurate measure of farm-level quality factors would require an evaluation of all cup tastes and communications between buyers.

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[16] NWCA routinely records the following contract information: date of sale, buyer, quantity of each grade of coffee sold, sales price of coffee (in FF per 100 kilos), and the coffee shipment period. To supplement this data, French Franc- US dollar exchange rates and NY "C" prices were gathered from the daily press for each date that NWCA recorded a sale.

But this information was not available. As a result, the analysis focused on cooperative level improvements in quality, and only indirectly addressed farm level quality issues. Farm-level coffee quality issues are discussed in greater detail in later sections.

8.4.1. Modeling the NWCA - NY "C" Price Differential

The NY "C" price and FF-US $ exchange rate variables provide measures of the influence of external market factors on the NWCA-NY "C" price differential. The NY "C" price reflects supply and demand conditions in the world coffee market. In periods of tight supply and rising prices, the NWCA - NY "C" price differential would be expected to improve due to stronger demand for NWCA coffee. In contrast, during periods of excess supply and falling world prices, the NWCA-NY "C" price differential would be expected to worsen due to weak demand for NWCA coffee. However, the NY "C"price is a measure of aggregate supply and demand, and provides little information per se about market conditions and prices in coffee producing countries that compete directly with Cameroon. The FF-US $ exchange rate was included as a second variable to measure whether non-institutional variables affected the price differential.

Identification of explanatory institutional variables that influenced the price differential was problematic. Coffee shipment information provided an opportunity to measure the freshness of coffee sold to buyers, since risks of quality deterioration increase the longer it takes coffee to move through the cooperative marketing chain from farm to port[17]. The

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[17] In addition, the international coffee industry defines the marketing season as lasting from October 1 through September 30 the following year. By convention, all coffee sold after September 30 is considered to be old coffee stock, and is usually steeply discounted in price.

interval between the peak harvest, which begins in January, and shipment period implicitly measures NWCA's ability to vertically coordinate the coffee collection, secondary processing and marketing activities of member cooperatives.

A time variable was included in the regression model as a descriptive measure of how the price differential changed between 1989/90 and 1993/94, all other variables held constant. Although it only a measures the direction of change, a significant and positive time variable in the context of reform would suggest that quality improved over the course of reform. Possible sources of quality improvement captured by the time variable might include improvement in bean (farm-level) quality, better grading and sorting by unions, or improved marketing skills within NWCA.

Buyers and coffee consumers prefer larger beans to smaller beans. One would expect statistically significant price differentials among grades. A lack of statistical significance would indicate that NWCA's coffee grading had no meaning to a buyer, indicating that NWCA's coffee was poorly sorted and graded.

Contract size was included in the regression model to determine whether economies of size influenced the price differential. Buyers generally prefer to buy below average or average quality coffee in bulk. Therefore, one would expect a positive relationship between contract size and the price differential.

Modeling the impacts of the institutional reforms that were implemented in 1993/94 was more problematic (see previous section). To determine whether these reforms affected the price differential in 1993/94, a dummy variable was constructed for all coffee

sales made during the 1993/94 season[18]. The reform (or 1993/94) dummy variable was designed to determine whether the price differential behaved differently in 1993/94 relative to previous years, other factors held constant. A significant and positive result would support a conclusion that the reforms implemented in 1993/94 had a beneficial impact on the price differential, and by inference, quality. However, the reform dummy variable measures the direction of change only and can not isolate the effects of specific institutional changes on the price differential.

To test whether there was a significant difference in the grade pricing behavior of buyers in 1993/94 relative to preceding years, a "grade interaction" variable was created by multiplying the reform (1993/94) dummy by each grade size--A, B, and D. No Grade F coffee was sold on a grade basis during the 1993/94 season. The grade interaction variable selects for each grade of coffee marketed in 1993/94. For example, the grade A interaction variable would measure the price differential of Grade A relative to grade C coffee in 1993/94 in sales contracts that price differentiated between grades. A statistically significant result would indicate a change in buyer pricing of Grade A coffee in 1993/94 coffee relative to previous years. A positive coefficient would indicate that a higher premium was paid to Grade A in 1993/94 than in previous seasons, implying that quality improved. A significant change in the magnitude of the grade B and D interaction variables would indicate a similar change in buyers' grade pricing behavior in 1993/94.

However, the effectiveness of the reform dummy and grade interaction variables as

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[18] The forward sales made in 1993 prior to the 1993/94 harvest were coded as part of the 1992/93 season's sales since the price differential would have reflected buyers' quality evaluations of 1992/93 crop samples.

measures of institutional change and quality respectively, were considerably weakened by the fact that NWCA began selling lots composed of different grades at average prices in 1993/94. As a result, it was not clear whether the 1993/94 dummy variable would capture the effects of institutional changes or average price sales. Average pricing also compromised the grade interaction variables as measures of quality since only 12 percent of the 1993/94 season's crop was sold at separate grade prices.

To account for average price sales, all mixed grade lots of coffee that NWCA sold at an average price were treated as a single sale. To determine whether the grade composition of average price sales affected the price differential, a variable measuring the percentage of each grade in each average price sale was created. Thus, the "grade percent" variables (Grade %) measured the effects of each grade on the price differential in each average price sale.

Finally, severe delays in payment to producers plagued the 1989/90 and 1990/91 seasons. Although payment was generally more reliable in 1991/92, disrupted payments in the midst of the peak harvest, though of relatively short duration, may have dampened farmer motivation to invest in quality. In contrast, NWCA was able to promptly pay producers in both 1992/93 and 1993/94. Both seasons witnessed an improvement in annual price discounts relative to preceding years, suggesting that prompt payments had a positive influence on the price differential. Thus, a "prompt pay" dummy variable was constructed for all sales during the 1992/93 and 1993/94 seasons.

To summarize, the regression model was specified as follows, with the NWCA - NY "C" variable as the dependent variable:

PDIFF = ***f {SHIPMONTH, TIME, TONS, FF-US $, NY "C", GRADES, PROMPT PAY, REFORM, GRADE INTERACTION, GRADE %}***

Where:

P DIFF = The NWCA - NY "C" price differential for each NWCA coffee contract between 1989/90 and 1993/94 (94/95 forward sale included). Two formulations of the price differential were used in the model. ***ABS PDIFF*** measured the price differential in absolute terms, expressed in cents per pound. ***% PDIFF*** expressed the price differential in percentage or relative terms to account for movement in the NY "C" price.

SHIP-MONTH = The number of months that elapsed between the beginning of the peak harvest in January, and the shipment period specified in each sales contact. For example, a 1993/94 sale specifying May/June as a shipment period would be coded as 4 months. This variable provides a measure of coffee freshness and vertical coordination within the cooperative structure.

TIME = A time variable which consecutively numbers contracts by the date of sale beginning with the first sale of the 1989/90 crop in February 1991 and concluding with the 1994/95 forward sale made in July 1994. Each sales contract drawn on a given day was assigned the same number. There is no fixed interval of time–sales made two days apart are ordered equally as sales between seasons made six months apart. The variable attempted to identify a directional change in the price differential during the period of analysis.

TONS = The size of each sales contract, expressed in terms of metric tons.

FF-US $ = The French franc - US dollar exchange rate expressed in terms of francs per $ 1 at the close of each day on which NWCA made a coffee sale. When the absolute price differential was used as the dependent variable, the exchange rate was also expressed in absolute terms. When the price differential was expressed in percentage terms, the natural log of the exchange rate--***ln (FF-US $)***-- was used as an explanatory variable to facilitate interpretation of the results. The variable provided a measure of how non-institutional factors influenced the price differential.

NY "C" = The NY "C" price for the shipment period at the end of each day on which NWCA made a coffee sale, expressed in cents per pound. A contract transacted on February 8, 1992 specifying a May/June shipment period would use the NY "C" price quote for May delivery for that date. A sale for August/September on the same date would use the NY "C" quote for September delivery. When the absolute price differential was used as the

dependent variable, the NY "C" was expressed in absolute terms. When the price differential was expressed in percentage terms, the natural log of the NY "C" price--***ln (NY "C")***-- was used as an explanatory variable to facilitate interpretation of the results. The variable measured whether market conditions affected the price differential.

GRADES = A set of dummy variables for each coffee size grade. Grade C was the omitted category.

- **Grade A** = Coded 1 if sale of grade A coffee, 0 if otherwise.
- **Grade B** = Coded 1 if sale of grade B coffee, 0 if otherwise.
- **Grade D** = Coded 1 if sale of grade D coffee, 0 if otherwise.
- **Grade F** = Coded 1 if sale of grade F coffee, 0 if otherwise.

PROMPT PAY = A dummy variable coding all coffee sales in 1992/93 and 1993/94 as 1, 0 if otherwise. It measured the effect of prompt payments to farmers on the price differential.

REFORM (1993/94) = A dummy variable coding all coffee sales made during the 1993/94 season as 1, 0 if otherwise. Forward sales transacted prior to the 1993/94 harvest were excluded and coded as 0. It measured the effects of institutional change on the price differential in 1993/94.

GRADE INTER-ACTION = An interaction variable derived by multiplying the reform (1993/94) variable by Grades variables. The variables measured the grade price differential for 1993/94 crop sales sold on a grade by grade basis.

- **1993/94*Grade A** = 1 for all coffee sold as grade A in 1993/94, 0 if otherwise.
- **1993/94*Grade B** = 1 for all coffee sold as grade B in 1993/94, 0 if otherwise.
- **1993/94*Grade D** = 1 for all coffee sold as grade D in 1993/94, 0 if otherwise.

GRADE % = The percentage of each size grade of in average price sales. The variables measured the effects of each coffee grade on the price differential in average price sales.

- **Grade A %** = The proportion of Grade A coffee in each average price sale.
- **Grade B %** = The proportion of Grade B coffee in each average price sale.
- **Grade C %** = The proportion of Grade C coffee in each average price sale.
- **Grade D %** = The proportion of Grade D coffee in each average price sale.
- **Grade F %** = The proportion of Grade F coffee in each average price sale.

8.4.2 Regression Results

The regression model was specified in unrestricted, semi-restricted and restricted forms. The purpose was to determine whether inclusion of the Grade % and grade interaction variables were statistically significant or affected other independent variables in the model. The unrestricted model (**Equation 1**) included all independent variables. The semi-restricted model dropped Grade % variables (**Equation 2**). Both Grade % and 1993/94*Grades variables were dropped in the restricted model (**Equation 3**). The model was also run using the absolute price differential (ABS PDIFF) as the dependent variable to test the robustness of the regression results (**Equation 4**). The regression results are presented in Table 8.3.

The results show that the SHIPMONTH, TONS, and GRADES A, D and F variables were statistically significant with a probability of less than ten percent and had the expected signs in all model specifications. The ten percent significance level was chosen since the primary objective of the analysis was to measure directional changes in the NWCA-NY "C" price differential. The FF-US $ variable was also significant and positive in all model specifications, when either expressed as a natural log function and regressed against the dependent variable % PDIFF or expressed in absolute terms and regressed against ABS PDIF. Since these variables were statistically significant in all model specifications and inclusion of other variables had little impact on their coefficients, one can conclude that the estimated coefficients for these variables were robust (Leamer, 1983).

The NY "C" variable was statistically significant and positive in all cases except the unrestricted model (Equation 1), the only model specification which included grade

Table 8.3: Variables Affecting the NWCA - NY "C" Price Differential, 1989/90 - 1993/94: Multiple Regression Results[1].

Equation:	(1)		(2)		(3)		(4)	
Dependent Variable:	**% PDIFF**						**ABS PDIFF (¢ / lb)**	
Independent Variables:	Coeff.	Sig. Level	Coeff.	Sig. Level	Coeff.	Sig. Level	Coeff.	Sig. Level
Intercept	-0.628	0.000	-0.658	0.000	-0.670	0.000	-15.27	0.006
SHIPMONTH	*-0.013*	*0.000*	*-0.013*	*0.000*	*-0.013*	*0.000*	*-1.230*	*0.000*
TIME	*-0.002*	*0.017*	*-0.002*	*0.026*	*-0.002*	*0.028*	0.089	0.188
TONS	*0.0002*	*0.006*	*0.0002*	*0.012*	*0.0001*	*0.009*	*0.014*	*0.002*
ln (FF-US $)	*0.250*	*0.000*	*0.238*	*0.000*	*0.235*	*0.000*	--	--
FF-US $	--	--	--	--	--	--	*1.586*	*0.076*
ln (NY "C")	0.044	0.202	*0.056*	*0.068*	*0.059*	*0.048*	---	---
NY "C"	--	--	--	--	--	--	*0.090*	*0.000*
COFFEE GRADES[2]								
• Grade A	*0.035*	*0.006*	*0.035*	*0.004*	*0.035*	*0.000*	*2.728*	*0.003*
• Grade B	0.004	0.779	0.006	0.608	0.006	0.597	0.307	0.738
• Grade D	*-0.038*	*0.004*	*-0.036*	*0.005*	*-0.034*	*0.006*	*-2.627*	*0.005*
• Grade F	*-0.095*	*0.000*	*-0.094*	*0.000*	*-0.093*	*0.000*	*-6.703*	*0.000*
PROMPT PAY[2]	*0.079*	*0.000*	*0.074*	*0.000*	*0.073*	*0.000*	-0.444	0.763
REFORM (1993/94)[2]	*0.085*	*0.070*	0.030	0.298	0.028	0.282	-1.271	0.507
REFORM - GRADE INTERACTION[2]								
• Grade A	- 0.047	0.469	0.000	1.000	--	--	--	--
• Grade B	- 0.051	0.335	- 0.024	0.599	--	--	--	--
• Grade D	0.001	0.991	0.044	0.435	--	--	--	--
AVG. PRICE SALES								
• Grade A %	-0.003	0.390	--	--	--	--	--	--
• Grade B %	0.000	0.808	--	--	--	--	--	--
• Grade C %	0.001	0.784	--	--	--	--	--	--
• Grade D %	-0.000	0.789	--	--	--	--	--	--
• Grade F %	-0.001	0.468	--	--	--	--	--	--
Adjusted R Square:	0.752		0.755		0.759		0.775	

Notes: 1) Italics denote statistical significance at 0.1 percent.
2) Dummy variables coded 1 if yes, 0 if no.

percent variables. However, NY "C" prices rose sharply during the course of the 1993/94 season, the same period during which NWCA began selling the majority of its coffee at average grade prices. This suggests that the grade percent variables may have captured some of the effects of the rising NY "C" prices in 1993/94. The NY "C" price variable was statistically significant and positive when the price differential was expressed in absolute terms and percentage terms. This supports a conclusion that NY "C" prices had a significant impact on the price differential.

The TIME variable was statistically significant when regressed against % PDIFF, but unexpectedly had a negative coefficient. When the absolute price differential (ABS PDIFF) was used as the dependent variable, the TIME variable was statistically insignificant but had the expected positive coefficient. These results were inconclusive.

The PROMPT PAY variable was statistically significant and positive when regressed against the percentage price differential, but lost statistical significance and changed sign when regressed against the absolute price differential. The change in signs and significance could reflect the fact that the percentage price differential exhibited greater variation than did the absolute price differential. The percentage price differential expresses the price differential relative to the NY "C" price and accounts for changing NY "C" prices. The absolute price differential does not account for changes in NY "C" prices. With respect to the NY "C" price, the absolute price differential can remain relatively constant between sales but mask changes in the percentage differential[19]. In 1992/93, and

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[19] To illustrate, a 5 cent price discount is equivalent to a 7 percent discount at a NY "C" price of 70 cents per pound, but only a 3 percent discount at a NY "C" price of 150 ¢.

particularly 1993/94, rising NY "C" prices likely had a greater impact on the percentage price differential than on the absolute price differential. Although this observation provides some support for a conclusion that prompt payment of farmers in 1992/93 and 1993/94 had a beneficial effect on the NWCA - NY "C" price differential, the results remain ambiguous[20].

The reform (1993/94) variable had positive coefficients when regressed against % PDIFF, but was negative when regressed against ABS PDIFF. The reform variable was not robust, proving to be statistically significant only in the unrestricted form of the model (Equation 1). These results provide no evidence that NWCA-NY "C" price differentials under full reform in 1993/94 varied significantly from previous seasons, other factors held constant. The grade percent and grade interaction variables were not statistically significant in any model specification. There is no evidence in the model to support a conclusion that the grade pricing behavior of buyers differed in 1993/94 relative to previous seasons, other variables held constant. Price differentials did not behave differently in 1993/94 than in previous seasons.

The alternative specifications of the model -- unrestricted (Equation 1), semi-restricted (Equation 2) or restricted (Equation 3)-- were statistically tested to determine which specification was the "best" predictor of the NWCA - NY "C" price differential. The adjusted R-squares of equations 1, 2 and 3 were virtually identical varying between 0.75 and 0.76 (Table 8.4), providing little basis to choose between models. However, unrestricted and restricted versions of a single model may be compared through the F-test

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[20] The effects of predictable payment of farmer behavior and quality are analyzed in detail using anecdotal evidence in Section 8.5.1.

of a linear hypothesis (Gujarati, 1995), calculated as:

$$F = \frac{(RSS_0 - RSS_1) / m}{RSS_1 / (T - K)}$$

Where: RSS_0 = the residual sum of squares of the of the restricted regression equation; RSS_1 = the residual sum of squares of the of the unrestricted regression equation; m = the number of restrictions (or variables dropped) between equations; T = number of observations in the regression equation; k = number of explanatory variables, and $(T - k)$ = degrees of freedom.

The null hypothesis in comparing restricted and unrestricted forms of the same model through the F-test, is that the variables dropped from the unrestricted form of the equation had no impact on the independent variable (i.e., the estimated coefficients were not significantly different from zero). Thus, in comparing Equations 1 and 2, the F-test determined whether the coefficients of grade percent variables affected the price differential. The null hypothesis was that the grade percentage in lots sold at average prices did not affect the price differential. The F-statistic in comparing equations 1 and 2 was insignificant, indicating that average pricing had no impact on the price differential.

A similar F-test was performed comparing the semi-restricted and restricted forms of the model (Equations 2 and 3), in which grade interaction variables were dropped. In this case the F-test determined whether grade price differentials for the portion of the 1993/94 crop sold on a grade basis were significantly different from grade price differences between 1989/90 and 1992/93. Once again, the F-statistic in comparing equations 2 and 3 was insignificant, indicating that the grade pricing behavior of buyers in 1993/94 did not differ significantly from previous seasons. Therefore, the restricted form of the model

(Equation 3) was judged the best model.

8.4.3 Variables that Influenced the NWCA - NY "C" Price Differential

The shipping period variable (SHIPMONTH) had the greatest impact on the price differential. The shipping period measured the number of months (after the beginning of the peak harvest each January) it took for NWCA to collect, process and sell and ship coffee. Rapid shipment of coffee after harvest implies that NWCA was effective in vertically coordinating marketing activities and functions within the cooperative structure.

Table 8.4: Mean Coffee Shipment Periods and Aggregate NWCA - NY "C" Price Differentials between 1989/90 and 1993/94. (Not accounting for forward sales).

	1989/90	1990/91	1991/92	1992/93	1993/94
NWCA-NY "C" Price Differential (%):	*-25.9*	*-9.2*	*-18.3*	*-5.6*	*-2.5*
Mean Shipping Period for the Season	Apr/May 91	Oct/Nov 91	Sept/Oct 92	Jun/Jul 93	May/Jun 94
• **Months after Start of Peak Harvest in January**	15.2	9.7	8.7	5.2	4.5

The regression coefficient for shipping period (Table 8.4) indicated that the price discount assessed by buyers increased by 1.3 percent, or 1.23 cents per pound in absolute terms, for each additional month it took NWCA to ship coffee.

Annual price differentials are compared to the mean shipment period for each marketing season between 1989/90 and 1993/94 in Table 8.4. The data show that the mean time it

took NWCA to ship coffee to buyers decreased each year under reform, and especially during the 1992/93 and 1993/94 seasons. Annual price discounts exhibited a parallel improvement in all seasons except 1991/92. As will be seen, market factors had a strong influence on the price discount in 1991/92. By shaving ten months of its mean shipping time between 1989/90 and 1993/94, NWCA reduced the price discount assessed on its coffee by 11.3 percent, or 12.3 cents a pound. In terms more relevant to Cameroon, this represented about an 81 CFA per kilo improvement in sales prices. Improved vertical coordination of the collection, secondary processing and marketing activities of primary societies, unions, and the Apex, respectively, had a beneficial impact on the price differential. These results support a conclusion that quality at the cooperative level improved during and after reform.

Contract size (TONS) was statistically significant and positive in all model specifications, indicating that economies of size influence buyer demand for NWCA coffee. However, the estimated coefficient was very small. The regression results show that a 100 ton increase in contract size would improve NWCA's percentage price differential by 2 percent, and the absolute price differential by 1.4 cents per pound. NWCA would have to increase significantly its mean lot size to realize higher sales prices. Nevertheless, the results suggest that if NWCA could sustain the production increases observed after reform (see Chapter 7) and market larger lots of coffee to buyers, this would have a beneficial impact on sales prices.

The results also show that size grade influenced the price differential. Grade B prices were not significantly different from the omitted category, grade C. This result was expected since grades B and C are usually equivalently priced. The largest size grade, A,

commanded a 3.5 percent premium (2.7¢/ lb. in absolute terms) with respect to grade C. Smaller size grade D coffee was discounted by 3.4 percent relative to grade C. Although the relative magnitudes of grade A and D price differentials were roughly proportional, the smallest size grade F coffee was steeply discounted in price-- by 9.3 percent relative to grade C. These results indicate that that the large proportion of smaller size grade beans, and particularly smallest size Grade F, in total NWCA's arabica production lowered the aggregate value of the coffee crop. If farmers could increase production of larger grade beans relative smaller grade beans by investing more resources in production, the result would be higher overall prices.

The regression results also demonstrate that market factors beyond the control of coffee producers and coffee cooperatives affected price discounts. The results for Equation 3 indicate that a 0.06 percent increase in the price differential was associated with a 1 percent increase in the NY "C" price. If global supply conditions are stable, world coffee prices do not have much impact on NWCA's price differential. But, price discounts increase when NY "C" prices fall, and decrease when NY "C" prices rise, indicating that demand for NWCA's coffee is influenced by supply conditions in the world coffee market. The large price discount (-18.3 percent) observed during the 1991/92 season (Table 8.1) is partly explained by the fact that world coffee prices fell to record lows during the season due too much supply relative to demand in the world market. In contrast, world coffee prices rose sharply in the latter half of the 1993/94 marketing season. The NY "C" price was only 79.4 cents per pound when NWCA sold coffee on February 23, 1994, but had reached 217 cents per pound by the time NWCA transacted its final sale on July 13, 1994,

representing a 173 percent increase[21]. Correspondingly, the price differential improved noticeably indicating increased demand for NWCA's coffee. These results support the conclusion that world market factors explain some of the improvement in annual price discount in 1993/94. This further weakens support for a conclusion that the institutional changes implemented prior to the 1993/94 season had a significant impact on coffee quality.

The FF - US $ exchange rate was statistically significant and positive in all model specifications. It is unclear why this relationship held true. Nevertheless, the results provide additional proof that factors unrelated to institutional reform and quality improvement influenced the NWCA - NY "C" price differential. Together, the statistical significance of the franc-dollar exchange rate and the NY "C" price variables indicate that NWCA's price differentials were highly sensitive to market (or non-quality related) factors. These results are consistent with a conclusion that NWCA's coffee was of below-average to average quality. As a result, NWCA must compete for buyers on price rather than quality basis. The results underscore the need for NWCA to significantly improve quality if is to command consistently a price premium. This will require a farm-level quality response.

The TIME variable results were ambiguous. The variable was included in the model to determine whether farm-level quality (or bean quality) may have improved, among other

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[21] The regression results imply, other factors held constant, that the price discount for the July 13 sale should have decreased by 10.3 percent over the February 23 sale given the increase in the NY "C" price. In fact, coffee sold on February 23 was discounted in price by 5 percent, but sold at a 12 percent premium on July 13, an improvement of 17 percent.

factors. The regression results provided no support for such a conclusion. In addition, none of the variables designed to measure the impacts of institutional change in 1993/94 on coffee quality (reform in 1993/94, grade percent, grade interaction) were statistically significant. The econometric analysis of NWCA - NY "C" price differentials between 1989/90 and 1993/94 provides no statistical evidence that the quality of coffee produced by farmers improved during or after reform. However, the variables serving as a proxy for farm level quality were not fully satisfactory, so the issue is still open.

8.4.4. Conclusion

Both market and quality factors influenced the NWCA - NY "C" price differential. Among these factors, only quality variables are within the control of coffee cooperatives and farmers. At the cooperative level, the key quality-related variable influencing the NWCA - NY "C" price differential was the speed with which NWCA processed, marketed and shipped coffee. More rapid shipment minimized the risk of quality deterioration as coffee moved through the cooperative marketing chain. By improving vertical coordination within the cooperative structure, NWCA was able to improve the quality of coffee it marketed abroad and realize higher prices. However, in 1993/94 the mean shipping period was May/June and NWCA had shipped all its coffee by July/August (within six months of the beginning of the peak harvest). Since the harvest lasts through late March/early April, it is likely that NWCA will be able to only marginally improve shipping time in the future.

