

## **Imperfections in Membership Based Organizations for the Poor: An Explanation for the Dismal Performance of Kenya's Coffee Cooperatives**

by Andrew G. Mude

### **INSTITUTIONAL CHANGES IMPACTING THE SMALLHOLDER COFFEE SUB-SECTOR**

Promoting the capacity of the poor to mobilize and organize for collective action is increasingly championed as a mechanism to empower the poor and to provide them with a forum that can effectively articulate their needs and amplify their ability to leverage resources for their benefit. The increasing attention paid to the catalytic role that membership based organizations can play in improving the welfare of the poor is a natural and complementary extension to the recent emphasis on the decentralization of development services and resource allocation and of social capital as a key development asset for rural, traditional economies.

While a consensus exists that empowering the poor to take a proactive and central role in their development should be a central pillar of development efforts, it is not as clear that membership based organizations of the poor are always the most effective means to achieving such ends nor that they necessarily contribute to improving the welfare of their members. Numerous studies have documented cases in which collective organizations with a development mandate have failed to meet their stated objectives and at times even left members worse off than they previously were. Drawing from such experiences, a nascent literature now studies how the very act of creating a membership based organization can give rise to incentives that work against the original intended goals of the organization.

This paper looks into this issue from the perspective of the smallholder coffee sub-sector in Kenya. Small-scale production systems dominate Kenyan agriculture, accounting for approximately 60 percent of marketed output. The coffee sector is particularly affected by small-scale production with over 75 percent of the land under production controlled by smallholder farmers. This occurs

despite the large fixed costs involved in the processing and marketing of coffee, which result in scale economies favoring estate farmers. The additional hindrance of inadequate transportation, communication, and banking infrastructure contributes to the significant barriers that face smallholder growers vis-à-vis competitive participation in the market. Consequently, the smallholder coffee grower in Kenya has traditionally been organized into cooperatives as a means of reducing transactions costs and improving access to productive inputs, credit, and extension advice.

Before the advent of structural reform efforts in the nineties, coffee was Kenya's top foreign exchange earner. At that time the government played a key role in regulating the activities of the nation's cooperatives. Liberalization brought with it a withdrawal of government involvement in cooperatives and after a series of reforms which culminated in the new Cooperatives Act of 1998, the government no longer had any policy making jurisdiction over the economic activities of cooperatives. Grower-members now fully own and manage their cooperatives. Concurrently, payments made to coffee growers plummeted and the coffee smallholder industry found itself mired in increasing levels of corruption, political opportunism and gross mismanagement.

This study investigates the relationship between the institutional reforms in cooperative organization and the crippling of the smallholder coffee sub-sector. The analysis identifies that portion of measurable farm-level inefficiency that appears attributable to problems in coffee cooperative performance and thus the welfare losses to members due to cooperative mismanagement. The study focuses on coffee cooperatives in Murang'a District in central Kenya, a high potential agricultural area with good soils and favorable rainfall. Nine of 19 active coffee cooperatives in the District were

sampled so as to achieve the greatest variation in size, spatial coverage of Murang'a, and subjective performance based in part on recent prices offered to members for their output. In addition to qualitative and quantitative data gathered at institutional level, farm level surveys were conducted among a randomly chosen set of growers from each cooperative.

The analysis employs two approaches. First, drawing on certain specific features of coffee cooperatives and the socio-political context underlying the sub-sector, a mathematical model is constructed to show how membership owned and governed organizations can easily fall prey to a rent-seeking leadership that negatively impacts the aggregate welfare of the membership. Then, using the data collected, a series of empirical tests examine the extent of cooperative inefficiency and the impact it has on the productive efficiency of growers.

#### **HIGHLIGHTING VULNERABILITIES IN INSTITUTIONAL DESIGN**

Attributes of the institutional environment in which cooperatives operate can be shown to be favorable to rent-seeking hopefuls under a membership owned and run structure. Virtually all cooperatives conduct their elections in the traditional fashion of *mlolongo*. *Mlolongo*, literally translated as "line-up", describes the method of having voters line up behind their preferred candidate, with the one having the longest line the winner. This voting method facilitates vote-buying by offering a rent-seeking candidate a free and perfect mechanism for enforcing votes bought or bullied by the candidate.

Another feature of the coffee cooperative system in Kenya that arguably generates opportunity for corruption is the law that requires all coffee growers with less than five acres of land under coffee to market their output solely through cooperatives. This in effect grants cooperatives monopoly protection and shields them from potential competition. Even those who rightfully laud the importance of collective organization as a means for otherwise fragmented producers to tap the benefits of scale in a market that favors estate production cannot make a sound case for protection on these grounds. The logic of organizing to attain an input/output mix that rests on the bottom of the long run average cost curve for the market assumes a competitive market that requires collective cooperation for small producers who intend to be competitive. Protecting such organizations from competition exempts them from being efficient as there are no longer constraints that force them to maximize the benefits to cooperation. The very motivation for organization, to attain optimal scale, thereby loses its meaning.