Over the longer term, if NWCA is to realize higher sales prices in the future it will have to: market greater proportions of larger grade beans relative to smaller grades; increase

coffee production so that it might market coffee in greater bulk, and most importantly, improve the cup quality of the coffee it markets abroad. This will require a greater farm-level response. It is critically important that NWCA control and reduce its operating costs to provide farmers with price incentives that encourage investments in production and quality. To improve cup quality, cooperatives will have to improve the way they handle and sort coffee. At a more fundamental level, farmers will have to improve their harvesting and washing techniques. It is critically important that NWCA provide its members with information and price incentives that reward individual producers for their investments in quality.

8.5. Impacts of Reform on Coffee Quality at the Farm Level

Farm-level production and post-harvest practices are the primary determinants of coffee's taste and cup quality attributes, although secondary processing can eliminate some farm level failures. As a composite measure of the quality of green coffee sold, the NWCA - NY "C" price differential reflects the manner in which cooperatives processed, marketed and shipped coffee, and provides little information per se about the farm-level response to reform. This section uses available case study information to evaluate the impacts of reform on producer behavior and farm-level quality.

8.5.1 Impacts of Payment Predictability on Coffee Collection and Quality

Coffee quality is affected by the rate at which farmers deliver coffee to cooperatives for acceptance. To preserve quality and freshness, it is desirable that cooperatives collect coffee from farmers soon after harvest, so they may complete processing activities during

optimal dry season conditions. However, farmers generally will not deliver their coffee to cooperatives unless they are sure of payment. By affecting the flow of coffee between farmers and cooperatives, the institutional arrangements by which coffee cooperatives finance crop purchases influences quality.

Although coffee stores well in dry season conditions, coffee beans take on moisture and deteriorate in quality when humidity levels reach 65 percent or more,. The coffee harvest in NW Province occurs during the dry season, beginning as early as November in lower lying areas and lasting through April. The peak harvest months are January and February. The rainy season begins in late March/early April. As rains increase in frequency, humidity levels climb and stored coffee must be frequently re-dried to prevent quality deterioration.

Road conditions in NW Province deteriorate rapidly during the rainy season. Secondary and tertiary roads quickly become impassable, making it impossible to transport coffee between many societies and unions. Later in the rainy season, even primary roads may deteriorate so badly that it is difficult to evacuate coffee from unions. If cooperatives are unable to evacuate coffee before road conditions deteriorate, coffee must be stored in humid conditions until road conditions improve during the following dry season.

Because of the limited time span between the harvest and onset of the rainy season, it is important that cooperatives collect, process and evacuate coffee quickly after harvest during optimal dry season conditions. If the flow of coffee from farmers to cooperatives is significantly delayed, collection and processing activities may extend into the rainy season, adversely affecting coffee quality.

In most areas of NW Province, coffee is the principle cash crop. Coffee should

provide a timely source of income to farmers since the harvest coincides with a time of peak seasonal expenses for farmers[22]. There are transactions costs for farmers in delivering coffee to primary societies. Most farmers hand-carry coffee to primary societies or sections, which are sometimes quite distant from farmers' homes. Acceptance can be a time-consuming process, especially if farmers are required to re-dry or re-sort coffee.

Unpredictable and uncertain payments undermine producer incentives to invest in quality. When cooperative payments were unreliable during the administered marketing era and early years of reform, it was common for many cash-strapped farmers to sell coffee at price discounts of between 30 and 50 percent to informal traders who had cash on hand (Rassas, 1992). Some of these buyers were large-scale farmers and local traders who later delivered coffee to primary societies at the official price after payment was assured. However, a number of these traders were from West Province, who subsequently delivered coffee to UCCAO, which reliably paid farmers, at the official price. An alternative strategy of many farmers was to defer delivering coffee until payments were certain, increasing the risk of quality deterioration during home storage.

Recurrent payment difficulties plagued arabica marketing in NW Province before and during the early years of reform. During the administered market era, funds disbursed by the Marketing Board often failed to cover NWCA's crop purchasing needs (Gellar et al., 1990). After world coffee prices fell in 1986/87 season and the financial situation of the Marketing Board deteriorated, payments to farmers became increasingly unreliable and

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[22] Seasonal expenses include school fees, medical fees associated with dry season illnesses, ritual "death celebrations" scheduled during the dry season when transportation is relatively easy, and food purchases during the hungry season between growing seasons.

arrears to farmers began to accumulate (Chapter 4). In 1988/89, the year prior to reform, the Marketing Board defaulted on payments to cooperatives and producers. Payment difficulties continued during the early years of reform. The 1989/90 season began with NWCA lacking funds for crop purchases. It was only in late April that donors granted funds to NWCA to collect coffee and pay farmers. A similar lack of available funds plagued the 1990/91 coffee campaign. Coffee purchases were again delayed until April, when USAID established a crop financing revolving fund for NWCA. The revolving fund was a transitional crop financing arrangement only, designed to assist NWCA until its financial situation improved and it could independently procure crop financing. Cash from the fund was made available to NWCA subject to the condition that it be replenished before it could be used the following year.

Beginning with 1991/92 season, the reliability of cooperative payments began to improve significantly. Arrears owed to farmers were paid with donor provided funds prior to the start of the 1991/92 campaign. With the crop financing revolving fund in place, there were high expectations that NWCA's payment difficulties had finally been resolved. However, because of the unexpected bumper crop, funds were insufficient to cover all crop purchases. Although USAID doubled the size of the revolving fund in mid-season, additional funds were not released until early April, 1992[23]. Although cooperative payments to farmers in 1991/92 were at times delayed and erratic, on balance they were more reliable than in preceding years. In 1992/93, NWCA obtained an interest-free loan

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[23] The delay was due to the Cameroonian government's slow pace in implementing specific arabica policy reforms that were conditions precedent to the disbursement of project funds.

from the European Community that adequately covered its crop financing needs. Although primary societies were able to reliably pay farmers, coffee collection activities were conducted amidst considerable price uncertainty. Official arabica prices were not announced until after coffee had been harvested (see Chapter 6). For most of the 1992/93 season, cooperatives paid producers advances during acceptance.

In 1993/94, NWCA independently financed crop purchases through interest-bearing commercial loans, using the coffee crop as collateral. Funds for crop purchases were available to primary societies as early as late November, provided that societies followed appropriate financial accounting and reporting procedures. Interest charges, which ranged between 18 and 23 percent per year, were allocated within the cooperative structure as follows: primary societies incurred charges until they had transferred coffee to unions, unions bore charges until coffee had been processed and evacuated to the Apex in Bamenda, and the Apex bore charges until coffee had been shipped, payment was received and loans repaid. These arrangements provided all cooperatives with strong incentives to collect, process and ship coffee as quickly as possible to minimize interest expenses[24].

The observed improvement in reliability of cooperative payments to producers permits an analysis of how payment predictability affected the flow of coffee from farmers to cooperatives. Unfortunately, comprehensive collection data from both the primary society and union level are unfortunately unavailable. However, complete union-society coffee

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[24] The devaluation of the CFA franc in January, 1994, and the subsequent doubling of producer prices, complicated crop financing arrangements in 1993/94. Loans negotiated prior to devaluation were insufficient to pay post-devaluation prices in full. NWCA continued to pay producers pre-devaluation prices as advances during acceptance, paying the balance after coffee had been sold.

acceptance data for the 1988/89-1993/94 period are available from Kom and Oku-Noni Unions. Since the primary marketing functions of societies are to accept coffee from farmers (weighing, evaluating quality and paying farmers), assemble and arrange for coffee to be transported to unions, union-society acceptance information provides insight into the coffee delivery patterns of farmers.

Combined monthly union-society acceptance data from Kom and Oku Unions for the 1988/89-1993/94 period are presented in Table 8.5 and Figure 8.3. The 1988/89, 1989/90 and 1990/91 seasons were characterized by highly unpredictable payments to producers. In contrast, the 1991/92, 1992/93 and 1993/94 season were characterized by relatively predictable payments. The tonnage of coffee collected each month, and the cumulative percentage of each season's coffee crop collected by the end of each month, are presented in Table 8.5. Cumulative percentages show the timing of society coffee deliveries to unions during each season, and, indirectly, the timing of farmers' coffee deliveries to primary societies.

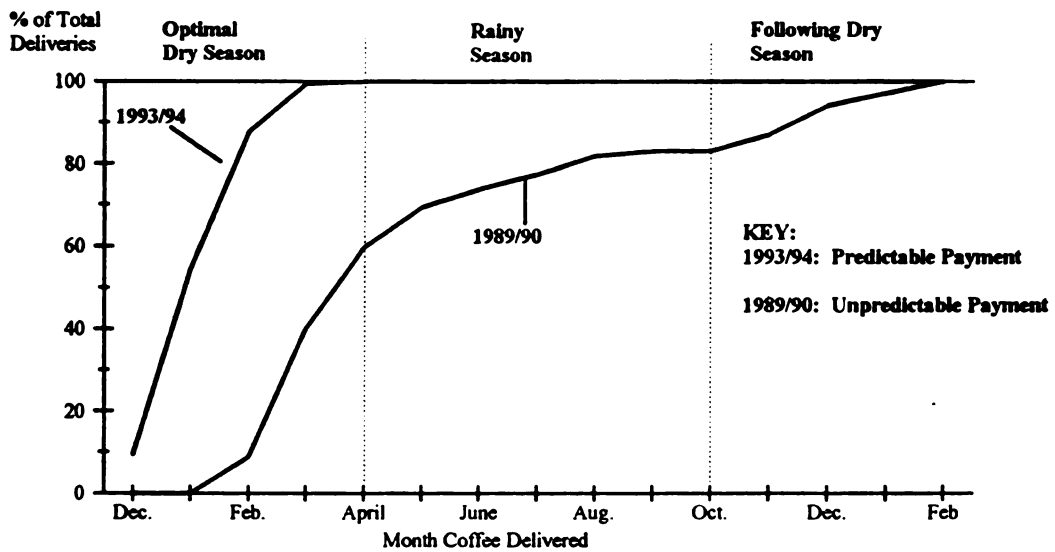
The results presented in Table 8.5 and Figure 8.3 show that in seasons of unpredictable payment, farmers delivered large proportions of coffee to societies during sub-optimal rainy season conditions. Only 60 percent of the 1988/89 crop, and roughly half of the 1990/91 crop was delivered to the two unions during optimal dry season conditions. Only a fraction of the 1989/90 crop (21 percent) was delivered to unions in optimal conditions. The 1989/90 crop was sold at an overall discount of 26 percent. In each season of unpredictable payment, coffee collection activities extended into the following dry season. Coffee tonnage also declined during years of unpredictable payment, due in part to an outflow of coffee from NW to West Province (Chapter 7).

Table 8.5: Seasonal Coffee Delivery Patterns by Payment Assurance Levels, Oku-Noni and Kom Union Areas, NW Province: 1988/89 - 1993/94[1].

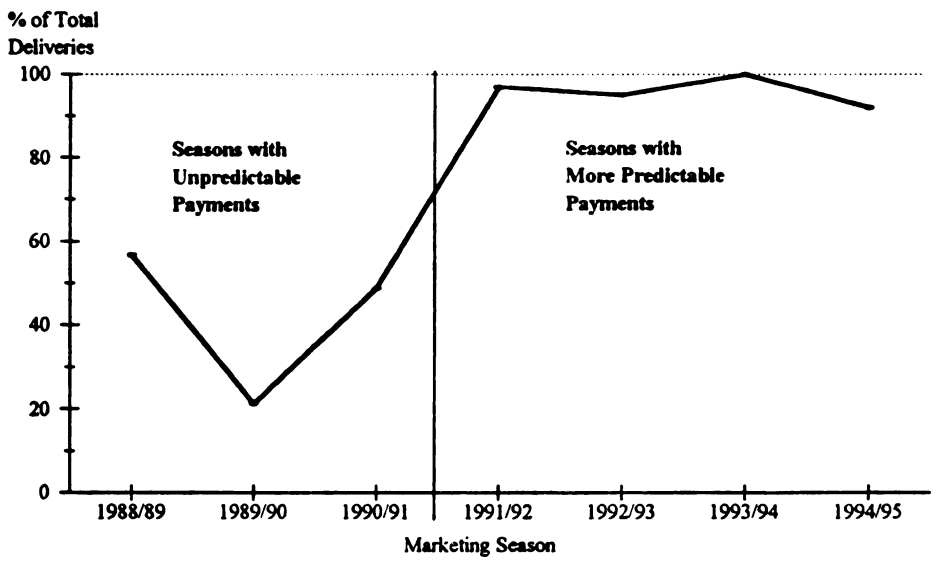
A) Seasons with Unreliable Payments						
	1988/89		**1989/90**		**1990/91**	
Total tonnage Delivered:	1890		955		664	
Optimal Dry Season:	Tons Delivered	Cumulative % of Total	Tons Delivered	Cumulative % of Total	Tons Delivered	Cumulative % of Total
• December	0	0	0	0	0	0
• January	1	0	0	0	0	0
• February	167	8.9	0	0	0	0
• March	587	39.9	103	10.8	103	15.5
• April	374	**59.7**	100	**21.3**	222	**48.9**
Rainy Season						
• May -July	331	77.2	550	78.8	263	88.6
• Aug-Sept	110	83.1	21	81.0	24	92.2
Following Dry Season						
• Oct-Jan	320	100	181	100	52	100
B) Seasons with Reliable Payments						
	1991/92		**1992/93**		**1993/94**	
Total Tonnage Delivered:	1635		906		1107	
Optimal Dry Season:	Tons Delivered	Cumulative % of Total	Tons Delivered	Cumulative % of Total	Tons Delivered	Cumulative % of Total
• December	0	0	0	0	105	9.5
• January	446	27.3	86	9.5	498	54.5
• February	630	65.8	455	59.7	369	87.8
• March	338	86.5	157	77.0	127	99.3
• April	171	**96.9**	163	**95.0**	8	**100**
Rainy Season						
• May -July	48	99.9	45	100	--	--
• Aug-Sept	2	100	--	--	--	--
Following Dry Season						
• Oct-Jan	--	--	--	--	--	--

Source: Oku-Noni Area Cooperative Union, Kom Area Cooperative Union.

Notes: 1) Union coffee acceptances from primary societies. Bolded percentages show the proportion of each season's crop that was collected during optimal dry season conditions.



A) Seasons of Unpredictable and Predictable Payments Compared: 1989/90 Vs. 1993/94



B) Percentage of Coffee Delivered in Optimal Dry Season (Ending April) by Year

Figure 8.3: Percent of Coffee Delivered in Optimal Dry Season Related to Predictability of Payment in the Kom and Oku-Noni Union Areas of North West Province, 1988/89 - 1993/94.

In stark contrast, farmers and societies delivered the vast majority (95 percent or more) of their coffee to Kom and Oku Unions under optimal dry season conditions in years of predictable payments to farmers (1991/92-1993/94). This minimized the risk of quality deterioration. In seasons of predictable payment, coffee deliveries by societies to unions began in January, as the peak harvest was beginning. The results from 1993/94 are particularly noteworthy. Coffee was delivered more quickly to societies and unions than in each of the previous five seasons. Societies began delivering coffee to unions in December. Reformed crop financing arrangements enabled producers in low lying areas, where coffee cherries ripen earlier than at higher elevations, to deliver coffee soon after harvest. Society-union coffee delivery patterns in 1993/94 appear to have paralleled harvest patterns. More than half of the coffee collected by the two unions in 1993/94 was delivered by societies by the end of January, and nearly 90 percent was delivered by the end of February. All but 8 tons of coffee was collected before the rainy season began in late March.

Farmers clearly responded to assured payments by delivering their coffee quickly to primary societies for acceptance. In turn, societies quickly delivered coffee to unions. This gave unions the opportunity to complete processing coffee and evacuate coffee to warehouses in Bamenda under optimal dry season conditions. Finally, by shortening the time it took cooperatives to process coffee, rapid delivery of coffee to cooperatives had a beneficial impact in reducing cooperative operating costs. Whereas coffee collection activities were completed within 4 months in 1993/94, it took a year to collect all coffee in 1989/90 (Figure 8.3.A).

However, NWCA could not sustain the same level of performance during the 1994/95

season. As discussed in Chapter 7, NWCA seriously overestimated the producer price it could pay in 1994/95. NWCA's tonnage increased by an unexpectedly large 800 tons in 1994/95. Because of this, NWCA failed to procure adequate crop financing for all its 1994/95 crop purchases, and experienced late season cash flow problems that seriously delayed payments to producers in some areas. Correspondingly, farmers' deliveries of coffee to cooperatives slowed considerably late in the season (Figure 8.3.B). By the end of April, Oku-Noni and Kom Unions had collected only 92 percent of the 1994/95 crop, compared to 100 percent in 1993/94.

As a group, cooperative records show that NWCA unions collected only 90 percent of the total 1994/95 crop by the end of April. Some 800 tons of coffee was collected in sub-optimal conditions in 1994/95. NWCA's 1994/95 sales were discounted in price, in part due to humidity problems (NWCA, 1995). In order of magnitude, Nso, Oku-Noni, Kom and Nkambe experienced the greatest problems with slow late season deliveries. Each of these unions is located in a high altitude area where substantial amounts of coffee is harvested late in the harvest season. Nso Union (40 percent) and Oku-Noni Union (16 percent) alone accounted for 56 percent of the coffee that was delivered late. These were the two unions that experienced the largest percentage increases in tonnage in 1994/95 (Chapter 7). Thus, the results from the 1994/95 season provide additional support that farmers' coffee delivery patterns were strongly influenced by the reliability of payments.

8.5.2 Impacts of Reform on Unwashed Arabica Production

As discussed in Chapter 4, government pricing policies during the administered market era pricing policies favored the production of lower value unwashed arabica coffee relative

to higher value washed arabica. Administratively determined washed - unwashed producer price differentials were maintained at arbitrarily low levels relative to world price differentials, and failed to account for washed arabica's higher production costs. As a result, arabica farmers in NW Province produced large quantities of unwashed coffee. Although the officially recorded proportion of unwashed arabica in total production never exceeded 15 percent, the actual proportion was likely much higher. A common quality problem cited by buyers was that NWCA's lots of washed arabica contained large numbers of unwashed beans. The failure of cooperative unions to control for unwashed arabica during secondary processing adversely affected the consistency of green coffee, lowering its export value.

An objective of reform was to reduce the large proportion of unwashed coffee in total arabica production in NW Province by introducing producer pricing arrangements that better aligned domestic washed and unwashed prices with world market prices. It was anticipated that market-based pricing would significantly reduce unwashed arabica production in the short term.

Although the institutional reform of arabica markets began in 1989/90, the government continued to establish uniform national coffee prices through the 1992/93 season. The first change in pricing policy occurred in 1989/90, when the government reduced washed and unwashed arabica prices from to 250 and 220 CFA per kilo respectively. These prices were maintained during the 1990/91 season. Although it was estimated that it costs farmers 80 CFA per kilo more to produce washed than unwashed arabica (Chapter 4), the washed-unwashed price differential was only 30 CFA per kilo. Furthermore, at the lower price washed arabica was a marginally profitable activity for some farmers and a money-

losing activity for many (Chapter 6). The price reduction further weakened incentives for washed arabica production, and increased the attractiveness of cheaper unwashed coffee as a production alternative.

The key institutional changes occurred prior to the 1991/92 season. Instead of fixing uniform national coffee prices, the government began establishing minimum coffee prices after consulting with coffee marketing cooperatives. Although the minimum washed arabica price continued to be set at 250 CFA per kilo in 1991/92, the minimum unwashed arabica price was reduced to 155 CFA per kilo. The 95 CFA per kilo price difference was greater than the estimated cost difference of producing washed instead of unwashed arabica.

NWCA modified its coffee acceptance rules in 1991/92 to better distinguish washed from unwashed coffee[25]. Primary societies began to accept unwashed coffee from farmers only after all washed parchment had been accepted. However, these rules were unevenly applied during the season. Six cooperative unions refused to accept any unwashed arabica, while societies in other union areas continued to accept unwashed coffee. In 1992/93, NWCA began to accept, process and market unwashed coffee separately from washed arabica. Unwashed prices were announced only after all unwashed lots had been sold and its market value was known. In summary, beginning with the unwashed price reduction in 1991/92, reformed pricing and acceptance procedures rules contained strong disincentives for unwashed production.

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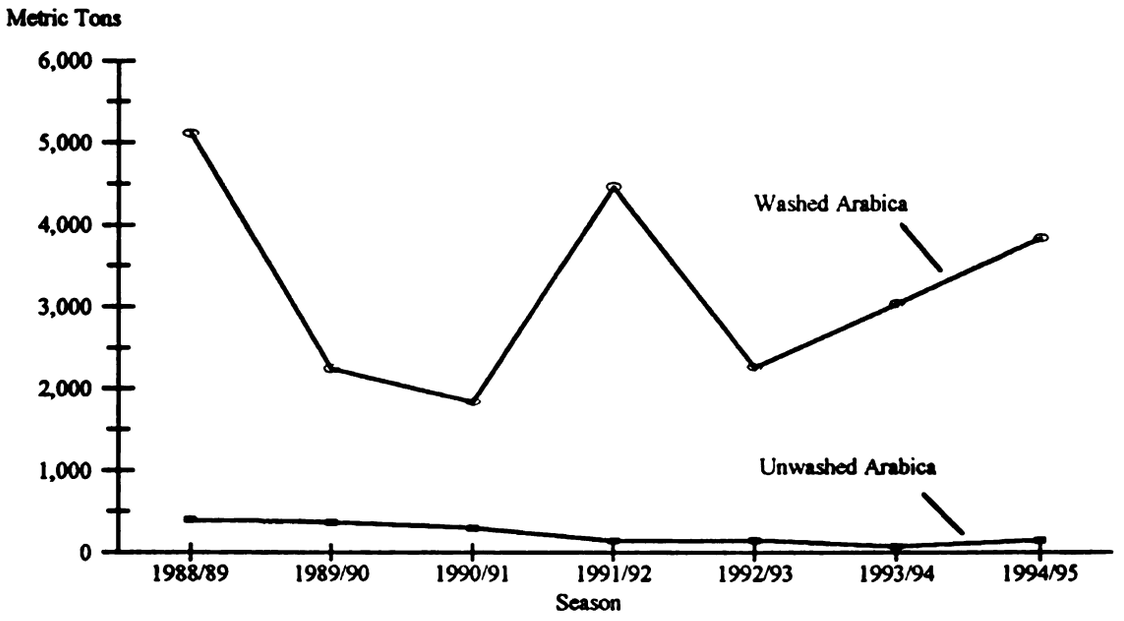
[25] Although it easy to detect unwashed coffee before secondary processing by the dried pulp covering beans, unwashed beans are virtually indistinguishable from washed beans after hulling.

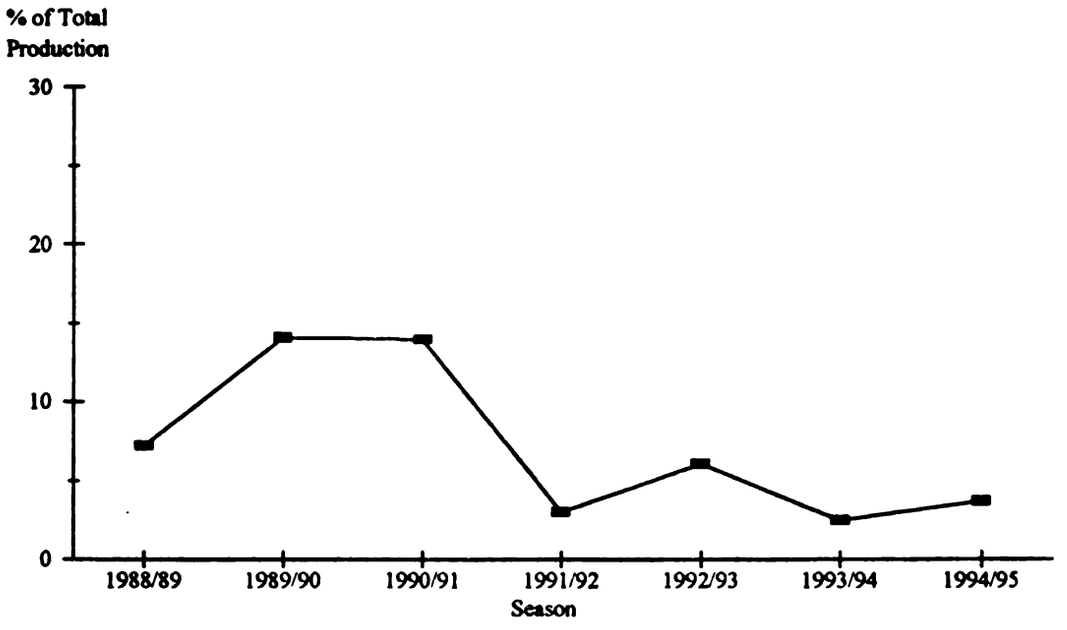
Unwashed and arabica producer prices and production data for NW Province between 1988/89 and 1994/95 are summarized in Table 8.6. The tonnage of washed and unwashed arabica handled by NWCA and the proportion of unwashed arabica in total arabica tonnage over the same period is graphically depicted in Figure 8.4.

After official arabica coffee prices were nearly halved in 1989/90, the share of unwashed arabica in the total arabica tonnage handled by NWCA doubled, increasing from 7 percent in 1988/89 to 14 percent in 1989/90 and 1990/91 (Table 8.6, Figure 8.4). The total arabica tonnage handled by NWCA immediately plummeted after prices were reduced, falling by 61 percent between 1988/89 and 1990/91. However, the fall in tonnage was more pronounced for washed arabica. Although production of washed arabica tonnage fell by 64 percent between 1988/89 and 1990/91, unwashed arabica tonnage declined by only 25 percent.

However, it is likely that official cooperative unwashed-washed statistics significantly understate the amount of unwashed coffee produced in NW Province in 1989/90 and 1990/91. Although incomplete, information gathered at the union level reveals that the share of unwashed coffee in the total arabica tonnage handled at Santa Union was 32.3 percent (113 of 349 tons), and 34.9 percent (37 of 93 tons) in neighboring Pinyin Union in 1990/91. Also, a communication from one buyer revealed that it had graded one of the lots NWCA shipped during the 1989/90 season as containing 10 percent unwashed beans. This evidence suggests that NWCA was accepting and processing significant quantities of unwashed coffee as washed. In the early years of reform, NWCA's marketing activities continued to be hampered by the large proportion of unwashed coffee produced by farmers, and quality control failures by cooperatives.



a) Annual Production (metric tons)



b) Percentage of Unwashed Arabica in Total Production

Figure 8.4: Washed and Unwashed Arabica Production in North West Province, Cameroon: 1988/89 - 1994/95.

Table 8.6: Washed Vs. Unwashed Arabica Coffee Handled by the North West Cooperative Association, NW Province, Cameroon, 1988/89 - 1994/95.

Year	Initial Prices[1] (CFA/kg.)		Arabica Production			Unwashed Arabica Share in Total Production
	Washed	Unwashed	Total	Washed	Unwashed	
1985/86	475	440	--	--	--	*13.5*
1988 /89	475	440	5,513	5,115	398	7.2
1989/90	250	220	2,609	2,247	368	14.1
1990/91	250	220	2,141	1,841	300	14.0
1991/92	250	155	4,609	4,464	145	3.1
1992/93	200	--	2,415	2,265	150	6.2
1993/94[2]	260 (520)	--	3,113	3,036	77	2.5
1994/95	1000	--	3,991	3,842	149	3.7

Notes: 1) Initial prices are the producer prices announced at the beginning of each marketing campaign. Beginning in 1991/92, NWCA stopped announcing an unwashed arabica price, instead determining prices and paying producers on the market value of unwashed sales.
2) Figures in parentheses reflect the doubling of the mean initial producer price in the middle of the 1993/94 harvest to account for devaluation.

After NWCA introduced new unwashed acceptance and pricing arrangements in 1991/92, the tonnage of unwashed arabica it handled decreased dramatically. Although washed arabica tonnage more than doubled between 1990/91 and 1991/92, unwashed tonnage fell by roughly half. The share of unwashed arabica in total production was only 3.1 percent in 1991/92 compared to 14 percent in 1990/91. Farmers clearly responded to changed economic incentives by sharply curtailing unwashed arabica production .

However, the share of unwashed arabica production doubled to 6.2 percent in 1992/93 (Table 8.6; Figure 8.4). Incentive effects were the likely cause. The minimum arabica

price (which became the de facto price) was reduced from 250 CFA per kilo in 1991/92 to 200 CFA in 1992/93, further dampening the already dubious returns to washed arabica. Furthermore, considerable price uncertainty shrouded the 1992/93 season. The government announced the minimum arabica price extremely late in the season on April 20, 1993. Given uncertainty about prices and low returns to washed arabica, a number of producers apparently decided to maximize their returns by marketing their coffee as unwashed.

With the implementation of society level pricing arrangements in 1993/94, washed arabica producers were able to realize higher initial producer prices due to cost reduction within the cooperative structure and improving world coffee prices. Producers were also aware that NWCA would pay bonuses for washed arabica payments if it realized a profit from sales. The mean producer price offered by cooperatives at the beginning of the 1993/94 campaign was 260 CFA per kilo, and were doubled in late January to account for the devaluation of the CFA franc--in the midst of the peak harvest Price incentives in 1993/94 strongly favored production of washed over unwashed arabica. Correspondingly, the washed arabica tonnage handled by NWCA increased by 34 percent between 1992/93 and 1993/94, but unwashed tonnage fell by half. Unwashed arabica represented only 2.5 percent of the total amount of arabica processed by NWCA in 1993/94.

However, the proportion of unwashed arabica increased to 3.7 percent in 1994/95, and almost doubled in absolute terms. Cooperative records indicate that three unions--Kom, Nso and Oku--accounted for 65 percent (96 tons) of this unwashed coffee, but only 57 percent of total arabica production in 1994/95. Each of these unions was identified in the previous section as having experienced late season payment difficulties. This suggests that

some farmers who doubted whether they would be paid in 1994/95, hedged their bets and decided to process their coffee as unwashed instead of washed. Nevertheless, NWCA handled 63 percent less unwashed coffee in 1994/95 than in 1988/89 (the final year under administered marketing arrangements), and 50 percent less than in 1990/91 (the year prior to institutional change).

Reform clearly accomplished its objective of reducing the proportion of unwashed arabica coffee produced by farmers. However, the deeper significance of this case study is that it has demonstrated that NW coffee producers were highly responsive to the improved economic incentives which resulted from institutional change.

8.5.3 Impacts of Reform on Bean Size

The regression analysis in Section 8.4 showed that bean size affects NWCA's sales prices. Bean size is determined during production. Beans require adequate nutrition to reach full maturity. Weeding, fertilization, spraying and pruning are important production activities that influence bean size. Trees that are poorly tended or cared for generally produce small beans. An analysis of bean size, or grades, provides insight into the impacts of reform on farm level behavior.

During the administered marketing era, arabica production in NW Province was characterized by a large proportion of smaller size beans relative to larger size beans (Chapter 4). The condition of farmers' coffee plots and trees was generally poor. Fertilizer use in NW Province was far below recommended levels since arabica farmers could not afford to purchase adequate supplies of fertilizer. Administered pricing arrangements failed to generate incentives for farmers to invest adequate resources in

production.

Reform designers anticipated that improved farm-level production incentives would increase the proportion of large grade beans relative to small grade beans over the short run (USAID, 1990). This conclusion was apparently based on the observation that farmers in West Province produced a much higher proportion of larger grade beans than farmers in NW Province during the administered marketing era (see Chapter 4). Society-level pricing arrangements were expected to restore profitability in arabica production by increasing the share of export prices received by farmers. In turn, farmers would invest more resources in coffee production activities such as weeding and pruning, and increase fertilizer use to maximize returns to arabica production. However, Eriksen and Bloch (1994) argued that the farm level response to higher producer prices was likely muted by rising fertilizer prices caused by the phased removal of government price subsidies[26].

As discussed in Chapters 6 and 7, it was only prior to the 1993/94 season that farm-level incentives changed significantly. During the reform period (1989/90 through 1992/93) production incentives were weak due to low producer prices. Although NWCA had rights to claim and distribute the residual earnings from its sales between 1989/90 and 1991/92, it lost money in each season because of low world coffee prices. It was only after the 1992/93 season was completed that farmers perceived any tangible price benefits from reform. NWCA realized a net profit on its 1992/93 sales and paid producers an

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[26] Concurrent with the arabica reforms, USAID/Cameroon sponsored a program of reform to privatize fertilizer procurement and distribution in Cameroon and phase out government price subsidies. Although the removal of price subsidies increased the farm price of fertilizer, its availability improved significantly (Abt Associates, 1991; Walker, 1994).

average bonus of 27 CFA per kilo. After eight consecutive years of unreliable payments and declining prices, NWCA's ability to pay bonuses helped to restore farmers' trust and confidence in their coffee cooperatives, and kindled a more optimistic outlook towards arabica production.

Bonuses were paid as NWCA was implementing society-level pricing arrangements that directly linked producer prices with cooperative costs. NWCA conducted a grass-roots education program to promote both society level pricing and quality improvement. The 1993/94 season began on a note of strong optimism. The mean initial producer price in NW Province was 260 CFA per kilo, an increase of 30 percent from 1992/93. In addition, NWCA predicted that farmers would be paid significant bonuses at the conclusion of the season.

Available cooperative grading information from NWCA is summarized in Figure 8.5, which compares the proportion of larger grade A, B and C beans and smaller grade D and F beans in NWCA's total production before, during and after reform. The results show that the proportion of larger grade beans relative to smaller grade beans increased noticeably in 1993/94 relative to preceding years. In 1992/93, the proportion of larger beans relative to smaller beans was 50 percent. However, in 1993/94, the proportions of larger beans and smaller beans were 56.5 percent and 43.5 percent respectively. Although grade percentages exhibit interannual variation, there is evidence to suggest that this increase in bean size was related to the payment of the bonuses and the expectation of higher producer prices in 1993/94 under society-level pricing arrangements. Observation of coffee plots in different areas of NW Province in May and June, 1993 revealed that they were generally poorly cleared and weeded or intensively intercropped with food crops,

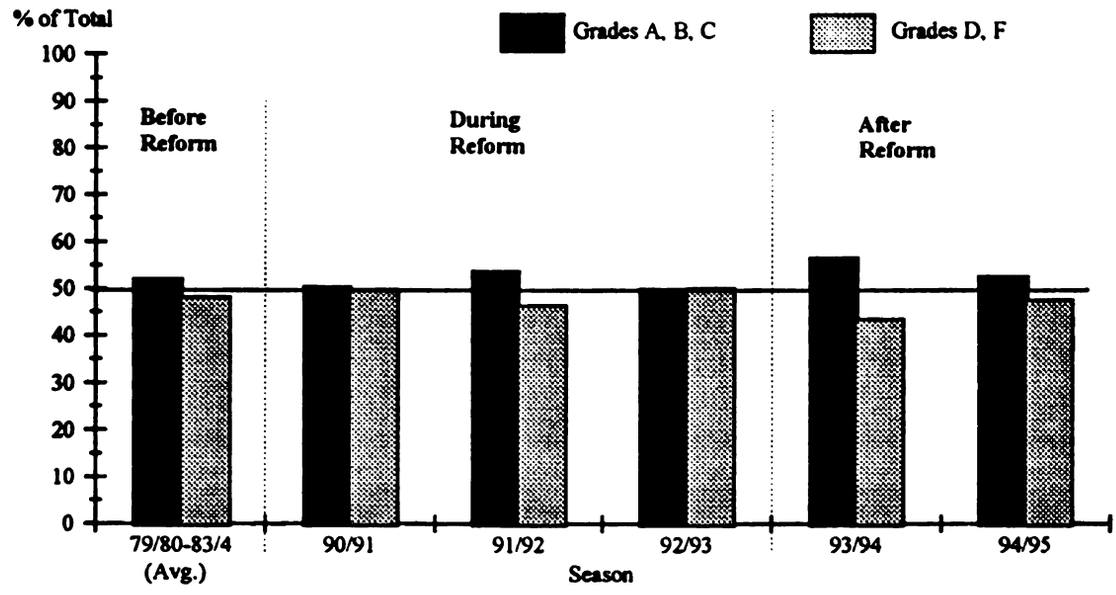

Figure 8.5: Percentage of Large Relative to Small Bean Size Grades in Total Arabica Production, North West Province, Cameroon: 1979/80 - 1994/95.

and that trees were generally overgrown and poorly pruned. However, in the weeks and months after bonuses were paid farmers in September 1993, and producer price education efforts began earnest prior to the 1993/94 season, a marked improvement was observed in the condition of farmers' coffee plots throughout NW Province (Field observations, 1993).

One would expect that the production incentives contained in high final prices paid NW producers in 1993/94 and high initial prices in 1994/95 would favor a further increase in the proportion of large beans in total production in 1994/95. However, the proportion of larger Grade A - C beans decreased from 56.5 to 52.5 percent in 1994/95. Devaluation of the CFA franc contributed to much of the price improvement observed in 1993/94 and 1994/95. Courade (1996) reported that input prices more than doubled after CFA

devaluation. Higher-cost imported inputs, compounded by the removal of fertilizer price subsidies, likely muted farm level production incentives and contributed to decreased bean size in 1994/95.

The evidence on bean size is inconclusive. Although the experience during the first year under reform suggests that NW producers were highly responsive to improved economic incentives for arabica production, the 1994/95 results raise doubts about the farm-level production response. But it is difficult to draw hard conclusions about the impacts of reform on bean size after only two seasons. Only a sustained increase in the proportion of larger to smaller beans over several marketing seasons would provide convincing proof that institutional reform had a positive impact on bean size. However, due to the cumulative effect of poor production incentives in the pre-reform and reform era, few Cameroonian arabica producers invested in new trees. As a result, an increasingly large proportion of the trees in production were very old, and well past their most productive years. This suggests that if farm level quality is to improve perceptibly, numerous individual producers will have to invest in planting more trees[27]. Over the long term, NWCA's ability to sustain and improve farm level production incentives will be critical to farm level quality improvements.

8.6 Impacts of Reform on Cup Quality

The cup taste is the only true measure of quality factors. This is especially true in evaluation farm level quality factors. Unfortunately, a detailed, base-line evaluation of the

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[27] Reform designers ignored this issue, and no reliable seed distribution system or extension service is in place in NW Province.

quality of coffee produced in NW Province was not performed at the start of the reform process. However, some information is available concerning buyers' impressions of the cup quality of NWCA's coffee. Although sparse and far from complete, available cup quality evaluations provide insight into the cup quality of coffee produced in NW Province during and after reform.

Two quality assessments are available from 1990, when the arabica marketing reforms were being planned. An informal survey of several coffee buyers and independent consultants revealed that NWCA's coffee was generally considered to be of poor quality. Specific quality problems included unclean cups and large numbers of stinker beans associated with overfermentation during washing. In communications with USAID and NWCA, a German trading firm indicated that samples taken for a July/August shipment of coffee contained approximately 10 percent unwashed arabica beans. Also, roasters had indicated a strong reluctance to buy coffee from NW Province because of its quality problems, preferring instead to buy from Central America. These results indicate quality failures at both the farm and cooperative levels.

In December, 1991, USAID arranged for a delegation from NWCA to visit several European coffee traders, brokers, and roasters. The impressions of several buyers about the quality of NWCA's 1990/91 crop samples were included in the trip report. A British firm found that although some of NWCA's crop samples had some desirable characteristics such as high acidity and a good cup appearance after brewing, cup tastes had revealed undesirable musty, earthy and unclean tastes. The implication was that the actual quality of coffee produced by NWCA was well below its potential. Poor washing and drying practices at the farm level, compounded by and poor grading and sorting by

cooperatives, undermined the value and attractiveness of NW Province coffee to buyers. Several traders showed little interest in buying NWCA's coffee. While some had experienced quality problems with Cameroonian coffee in the past, others indicated that it would difficult to locate roasters who were willing to buy NWCA's coffee on a regular basis because of its poor quality.

In 1991/92, union mills were refurbished and new parchment acceptance procedures were introduced. In assembly meetings, cooperative officials and project marketing consultants reported that the quality of parchment accepted from farmers improved noticeably in much of NW Province. But there is no evidence that either the new acceptance procedures or technical improvements in mills had a noticeable impact on cup quality. In June 1992, USAID arranged for another NWCA delegation to tour of several European buyers. One broker tested several samples of the 1991/92 crop. The cup taste results were disappointing. A number of cups produced unclean tastes associated with over-fermentation and faulty drying[28], indicating that quality problems continued to undermine the quality reputation of NWCA coffee. The tour of buyers underscored the need for NW producers to improve the quality of coffee they produced, and for NWCA to increase farmers' quality awareness through grass-roots education (Resta, 1992).

Although parchment acceptance procedures were not strictly applied or enforced in 1992/93, the season witnessed a marked change in NWCA's capacity to market coffee abroad. A marketing department was established within the NWCA apex in 1993.

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[28] Awkwardly, one of the cups plagued by poor quality was from a stock lot sample of coffee that had already been purchased by the broker, but had yet to be delivered.

Together with a marketing consultant and project technical advisor, NWCA devoted a great deal of attention to preparing samples of the 1992/93 crop to increase its attractiveness to buyers[29]. Although no cup taste evaluations are available from the 1992/93 season, the NWCA-NY "C" price differential (discount) decreased from -18.3 percent to -5.6 percent between 1991/92 and 1992/93. This suggests that the cup quality of 1992/93 crop samples improved noticeably over previous years. However, NWCA's marketing performance was marred by quality claims from buyers affecting 150 tons of coffee (7.5 percent of all sales)[30].

Quality claims occur when the quality of coffee actually sold (or delivered) to a buyer fails to achieve the level of quality a buyer thinks he has bought. Coffee is usually marketed based on samples. To attract buyer interest, a coffee seller sends crop (or type) samples to prospective buyers so they may evaluate its quality. Crop samples should be representative of the quality of all lots of coffee that a seller advertizes for sale. Crop sampling represents an implicit contract between a seller and a prospective buyer, since it establishes the level of quality expected by a buyer and promised by a seller (Marshall, 1985). This means a buyer does not have to evaluate the quality of each lot of coffee before contracting a sale, though some buyers with quality reservations may require that a seller send specific lot samples before shipment.

When the quality of either lot samples or shipped coffee fails to conform to the level of

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[29] Effort was also devoted to improving communications with buyers and increasing NWCA's market visibility.

[30] The extent of the quality claim problem may be understated by these figures. In cooperative meetings and newsletters, the NWCA marketing department indicates that some buyer claims were resolved through negotiations.

quality established by representative crop samples, quality claims occur. However, marketing coffee by crop samples creates potential incentives for buyers and sellers to behave opportunistically. A seller may be tempted to cheat on its sample preparations in hopes of raising prices, and a buyer may make false quality claims to lower prices. A code of conduct has evolved within the international coffee industry which governs sales transactions and acts as a powerful disincentive for opportunism, particularly on the part of sellers. In the event of a breach of contract or quality claim, liability is usually assigned to the seller (Marshall, 1985). Disputes can be referred to the International Court in the Hague for final arbitration if an amicable solution cannot be reached independently. However, the cost of court appearances are disproportionately borne by sellers who must incur high litigation transportation costs[31]. Sellers also risk damaging their reputation for reliability and quality should a dispute not be resolved in their favor.

In the 1992/93 quality claims against NWCA's coffee, most buyer indicated that their cup tastes had revealed inferior quality and unclean tastes. Stinker beans, some of which may be detected only during roasting, were a particularly serious quality problem. The quality claims were indicative of continuing quality failures at both the farm and cooperative levels. Poor washing and drying techniques by farmers and an inability of some cooperative unions to control quality during secondary processing adversely affected the overall quality of NWCA's coffee.

As a result of the quality claims in 1992/93, NWCA realized that quality problems were damaging its reputation among buyers. It became increasingly preoccupied with

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[31] These costs can be staggering for small tonnage exporters such as NWCA.

improving coffee quality at both the cooperative and the farm level. As a result, NWCA modified parchment acceptance and processing procedures in 1993/94 to separate poor (Class III) from better quality (Class I and II) coffee. Intensive quality improvement efforts began at the farm level. Grass roots education campaigns sought to increase farmers' awareness of the importance of quality in international marketing and its influence on prices. The new parchment acceptance procedures, along with proper harvesting and washing procedures, were explained in detail, and farmers were encouraged to protect their interests by monitoring the weighing practices of cooperative officials.

In cooperative meetings and interviews, virtually all cooperative officials reported a significant improvement in the appearance of parchment coffee collected from farmers in 1993/94. Casual inspection of some of the parchment farmers delivered to societies supported the claim. This suggests that farmers responded positively to acceptance procedures in 1993/94. NWCA sold coffee based on samples of the 1993/94 crop at virtually no discount. However, quality claims from buyers continued to plague marketing, affecting 345 tons (13 percent of all sales). Poor cup quality was the problem cited in claims relating to 255 tons. One buyer complained of potato tastes and unclean cups. Another buyer complained that it had detected "strong, unclean tastes--even stinkers" (NWCA Marketing Newsletters, 1994). Farm-level failures, compounded by inconsistent grading and sorting in some unions, continued to adversely quality in 1993/94.

Buyers' cup quality evaluations of the 1993/94 crop also showed mixed results. In late 1994, a third NWCA delegation toured several European buyers, leaving behind crop samples for cup testing. Some cup tastes produced favorable results. A British firm

which had tested samples of Grade A, B and C coffee concluded that, overall, NWCA's samples yielded "clean cups typical of 'East African' baskets", and the color, appearance, body and flavor of the samples were acceptable (personal communications with NWCA, May 1995). A German trader reported that an NWCA sample sent to a large roaster yielded "very good" cup results. However, the roaster was not willing to include NWCA's coffee as part of its standard coffee blend, preferring instead to buy (and evaluate) specific lots of NWCA coffee sold on the spot market. The wariness of the roaster underscores that in international coffee markets a seller must earn a reputation for quality over a period of several years. The preparation of clean crop samples is insufficient to convince a roaster to include a seller's coffee as a regular component in a blend. However, these favorable quality assessments reflected the opinions of just two buyers. Overall, the cooperative delegation painted a less rosy picture. Although many buyers indicated that NW Province had the agronomic potential to produce fine quality arabica, NWCA's reputation continued to be tarnished by the high number of stinker beans in exported lots of coffee (*NWCA Marketing Newsletter, No.20,* Dec. 31, 1994).

In many respects, the 1993/94 season was a learning experience for both farmers and cooperatives about newly implemented reforms. With greater familiarity and first-hand experience, one would expect that reformed marketing institutions would have a greater influence on individual behavior in 1994/95. Preparations for the 1994/95 season included a farm-level education campaign that again highlighted quality issues and reemphasized parchment acceptance procedures. One of USAID's final acts before concluding the reform project was to procure and subsidize the price of 2,000 imported hand pulpers and 8,000 tarpaulins for NWCA farmers. A lack of timely access to hand pulpers and suitable

coffee drying surfaces had long been a key constraint that adversely affected farm level quality (Chapter 4). Finally, the 1993/94 season was a very profitable year for farmers given high producer prices. The 1994/95 season began with NWCA offering its members even higher prices. Strong price incentives for arabica production may have encouraged farmers to invest more in quality.

But the 1994/95 campaign produced sobering quality results. NWCA reported that the appearance of parchment delivered to cooperatives by farmers continued to improve throughout the Province, indicating that acceptance procedures were having a positive impact on both farmer behavior and quality control at the farm level (personal communications). However, as the 1994/95 season progressed, the NWCA Marketing Department grew increasingly concerned and gloomy about coffee quality, and anticipated it would have problems with buyers (Personal communications, May, 1995). These worries proved to be well-founded. A 1995 cup taste evaluation by a Cameroonian firm had very negative results. The evaluation cited foreign odors and flat tastes in the cup, the presence of immature and unwashed arabica beans in samples, high bean moisture content in most samples, and poor calibration of coffee (*NWCA Marketing Newsletter, No.24*, April, 1995). In September, 1995, NWCA reported that deepening problems with stinkers, unclean cups and high humidity were complicating its marketing of the 1994/95 crop. Many buyers were reluctant to bid for NWCA's coffee because of its unreliable quality. For the season, buyers assessed quality claims on 4,831 bags of coffee (290 tons).

Farm level quality failures continued in 1994/95. However, cooperative level failures likely had an even more pronounced negative effect on NWCA's marketing results. The NWCA Marketing Department reported that there were significant difference in unions'

quality performance during the 1994/95 season. Several unions, most of which were higher cost unions with low tonnage, were slow to collect and process coffee, and experienced lapses in quality control (NWCA, 1995). In addition, NWCA failed to anticipate that world prices would decline in 1994/95, and seriously overestimated producer prices. Finding that it could not receive a breakeven price for its coffee, NWCA postponed its coffee sales in hoping that world coffee prices would improve. This never happened. By December 1995, NWCA still had yet to sell all the 1994/95 crop. Furthermore, because of unreliable payments late in the season and the slow pace of processing by some unions, significant amounts of coffee could not be evacuated from unions before the onset of the rainy season. These results suggest quality deteriorated significantly while under the care of cooperatives.

8.6.1 Boundary Problems

The 1993/94 and 1994/95 seasons exhibited contradictory quality results. By all accounts the appearance of parchment coffee delivered by farmers to primary societies in NW Province improved noticeably in both 1993/94 and 1994/95, but farm-related quality problems continued to plague marketing. The NWCA Marketing Department began to suspect that inferior quality flowing into the cooperative structure from West Province was undermining the quality improvement efforts of NW farmer (See Chapter 7). Whereas NWCA implemented new acceptance and pricing procedures in 1993/94, UCCAO in West Province did not implement comparable reforms. NWCA significantly reduced costs during reform and passed cost savings to farmers. UCCAO continued to establish a single coffee price and supported a higher cost structure than NWCA. Higher

coffee prices in NW Province in both 1993/94 and 1994/95 provided traders with strong incentives to sell coffee from West Province to cooperatives in North West--a reversal of past trends.

Field observations in 1993/94 supported NWCA's claim that a failure by cooperatives to control for inferior quality coffee from West Province coffee was contributing to quality problems within NWCA. In early January 1994, Nso Union in NW Province had accepted 80 tons of coffee from member societies. Overall parchment quality in the Nso area had improved significantly over 1992/93, although there were reports that parchment acceptance procedures were unevenly applied in some societies. But one society affiliated with Nso Union, Jakiri, was delivering large amounts of inferior quality coffee to the union. By the second week of January, the union had already classified 14 tons of Jakiri's coffee as inferior quality (Class III). Since NWCA's acceptance procedures dictated that Class III coffee would be priced and paid for only later in the season after Class III stocks had been sold, Jakiri society bitterly disputed the union's quality evaluation.

Jakiri society is renowned in the Nso area as being dominated by traders. Jakiri is located at a key intersection from which a principal road branches to Foumbam in West Province. Significant cross-border trade is conducted along the Jakiri-Foumbam road. In addition, Nso and Foumbam people have close ethnic ties. The UCCAO cooperative serving the Foumbam area had a history of poor performance and was plagued by serious financial difficulties and internal infighting. Much of Jakiri's parchment had been purchased in West Province by traders. Jakiri's high proportion of Class III coffee supports NWCA's claim that the parchment flowing into North West from West Province was of inferior quality.

Societies and unions should have been able to control for inferior quality coffee from West Province if they had strictly and evenly applied and enforced parchment acceptance procedures. Although this is what Nso Union tried to do with Jakiri's coffee, parchment acceptance procedures were apparently poorly enforced by cooperatives in other areas of NW Province. For example, the most serious quality claims in 1993/94 and 1994/95 centered on Bamenda Central Union. This union was identified in Chapter 7 as having aggressively purchased West Province coffee to lower its per kilo costs.

There are potential incentives for society and union officials to treat traders preferentially. Many of these traders are wealthy and influential individuals who can exert substantial pressure on weighing delegates, society managers or union storekeepers to overvalue their coffee. Since 'big man' traders wield greater influence than ordinary growers, they may have been able to circumvent reformed parchment acceptance procedures.

8.7 Social Capital Factors

Reformed marketing institutions relied heavily on social capital factors to control free-rider problems at the farm level, and to reinforce incentives for cooperative officials to apply and enforce quality standards. Unfortunately, it is impossible to evaluate how effective social capital factors were in countering incentives to free ride from available data sources. However, two examples suggest that social capital factors may potentially have a beneficial impact in controlling behavior, particularly at the village level.

The first example is unrelated to quality but provides insight into the dynamics of group behavior within primary societies. In December, 1993, farmers belonging to a

section of a large society in the Nso area met to decide whether they should form their own independent society. Sentiment was strong to do so. But the new cooperative law mandated that all farmers' dues and debts had to be repaid before individuals could vote to form a new society. However, the section did not have an official record of which farmers were in good financial standing. When the provision of the law detailing voting rights was read to the assembled group of about 150 farmers, an animated discussion ensued. Some farmers argued that all section members should be able to vote irrespective of what the law said, while others argued that since they had repaid all obligations to the former society it would be unfair for those who hadn't to be allowed to vote. Eventually, a consensus was reached that the provisions of the law would have to obeyed. Farmers with financial obligations outstanding were asked to leave the room. A group of 25-30 farmers immediately left the room (albeit vocally), knowing that others in the assembled group were aware they had not fulfilled their obligations to the former society. This example provides an indication that social capital factors may have a profound influence on an individual farmer's behavior. Specifically, the example highlights that farmers in a village are able to monitor the actions of their neighbors.

The second example was observed during quality education meetings with farmers in Santa Union in December, 1993. After a detailed explanation of parchment acceptance procedures, which included a discussion of the responsibilities of individual farmers to monitor the activities of neighbor farmers and cooperative officials, the NWCA Engineer invited farmers to observe how effective newly reconfigured union hulling lines were in cleaning coffee and removing defective beans. However, the meeting took place very early in the harvest season, and the union didn't have any parchment available which it

could process. The manager of a nearby society was able to locate a farmer with five bags of parchment, which he hurriedly weighed and rushed to the union.

After the parchment was hulled, farmers were invited to observe how clean the piles of processed good beans appeared and the defective beans and foreign matter that had been removed. A small pile of stones had been removed during the hulling demonstration. This outraged the assembled group of farmers. Many complained that by cheating and mixing stones with his parchment, a single farmer was harming the quality of coffee produced by other union members. Others demanded that the farmer and the society manager who had accepted the parchment (but had failed to detected the stones) be punished. The assembled farmers were somewhat mollified after the society manager explained that he had weighed the parchment but didn't have time to evaluate its quality. However, the group vowed to closely observe the actions of fellow farmers and cooperative officials to prevent cheating by some individuals.

In this example, farmers interpreted the presence of stones as evidence of a free rider problem. The group intuitively understood that the actions of a single farmer and cooperative official could adversely affect both the overall coffee quality produced by the group, and their individual incomes. Their immediate reaction was to try to punish and control the behavior. But if farmers hadn't seen the stones, it is less whether they would have perceived the importance of monitoring other producers or cooperatives. Stones are an easily observed and obvious quality problem. The subtle differences in color and associated quality problems between coffee beans, particularly beans encased in parchment, are less easily observed or understood. This example was extraordinary in some respects because it occurred at the union level and relates to hulled green coffee.

Most farmers in NW Province have little opportunity or means to observe union hulling operations, or coffee after it has been processed.

Although the two examples discussed in this section suggested that social capital factors may act as a powerful control individual behavior, they also highlight the critical role of information and knowledge in generating social pressures on individuals. If farmers lack an understanding about their interdependence with other producers and cooperatives, they will have little incentive monitor and control the behavior of neighbors and cooperative officials.

8.8 Conclusion: Impacts of Reform on Quality

Quality improvement at the farm level is a long-term process. It is inherently difficult to assess the impacts of reform on quality at the farm level from the vantage point of only one and a half marketing seasons. Instead, this section suggests possible factors that may have influenced quality performance at the farm level after reform.

The presented evidence demonstrated that NW arabica producers were highly responsive to the institutional changes that were implemented through reform. When farmers were promptly paid by cooperatives, they responded by rapidly delivering their coffee to primary societies for acceptance. When unwashed arabica pricing and acceptance procedures were changed to encourage the production of washed relative to unwashed arabica, NW producers quickly curtailed production of unwashed arabica and expanded production of washed arabica. The increased proportion of larger grade beans to smaller grade beans in 1993/94, although temporary, suggested that producers responded to improved price incentives by investing more resources in production.

Finally, farmers responded favorably to the new parchment acceptance procedures by delivering visibly cleaner and better color parchment to societies. Each of these observations provides evidence of that reform contributed to marginal improvements in farm level quality.

However, bean (or cup) quality is the critical aspect of farm-level quality and the most intractable quality problem. Improving cup quality depended on the effectiveness of reformed market institutions in resolving coordination problems associated with high information costs and economies of scale. The evidence presented in Section 8.6 suggested that although overall cup quality improved incrementally during reform, NWCA's quality reputation continued to be damaged by farm-level quality problems and uneven quality control by cooperatives. Although cup quality may have improved since the beginning of reform, there remained significant room for improvement. The cup quality results also demonstrated that the actions of one or a few farmers or cooperatives can compromise NWCA's overall quality reputation.

The evidence from the 1993/94 and 1994/95 seasons, the two seasons under full reform, was puzzling. Although the quality of parchment delivered to NW coffee cooperatives improved markedly in each season, this did not change the quality assessments of buyers. There are a several possible explanations why this occurred.

One explanation might be that the reforms worked but did not have time to affect overall coffee quality. Although many producers responded favorably to reform, large numbers of farmers may not have changed their behavior. At the beginning of the reform process, quality was at a very low level. Farmers' awareness of quality issues was also very low. Many farmers were poorly informed about proper washing techniques, much

less the effects of quality on prices or free-rider problems. However, as producers continue to respond to incentives, become more experienced with reformed institutions, and acquire better information, one would expect quality to improve over the long run. There is a learning process that accompanies reform.

An alternative explanation is that parchment acceptance procedures were ineffective in controlling for cup quality problems since observable parchment characteristics are only imperfectly correlated with cup quality. As a result, many improperly harvested and washed beans escaped detection. However, parchment acceptance procedures and more careful grading and processing were not expected to fully resolve the quality problem. Parchment acceptance procedures were intended to introduce quality control at the farm level and serve as an institutional lever in beginning the quality improvement process at the farm-level. Price incentives and social capital factors were also important elements in resolving quality problems. Although the procedures that were implemented distinguished, controlled and priced poor quality coffee differently from average and good quality coffee, they rewarded average and good quality equally. Although this arrangement may have discouraged production of inferior quality Class III coffee, incentives remained for some individuals to produce average quality coffee (Class II), but free-ride on the contributions of producers of good quality coffee (Class I). By failing to use fully available measures of parchment quality to differentially reward producers, the farm-level quality response to reform was likely weakened.

While there were indications that the quality of parchment delivered by farmers improved markedly after reform, some batches of coffee produced tarnished cup taste. This outcome was consistent with free-rider problems, in which the actions of a few

undermine the quality produced by the group. This suggests that reformed acceptance and pricing arrangements would be more effective in eliciting a quality response from farmers if NWCA could devise a way to reward differentially producers of average and good coffee, by either establishing different initial producer prices for Class I and II coffee, paying higher residual bonus payments for better classes of coffee, or some combination of both.

In any case, reformed parchment acceptance procedures would be expected to be effective only to the degree that they were applied and enforced by cooperatives. The quality claims by buyers in 1992/93 and 1993/94 indicated that quality problems were pronounced in some union areas, while other union areas experienced no quality problems. This result is consistent with a conclusion that acceptance procedures and quality standards were unevenly applied and enforced across unions and societies. The apparent failure of some cooperatives to control the quality of inferior quality coffee from West Provinces raises further doubts whether parchment acceptance procedures were strictly enforced by cooperatives.

Even if parchment acceptance procedures were unevenly applied and enforced at the society and union levels, proper sorting and grading of coffee by unions should have controlled many quality problems. However, the cup taste analysis that this did not happen. Institutional factors were likely at play. As implemented, reformed market institutions distributed sales receipts based on the average quality and price of *all* coffee sold by NWCA, and not on a union-by-union basis. Since residual payments were not linked to specific unions' performance, the quality premium remained a high exclusion cost good for cooperatives as well as for producers. This provided an opportunity for some

cooperatives to free-ride on the quality contributions of other cooperatives. Incentives for cooperatives to apply and enforce acceptance procedures and control quality would be enhanced by better linking cooperative returns to market prices, either by tracking coffee from unions to market and distributing receipts sales receipts accordingly or by marketing each union's coffee separately.

The quality outcome depends on the combined efforts of producers and cooperatives. Because of this interdependence, poor quality control by cooperatives can negate farm-level quality improvement efforts. The reforms relied heavily on social capital factors to counter incentives to free-ride at the farm-level. The examples discussed in Section 8.7 suggest that social capital factors may potentially have a strong influence on behavior at the farm level, particularly in village-level societies, provided farmers understand that they are interdependent and a few free-riders can undermine their quality improvement efforts. But many unions resisted society-level restructuring (Chapter 7). As a result, many societies continued to be groupings of several villages. Since it is more costly for individual farmers to monitor the behavior of other members in larger and more heterogeneous societies than in village societies, union interference in the society restructuring process likely undermined the effectiveness of social capital factors in resolving farm-level quality problems.

At the cooperative level, reform relied on a combination of social capital factors and pressure from membership to ensure that cooperative officials enforced acceptance procedures and quality standards. However, there is reason to believe that social capital factors would be less effective in controlling behavior at the union and Apex levels than at the society level. Monitoring and detection costs become progressively greater for

individual farmers at the union and apex levels. Moreover, a cooperative official's sense of community and responsibility to a group is presumably weaker in larger union or Apex groups than in societies, where farmers and cooperative officials interact on a daily basis. Thus, it is more difficult and expensive for farmers to influence and control the behavior of cooperative officials at the union and Apex level than at the society level. At the same time, information becomes more impacted at the higher levels of the cooperative structure. Although the flow of market information to the farm level improved markedly under reform, cooperative officials at the union and Apex level still have ample opportunity to manipulate the flow of information to farmers. In summary, social capital factors and countervailing pressures from membership were likely less effective in controlling principal-agent problems at the union and apex levels than at the society level.

The failure of NWCA to control inferior quality coffee from West Province indicates that incentives within cooperatives to control costs may have conflicted with incentives to improve quality. Society-level pricing arrangements linked producer prices to cooperative costs, requiring unions and societies to compete on a cost/price basis. As discussed in Chapter 7, many high-cost cooperatives actively bought coffee from West Province in order to reduce their per-kilo operating costs and offer competitive initial producer prices. Any quality premium or discount is realized by cooperatives and producers only after all coffee has been sold to buyers. This implies that in some cooperatives pressures to incentives to reduce per kilo costs were stronger and more immediate than were incentives to control and improve quality. The experience after reform suggests that there are trade-offs between quality improvements efforts and cooperative efforts to increase tonnage and lower per unit costs.

Although reformed marketing institutions (as implemented) may have been adequate in providing all cooperatives with incentives to control quality, there would appear to be ample opportunity for the apex to take a more active role in controlling cooperative-level quality failures prior to export. The Apex organization is ideally placed to monitor and control the quality of coffee produced by unions since it has direct contact with buyers and access to market information. In addition, quality information costs are low after coffee has been processed and prepared for export.

Marketing Department Newsletters through the 1995 season indicated although that the Apex was aware that some unions were producing poor quality coffee, its primary response was to plead with these unions to improve their quality performance (NWCA, 1994; 1995). But the quality results indicated this had little effect in influencing union-level behavior. A more effective response would have been for the Apex and unions negotiate internal marketing protocols that establish quality standards prior to export[32]. If a union's coffee failed to achieve quality standards, it could be required to resort and grade coffee or assessed some type of fine. Institutional arrangements which require unions to bear the costs of their poor quality performance would strengthen incentives for quality control within the cooperative structure.

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[32] By inspecting coffee before export and cup-tasting samples of unions' coffee, the Apex should be able to identify improperly sorted and graded coffee before shipping coffee. Although technical assistance established a cup-tasting facility within the Apex during reform efforts, by the end of the 1994/95 season the Apex had yet to use this facility in controlling union-level quality problems (personal communications with NWCA, May 1995).

CHAPTER 9

Summary, Conclusions and Recommendations[1]

Between 1989 and 1993, Cameroon privatized its domestic arabica coffee markets. The reform process sought to introduce a competitive and market-oriented structure into a subsector that had previously been administratively organized and structured. A package of reforms sought to fundamentally restructure marketing relationships and institutions within the North West Cooperative Association, Ltd. (NWCA), a federation of coffee marketing cooperatives in North West (NW) Province. The premise underlying cooperative restructuring was that economic performance could be significantly improved by introducing new marketing institutions within the vertically integrated cooperative organizational structure that were better adapted to the arabica situation of high quality information costs.

Previous chapters described the arabica coffee situation, the institutional features of the administered and reformed marketing structures, and analyzed how interactions between situation (product characteristics) and structure (institutions) affected performance in the Cameroonian arabica subsector between 1978/79 and 1994/95, with emphasis on NW Province. The key institutional features of structure were categorized as

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[1] The organization of this chapter is somewhat unusual. It was written as a stand-alone work and provides a detailed summary of the entire dissertation before presenting recommendations.

rules governing market competition, price determination, cost (or margin) determination, the establishment and enforcement of quality standards, and the distribution of residual earning. National cooperative law also influenced performance by structuring the relationships and marketing activities of coffee marketing cooperatives, which were the primary coffee marketing organizations in the arabica subsector. The key dimensions of performance examined in this study were coffee prices, marketing costs, the distribution of residual earnings (or income), production, and quality.

9.1 Situation

Washed arabica coffee has multiple quality attributes and dimensions. It is valued by buyers for its distinctive, but subtly different, mild tastes in the cup. Buyers' preferences for specific quality attributes are often subjective and individualistic. However, quality is highly variable. Arabica undergoes a series of transformations as it moves through the marketing chain, each of which influences quality. The manner in which farmers grow, harvest and initially process (or wash) coffee profoundly influences its quality in the cup, as well as its market value. Downstream secondary processing (hulling, grading and sorting) and marketing activities are important in controlling and maintaining quality. If coffee is poorly sorted and graded, or shipped unreliably, its quality and value are lowered. Thus, participants in the marketing system are interdependent. The actions of processors and marketing agents affect the incomes of producers, and vice versa.

Although final cup quality plays a key role in determining sales value, it is inherently difficult to measure quality at intermediate stages in the marketing process. The full spectrum of coffee's taste, flavor and aroma attributes is revealed only in the cup. Buyers

and roasters employ professional cup tasters, who possess highly specialized and individualistic cup-tasting skills, to evaluate the cup quality of samples of coffee lots that are available for sale. Buyers determine the prices they are willing to pay for different lots of coffee based on their quality evaluations.

The arabica coffee situation is characterized by high information costs related to quality measurement difficulties, particularly at the point of initial handling. Although on-farm production, harvesting and initial processing (washing) activities at the beginning of the marketing chain are key determinants of cup quality, the cup test occurs at the end of the marketing chain after all processing and marketing activities have been completed. But it is inherently difficult to measure quality reliably at the point of initial handling when farmers deliver their parchment coffee to the market for subsequent processing. Easily measured parchment attributes such as appearance color, odor and moisture content provide only crude measures of farmers' production and washing practices. Although inspection may identify some serious quality problems, the undesirable and tainted cup tastes associated with poor harvesting and washing are often a matter of degree and can only be detected in the cup. Thus, available measures of parchment quality are only imperfectly correlated with its eventual cup quality. Secondary processing activities also affect cup quality. The number of available quality measures increases significantly after the parchment skin has been removed from beans through hulling, which makes it easier to identify and separate poor quality beans. Proper grading and sorting should control many farm-level quality failures. But it is impossible to predict how secondary processing will affect quality at the point of initial handling.

There are opportunity costs to producing good quality coffee. A producer will not

invest in quality unless rewarded for doing so. But high information costs create a dilemma in pricing coffee. How can individual producers be rewarded for investments in quality, if neither the quality nor market value of their parchment are known during initial acceptance? If quality cannot be distinguished, certified and rewarded, producers have little incentive to invest in quality. As a result, supply may be of poor quality and discounted in price, further eroding producers' incentive to invest in quality. Because of high information costs associated with quality measurement problems, competitive markets and prices may produce a low-level equilibrium and deteriorating performance. Effective vertical coordination within the marketing system depends on the effectiveness of alternative marketing institutions (quality standards, pricing conventions) to distinguish, certify and reward quality.

Progressively greater economies of scale in transportation, secondary processing and marketing compound farm-level measurement and information problems. To achieve economies of scale, the small quantities of coffee produced by individual farmers must be pooled before secondary processing. This implies that coffee's eventual sales price reflects the average quality produced by the large numbers of producers who contributed to the pool. To realize a price benefit from improved quality, farmers must act collectively to improve the overall quality of the pool. But high information costs make it extremely difficult to distinguish and reward the quality produced by individual producers. Moreover, economies of scale imply that any quality premium contained in sales prices has high exclusion cost characteristics. This creates opportunities for some individuals to shirk and be opportunistic free-riders on the quality contributions of others in the pool. But the actions of a few individuals can lower the quality produced by the pool.

A defining characteristic of the Cameroonian arabica situation is that washing is exclusively an on-farm activity. In contrast, the coffee produced by many countries is washed in a central location. Washing coffee under one roof in a washing factory enables the first buyer in the hierarchy of an integrated firm to monitor and control washing. The washing process is easier to monitor than the output. Central washing also permits production on a scale sufficiently large that the parchment of a single washing factory can be subsequently processed as a single lot, and tracked to the market. This enables the quality premium to be communicated directly to the factory. But coffee is highly perishable and bulky when it is in its cherry state prior to washing. The scale requirements of washing stations and inherent characteristics of cherries make it necessary to locate washing stations in areas of intensive coffee production, in close proximity to producers. These conditions exist in Kenya, and washing stations have helped to establish the reputation of Kenyan coffee. However, these conditions are not met in North West Province, Cameroon, and the consensus is that establishing a network of farm-level washing stations is not feasible. Since washing is an activity performed by 35,000 dispersed producers, it is prohibitively expensive for a marketing organization such as a cooperative to monitor individual producers' washing practices. However, costs are relatively low for an individual farmer to monitor the behavior of his neighbors.

Finally, although there are economies of scale in transportation, secondary processing and exporting arabica, whether or not they are achieved depends on the institutional structure. Alternative institutional arrangements (or rules) may contain very different incentives to economize, since they determine how cost economies (if any) are distributed among the participants in the marketing system.

9.2. The Administered Marketing Structure

Although most key institutional features of the administered market structure applied to West and North West Province alike, there were also important institutional differences between Provinces. Common institutional features included rules governing market competition, price and cost determination, and the establishment and enforcement of quality standards. In addition, coffee cooperatives in both West and North West were the subjects of a common governance regime. The key institutional differences between Provinces concerned the right to export coffee abroad and retain the residual earnings from sales. These differences had important impacts on performance, and particularly the ability of cooperatives to finance coffee purchases from farmers.

9.2.1 Degree of Competition

Between 1977/78 and 1988/89, Cameroon, through the parastatal National Produce Marketing Board, limited competition in domestic arabica markets. Marketing channels were administratively determined. Two marketing cooperatives were granted a legal monopsony in their respective provinces. Private traders were officially excluded from the market.

The North West Cooperative Association, Limited (NWCA) was the sole licensed buyer of arabica coffee in North West Province. Farmers were required to join and market their parchment through a network of 40 local cooperatives called primary societies After acceptance, each society was required to deliver parchment to one of eleven cooperative unions (mills) for secondary processing. In turn, each cooperative union was required to deliver bagged green coffee to the Marketing Board's warehouses

in the provincial capital, Bamenda. The NWCA apex, or central office, intermediated relationships between the Marketing Board and other cooperatives. The jurisdictional boundaries and areas of operation of each primary society and union were administratively determined. Marketing coffee outside the designated cooperative structure was illegal.

The *Union Centrale des Coopératives Agricoles de l'Ouest* (UCCAO) was the sole licensed buyer of coffee in West Province. Marketing channels within the UCCAO cooperative structure were also administratively defined. However, the organizational structure of UCCAO differed from that of NWCA. UCCAO was a two-tier structure consisting of an apex organization and six cooperative unions that operated in each of the six administrative divisions of West Province. Farmers in West Province delivered parchment to sections managed by each union.

9.2.2 Price Determination

The government had sole discretion in determining coffee prices. Initial producer prices were established by Presidential and ministerial decree and announced with the official opening of each coffee marketing campaign. The government pursued a uniform, pan-territorial strategy in pricing coffee. Coffee cooperatives were required to pay producers the official per-kilo price. The objective of administered pricing was to balance rural incomes across Cameroon and to stabilize farm incomes by insulating arabica producers from volatile world prices. In theory, the price stabilization policy envisaged that producers would be paid bonus payments that reflected actual sales prices, as well as marketing performance. In practice, the bonuses that were fixed by the Marketing Board became institutionalized second payments to farmers, and were sometimes paid even when

actual export prices were less than export parity prices.

The national price schedule distinguished between washed and unwashed arabica, and good and bad beans. Thus, quality-related price differentials were determined according to administrative criteria. Cameroon is relatively unique in that it produces both robusta and arabica coffee, and their production areas overlap. Thus, robusta and arabica are competing crops in some areas. The government also fixed robusta coffee prices and determined robusta and arabica price differentials. Unwashed arabica and robusta were equivalently priced.

9.2.3 Cost Determination

As part of its price stabilization policy, the government established per-kilo cost allowances to reimburse cooperatives' marketing costs. Separate costs schedules were established for UCCAO and NWCA. For example, the Marketing Board derived NWCA's cost allowance (margin) by estimating the average costs of specific marketing functions, plus a government determined margin. All cooperatives performing like market received a uniform cost allowance for every kilo of coffee they handled. Thus, the shares of NWCA's total cost allowance received by each society and union, as well as the apex share, were also determined by the Marketing Board. Cost allowances were linked to volume only, and made no distinctions for quality or differences in operating efficiency.

9.2.4 Determination and Enforcement of Coffee Quality Standards

The Marketing Board determined and enforced quality standards. At the farm level, coffee quality was evaluated during acceptance by weighing delegates employed by

primary societies. Weighing delegates drew and hand-hulled a 100 gram sample of a farmer's parchment, tested the moisture content of beans, and separated foreign matter and defective beans from good beans. The Marketing Board established good and bad bean criteria. Each farmer's parchment was assigned a good bean percentage was equivalent to the weight of remaining good beans from the 100 gram sample. Farmers were paid the "good bean" price for the percentage of coffee accepted as good, and the "bad bean" price for percentage of coffee accepted as bad[2]. However, visible bean defects reveal only some quality characteristics.

The Marketing Board also established grading and quality standards for secondary processing. Inspectors employed by the Marketing Board evaluated the quality unions' processed green coffee. After unions had assembled lots for export, inspectors assigned a quality grade to each lot according to the moisture content and number of visible bean defects found in small lot samples. A second quality inspection took place at the Board's warehouses prior to shipment.

Despite the fact that it evaluated the quality produced by each union, the Marketing Board made no attempt to penalize unions for processing coffee poorly. Unions were paid the same per-kilo cost allowance whether or not they processed coffee well. As a result they had little incentive to control quality. Moreover, the Board made no attempt to apply or enforce quality standards when unions accepted parchment from societies, despite the importance of farm-level production, harvesting, and washing practices in determining cup

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[2] Prior to payment the total weight of parchment accepted from farmers was reduced by 20 percent, to derive its green bean equivalent weight. This conversion figure was also determined by the Marketing Board.

quality. Since parchment acceptance rules and quality standards were not enforced, they could not counter potential incentives for society weighing delegates to overvalue the quality of farmers' coffee.

9.2.5 Right to Export and Own Residual Income

The Marketing Board had exclusive rights to export all arabica produced in North West Province. As a result, cooperatives functioned as agents of the Marketing Board, who collected and processed coffee on its behalf. Coffee ownership was effectively transferred from farmers to the Marketing Board during acceptance. The Marketing Board also had exclusive rights to claim and retain the residual income from its arabica sales. The Marketing Board assessed a tax on exported arabica from North West Province equal to the difference between the realized export price and fixed producer prices and cooperative cost allowances. After deducting its own costs, the Marketing Board deposited net profits into a price stabilization fund. Although the fund was nominally intended to support domestic producer prices in periods of low world prices, rules entitled the Marketing Board and state treasury to govern its use[3].

In West Province, UCCAO had rights to market arabica abroad independently. The government continued determine UCCAO's cost allowance and tax UCCAO's export earnings. However, in reimbursing UCCAO's marketing costs, most of the residual earnings the government had taxed away were returned. This gave UCCAO effective rights to claim the residual earnings from its sales. But it was obligated to contribute to

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[3] The fund was intended to distribute subsidized inputs to producers, and provide investment capital for the development of the arabica subsector.

the arabica price stabilization fund by paying a fixed per-kilo fee that the Marketing Board levied on its exports.

The institutional differences concerning the right to export coffee and claim the residual income from sales had very different implications for cooperatives in West and North West Province. NWCA was dependent on the Marketing Board to reimburse its operating costs, and grant it physical capital. This severely constrained NWCA's ability to provide marketing and supporting services to its members. In contrast, UCCAO accumulated financial reserves which it could use to self-finance investments in physical capital and provide services for its members.

NWCA was also dependent upon the Board to finance its crop purchases. Prior to 1983, the Marketing Board estimated the total amount it would need to finance crop purchases and advanced these funds to NWCA before each marketing campaign. But, in 1983 the Marketing Board began to release funds to NWCA in partial disbursements during the course of the marketing season. The Board was concerned that cooperatives might mismanage or fail to return unused funds. The amount and timing of these disbursements often resulted in cash shortages and delayed payments to farmers, and created friction in NWCA's relationship with the Board.

In West Province, UCCAO operated an internal price stabilization fund using the residual earnings from its sales, and member unions maintained a variety of reserve funds. As a result, UCCAO was able to self-finance most its crop purchases from farmers. In addition, rights as residual claimant meant that UCCAO could use the arabica crop as collateral in procuring loans from commercial sources. The right to independently export coffee and claim residual income enabled UCCAO to be significantly less dependent on the

Marketing Board than was NWCA.

9.2.6 Cooperative Governance

Supporting the administered marketing structure was a national cooperative governance regime that gave the government broad regulatory and supervisory authority over cooperative affairs. Included within government discretion was the right to organize cooperatives according to administrative rather than economic criteria and appoint civil servants as general managers. Elected cooperative officials had to be members of the ruling political party. Cooperative management and decision-making discretion was structured according to hierarchy, along a top-to-bottom chain of command. Coordination was achieved by command. Cooperatives, and particularly unions and the apex, were subjected to the discipline of the government and were insulated from the scrutiny of membership. Cooperatives functioned as quasi-governmental collection and processing agents of the Marketing Board.

9.3 Impacts of the Administered Market Structure on Economic Performance

9.3.1 Producer Prices

Between the 1977/78 and 1985/86, the government increased the fixed national arabica producer price from 325 to 520 CFA per kilo (including announced bonuses). Nominal producer prices increased at an average annual rate of 6 percent, and varied within a range of 19 percent. Over the same period, the average annual export price rose from 681 and 1,412 CFA per kilo. Export prices increased at an average annual rate of 12 percent, but varied within a range of 56 percent. World arabica prices entered a period of

sustained increase between 1980/81 and 1985/86. Although the Marketing Board sold the 1985/86 arabica crop from North West Province at an average export price that was nearly 150 percent higher than in 1980/81, the fixed arabica producer prices in for the 1985/86 season was only 41 percent higher than in 1980/81. Although the Marketing Board's fixed pricing policies may have been relatively successful in stabilizing producers prices, producer prices were fixed at consistently low levels relative to export prices. But after world coffee prices fell by 50 percent in 1986/87 and entered a prolonged slump, the government was unable or unwilling to revise producer prices downward, despite incurring large marketing losses. The results clearly show that producer prices were fixed independently of export prices.

The government's price policies failed to stabilize farm incomes. Real producer prices declined steadily under administered pricing arrangements, decreasing by 44 percent between 1978/79 and 1988/89. Compounding matters, payments to North West farmers were often delayed due to the Marketing Board's uncertain and irregular cash disbursements to coffee cooperatives for crop purchases. Despite record high export prices in 1984/85 and 1985/86, the Marketing Board was unable to pay announced bonuses in full. Payment difficulties intensified after the fall in world arabica prices in 1986/97.

Administered producer price differentials between higher-value washed arabica and lower-value robusta and unwashed arabica bore little relationship to price differentials in the world market. Over the ten year period between 1979/80 and 1988/89, the world arabica-robusta price differential averaged 139 CFA per kilo. However, the domestic arabica-robusta producer price differential averaged only 40 CFA per kilo. Although the

costs of producing washing arabica were estimated to be 80 CFA per kilo higher than producing unwashed arabica, domestic washed and unwashed good bean prices differed by only 35 CFA per kilo between 1984/85 and 1988/89[4]. Consequently, producers invested little effort in washing. Domestic pricing policies implicitly favored the production of robusta coffee and inferior quality unwashed arabica over washed arabica.

The government fixed producer prices according to administrative and not market criteria. Producer prices were not linked to world prices, and communicated little market information to producers. Returns to washed arabica steadily eroded over time. Administered prices provided farmers with poor incentives to produce, much less invest in quality. The government's apparent pricing strategy was to maximize its own revenues by taxing and expropriating profits from producers.

9.3.2 Marketing Costs

Marketing costs within the administered marketing system were excessively high, and increased markedly over time. The large marketing surpluses that accumulated within the stabilization during periods of high world prices helped fuel bureaucratic expansion within the Marketing Board. The number of Board employees increased by 80 percent between 1982 and 1987, and the number of high-salaried senior and supervisory staff more than doubled. The Marketing Board also invested in new warehouses, office buildings and

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[4] To produce washed arabica, cherries must be harvested as they ripen and initial processing (washing) must begin immediately. Considerable care and effort is required to wash coffee, and it may take more than two weeks for the process to be completed. In contrast, the production of unwashed arabica (or robusta) omits the washing process entirely, Cherries are simply left on the tree to dry, and are collected in a single harvest.

other physical capital. The Board's total operating costs quadrupled between 1982 and 1987, while coffee production stagnated.

NWCA's total fixed cost allowance more than tripled from 40 to 132 CFA per kilo between 1977/78 and 1982/83. Despite this increase, NWCA claimed that the its cost allowance failed to cover its actual per kilo operating costs. The fixed allowance remained constant through the 1988/89 season, thus declining in real terms. The system of fixed cost allowances contained few incentives for cooperatives to economize or control costs. A cooperative that was managed and operated efficiently was rewarded at the same per-kilo rate as a poorly managed and inefficient cooperative. Because NWCA and its affiliated cooperatives were the sole licensed arabica buying agents of the Marketing Board in North West Province, cost overruns were either routinely subsidized by the government or used by cooperatives to justify increases in the cost allowance during negotiations with the Board.

Farmers had little incentive or ability either to monitor cooperative activities or to demand cost accountability and better operating performance from cooperatives, since their producer prices were determined and paid independently of cooperative costs. Furthermore, supervisory control of cooperatives was in government hands. Local "big men" tended to dominate cooperatives. These individuals often used cooperatives as a source of economic rent to reward clients or to promote their self-interests. Cooperatives were overstaffed, costly, and operated well below processing capacity. Instead of providing cooperative managers with incentives to economize and realize economies of scale, administrative cost determination procedures contained incentives to increase costs. Steadily declining coffee production during the administered marketing era further fueled

large increases in cooperatives' per-kilo marketing costs.

9.3.3. Distribution of Residual Earnings

Between 1978/79 and 1981/82, world coffee prices were relatively stable at moderate levels. During this period, the average producer share of export earnings was 52 percent, the cooperative share was 12 percent, and the Marketing Board's share was 36 percent. But when world prices increased dramatically between 1982/83 and 1985/86, the average producer share of export earnings fell to 37 percent, the cooperative share remained more or less constant at 11 percent, and the Marketing Board's share rose to 52 percent. The proportion of earnings returned to Cameroonian farmers was low relative to successful coffee African producing countries such as Kenya, where producers on average received more than 70 percent of export earnings.

Administered marketing institutions that gave the Marketing Board rights to determine producer prices and cooperative cost allowances, and to claim and retain residual earnings from coffee sales of arabica, enabled the government to extract substantial earnings from the arabica subsector between 1977/78 and 1981/82 and to appropriate the profits associated with spiking world prices between 1982/83 and 1985/86.

But after world prices fell by half and remained at low levels between 1986/87 and 1988/89, the Marketing Board was unable to lower producer prices or cooperative cost allowances. The producer and cooperative share of arabica earnings increased to 63 and 18 percent respectively, and the Marketing Board's share decreased to 19 percent. However, the underlying cause for this was the fall in export prices, and the Marketing Board could not support the high costs of its policies and began to incur heavy marketing

losses.

The government's apparent strategy in fixing producer payments and cooperative allowances before 1986/87 was to extract as much revenue as possible from the arabica subsector by maximizing payments to the price stabilization fund, which it never had to use. Rules which gave the Marketing Board discretion over the fund's use and permitted the state treasury to tap the funds when needed, gave the government the effective ability to use the fund for its own purposes and to reward its own retainers.

However, UCCAO, in West Province, had rights to retain the earnings from its coffee sales. As a result, the same forces that generated large profits for the Marketing Board's sales of North West arabica, generated large profits for UCCAO also. Although UCCAO reinvested much of its residual earnings in providing marketing services to its members, cooperative officials ("big men") also used profits to reward their own clients and expand the UCCAO bureaucracy. As a result, UCCAO supported a more expensive cost structure than did NWCA.

9.3.4 Coffee Production

Arabica production exhibited a long term decline during the administered marketing era.. Expressed in terms of four-year moving averages, national arabica production fell from its peak of 28,925 metric tons in 1974/75, to 24,600 tons in 1981/82 (which represents the first four years in which the national Marketing Board price coffee), to only 19,650 tons in 1988/89. Fixed pricing arrangements were in place during this entire period. Provincial arabica production mirrored the national trend. For example, production in North West Province fell from a peak of 10,500 tons in 1978/79 to only

5,000 tons in 1987/88. If expressed in terms of a four-year moving average to account for inter-annual variation, North West production fell by 35 percent between 1981/82 and 1988/89. Cameroonian arabica production fell despite a general trend of rising world prices and expanding global production.

In contrast, the production of lower valued unwashed arabica and robusta coffee increased over time. Although annual data were unavailable, the reported share of unwashed arabica as a percentage of total arabica purchases in North West Province was only 0.7 percent in 1970/71, but rose to 13.5 percent by 1985/86. However, these figures are likely understated since a failure by cooperatives to control quality resulted in large amounts of unwashed beans being mixed with washed beans in bags marked for export. Expressed in terms of a four-year moving average, Cameroonian robusta production increased from 79,800 metric tons in 1981/82 to 105,925 tons in 1988/89. The expansion of robusta production was particularly dramatic in North West Province. Although NWCA handled no robusta in 1977/78, it handled 1,020 tons in 1988/89. Despite the greater market value of washed arabica in world markets, administered pricing arrangements favored the production of lower value unwashed arabica and robusta.

Administered prices clearly provided poor production incentives for washed arabica producers. In response to low and declining returns, producers devoted less effort and fewer resources to washed production and yields fell. Many producers decided to produce unwashed coffee instead of washed coffee because of its lower production costs. Producers also expanded production of robusta coffee in areas where arabica and robusta production zones overlapped. However, a more general response was for arabica farmers to reallocate resources to the production of more profitable food crops.

9.3.5 Coffee Quality

Coffee quality deteriorated during the administered marketing era. Despite having the potential to produce superior quality coffee, Cameroonian arabica was routinely discounted in price by international buyers. Quality problems were most pronounced in North West Province. In 1988/89, the Marketing Board's sales of North West arabica were discounted in price by an average of 11¢ per pound (equivalent to 60 CFA per kilo) relative to the world (New York "C") coffee price. This represented a discount of about 15 percent. There were quality failures at each stage of the marketing chain. Farm-level production, harvesting and washing practices were generally poor. Cooperatives failed to handle, grade or sort coffee well, and made little effort to control quality. The Marketing Board had a reputation among buyers as an unreliable trading partner.

Because of arabica's high information cost characteristics, the quality outcome depends on the relative success of institutional arrangements in distinguishing, certifying and rewarding quality, particularly at the farm-level. Administered marketing institutions were ineffective in resolving high information cost problems. Rudimentary good bean-bad bean distinctions, although perhaps controlling for some types of serious quality problems, failed to provide producers with sufficient incentives or information to wash coffee carefully. Any coffee that achieved the minimum good bean standard during acceptance was paid the good bean price. Administered prices did not distinguish between average and superior quality coffee, much less shades of difference in between. Since the Marketing Board had sole rights to claim the residual earnings from arabica sales, it also had the right to appropriate any premium associated with improvements in quality and bore the cost of price discounts. Residual payments were paid to farmers whether they

invested in quality or not. Moreover, the Board's quality control efforts centered on processed green coffee, and it made no attempt to enforce quality control during farm-level acceptance.

Declining returns to washed arabica discouraged farmers from investing in quality[5]. Fixed domestic prices contained little information about demand or buyers' assessment of quality. Because they were paid uniform fixed prices, producers had a poor awareness that their production and washing techniques affected arabica's cup quality and export prices. As a result, the quality characteristics of the coffee they produced were poorly coordinated with the preferences of buyers and consumers.

Specific cooperative-level problems included a large proportion of unwashed beans mixed with washed beans in export bags, and a failure to meet international coffee grading standards. The poor handling, quality control and processing by coffee cooperatives was attributable to fixed cost allowances that made no distinctions for quality. Cooperative unions were paid the same fixed allowance whether or not they graded and sorted coffee properly. As a result, the Marketing Board's quality evaluations had little effect on cooperative behavior. Finally, cooperative mills were in generally poor condition and prone to breakdown.

Coffee produced in West Province and marketed by UCCAO was also price discounted by buyers, but at a lesser rate than coffee from North West. In 1988/89, UCCAO's arabica was discounted in price by 5 to 8 cents a pound (28 to 44 CFA per

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[5] A shortage of initial processing equipment such as hand-pulpers and appropriate drying surfaces further contributed to farm-level quality problems in NW Province.

kilo) relative to the NY "C", or world price, representing a discount of between 7 and 11 percent. Once again, the reasons for UCCAO's better quality and price performance related to its rights to export coffee and retain the residual earnings from its sales. UCCAO used part its earnings to procure inputs and equipment which were distributed to farmers at subsidized prices, invest in state-of-the-art secondary processing equipment, and provide farm-level extension services. As a result, cooperatives and producers in West Province were better endowed and had access to better information than cooperatives and producers in North West.

9.3.6 Collapse of the Administered Marketing System

Although the government could maintain the administered marketing system structure as long as high world price offset cumulative cost increases and generated net profits, the system quickly unraveled after the fall in world arabica prices in 1986/87[6]. Although it could not breakeven at this lower price level, the government did not lower fixed producer prices or cooperative cost allowances. Losses mounted within the Marketing Board, and its financial situation deteriorated. During its final years, the Board was unable to reliably pay its clients and arrears accumulated. The Board's payments to arabica producers and cooperatives in North West Province became increasingly unreliable, and culminated in their non-payment during the 1988/89 season.

In theory, the government should have been able to use the surpluses that had

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[6] The prices of Cameroon's other principal export commodities (oil, cocoa, and robusta coffee) also fell markedly in 1986/87. Sharp decreases in the governments export revenues led to a growing fiscal and economic crisis in Cameroon.

accumulated in the price stabilization fund to support producer prices and cooperative cost allowance after the fall in world prices. But the monies in the fund had been diverted by the government for other uses and were quickly exhausted. In 1988, it was estimated that the Marketing Board's price stabilization fund should have contained reserves totaling 83 billion CFA (US$ 193 million). Instead it contained a deficit of 30 billion CFA (US$ 100 million), of which arrears owed North West arabica farmers stood at 3.9 billion CFA (US$ 13 million). The administered arabica marketing system in North West Province had collapsed under the cumulative weight increasing marketing costs, declining production and deteriorating quality.

Although UCCAO in West Province also experienced serious financial difficulties after the fall in world prices in 1986/87, the reserves it had accumulated through its rights to export arabica independently retain residual earnings made it less dependent upon the Marketing Board, and helped cushion the blow. UCCAO was able to continue to pay its members reliably and cover its operating costs from its own financial reserves as well as commercial loans it procured by using the arabica crop as collateral.

It only after the government agreed to structural adjustment program prior to the 1989/90 season that the Marketing Board, under heavy pressure from the IMF and World Bank, cut arabica producer prices by 47 percent to deal with its financial crisis. But marketing losses continued unabated due to an offsetting fall in world prices. At the lower producer price, arabica was at best a breakeven activity for some farmers, and unprofitable for many. Cameroonian arabica production plummeted. Unable to earn income from coffee, farmers accelerated their diversification out of washed arabica production into more profitable food crops. Poor returns to arabica at lower prices further undermined

farm level incentives to invest in quality.

9.4 The Reformed Market Structure

National policy reforms were intended to privatize arabica markets throughout in Cameroon, and affected both NWCA and UCCAO. A subset of reforms targeted North West Province specifically, and sought to restructure fundamentally marketing institutions and relationships within the vertically integrated NWCA cooperative structure. These cooperative restructuring reforms were the focus of the dissertation.

The central premise underlying the design of the reformed marketing institutions was that the long-term deterioration of performance (and eventual crisis) in the arabica subsector witnessed during the administered marketing era was directly attributable to poorly functioning institutions. By introducing new institutions and incentive structures that specifically targeted arabica's high information cost and economies of scale characteristics, reform anticipated a significant improvement in performance. The twin objectives of the reform effort were quality improvement and cost control. To accomplish these objectives, reform sought to redistribute power and decision-making authority to farmers at the base of the cooperative structure in North West Province, change principal-agent relationships between farmers and cooperatives, and to empower farmers to act collectively to improve quality and demand cost control.

The reforms included a transitional period of cooperative strengthening and reform targeting NWCA which included the payment of arrears owed producers and cooperatives, assistance to restore cooperatives' financial health, cost reduction, improving NWCA's technical and marketing capacity, and modifying internal cooperative

rules and accounting procedures to enable the implementation of the new institutional design. The implementation of national-level privatization reforms and key cooperative restructuring reforms was deferred until the 1993/94 season. The goal of the transitional period was to give NWCA the opportunity to compete in the privatized market. UCCAO in West Province, which had a head start in international marketing, was required to compete and adapt to the privatized domestic arabica market without donor assistance.

Implementing the reforms proved to be a very difficult and contentious process. The reform period between 1989 and 1993 was marked the continuous economic crisis, as well as political unrest. After Cameroon haltingly began democratizing, North West Province became the center of opposition political activity, which the government opposed. Between 1991 and 1993, there were outbreaks of violence in the provincial capital of Bamenda which resulted in some deaths and general strikes ("ghost towns") called by opposition leaders that virtually shut down economic activity for weeks at a time. Events culminated in the bitterly disputed presidential election that took place in October, 1992, shortly after which the government declared a two-month state of emergency in the Province.

The implementation of cooperative restructuring reforms was dependent upon the prior enactment of key national-level policy reforms. However, elements within the government resisted privatizing arabica market. It was only by intensively monitoring the entire reform process, intervening when necessary to head off opposition, engaging in dialogue and compromising, that USAID/Cameroon was eventually to secure government commitment to privatize prior to the 1993/94 season, a year behind schedule. But, this delayed the implementation of key institutional reforms within NWCA. Reform also met

resistance within the NWCA board of directors, most of whom were members of the ruling political party. USAID/Cameroon was eventually able to overcome this resistance, in part by using its leverage over project assistance funds. Inclusive dialogue between USAID, reform designers and officials from all levels of the cooperative structure was also important in breaking the implementation deadlock. But, although USAID/Cameroon insisted that NWCA implement the core features of the reformed institutional design, it compromised on its details to keep the reform process moving. As a result, the original institutional reform design was never implemented in full. The key elements of the reformed market structure as implemented are the focus of the rest of this chapter.

9.4.1 Degree of Market Competition

The structural adjustment agreement called for a major restructuring of the Marketing Board, which led to its eventual abolishment in 1991. However, the Board effectively withdrew from arabica marketing during the 1989/90 season, and the NWCA apex assumed its marketing functions. The Board's withdrawal fundamentally altered the distribution of power within the arabica subsector, and eliminated a very costly tier of its administrative hierarchy.

Through national-level policy reform, arabica markets were privatized prior to the 1993/94 season. The government was restricted from playing a direct role in arabica marketing. Barriers to market entry were lowered by abolishing the practice of licensing official arabica buyer. In the privatized market, competitive forces would determine who could buy and sell coffee. Territorial restrictions on coffee movements were also removed through reform. In losing their legal monopsony, marketing cooperatives in both North

West and West Province faced potential competition from private traders, as well as each other.

9.4.2 Determination of Cooperative Costs and Initial Producer Prices

During the transitional period of reform, the government continued to establish official, pan-territorial arabica producer prices. However, it did so after consulting with NWCA and UCCAO. Policy reforms which allowed all arabica buyers to price coffee autonomously were enacted prior to the 1993/94 season, a year behind schedule.

New arabica pricing and cost determination procedures that directly linked producer prices to export prices and cooperative costs were the core feature of the institutional reforms introduced in North West Province. Under these arrangements, initial producer prices were determined by primary societies, the level of the cooperative structure where farmers directly interact with cooperatives and participate in governance. Prior to the beginning of each marketing season, each society estimated the amount of coffee it expected to handle during the season. Based on these tonnage estimates, each cooperative (primary societies, unions and the apex) determined its per-kilo marketing costs for the upcoming marketing season in budgeting exercises. The producer price offered by a given society was calculated as the difference between NWCA's forecast export price and total budgeted marketing costs, which included port and export charges, the NWCA apex's estimated costs and the unique budgeted costs of the society and the union to which it was affiliated. All prices and costs were expressed in per-kilo terms. Any net profits realized during a marketing campaign were distributed to producers in residual payment to producers after marketing results were known (see below).

Costs were determined by the management and governing bodies of each cooperative in annual budgeting exercises. Budgets were not formally adopted until farmers (or their elected representatives at the union and apex levels) gave their final approval in general assembly meetings. Budgeting procedures were designed to give farmers a strong voice in determining cooperative costs and the types and levels of service they wished cooperatives to provide. By requiring managers and elected boards of directors to justify and defend their budgets before general assemblies, budgeting exercises were intended to introduce greater transparency and accountability into the cost determination process. It was anticipated that farmers would have powerful incentives to demand that cooperatives economize since their costs were reflected in producer prices.

Society-level pricing arrangements required cooperatives to be financially self-supporting and to provide marketing services at cost. Once budgets were formally approved, cooperatives were entitled to receive only their budgeted per-kilo costs. A cooperative that failed to keep its costs within prescribed limits was required to recover its in budgets prepared for the following season, at the expense of lower producer prices.

Society-level pricing arrangements anticipated that producer prices in North West Province would vary significantly as a result of differences in the costs structure, operating efficiency and volume between primary societies, and especially, cooperative unions. Price competition between cooperatives, and potentially private traders, would create additional pressures on management to control costs. If successful, incentives to economize would enable cooperatives to realize economies of scale in processing and exporting. Cost-economies would be distributed to producers in the form of higher coffee prices. In effect, cooperatives would have to compete for farmers' loyalty on a cost

and performance basis. Over time, costly and inefficient cooperatives would be forced to either improve performance or go out of business as producers sought lower cost cooperatives that offered higher prices.

9.4.2 Rights to Export and Own Residual Income

NWCA obtained rights to independently export arabica and retain the residual profits from sales early in the reform period, and beginning with the 1989/90 crop. The reform design originally proposed vesting primary societies with rights to claim and distribute residual profits. Since they participated directly in society governance, this would mean farmers would decide the share (if any) of the residual earnings received by cooperatives. This would reinforce the pressure on cooperatives to control costs.

Residual payments to growers would reflect the average quality of pooled coffee produced by all members of a society. Since residual payments would capture any quality premium or discount, farmers would have incentives to improve their measurable parchment quality and to monitor the quality produced by others in the society pool. Incentives would also be created for farmers to pressure cooperatives to control quality during processing and handling, since their quality performance would affect farmers' incomes.

However, economies of scale in processing meant that it was impossible to devise contingent pricing arrangements that backwardly communicated the quality premium directly to the society-level, since this would require that coffee be tracked from society to the market. Society tracking would require that unions hull, grade and bag the coffee produced by each society separately. This would negate economies of scale and greatly

increase marketing costs.. Thus, society-level pricing arrangements could not fully resolve arabica's high information cost problems.

However, it was possible to track coffee from the union level. But this meant that residual payments (or quality premium) would reflect the average quality of coffee produced by the union pool, which encompassed a much larger number of farmers. To realize a quality premium, individual farmers would have to act collectively to improve the average quality of the all-union pool. But the quality premium would not distinguish and reward the quality produced by individual farmers, and would be shared equally by all members of the pool. The high exclusion cost characteristics of the quality result would create an opportunity for some individuals (or societies) to shirk and be opportunistic free-riders on the quality contributions of others in the union pool. If this type of behavior could not be controlled, the actions of a few individuals could undermine the efforts of others to improve quality. The individual farmers in the union pool would have to monitor the behavior their neighbors and pressure them to harvest and wash coffee carefully. Nevertheless, residual payments would communicate some information about how a union sorted and graded coffee, creating possible incentives for farmers to demand that the process coffee well. But it is relatively difficult for farmers to monitor union activities since they interact with them only indirectly through their societies.

Modifications that NWCA made to rules governing the distribution of residual earnings further compromised the ability of reformed pricing institutions in resolving high information cost problems. As originally proposed, the reform design recommended that NWCA should market each union's coffee to buyers separately. If it was found that this was not feasible, the reforms recommended that NWCA internally track each union's

coffee and distribute residual payments based on union-by-union the price. Either arrangement would ensure that residual payments would reflect the quality produced by each union. However, NWCA decided to market all its coffee under one name and calculate residual payments from the average price it received for all its sales. NWCA believed this arrangement would pool unions' risk in dealing with the market. Otherwise, inefficient and poorly performing unions might be unfairly rewarded if world price rose during the course of a marketing season, and efficient unions that processed coffee quickly might be unfairly penalized (and vice versa). NWCA was also concerned that a union that defaulted on a promises to deliver coffee might damage the market reputation of NWCA as a whole.

But by calculating residual payments on an average sales price basis, residual payments to producers communicated information about the overall quality of coffee by all producers and cooperatives in North West Province. Perceptible benefits from quality improvement would require an even greater collective response by North West producers and cooperatives. But average-price residual payments magnified the high cost characteristics of the quality premium, as well as its accompanying incentives for individuals and cooperatives to shirk and be opportunistic free-riders on the quality result produced by others in the provincial pool. produced by the entire cooperative structure in NW Province. Moreover, unions now had the opportunity to shirk and free-ride, which lessened the pressure on them to sort and grade coffee well. In 1993/94, NWCA decided that any indemnities resulting from buyers' quality claims would be the responsibility of the union responsible for the quality problems. However, this was the only quality penalty that was assessed on poorly performing unions.

NWCA also modified rules governing the distribution of residual earnings to enable apex and union governing bodies to retain at least part of the residual before distributing the remainder to societies and producers. Thus, residual payments to producers reflected the average quality and price of coffee produced in NW Province, less that claimed by cooperatives. This further weakened the effectiveness of reformed pricing arrangements in resolving high information cost problems, and also reduced the institutional pressure on cooperatives to keep costs within budgeted limits.

9.4.4 Determination and Enforcement of Quality Standards

To compensate for the inability of society-level pricing arrangements to resolve fully arabica's high information cost problems, new coffee acceptance procedures were introduced at the society level that established parchment quality standards. Institutional arrangements that made some distinction for quality might improve quality control during farm-level acceptance and inspire some farmers to harvest and wash their coffee better.

The procedures identified observable attributes in parchment (number of defects in a hulled sample, appearance/color, and odor) to classify parchment quality as good (Class I), average (Class II) or poor (Class III). Although these measures of parchment quality were crude indicators of how farmers harvested and washed coffee, they could nevertheless identify some (if not all) serious quality problems. Furthermore, they provided a means, albeit far from perfect, to institutionally distinguish, and potentially reward, producers' investments in quality. Improvements in observable parchment quality might contribute to some cup quality improvement, even if parchment and cup quality measures are poorly correlated.

However, the acceptance procedures would have to be evenly applied and strictly enforced by society weighing delegates to have any effect on overall quality. Parallel parchment acceptance procedures were introduced at the union level to ensure that societies were applying and enforcing acceptance procedures.

However, social pressures and sanctions were the primary means of countering potential incentives for individuals to shirk from investing in quality, as well as for society weighing delegates to over-classify the quality of some farmers' coffee during acceptance. Reform anticipated that farmers would re-organize into smaller, village-oriented societies. This would give them a better ability to monitor society activities. If farmers in a village realized that their returns to investments in quality were dependent on the actions of a few individuals or weighing delegates, they might have incentive to influence their behavior. If society officials gave a friend or influential person a break, it would cost everyone.

The parchment quality distinctions of the reformed acceptance procedures also represented a means to differentially price farmers coffee. Institutional arrangements could mimic market prices and provide a method of distinguishing and rewarding producers for investments in quality. However, NWCA failed to devise a way to pay different prices to each class of coffee. Beginning with the 1993/94 season, NWCA decided that parchment accepted as poor quality Class III would be processed separately from better quality Class I and II coffee, and sold as triage. Class III prices were not determined (or paid) until after all stocks had been sold, and payment was received from by buyers. But, NWCA continued to price Class I and II parchment equivalently, and processed and sold the two classes together. Per-kilo payments to producers of Class I and II coffee differed only by the percentage of beans accepted as good and bad, one of

the criteria used to classify coffee. Although the parchment acceptance procedures as implemented distinguished between bad and average quality coffee, they failed to distinguish and reward adequately average (Class II) and good (Class I) quality parchment. This created the opportunity for Class II producers to free-ride on the efforts of Class I producers.

In summary, society-level pricing arrangements (including residual payment rules) and acceptance procedures failed to resolve fully the coordination problems inherent in the arabica situation of high information costs and economies of scale in processing and exporting. NWCA's inability to use available parchment quality measures to pay different prices for different qualities of coffee weakened farm level incentives to invest in quality. Treated together, society-level pricing arrangements and acceptance procedures provided incentives to produce average coffee quality, but failed to reward producers of superior quality. However, farm-level quality and marketing education campaigns in 1993/94 accompanied the implementation of reform. This contributed to increasing farmers' awareness of the relationship between quality and prices, and the need to improve production and washing techniques. But in retrospect, most of NWCA's quality improvement efforts during reform centered on union level quality control, including better handling and grading performance. But by basing residual payments on the average sales price of all coffee that it sold, NWCA also failed to use available measures of union quality to reward quality differentially.

9.4.5 Remaining High Information Cost Quality Problems: The Role of Social Capital

Even if reformed acceptance procedures for primary societies were fully successful, they could only achieve the quality improvements associated with measurable and observable parchment characteristics. This would improve the quality of NWCA's coffee and the prices received by farmers. But there would still be room for additional quality improvement associated with unobservable bean characteristics. Production and washing practices affect taste, but this is only evident in the cup, not at acceptance. Although some evidence of careful washing can be seen by acceptance officials, the full consequence of care is only evident in the cup. Only the producer and his neighbors know fully whether they have grown and washed coffee properly. But their careful behavior can only be achieved by internalization into the habits of producers since external reinforcement from acceptance officials is not fully possible. If a producer cared about the welfare of other producers in the village (or primary society), he would not want to reduce their income through his own opportunistic behavior.

Social capital factors could provide strong countervailing incentives for individuals to shirk from investing in quality--behavior that can't be detected by acceptance officials at primary societies. Social capital factors include a sense of community and obligation to other members in a group, as well as the perceived threat of social sanctions from peers in village-level societies. But for social capital factors to be effective in controlling opportunistic behavior, producers must first be aware of their interdependence with other producers (and cooperatives). The actions of a few individuals in a group can adversely affect individual's incomes. Although NWCA sought to educate producers about proper

production and washing practices, education by itself is not enough to alter individual behavior unless producers internalize the quality aspects of production and washing.

9.4.6. Cooperative Governance

A key premise of the reform effort was that cooperatives that had evolved in the context of the administered market structure, under the strict supervision of the government and Marketing Board, were inappropriately organized to compete in a privatized market. Cooperative restructuring accompanied the reform of marketing institutions. The intent was to return coffee cooperatives to farmers by redistributing power and decision-making authority to primary societies. To accomplish this and enable the implementation of new marketing rules, cooperative governance rules at both the national level and within NWCA were reformed. The goal was to counter the "big man" tendencies of senior managers and elected officials by empowering farmers to act collectively at the union and apex levels to control costs and hold management accountable.

Cooperative governance reform gave farmers the right to reorganize based on principles of voluntary association and democratic self-governance. Reformed price and cost determination rules were important in decentralizing decision-making within the cooperative structure and enabling farmers to act collectively. Rights for farmers to exit existing societies, or form new ones, for societies to affiliate with unions of their choice, and for unions to exit NWCA, were a critical element in introducing competition within the cooperative structure. The threat of exit was intended to increase pressure on cooperative managers to be responsive to the demands of membership. Since any group

could opt out of the cooperative structure entirely, cooperative governance reform also reduced barriers to market entry for private traders. Cooperatives would have to compete on a service, cost or quality basis or risk going out of business.

Cooperative governance reform sought to introduce bottom-up governance arrangements within the hierarchical cooperative structure (with members and societies at the base). Reform sought to change the character of principal-agent relationships within the cooperative structure so that societies were agents and providers of services to farmers, unions were agents and providers of secondary processing services to member societies, and the Apex was an agent of unions and societies providing marketing services for the entire cooperative structure.

9.5 Impacts of Reform on Economic Performance

The full impacts of the reformed marketing structure on economic performance may only be perceived over the long term. The interactions between situation and structure, as well as structure, behavior and performance are complex processes. A learning process accompanies institutional change. Institutional change will affect behavior and thus performance only to the degree that new rules are internalized by market participants. Thus, it is inherently difficult to measure the impacts of institutional change from the vantage point of only two marketing seasons. The impact analysis sought to identify the direction in which behavior and performance changed after reform more than it sought to predict future performance.

9.5.1 Cooperative Restructuring

When farmers were given the opportunity to reorganize cooperatives, they responded rapidly. The number of primary societies grew from 40 to 73 in 1993. Farmers expressed a preference to reorganize into smaller, village-level societies, facilitating face-to-face control. The number of new societies would likely have been greater if some unions hadn't impeded society-level restructuring. There was a large turnover of elected officials at all levels of the cooperative structure during elections in 1993. By all accounts, reform was successful in restoring farmers' confidence in cooperatives and promoting increased member participation in cooperative affairs, particularly at the society level.

But despite a strong sentiment among farmers for future society restructuring, the number of societies remained constant at 73 through the end of 1994/95. In many areas, union officials successfully resisted farmers' efforts to form new societies. Since neither the degree of member representation nor relative influence of different societies in the internal affairs of these unions changed, the balance of power between societies and the union that had existed prior to reform remained largely intact. This weakened the ability of farmers and their elected society representatives to hold union management accountable. The ability of individual farmers to monitor and influence the quality produced by other members of a society that did not reorganize was also weakened because of their larger group size.

Reform clearly changed the principal-agent relationships that had existed between the government and cooperatives during the administered marketing era. The Marketing Board, which had authority to determine and enforce marketing rules, was abolished during the reform process. The government agency that had supervisory control over

cooperatives was stripped of its authority and abolished under the new cooperative law. Farmers assumed its supervisory functions. However, the success of reform in promoting bottom-up governance, and changing the direction of principal-agent relationships between primary societies, unions and the apex was more ambiguous. The overall impression was that there was significant change in the direction of principal-agent relationships towards the farm level, but the change was uneven and far from complete.

Although some unions adopted a strong service orientation towards societies and farmers and encouraged society level restructuring, others did not. In acquiring experience in international marketing, the NWCA apex began to promote actively quality improvement at the cooperative and farm levels to better sales prices. Payments to producers became more reliable during reform. The vertical coordination of the collection activities of societies, secondary processing activities of unions, and marketing activities of the Apex improved noticeably during and after reform.

However, cooperative governance arrangements are such that unions and the apex are insulated from direct farmer control. Information flows within the cooperative structure and to farmers improved during and after reform, but remained weak. Opportunities remained for officials at the union and the Apex levels to conduct their affairs outside the scrutiny of membership and to manipulate and impede the flow of information to farmers. Reform may have changed the overall character of principal-agent relationships within the cooperative structure, but significant agency problems remained.

9.5.2 Marketing Costs

During the transitional period of reform between 1989/90 and 1992/93, the NWCA apex determined uniform fixed cost allowances for the entire cooperative structure. In 1989/90 and 1990/91, NWCA calculated per-kilo cooperative cost allowances based on severely overestimated tonnage. NWCA sustained heavy marketing losses since its true per-kilo costs exceeded per-kilo allowances. Although NWCA more or less accurately predicted tonnage and cost levels in 1991/92, cooperatives continued to lose money since world coffee prices fell and historical low. NWCA's marketing losses between 1989/90 and 1991/92 were eventually covered by USAID and European donors. The analysis strongly suggested that coffee cooperatives in North West Province would likely have failed it had either received no donor support, or arabica markets were suddenly privatized.

During the transitional period of reform, cooperative costs were reduced significantly. NWCA reduced its total fixed cost allowance from 197 to 150 CFA per kilo between 1989/90 and 1992/93. Its true costs were reduced by an even greater amount. But NWCA's cost reductions were mostly programmed by USAID. Reform of national labor rules in 1992 provided the impetus for NWCA to reduce overhead (fixed) costs significantly through employee layoffs and deep cuts in salaries and allowances. Cooperatives also changed the terms of employment of many their employees from permanent to seasonal. The total overhead costs of NWCA's eleven cooperative unions were reduced by 74 percent between 1989/90 and 1992/93. Unions' variable costs were also significantly reduced due to improvements in their technical and managerial capacity. The turning point in the reform process occurred in 1992/93. Because it had successfully

reduced costs, NWCA realized a profit on its coffee sales and was able to pay bonuses of 27 CFA kilo to farmers and 20 CFA to cooperatives.

In the reformed market structure, pressures for cooperatives to control and reduce costs were driven by the altered incentives created through institutional reform. Cooperatives determined their costs in budgeting exercises in both 1993/94 and 1994/95. Although NWCA's lowered its total per kilo marketing costs from 150 CFA to 140 CFA between 1992/93 and 1993/94 by reducing export-related expenses, total cooperative costs increased by 12 CFA per kilo--despite a higher tonnage estimate. Budgeting exercises failed to elicit their expected variation or reduction in cooperative costs. Transportation costs were the primary source of cost variation at the society level. Union costs tended to converge around 70 CFA per kilo and varied within a narrow range, despite large differences in the tonnage estimates of individual unions and differences in their transportation cost structures. The average estimated tonnage of the six low volume unions was four and a half times less that of the five high volume unions, but their mean budgeted per-kilo costs were slightly lower. Instead of providing a per-kilo cost advantage, the large tonnage of some unions apparently sheltered management from pressures to reduce costs. In addition, the union cost evidence raised questions about the accuracy and transparency of some cost estimates.

Cooperatives revised their per-kilo costs during the 1993/94 season to account for the 50 percent devaluation of the CFA franc against the French franc in January, 1994. But unions and societies did not complete their revisions until the end of the marketing campaign, enabling managers to adjust their initially budgeted costs to reflect their actual costs per-kilo costs. This weakened pressures on management to economize. The mean

revised total cooperative costs (which exclude export charges) were 157 CFA per kilo, or 47 percent higher than initially budgeted. Primary societies and the apex were relatively successful in minimizing cost increases, but unions were not. Mean revised union costs increased by 53 percent, but exhibited greater variation than initial costs. Once again, small volume unions were more successful than large volume unions in controlling cost increases. Although this result was inconsistent with the assumption of economies of scale at the union level, it was consistent with the greater control principals have over agents in smaller groups.

The mean total budgeted cooperative cost in 1994/95 was 223 CFA per kilo, an increase of 42 percent over the revised 1993/94 level. Although precise tonnage information was unavailable, it is likely that estimated tonnage in 1994/95 was significantly greater than in 1993/94 because price incentives at the farm level improved significantly. Once again, societies were relatively more successful in controlling per-kilo cost increases than either the apex or unions. Mean per-kilo union costs increased by 41 percent in 1994/95, but individual union costs varied by even greater amount than their revised 1993/94 costs. The relative increase in costs was nearly three times greater in small volume unions than in large volume unions. Overall, the mean per-kilo cost of high volume unions was 25 CFA per kilo less than that of small volume unions in 1994/95. Although these results were more consistent with the assumption of economies of scale at the union level, the cost performance of individual unions provided less convincing evidence.

There was a general trend of rapidly rising nominal cooperative costs after reform, particularly at the union and apex levels. Much of the nominal increase was attributable to the 50 percent devaluation of the CFA franc in 1993/94 and inflation in post-devaluation

Cameroon. But the mean total budgeted per-kilo cooperative cost in 1994/95 was 106 percent higher than the initially budgeted in 1993/94, prior to devaluation. The apex per kilo budgeted cost was 109 percent higher, and the mean budgeted costs of unions and societies increased by 112 and 76 percent respectively. One would have predicted that the apex and unions would have been able to offset devaluation-related per-kilo cost increases because of increasing tonnage. Furthermore, since cooperative marketing services do not consist of 100 percent traded goods, devaluation should not have doubled cooperative costs. Although an expansion in number or level of the services cooperatives were providing after reform, particularly in the area of quality control, may have contributed to increasing costs, there was little evidence to support such a claim. In fact, results of the 1994/95 campaign suggest that inefficient cooperative performance may have contributed to rising costs.

Expressing cooperatives in real terms confirmed that cooperatives failed to control costs after reform. The real total mean cooperative per-kilo costs increased by 45 percent between the beginning of 1993/94 and 1994/95. The real apex per-kilo cost increased by 48 percent, and the mean real per-kilo costs of unions and societies increased by 24 and 50 percent respectively.

The cost evidence raised serious doubt about the effectiveness of reformed institutions in promoting cost control within cooperatives, and particularly the apex and unions. But several factors may impeded their effectiveness. Cooperative cost revisions in 1993/94 and budgeting exercises in 1994/95 took place amid expectations of windfall profits within the arabica subsector. Devaluation in 1994 immediately doubled the CFA value of NWCA's exports. World coffee prices began to increase dramatically shortly after price

reforms were implemented. The expectation of high profits likely muted incentives to economize since cooperatives could offer producers significantly higher prices even while failing to control their costs. However, one would expect farmers to exert greater pressure on management to economize in the context of decreasing export prices, since rising cooperative costs would more perceptible in producer prices. Moreover, reforms anticipated that competition from private traders entering the market (and UCCAO in West Province) would reinforce incentives to economize in cooperatives. During the first two years after reform, private firms had yet to enter arabica markets in North West Province. But, informal traders were active at the farm level. If private traders enter the market, and observed union cost differences are sustained, competitive forces would be expected to increase pressures on cooperative managers to control costs over the longer-term.

But experience suggests that rising cooperative costs were in part explained by institutional factors. Because of progressively greater economies of scale in secondary processing and exporting, the apex and unions should have been comparatively successful in minimizing cost increases after reform. However, the cost evidence showed that the opposite was true. Under reformed institutions, incentives to economize are directly related to the collective ability of farmers to demand cost control and accountability from management in budgeting exercises, particularly at the higher levels of the cooperative structure. The two unions that experienced the greatest amount of society level restructuring and were most open to reform were markedly more successful in minimizing per kilo cost increases in 1993/94 and 1994/95 than were unions that experienced relatively little society restructuring. Societies, which are directly governed by members

and exposed to their scrutiny, were the most successful level of the cooperative structure in minimizing cost increases. This cost results suggested that when farmers were able to participate effectively in cooperative governance and make their voices heard, they successfully controlled costs. But the results also showed that while reform may have empowered farmers to participate in and influence the budgeting process, several unions and the apex were able to impede farmers' effective use of these new rights.

Evidence from the first two years after reform suggested that the ability of farmers to participate effectively in budgeting exercises, particularly at the union and apex levels, was related to the information they received. Farmers and their elected union and apex delegates need to have access to historical cost information and, ideally, comparative cost information to evaluate the information contained in budgets. Early in post-reform era, this information was in very limited supply. Over time, one would expect that farmers will develop an improved conception of what they consider to be appropriate costs, and a better ability to evaluate budgets as they acquire greater familiarity and experience with new budgeting procedures. But information is asymmetrically distributed within the cooperative structure and concentrated at the upper levels. There are high acquisition costs for individuals (and societies) in obtaining cost and price information from all areas of North West Province. There is no guarantee that information will become more accessible to members unless it is collected and disseminated by NWCA, for which information acquisition costs are relatively low.

A more fundamental information problem related to the reformed cost procedures themselves. As implemented, society-level pricing arrangements required that cooperatives calculate their costs in per-kilo terms, and made no distinction between overhead (fixed)

and variable costs. Overhead costs, which include personnel-related expenses, do not vary with tonnage. However, per-kilo overhead costs are directly influenced by tonnage, and are the primary expression of economies of scale. Per-kilo overhead costs between years and across cooperatives are not directly comparable. If estimated tonnage is unknown, it is extremely difficult for a general assembly member to determine whether overhead costs have increased if they are expressed in per-kilo cost terms. In the context of increasing tonnage, constant per-kilo costs are an indicator that actual costs increased. If actual tonnage exceeds estimated tonnage, a cooperative's actual per-kilo overhead costs would be less than budgeted. Cooperatives could claim any surplus since rules entitled them to retain their budgeted per-kilo costs. The failure to distinguish between per-kilo overhead and variable costs provided an opportunity for cooperative managers, particularly at the union and apex levels where economies of scale exist, to obfuscate and conceal overhead costs by either manipulating their tonnage estimates or creatively allocating them to the different cooperative activities detailed in budgets.

It takes an informed membership to ask union and apex managers why they did not achieve economies of scale and pass them on to producers. But experience suggested that by pricing all cooperative services on a per-kilo basis, reformed cost determination procedures failed to provide members with sufficient information. Finally, experience showed that per-kilo pricing of cooperative services created strong incentives for some cooperative managers to lower their per-kilo costs, and reduce pressures for cost discipline, by actively purchasing coffee from non-members. As observed in Chapter 8, incentives to increase tonnage were not always compatible with incentives to enforce quality standards at the cooperative level.

9.5.3 Producer Prices

During the transitional period of reform between 1989/90 and 1992/93, the government continued to fix national arabica prices. In 1989/90, arabica producer prices were slashed by 47 percent from to 250 CFA per kilo, where they were maintained through the 1991/92 season. In 1992/93, the producer price was lowered to 200 CFA per kilo. At these low levels, returns to arabica production were marginal at best, and growers had little economic incentive to produce. Compounding problems, NWCA experienced difficulty in procuring timely and adequate crop financing during the early years of the reform period. In 1989/90 and 1990/91, NWCA's payments to producers were unreliable and severely delayed. Many cash-strapped farmers sold their coffee at price discounts of between 30 and 50 percent to local businessmen and traders who had with cash on hand. A number of these informal traders were from West Province, who subsequently delivered the coffee to UCCAO for immediate payment. Beginning with the 1991/92 season, NWCA's payments to producers became noticeably more reliable.

NWCA began to price coffee autonomously during the 1993/94 season, when society-level pricing arrangements were introduced[7]. Producer prices improved dramatically after reform. The mean initial producer price in North West Province was 260 CFA per kilo in 1993/94, 30 percent higher than at the start of 1992/93. The producer prices offered by societies varied with the budgeted per-kilo costs of societies and unions costs. Although the range of producer prices was 33 CFA per kilo, the lack of variation in initial 1993/94 union budgeted costs meant that the initial producer prices offered in most areas clustered

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[7] UCCAO continued to establish a single producer price for its members, although one of its member unions broke ranks during the course of the season.

within a narrow 8 CFA per kilo range. Transportation costs represented the primary source of price variation between societies. Thus, price competition amongst cooperatives was muted during the first year of reform.

In the midst of the 1993/94 season, NWCA nominally doubled producer prices in response to the CFA devaluation. Revised cooperative costs were reflected only in final 1993/94 prices, which included residual payments. The final mean producer price in NW Province for the 1993/94 season was 775 CFA per kilo. Since society-level pricing arrangements linked producer prices to export prices, producers were the primary beneficiaries of both devaluation and rising world prices.

The mean initial 1994/95 producer price in NW Province was 1,000 CFA per kilo. Initial prices would have been considerably higher if the government hadn't implemented a 26 percent ad valorem tax on arabica exports (see below). Although complete price information was unavailable, 1994/95 producer prices reflected the large variations in unions' budgeted per-kilo costs. The highest producer prices were offered in the Nso area. This was the result of Nso Union's policy of strictly controlling costs to maximize producer prices. Oku-Noni Union was also relatively successful in controlling costs and offered high prices. These two unions were previously identified as being open to reform and responsive to members. But, NWCA failed to anticipate that spikes in world coffee prices are usually short-lived, and overestimated the 1994/95 export price. As a result, its initial producer prices were too high, and NWCA sustained losses of 219 CFA per kilo on its coffee sales in 1994/95. Under society-level pricing arrangements, cooperatives would have been required to cover these losses in 1995/96 budgets, resulting in considerably lower producer prices. Although North West arabica producers received high prices for

their coffee during the first two years after reform, it is extremely doubtful that NWCA could sustain this performance.

After reform, NWCA was able to offer its members consistently higher prices than UCCAO in West Province. The initial 1993/94 producer price offered by UCCAO was 250 CFA per kilo, 10 CFA per kilo less than the mean producer price offered by NWCA. But after devaluation, NWCA nominally doubled producer prices, increasing its mean producer price to 520 CFA per kilo. In contrast, UCCAO raised its producer price to only 400 CFA per kilo, and later, 425 CFA per kilo. NWCA continued to offer higher prices than UCCAO through the 1995/96 season. NWCA's competitive advantage over UCCAO was directly attributable to its lower marketing costs. UCCAO maintained a more costly structure than NWCA. Through reform, NWCA had become a pro-competitive force in the domestic arabica market. However, there were strong indications that competition from NWCA was creating pressures for UCCAO to restructure and cut its costs. To maintain its competitive price advantage over UCCAO, cooperatives within the NWCA cooperative structure would have to economize.

9.5.4 Distribution of Residual Profits

Although NWCA obtained rights to export coffee abroad independently and to retain and distribute the residual income from sales in 1989/90, it sustained heavy marketing losses it experienced during the 1989/90, 1990/91 and 1991/92 seasons. The original reform design included a provision to introduce a graduated tax on arabica exports, but USAID and the Cameroonian government failed to reach an agreement on its implementation. After the reform program was concluded on June 30, 1994, the

Cameroonian government unexpectedly imposed taxes equivalent to 16 percent of the value of all arabica exports after July 1, 1994. Although this affected only a fraction of NWCA's exports, tax payments nevertheless totaled 76 CFA per kilo in 1993/94. In January, 1995, the export tax was increased to 26 percent, and made retroactive to July, 1994. Port charges were also increased. In introducing the tax, the government expropriated part of residual profits from producers and cooperatives so that it could reward its own clients. Although the export tax adversely affected residual earnings for arabica, NWCA was able to absorb the tax and pay producers significantly higher prices in 1993/94 because of high world prices. However, the tax contributed to NWCA's losses in 1994/95.

In 1993/94, NWCA realized net profits of 163 CFA per kilo (based on revised costs) on its coffee sales. Although cooperatives had revised their costs to reflect actual cost levels, the NWCA Board of Directors recommended that cooperatives retain 60 CFA per kilo (20 CFA per kilo for the apex, each union and each primary society) before distributing the remaining 103 CFA per kilo to producers. By changing rules to enable NWCA to determine residual payments shares, significant discretion over residual payments to producers was vested in the apex and union governing bodies, the levels of the cooperative structure furthest removed from direct scrutiny from members. This was the inverse of the relationship contemplated by the original reform design. Since cooperatives were allowed to stake their claim on residual profits before paying producers their share, both incentives to economize and the ability of membership to hold management accountable were weakened.

Despite the government's export tax and the cooperative claim on residual profits, the

mean producer share of the 1993/94 export price of 1,114 CFA per kilo was 70 percent, and the cooperative share was 20 percent. The government's share was 7 percent, with port and export charges making up the balance. In contrast, under the administered institutional arrangements, when the average export price in 1983/84 was 1,177 CFA per kilo, the producer share of the export price was only 37 percent and the cooperative share was 11 percent. The Marketing Board's share was 52 percent. The negative impacts of the government's 26 percent export tax were clearly seen in results from 1994/95. The mean producer share of NWCA's 1,800 CFA per kilo export price forecast was only 56 percent, and the cooperative share was 12 percent[8]. Until the government introduced the export tax, reformed marketing institutions were successful in redistributing residual earnings away from the government to producers and cooperatives. However, at lower world price levels the export tax threatened to wipe away any price benefits from cooperative cost reductions to negate the improved economic incentives to produce achieved through reform. It was only in 1996/97 that the Cameroonian government, under pressure from France and the European Community, lowered the export tax to 13.5 percent. USAID had pulled out of Cameroon.

9.5.4 Coffee Production

After coffee prices were slashed in 1989/90 and maintained at low levels through the 1992/93 season, arabica production levels in Cameroon fell precipitously--with the

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[8] If NWCA had accurately forecast the 1994/95 export price of 1,500 CFA per kilo, the producer share would have been only 52 percent and the cooperative share 15 percent.

exception of a bumper crop in 1991/92. In North West Province, total arabica production fell by 53 percent between 1988/89 and 1989/90, and an additional 18 percent between 1989/90 and 1990/91. The arabica tonnage handled by NWCA in 1990/91 was only 2,141 tons, 61 percent less than the 5,527 tons it handled in 1988/89. The price decrease had a clear disincentive effect on arabica production.

Arabica production also fell steeply in West Province, but less precipitously than in North West. Because of NWCA's inability to reliably pay producers in 1989/90 and 1991/92, there was a significant (if unquantifiable) outflow of coffee from North West into West Province where payments were more reliable.

Although arabica production in Cameroon spiked in 1991/92 because of an exceptional bumper crop, production fell back to its previous low levels in 1992/93. The average annual arabica tonnage handled by NWCA during the transitional period of reform (1989/90-1992/93) was 2,940 tons, but only 2,384 tons if the bumper 1991/92 harvest was excluded. In contrast, when producer prices were set at 475 CFA per kilo between 1986/87 and 1988/89 (the last three years of the administered market era), the average annual arabica tonnage handled by NWCA was 5,564 tons.

Beginning with the 1991/92 season, NWCA began to pay significantly lower prices for unwashed arabica than washed, and changed the rules for accepting unwashed coffee. The proportion of unwashed arabica in total arabica production immediately plummeted.

After society level pricing arrangements were introduced in 1993/94, producer prices improved significantly. The tonnage of washed arabica handled by NWCA rose from 2,229 tons in 1992/93 to 3,038 tons in 1993/94, an increase of 36 percent. Bonus payments in 1992/93 and higher initial prices in 1993/94 had a positive impact on

production. Between 1993/94 and 1994/95, washed arabica production increased a further 27 percent to 3,845 tons. Production in 1994/95 was 70 percent greater than in 1992/93. Remarkably, the first two years after reform were the first in which North West arabica production had increased in consecutive seasons dating back to 1971/72. After reform, farmers in North West Province responded to improved incentives to produce by significantly expanding production.

Regional coffee marketing patterns within Cameroon and NW Province changed. Because of NWCA's improved payment reliability and ability to pay higher prices than UCCAO in West Province, the outflow of coffee from North West into West Province ceased in the post reform period. Instead, there was a reversal in provincial coffee marketing patterns, and significant (if unquantifiable) quantities of arabica from West Province flowed into North West Province. Within North West Province, coffee tonnage increased by a significantly greater amount in cooperative unions that were relatively successful in controlling costs than in cooperatives that failed to control costs, particularly in 1994/95. This evidence provided a strong indicator that reform was successfully promoting price competition between unions. If cost (and price) differences between unions persist over time, one would expect that inefficient and high cost unions will be forced to either improve their efficiency to remain competitive, or fail. Intra-union competition should strengthen incentives to economize.

Although the first two years after reform suggest that the long-term trend of declining production may have been reversed, the sustainability of production increases is difficult to predict. As discussed above, the implementation of society-level pricing arrangements coincided with devaluation of the CFA franc and rising world prices. Because of reform,

farmers were able to benefit and realize higher prices. But these events, which were external to the reform process, explain much of the improvement in farm-level production incentives that was observed after reform. Over the longer-term, increases in productivity will depend on cooperatives' ability to pay farmers reliably and to generate price incentives for producers by economizing costs and improving coffee quality.

9.5.5 Coffee Quality

Between 1989/90 and 1993/94, the rate at which NWCA's coffee was price discounted by international buyers decreased in every season except 1991/92. Whereas NWCA's coffee was discounted by 26 percent relative to the world (New York "C") price in 1989/90, in 1993/94 the discount had fallen to near zero. The improvement in the NWCA-NY "C" price differential between 1989/90 and 1993/94 translated into a 120 CFA per kilo increase in the value of NWCA's arabica exports. An econometric analysis of NWCA's sales contracts showed that the key factor contributing to the improvement in the price differential was the speed with which cooperatives collected, processed and shipped coffee. This suggested that improved vertical coordination of cooperative marketing activities had a beneficial impact on quality. More anecdotal evidence suggested that improved control of inferior quality unwashed coffee within the cooperative structure also had a beneficial affect on prices.

However, the econometric analysis also showed that NWCA's price differential was influenced by market factors, particularly world price levels and the French Franc-US dollar exchange rate. Because better quality coffees are highly demanded and in relatively limited supply in the world market, the price premiums they command tend to be stable

even as world coffee price levels vary. However, price differentials for average and below-average quality coffee tend to be sensitive to variable market conditions since they are usually in large supply in the market relative, and demand for them is weaker. The sensitivity of NWCA's price differential to market factors suggested that it continued to have a reputation among buyers as a supplier of below-average to average quality coffee. If NWCA is to sustain its improved price performance, it will have to improve the quality of coffee it markets abroad.

There was no statistical evidence that the price differential behaved differently in 1993/94, the first year of full institutional reform, than in previous years. Although this implied that NWCA's cup quality did not significantly improve as a result of reform, available measures of cup quality were not fully satisfactory, so the issue remained open.

Available evidence demonstrated that NW arabica producers were highly responsive to changing incentives during reform. Farmers delivered parchment to cooperatives rapidly after harvest after payments became more reliable. After NWCA changed its unwashed arabica pricing and acceptance procedures in 1991/92 and significant price differences between washed and unwashed coffee emerged, producers immediately expanded their production of washed arabica relative to unwashed. A higher proportion of larger size grade beans in total arabica production in 1993/94 relative to preceding years hinted that North West producers responded to improved price incentives by investing more resources in coffee production. Finally, producers responded positively to new parchment acceptance procedures. The overall appearance of the parchment delivered by farmers to cooperatives improved noticeably in each year that reformed acceptance procedures were in place, indicating farmers were improving measurable parchment quality.

However, cup quality is the most critical aspect of coffee quality. Available quality assessments from buyers between 1989/90 and 1994/95 gave the impression that although the overall cup quality of NWCA coffee may have improved, unclean cups and stinker beans continued to mar the reputation of NWCA's coffee. The 1992/93, 1993/94 and 1994/95 were plagued by quality claims by buyers. These quality problems were indicative of poor washing and drying techniques at the farm level and poor grading and sorting by cooperatives. Quality problems were more pronounced in some union areas than in others, indicating that quality control was uneven within the cooperative structure. NWCA suspected that a failure by some cooperatives to control for an inflow of inferior quality coffee from West Province had undermined the quality improvement efforts of North West producers. In some cooperatives, incentives to increase tonnage and reduce per kilo costs apparently outweighed incentives to enforce quality standards during acceptance and processing.

The observation that relatively small quantities of poor quality coffee were damaging NWCA's overall reputation was a result that was consistent with earlier observations that reformed market institutions failed to resolve fully quality problems associated arabica's high information costs and economies of scale characteristics. Specifically, the reforms-as- implemented failed to control free-rider problems associated with the high exclusion cost characteristics of the quality premium. Society-level pricing arrangements and parchment acceptance procedures were poorly linked. Although acceptance procedures classed the quality farmers' coffee as good, average and poor, only poor quality coffee was discounted in price. In practice, this represented little effective change from the "good bean-bad bean" price distinctions that had existed prior to reform. Although reform

introduced stricter quality control procedures during farm level acceptance, as implemented, pricing arrangements failed to use observable quality attributes of parchment to differentially reward producers. Instead, price incentives rewarded producers of average quality coffee.

As discussed previously, NWCA marketed all its coffee under one name and distributed residual earnings based on the average value of its total exports in the post-reform era. NWCA's failure to use fully available price measures to distinguish and differentially reward unions for quality created opportunity for some unions to shirk from controlling quality, but free-ride on the contributions of others in the NWCA pool. The differential quality performance observed in unions after reform was consistent with unresolved incentive problems. The quality results suggested that similar dynamics were at play at the producer level. Quality improvement over the long term will depend critically on NWCA's ability to modify marketing institutions and overcome these problems.

9.6. Recommendations

Although performance in the arabica subsector in North West Province improved noticeably after reform, whether this improvement will be continue over the long-term remained an open question. The impact analysis showed that sustained improvements in performance will depend critically on the ability of cooperatives to control costs, and for both producers and cooperatives to improve quality. Previous sections of this chapter identified weaknesses in the reforms-as-implemented in creating incentives to economize and to improve quality. This section proposes institutional changes that might strengthen these incentives.

9.6.1. Actions to Strengthen Incentives to Economize

Under society-level pricing arrangements, cooperative costs are reflected in producer prices. Through reform, discretion to decide costs was decentralized within the cooperative structure, and the cost determination process became more inclusive. Each cooperative was required to determine its unique costs, and cover these costs independently. Reformed budgeting procedures empowered farmers and their elected representatives to participate and to develop a strong voice in the cost determination process. Institutional elements were in place to generate competitive pressures for cooperatives to control costs and offer higher producer prices to membership.

Despite evidence of rising cooperative costs after reform, there were reasons to believe that incentives to economize within the cooperative structure would become stronger over time if the reformed institutional structure remained in place. These reasons included:

- The effects of CFA devaluation would work their way through the system. Devaluation was a key factor contributing to rising costs, and introduced a large element of uncertainty into the cost determination process in both 1993/94 and 1994/95.

- High export prices and windfall profits related to devaluation and high world price levels, were a short term phenomenon. In the context of rising export prices, producer prices increased significantly despite rising cooperative costs, dampening incentives to economize. In the context of low or declining export prices, the adverse consequences of cooperative cost increases on producer prices would be more readily perceived by farmers. This would likely intensify incentives for farmers to demand cost control and make more effective use of their voice in budgeting exercises.

- A learning process accompanies institutional change. One would expect that the effective ability of farmers to influence the cost determination process to increase as they acquired greater familiarity and experience with budgeting procedures, and developed a better understanding of appropriate costs.

- Increased competition would increase pressures on management to control costs,

particularly at the union level. Significant differences in union costs emerged in the post-reform period only late in the 1993/94 season after cost revisions were completed. The 1994/95 marketing campaign was the first in which the producer prices varied significantly. Empirical evidence showed that union tonnage increases were directly related to their ability to control costs. If union cost differences persisted, the competitive advantage of lower cost unions would increase pressures on high-cost unions to economize. Over the longer term, competition from UCCAO in West Province and private traders would further strengthen incentives to economize. Farmers in North West Province clearly demonstrated that they were willing to bypass cooperative marketing channels entirely if they were dissatisfied with cooperative performance.

Although there were reasons to believe that incentives to economize would increase at the union and apex levels over time, much would still depend on the collective ability of farmers and their elected representatives to pressure management to control costs. But the impact analysis raised questions whether implemented institutional reforms provided farmers with sufficient information to participate effectively in budgeting exercises. There are a several institutional changes NWCA could adopt to improve the flow of information to farmers and thus enhance their collective ability to control union and apex costs.

As implemented, budgeted initial cooperative costs were expressed on total cost per kilo basis, and made no distinction between overhead (fixed) and variable costs. Simplicity was the virtue of this arrangement, making it easy for societies to calculate producer prices. However, cooperative costs can be evaluated and compared only if tonnage is known since per-kilo overhead costs vary with tonnage. In other words, budgeted per-kilo cost allowances are only as accurate as the tonnage estimate on which they are based. Under current arrangements, total per kilo cooperative costs may remain constant between years yet conceal rising overhead costs if calculated from higher estimated tonnage. Present cost determination procedures also created incentives for

some cooperatives to reduce pressures to economize by aggressively buying coffee from non-members to increase tonnage and lower actual per kilo costs. In effect, economies of scale were used by cooperatives to reduce pressures to control costs, and in some cases, generate rents.

If some cooperatives close to allow others to achieve economies of scale, this could give higher returns to producers. Farmers can benefit from cost cutting via elimination of excess employees and better management, as well as union mill closures and reallocation of volume among plants. However, the failure of reformed cost determination procedures to distinguish between per-kilo overhead and variable costs had the unintended effect of creating incentives for some cooperatives to increase volume by accepting poorer quality coffee, thus lowering the price for the all-union pool.

An alternative method for determining costs that distinguished between overhead and variable costs was discussed in Chapter 5. This method would entail accounting for overhead (indirect) and variable costs separately. Cooperative overhead costs would be paid through membership or subscription fees. The apex would budget its total overhead costs, and propose subscription fees for affiliated unions in budgeting exercises. Likewise, unions would propose an annual subscription fee for member societies, and societies a fee for member farmers. Overhead costs would be paid independently from variable costs, which would continue to expressed in per kilo terms and deducted from sales prices. Farmers would have strong incentives to minimize total subscription fee payments, thus increasing pressures on cooperatives to economize. Since overhead costs would no longer be influenced by tonnage, this arrangement would also weaken incentives for cooperatives to lower per kilo costs only by increasing tonnage.

When first proposed by project implementers in November, 1993, this proposal met strong resistance from cooperative officials[9]. Although subscription fees could be apportioned between unions and societies to reflect the size of membership, ultimately farmers would bear total overhead costs. Cooperatives would have to find an equitable method of linking the fees paid by individual farmers to the amount of coffee they produced. Otherwise, the costs to small farmers could be burdensome. Cooperatives could collect a farmer's dues by retaining a per-unit fee based on kilos of coffee he marketed. But to the extent that cooperative officials benefit from current cost determination arrangements, one would expect such a proposed rule change to encounter strong resistance. Without strong pressure from either donors or membership, it is doubtful whether this resistance could be overcome.

Barring a change in per kilo pricing of cooperative services, there are a number of ways in which NWCA could increase the flow of price and cost information to farmers. Reformed pricing rules sought to create competitive pressures on cooperatives to economize by linking costs and initial producer prices. Thus, it is vital that farmers have access to adequate price information. In 1993/94, USAID and the Cameroonian government established an Arabica Coffee Marketing Information System (AMIS), which disseminated coffee price information (world price trends, domestic prices) every week over national television, in radio broadcasts in 26 local languages in North West Province, and in the written press. During its first year of operation in 1993/94, farmers who had heard the broadcast actively demanded to know why domestic producer prices were so

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[9] The cost and pricing reforms that were implemented had also met strong resistance from the NWCA Board of Directors, which had only recently been overcome.

much lower than world prices. This required NWCA to justify its costs to members. However, there were strong indications in 1994/95 that the price information provided through AMIS was out-of-date and unreliable. There is no reason why NWCA should rely on the government to disseminate price information since it could likely find its own radio time to disseminate its own price information at a relatively low cost. The NWCA apex is ideally placed to assemble and disseminate this information since it interacts directly with unions, which in turn interact directly with societies. In contrast, farmers interact only with their societies, and have little direct contact with unions or the apex. Nor does NWCA have to rely on the media to disseminate price information. The flow of information within the cooperative structure improved noticeably after the NWCA Apex began to produce and distribute Monthly Newsletters. It would be easy for NWCA to include price (and cost) information in these newsletters. However, experience has shown that Marketing Newsletters have not been widely circulated within the cooperative structure. Subject to the approval of membership, NWCA should expand its newsletter service and revise its internal marketing arrangements so that each society and union is required to post them.

At the farm-level, the dissemination of adequate price information is critical in creating incentives for farmers to demand cost control from cooperatives. A subset of rule changes could be introduced to enhance the budgeting process itself, particularly at the union and apex levels. Improving the information contained in budgets would enable farmers and their representatives to participate more effectively in determining costs. NWCA could easily change budgeting procedures to require that cooperatives present both absolute cost data and the previous year's costs be presented in their budgets, in addition to per-kilo

costs. This would enhance the ability of general assembly members to detect changes in cost levels. Once again, a simple rule change that required each cooperative to post copies of budgets in advance of budgeting exercises could have a profound effect on the ability of general assembly members to assimilate budget information. Observation of budgeting exercises in 1993/94 left a strong impression that in most instances, general assembly delegates had extremely limited access to budget information prior to their oral presentation[10]. As a result, delegates had little opportunity either to study budgets or discuss cost items between themselves, and budget approval was largely a formality. Advance posting of budgets at cooperative offices would eliminate at least some of these problems.

An additional rule change which would strengthen incentives to economize would be to vest authority to distribute residual earnings in societies. Under current arrangements, cooperatives are permitted to claim a share of residual earnings prior to distributing them to farmers. This weakened incentives to economize by reducing the pressure on cooperatives to keep actual costs within the limits prescribed by budgets (assuming a profit was made). The original proposal to vest societies with rights as residual claimants was intended to empower farmers determine the share of earnings received by cooperatives, not to deny them a share. Whether or not farmers would be willing cede part of their residual earnings would depend on what cooperatives proposed to do with

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[10] Most cooperative offices in North West Province, including unions, are poorly equipped. Photocopying machines are in very limited supply, and many cooperatives lack mimeograph machines. But even the Apex, which possesses computers and photocopy machines, did not make its budget accessible to delegates before the budget meeting took place.

their share. In addition to reinforcing bottom-up governance relationships and enhancing transparency and accountability, vesting societies with the right to claim residual earnings would re-establish the link between residual producer payments and the quality premium.

Finally, the reformed market structure predicted that competition would resolve the problem of excess union processing capacity at the union level by forcing high cost and inefficient unions out of business. Whether or not this will happen is as yet uncertain. But the prospect of some cooperatives failing runs counter to the prevailing norm of mutual aid and solidarity among cooperative officials and managers that is summed up in NWCA's official motto "one for all and all for one" (Oakerson, 1994c). Currently, several unions process no more coffee than a large society and operate well below capacity. NWCA should consider closing some high-cost, low tonnage unions, or merging them to create higher tonnage, lower cost unions. This does not imply that consolidated unions would disappear, or that current cooperative governance relationships would be altered in any fundamental sense. Throughout the reform effort it was continually pointed out that the function of a union is to arrange for the processing of member societies' parchment coffee at minimum cost. Unions could contract out their processing to other, lower cost unions.

9.6.2. Actions to Strengthen Quality Incentives

Although the reform period witnessed a significant improvement in the quality produced by cooperatives, this mostly related to improvements in union processing capacity and improved coordination of collection, processing and marketing activities within the cooperative structure. Much of the quality improvement witnessed after reform

was achieved administratively within the vertically integrated cooperative structure. Although some individual farmers and cooperatives responded favorably to acceptance procedures, others did not. The impact analysis concluded that incentives for farmers and cooperatives to produce quality were differentially perceived, and overall, rather weak. The source of this weakness was the failure of implemented reforms to use fully available quality measures to differentially reward producers and cooperatives.

Reform introduced parchment acceptance procedures to classify according to observable quality attributes (number of defects in a sample, appearance/color, and odor). Although imperfectly correlated with cup quality attributes, observable measures of parchment quality could be used to introduce differential pricing arrangements that distinguished, certified and rewarded quality. In addition to providing economic incentives for producers to improve quality, differential pricing might help farmers to internalize the importance of proper harvesting and washing techniques. Although NWCA found a method to distinguish and reward bad quality separately from better quality, it failed to establish different prices for average and good quality. Even without such a price distinction, the overall appearance of parchment delivered by farmers improved, suggesting that many farmers responded to the acceptance-rules-as-implemented by improving measurable parchment quality. This strongly suggests that incentives for farmers to invest resources in producing good quality could be significantly strengthened if NWCA priced each class of coffee differently. Whether or not quality differences between classes of coffee are discerned among buyers, the key to quality improvement at the farm level is to find an institutional means for rewarding producers for investments in quality. Farmers will have little incentive to invest greater resources in production and washing

unless there are economic payoffs to doing so.

Oakerson (1994c) recommended that primary societies could eventually use new parchment acceptance procedures to devise identify and penalize producers of consistently lower class coffee, including possible eviction from the cooperative. An alternative and more benign approach would be to target extension efforts towards these producers.

The disincentive effects of current pricing arrangements were clearly seen in the following observations of a respected leader in Kikaikom village in the Nso area during a June, 1993 interview. When asked what the response of farmers was to reformed parchment acceptance procedures, he observed that farmers were initially enthusiastic. A number of farmers boasted that they would produce only Class I coffee. Others boasted they would do everything they could to ensure that Kikaikom would produce a greater amount of Class I coffee than neighboring villages, an indication that social capital factors were having an impact. But, when farmers learned that they would not be paid higher prices for Class I coffee the Kikaikom leaders observed that their enthusiasm vanished, and many wondered what the new acceptance procedures sought to accomplish (personal communication, 1993).

For years, North West arabica growers washed their coffee under institutional arrangements that failed to distinguish, certify and reward quality. As a result, producers had a did not internalize that own their harvesting and washing practices affected quality and price, much less the practices of others. The harvesting and washing techniques of growers were generally poor. This suggests that grass-roots education and extension efforts could have a big payoff at the farm level. With assistance from USAID, NWCA began farm-level quality education programs. NWCA should continue these efforts. For

farmers to improve the quality of their coffee, they must first be aware of proper harvesting and washing techniques. However, instruction in proper techniques is not enough. If social capital is to be effective in controlling some types of opportunistic behavior, farmers must internalize that their incomes are dependent on the actions of a few individual producers and cooperative officials in the union pool. NWCA's education efforts should emphasize this interdependence.

Secondary processing strongly affects cup quality. Farm-level efforts to improve quality will have little impact on sales prices if coffee is poorly or inconsistently graded and sorted by unions. Even without significant improvement in farm-level quality, the sales value of coffee can be enhanced through consistently grading and sorting. But the impact analysis concluded that although there was overall improvement in secondary processing, significant differences remained in the way individual unions enforced quality standards during processing. This was an indication of incentive problems.

Quality measurement problems are less deep at the cooperative than farm level because the quality premium perceived in export prices can be backwardly communicated directly to unions. Thus, export prices provide a measure of the quality of coffee produced by a union. By marketing coffee under one name, and calculating and distributing residual earnings based on the average export price of coffee sold during each season, NWCA failed to use available price information to reward unions differentially for the quality of coffee they produced. Incentives for quality control and rule enforcement at the union level would be strengthened if NWCA calculated residual payments based on the actual sales prices received by a given union. If NWCA were to market coffee on a union by union basis, unions which successfully promoted quality improvement at the farm level

and took care to sort and grade their coffee carefully would likely acquire a market reputation for consistent quality and be paid higher prices than unions that were lax in controlling quality during secondary processing. Currently, the quality failures of a single union may tarnish NWCA's overall reputation.

One reason why NWCA decided not to market coffee on a union by union basis was that it feared if one union defaulted on its commitment to supply a given amount and quality of coffee at a specified time, NWCA's market reputation as a reliable supplier would be damaged among buyers. Although this might be true, by replacing the coffee of the defaulting union with coffee from another union, inefficient and poorly managed unions were let off the hook. This considerably weakened pressures on unions to uphold their market commitments.

Another reason why NWCA chose to market all coffee under one name was that many unions produced an insufficient quantity of coffee to attract buyer interest. But NWCA could market the coffee produced by large tonnage unions individually, and pool and market the coffee of small tonnage unions under a single name. To date it has not attempted to do this.

Even if coffee is not marketed on an individual union basis, it is relatively easy for NWCA to internally track coffee and link residual payments to individual unions. By doing this, residual payments would reflect the differences in quality (if any) between unions. Although there was considerable sentiment among some union managers that NWCA adopt these arrangements in 1993/94, to date they have not been implemented.

Finally, through the end of the 1994/95 season, the apex had yet to take an active role in controlling quality prior to export. During the reform effort, cup tasting facilities were

established at the Apex and staff members were trained in Europe in cup tasting techniques. Although cup tasting is a skill acquired only through experience and practice and there is no guarantee that NWCA's cup tastes would correspond with those of buyers, the unclean tastes and stinker beans that were the source of most of NWCA's quality problems should be relatively easy to identify. If NWCA's cup tastes (or any other quality control procedures it established before shipping coffee) revealed quality problems, the Marketing Department could require a union to re-sort or re-grade coffee before selling it. Alternatively, the Apex itself could re-sorting or re-picking coffee at a local union and assign the costs to the union responsible. Either of these actions would require unions to bear the costs of their quality failures. Alternatively, NWCA could use quality criteria to fine unions that consistently produced poor quality coffee.

9.7. Lessons Learned: Implementing Institutional Reform

The observed performance improvements in prices, costs, farm incomes, coffee production and quality tend to validate the institutional approach that was taken in reforming the arabica marketing system in Cameroon. Given arabica's high quality information costs and economies of scale characteristics it doubtful that the standard market privatization model of enabling competition and market prices would have elicited a comparable improvement in performance. Instead, the evidence strongly suggests that the cooperative marketing infrastructure in North West Province would have been destroyed through sudden privatization. However, the performance of NWCA cooperatives fell short of expectations. Reform implementation difficulties were in large part responsible (Chapter 5). This section highlights some of the strengths and

weaknesses of the reform experience in Cameroon.

A key factor in the success of the reform effort was that it focused on changing both marketing rules and underlying authority rules. The Marketing Board, which under the administered market structure had near total authority over coffee marketing in North West Province, withdrew from arabica marketing in 1989/90 and was liquidated in 1992[11]. Cooperatives assumed the Board's powers and marketing functions. Similarly, reform of national cooperative law abolished the government agency with supervisory authority over cooperatives, and farmers assumed its roles.

In contrast to the Cameroonian experience, several other countries in Africa adopted policy reforms during the 1980s which only partially privatized export markets, such that private traders were allowed to compete with parastatal marketing organizations. Overall, these reforms yielded disappointing performance results. Marketing Boards often retained significant residual market power through their ownership of physical capital such as processing plants, restrictive trader licensing practices, and preferential disbursement of credit (World Bank, 1994; Jaffee and Morton, 1995). But, the arabica reform effort in Cameroon fundamentally altered each of these elements.

At the beginning of the reform process, the key concern of USAID/Cameroon was that there was a risk that the NWCA Board of Directors would become a Marketing Board in miniature, insulated from member control through layers of authority, if authority

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[11] A much reduced National Cocoa and Coffee Board (NCCB) was established in its place to represent Cameroon in international coffee meetings and provide information services. AMIS was lodged within this office. The post-reform era witnessed an expansion of NCCB's involvement in port marketing activities, including pre-export quality control and implementation of several fees. The NCCB was abolished in 1996/97 under pressure from international donors.

rules were not reformed and there power within NWCA was not decentralized (Oakerson, 1994). Reforming internal marketing and governance rules within NWCA resulted in a significant, if imperfect, redistribution of power towards farmers.

However, the reform effort did not attempt to reform rules at the deeper constitutional level. Immediately after the reform effort was concluded, the government enacted the export tax on coffee by Presidential decree. This suggests that reform of marketing and authority rules may not always be sufficient to elicit a desired improvement in performance. Deeper, constitutional level reforms may be required. USAID/Cameroon was aware changes in government policies after its reform effort ended represented the greatest threat to institutional reform. As originally conceived, USAID planned to sequence its reform efforts in Cameroon. Arabica marketing reforms would be followed by programs to privatize robusta coffee and pesticide markets. USAID believed this would extend the reform process in the arabica sector, as well as and enable the continued monitoring of policies concerning the arabica subsector. But instead of extending the reform process, USAID closed its mission in Yaounde on June 30, 1994. Immediately afterwards, the government enacted its export tax. It was only through the efforts other international donors that the arabica export tax was reduced from 26 to 13.5 percent and the National Cocoa and Coffee Board, which was becoming increasingly involved in arabica marketing, was abolished in 1996/97.

If there is a single message to be learned from the institutional reform experience in Cameroon, it is that details of implementation profoundly affects the performance of institutional reform design. Reform implementation is an inherently difficult and contentious process since it requires those who benefitted under previous institutional

rules to sacrifice for an uncertain payoff in the future. An irony of the institutional reform process is that proposed rule changes must often be implemented through the very people who must sacrifice and cede power. It is often in the personal interest of these stakeholders to resist institutional changes. There are no guarantees that an agreement to implement an institutional design will result in its being actually implemented in full. Many of the weaknesses in the reforms-as-implemented in the Cameroonian arabica subsector were the result of compromises that were made to unblock implementation deadlocks in order to keep the reform process going. Successful implementation of a institutional reform is an inherently labor-intensive activity, requiring dialogue among the parties who are affected, and continuous monitoring of the reform process itself. This is not an automatic process that can be accomplished by the signing of an agreement.

Although the reform experience in Cameroon demonstrated that there are benefits to a flexible implementation approach, there are trade-offs. Specifically, there is a risk that the content of reform may be fundamentally altered as a result of compromises that are made. For example, USAID relaxed its requirement that disbursement of project assistance be tied to an agreement by the government to implement a graduated tax on arabica coffee. This gave the government the loophole it needed to enact its own export tax after the reform project ended. But the reform process would likely have remained at an impasses, and key privatization reforms not enacted, if USAID not compromised.

At the NWCA level, USAID insisted upon the implementation of core elements of institutional design (reformed price and cost determination rules and acceptance procedures), but ultimately did not press NWCA to link producer prices to parchment acceptance rules, vest societies with the rights to claim residual earnings, or calculate

residual payments on a union-by- union basis[12]. Similarly, USAID planned to disseminate the new cooperative law within NWCA through a grass-roots education campaign was planned. But at the last minute, USAID and NWCA could not agree about its details, and the education campaign was abandoned. Subsequently, several unions were able to resist society restructuring. Each of these compromises significantly weakened institutional performance, and more specifically, incentives to economize and improve quality.

In other cases, there may be undetected flaws in the reform design itself. The ability of reformed market structure to resolve arabica's high information cost problems was weakened by the modifications made to the institutional design after it was realized that it was not feasible to track coffee from the society level. A key assumption had been that if residual payments reflected the quality of a society pool, and societies were organized according to villages, individual farmers would have powerful incentives to monitor and influence the harvesting and washing practices of their neighbors. This would have increased the effectiveness of social capital in countering individual's incentives to shirk and free-ride. But society tracking was not feasible, and the process of building social capital is poorly understood.

The reform experience in Cameroon also demonstrates that it can't be assumed that incentives created by reform will be perceived in the same intensity by all parties affected by reform. Different elements of an institutional design may also create incompatible

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[12] The problems experienced in coordinating and sequencing national policy and cooperative restructuring reforms was a contributing factor. By the time key policy reforms were finally enacted at the national level, only a short period remained in which key cooperative restructuring reforms could be implemented since the 1993/94 coffee season was looming. Key reforms had to be adopted rapidly, which intensified pressures to compromise on details.

incentive effects. For example, in some cooperatives incentives to increase tonnage and reduce per-kilo costs outweighed incentives to enforce quality standards during processing. Quality differentials on prices were too low because NWCA failed to use available price measures to distinguish and reward cooperatives' quality adequately. As a result, incentives to economize and incentives to improve quality conflicted in some cases.

Finally, there are a number of intervening variables that may impact the effectiveness of institutional reform. Reformed cost determination procedures failed to account fully for the characteristics of information flows within the cooperative structure and to farmers. This appears to have compromised the ability of many farmers to participate effectively in budgeting exercises. The restructuring of relationships within the NWCA structure encountered powerful inertial forces that had to become overcome. These forces included factors such as learned patterns of behavior, ways of doing business and standard operating procedures, and the social status and learned expectations associated with the occupants of key cooperative positions at upper levels of the cooperative structure. Although institutional reform by necessity focuses on changing formal rules, how these rule changes will interact with psychological, cultural and social variables cannot be predicted. Although farmers responded positively to improved economic incentives, their response to new political and social incentives within the cooperative structure was weaker.

However, the institutional approach to policy reform recognized many of these problems. A critical element of the original implementation design was that it included a transitional year of reform, followed by a year to refine and extend the reform process. If it had been possible to keep to this schedule, many of the compromises made during

implementation would likely have been corrected, and institutionally-created incentives strengthened. But a year was lost to implementation difficulties, meaning that the transitional year of reform became the final year of reform. There was no opportunity to modify the reforms that were implemented or extend the reform process. Had a year not been lost, reformers might have been able to implement the institutional design more completely, and the reforms might have become re deeply entrenched and rooted. With appropriate incentives in place, the reforms themselves might be self-sustaining.

To conclude, institutional change is effective only to the degree that new rules are internalized and acted upon by those affected. There is no automatic link between nominal rule changes and improved performance. Implementation matters, and can profoundly affect the content of an institutional design and the incentives it creates. Because of implementation difficulties, a full year of the reform effort was lost, and the reforms that were implemented remained fragile. Despite the many improvements in performance observed after the first two years of reform, it is up to NWCA to extend the reform process and strengthen incentives to economize and improve quality. If it fails to do so, the arabica reform experience in Cameroon may represent a missed opportunity.

APPENDICES

APPENDIX I

A List of Bean Defects, Their Cause and Their Effects on Green Coffee Quality

A) Color Defects

Defect	Cause	Effect on Quality
• **Black Beans**	Beans that have rotted due to: Fungus attack, harvesting beans rotting on the ground. Extreme overfermentation as a result of serious wetting during drying, re-washing of beans, use of contaminated (i.e. rusty) water used in washing, bean damage during pulping.	Among the most serious of defects. These beans produce acrid, highly disagreeable tastes in the cup which render coffee undrinkable.
• **Brown/ Reddish Beans** If parchment is washed in muddy red water, beans may take on reddish hue, complicating the detection of overfermented beans.	Overfermentation due to: Harvesting when overripe, delayed washing, insufficient drying, overheating of coffee during washing process.	Depending on degree of overfermentation, these beans produce fruity, onion, sour , or foul tastes in the cup.
• **Yellow/ Brownish Beans**	Nutrient deficient beans. Poor drying and/or storage. Unwashed arabica.	Strong and bitter tastes in the cup. Fruity flavors.
• **Grey/Deep Grey Beans**	Cherry harvested when unripe, poor drying, poor storage.	Unpleasant tastes, described as "green", which are easily detected in the cup.
• **Whitish Beans** (dull or glassy appearance)	Poor drying. Beans that have begun germinating.	Off-flavors and tastes in the cup.
• **Blotched or Mottled Beans.**	Incomplete or irregular drying.	Off-flavors and tastes in the cup.

A) Color Defects (Continued)

Defect	Cause	Effect on Quality
• **Stained or Streaked Beans.**	Lesions resulting from poor pulping; insect damaged beans. Coffee processed in rusty metallic containers.	Off-flavors and tastes in the cup. Metallic tastes.
• **Faded Appearance**	Old beans that have been stored too long.	Woody tastes in the cup.
• **Silvery or Bronze Beans**	Failure to remove the silverskin during hulling.	Only a problem for highest quality arabicas.

B) Odor Defects

Defect	Cause	Effect on Quality
• **Stinker Beans** Stinker beans are sometimes very difficult to detect since they do not always differ in appearance from normal beans.	Overfermentation and/or re-fermented beans associated with poor washing techniques such as: poorly cleaned pulpers and washing containers, long delays between harvest and washing, beans nicked during pulping, poor drying.	Stinker beans are a very serious quality problem. Undetected stinker beans can ruin an entire batch of coffee during roasting. They may also contaminate otherwise good beans in storage bags.
• **Musty or Moldy Odors.**	Poor drying and/or storage. Moist beans that develop molds and mildews.	Odor and taste not eliminated by roasting.
• **Sour or Rancid Odors**	Poorly washed, fermented coffee.	Unpleasant aroma and taste in the cup.
• **Chemical Odors**	Coffee stored or transported in close proximity to other products.	Poor odor may be carried into the cup.

C) Other Defects

Defect	Cause	Effect on Quality
• **Spongy White, Misshapen Beans**	Rotting associated with fungus introduced by coffee bugs.	Unpleasant tastes in the cup; potato taste.
• **Insect-Bitten Beans**	Beans damaged by boring insects.	Potato tastes, uneven roasting.
• **Broken, Crushed Beans**	Beans damaged during pulping or hulling, possibly as a result of poor drying.	Broken beans roast at a more rapid rate than normal beans. Produce undesirable charred tastes in the cup.
• **Wrinkled, Flat beans**	Immature, poorly developed beans.	Mars overall bean appearance, Uneven roasting. Relatively minor influence on cup taste.
• **Foreign Matter / Debris.**	Poor grading and sorting.	Produce off-tastes when roasted.

Source: Coste (1992), Wrigley (1988) and Pochet (1990).

APPENDIX II

Price and Cost Determination Procedures of the North West Cooperative Association, Ltd., 1994/95[1]

The NWCA, Ltd. Apex will coordinate the yearly budget process which is the tool for determining each cooperative's costs and the prices to be paid to unions, societies and farmers. The budget process will begin in early August so that budgets may be examined and approved by the beginning of October (the start of NWCA's fiscal year). The steps included in the budget process are as follows:

- **Step 1: Crop Forecasting** (late August). The first and most important step in the budget planning process is to estimate coffee volume. NWCA recommends that societies interview those farmers who produce 80 percent of the coffee of any one society. This should be done in conjunction with a study of the previous year's production figures. Society managers should not guess production volume but objectively estimate volumes using all available information available. Society estimates are compiled by unions to determine their volume estimates, and union estimates are compiled by the Apex to determine NWCA's total crop estimate.

- **Step 2: Budget Formats and Procedures** (late August). The NWCA Apex will provide forms and procedures to facilitate the budgeting process. Budgets should be prepared using a common format. The Apex will schedule union manager coordination meetings to facilitate the budgeting process. Unions will do the same for societies.

- **Step 3: Estimating the Export Price:** The NWCA Marketing Service will estimate the export (FOB Douala) price for arabica and robusta coffee based on projected prices, the previous year's prices and expert advice.

- **Step 4: Estimating Internal Costs and Revenues.** Each society, union and the Apex will estimate its marketing expenses and revenues for the upcoming season based on their crop forecasts. Budgets should include details about unit costs, estimated on a monthly basis. Each item in the budget should be divided by the crop forecast to obtain the per-kilo costs of each budget line item.

- **Step 5: Approving Budgets.** Budgeted costs must be discussed, negotiated and

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[1] These procedures were contained in NWCA's internal marketing arrangements (NWCA, 1993b; 1995b).

adopted in General Assembly budget meetings held in each cooperative within the NWCA structure.

- **Step 6: Publishing Internal Costs.** Complete cooperative cost information will be collected and published by the NWCA Apex.

- **Step 7: Calculating Producer Prices.** Prices are determined according to the following formulas (expressed in per-kilo terms).

  Estimated Export Price less Port Costs less Taxes less Apex Budgeted Costs = Price Paid to Unions

  Less Union Internal Costs = Price Paid to Societies

  Less Society Internal Costs = Producer (farm gate) Price.

  (Various Unions and Societies may have different internal costs. This implies that producer prices will differ according to cooperative cost efficiencies).

- **Step 8: Budget Controls**: Each cooperative in the cooperative structure must prepare a quarterly report for its Board of Directors which compares actual and budgeted expenditures. Any differences must be explained.

APPENDIX III

Arabica Parchment Acceptance Procedures and Rules of the North West Cooperative Association, Ltd., 1994/95

Reform introduced parallel parchment acceptance procedures to govern societies' parchment acceptances from farmers and unions' parchment acceptances from farmers. The procedures are outlined below[2].

I) Preliminary Quality Classification Based on Odor and Color

STEP 1: Overall Inspection.

A) At the society level, each bag or container of coffee delivered by farmer should be spread on an appropriate surface (slab, mat, tarpaulin, or swept earthen surface if absolutely necessary) and visually inspected. Unions should inspect whether the bags of each class the delivered by societies are homogeneous in quality.

B) If stones or dried cherry are found, the farmer should be told to re-pick (or sort) his parchment.

C) If mixed classes of parchment are discovered, the farmer should be given the choice of either accepting the lower classification for the whole bag, or to re-pick and sort the different classes of coffee into separate bags. Unions should give society managers the same options.

D) A quality classification should be to each farmer's and society's parchment according to the following visual and odor criteria:

- **CLASS I: Very Good Quality Parchment**

  1) Has a shiny light yellow color.
  2) Has no brown residue on parchment (an indication of poor washing).
  3) Has no stains on parchment (resulting from unclean drying surfaces).
  4) Has no dark staining of the 'center cut'.
  5) Has a uniform color.

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[2] These procedures were contained in NWCA's internal marketing arrangements (NWCA, 1993b; 1995b).

6) Has a clean and fresh odor.
7) Has no dry skin mixed with parchment.
8) Contains no old or faded parchment (only recently harvested coffee can be accepted Class I).

- Parchment must be dried on mats, not directly on theground.
- Parchment must have been washed in clean water.
- Parchment must not have been fermented in metal containers.

- **CLASS II: Average Quality Parchment**

1) Has a darker yellow color than Class I, but is not brown.
2) Is permitted to have a slight variation in parchment color.
3) Has a clean and fresh odor.
4) Contains no old or faded parchment.

- Parchment must not be dried on the ground, which is indicated by the presence of small stones.

- **CLASS III: Poor Quality Parchment**

1) Has a dirty or brown color (an indication of overfermentation , an overly long delay in rinsing after washing, or poor drying).
2) Has a bad, or strong odor. (A "rotten"odor indicates parchment was overfermented. Less tainted odors indicates parchment was poorly washed and dried).
3) Has an "earthy" or "moldy" odor (an indicator that parchment was dried on the ground or stored when insufficiently dried).
4) Has a smoky smell.
5) Includes old coffee from previous seasons as indicated by a faded color.

STEP 2: At the primary society level, weighing delegates should draw and hand-hull a 150 gram sample. The sample should contain a small quantity of parchment from each bag or container delivered by farmer. At the union level, a handful of parchment should be drawn from each bag in a given class of coffee delivered by a society and put into a sample bag. A 150 gram sample should then be drawn from the sample bag and hand hulled.

STEP 3: Each sample must be tested for moisture content using either a moisture meter or by biting into a bean[3]. If high moisture levels are detected (in excess of 10

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[3] Project coffee experts were divided as to which method was more accurate since some societies lacked moisture meters and poorly calibrated meters might produce

percent) a farmer should be asked to re-dry his parchment. At the union level, society managers are responsible for re-drying parchment.

STEP 4: Weighing delegates should weigh out 100 grams of hulled beans and separate good from defective beans. The percentage of good and bad beans is determined by weighing remaining good beans. Bean quality should be identified according to the following criteria.

- **Characteristics of Bad Beans**

1) Black, or "rotten" beans.
2) Semi-black beans
3) Spongy white beans (including beans whose surface can be pierced with light nail pressure).
4) Light, grayish colored beans ("dry" beans).
5) Greenish bean or unripe beans.
6) Insect-damaged beans as indicated by bore holes.
7) Sour beans as indicated by their tan color and a sour smell when breaking the bean.
8) Fragmented beans.
9) Bean shells and/or hollow beans.
10) Foreign matter.

II) Final Quality Classification.

STEP 5: The final quality classification must be assigned according to the criteria. Parchment classified as Class I or II during initial quality classification should be downgraded in class according to good bean percentages.

- **CLASS I: Very Good Parchment**

1) Must possess **all** the Class I odor and appearance characteristics.
2) Hulled samples must contain 90 percent or more good beans.
3) Beans should have a clean "center cut" and white silver skin.
4) Beans should have a uniform dark green (or emerald) color.

- **CLASS II: Average Quality Parchment**

1) Must possess **all** Class II odor and appearance characteristics.
2) Hulled sample must contain between 60 - 89 percent good beans.
3) Beans should have a clear "center cut" and white silver skin.
4) Beans should have a uniform dark green (or emerald) color .

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false readings.

- **CLASS III: Poor Quality Parchment**

  1) Possesses **any** of the Class III odor and appearance characteristics.
  2) Hulled samples contain less than 60 percent good beans.

III) After Acceptance

STEP 6: Societies should re-bag farmers' parchment, taking care not to mix the different classes. Each bag should be carefully marked as Class I, II or III. Unions should place tags designating classes in each bag.

STEP 7: Parchment bags must be weighed. Weighing should take place in the presence of farmers at the society level, and in the presence of the society manager at the union level.

STEP 8: Societies (unions) must fill a produce receipt form which clearly shows the class, good bean percentage, and green bean equivalent weight of each farmer's (society's) parchment.

STEP 9: The tops of coffee bags should be sewn so that tags denoting quality class are clearly visible. Each class of coffee should be stored separately.

Additional responsibilities:

- Societies must informing farmers when they will be paid.
- Societies must arrange for parchment to be transported to unions, and deliver Class I and II coffee before Class III coffee. Societies are responsible for transportation costs.
- Union and society managers should meet to arrange deliveries and schedule union weigh-ins.

IV: Parchment Acceptance Rules

Acceptance rules required that each farmer to deliver his parchment to the society in which he agreed to be a member, and each society to its deliver parchment to the union with which it is affiliated, in any given year. This requirement was necessary for procuring crop financing arrangements and because cooperatives' budgeted per-kilo costs were calculated from tonnage estimates. Farmers and societies were free to seek alternative market outlets between seasons.

Acceptance rules stated that society managers or storekeepers should be present 'as

much as possible" during classification and weighing by weighing delegates to ensure that procedures were followed. In societies which served a large geographical area, society managers were required to observe weighing delegates in the field at least once a week during the buying season. The rules assigned responsibility for society managers to train weighing delegates prior to each coffee season.

Finally, the acceptance procedures contained rules to arbitrate disputes. At the society level, a farmer who disagreed with the weighing delegate's quality evaluation could request that the society storekeeper or manager re-classify his coffee. If the farmer continued to disagree, he was allowed to sell his parchment elsewhere, provided he was free of all financial obligations to the society. Similar rules were applied at the union level. A society manger could appeal the quality evaluations of the union weighing delegates, and have either the union storekeeper or manager re-evaluate parchment quality. However, their re-evaluation was binding.

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