The paper summarized in this brief builds a mathematical model of candidate and cooperative member behavior similar to that observed in actual coffee cooperatives. It is shown in a framework similar to the organizational structure of these cooperatives that where managers are chosen from the membership and where no regulatory oversight exists to curb election fraud or the embezzlement of collective profits, leadership positions are prone to capture by corrupt individuals who have a greater incentive to win elections than benevolent candidates. Our results hold largely due to an assumption that candidates can expect that individuals they bribe will honor their pledge to vote for them. This assumption draws its validity from the *mlolongo* voting system employed by the cooperatives, which enables corrupt candidates to verify whether or not bribed voters renege on their pledge. Furthermore, the ease of election-capture and the magnitude of this consequence vis-à-vis member's welfare can be linked to the law that requires smallholder growers to market their coffee exclusively through cooperatives. These key institutional design features of the coffee cooperative sector – legal monopsony over small growers and the *mlolongo* voting system – effectively undercut the purported benefits of membership based organizations for poor farmers in this region.

#### **THE EXTENT OF INEFFICIENCY AND ITS SOURCES**

Capturing the effects of corrupt leadership on cooperative effectiveness and on grower's productivity is not a straightforward task. It is clearly not in the interest of such a leadership to provide information that may implicate them in wrongdoing. Nevertheless, in three separate but related empirical tests, the author manages to construct a suitable proxy for management competency and to demonstrate that inefficiency and corruption at the cooperative level has a negative impact on the productive efficiency of its members.

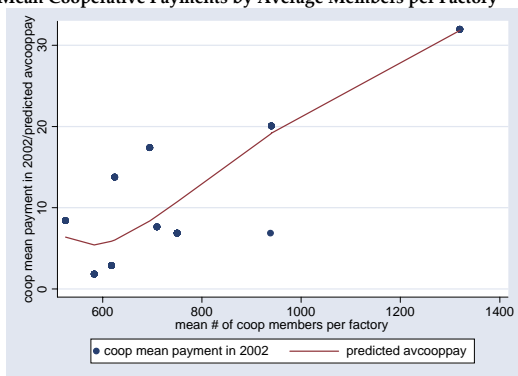
First, grower-specific technical efficiency in coffee production was estimated econometrically using a stochastic production frontier model to test the efficiency with which farmers use the inputs available to them to achieve the greatest possible coffee yield. The total acreage of land available to the grower, the acreage under coffee, the amount of both household and hired labor used in coffee production, the age of the coffee trees, the use of chemical fertilizers and the estimated pre-harvest loss – attributed mainly to diseases – were all significantly related to the observed cherry coffee yield.

The use of chemical fertilizers, which has dramatically decreased in the recent past as most cooperatives became too heavily indebted to provide input supply to members, was shown to boost yields significantly. A quadratic relationship between the

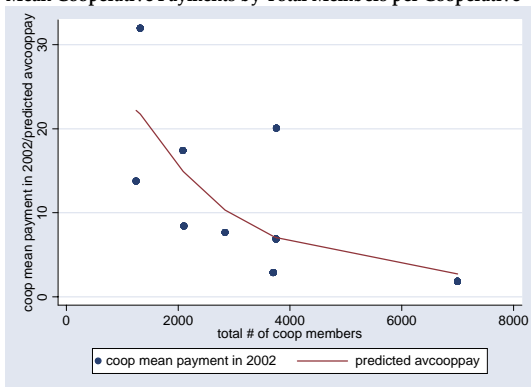
age of the coffee tree indicates that after reaching maturity at a certain age, the productive capacity of a coffee tree steadily declines. While this is expected of the physiological process, it is interesting to note that despite this fact, the uprooting of coffee trees was not outlawed until 2002. Furthermore, there is no mechanism within cooperatives that attempts to correct for this by initiating a scheme to facilitate smallholder farmers' replacement of old trees with new ones.

The next step was to identify the determinants of payments made by cooperatives to growers. The total payment per kilo of cherry delivered for the 2002-2003 coffee season was regressed on a set of covariates to control for the size of the cooperative, cooperative-level mean yields, the quality of coffee produced, and intra-cooperative variation in factory payments, among other factors. Cooperatives with more members are associated with higher payments as are cooperatives with fewer factories. As having more factories is positively correlated with more members, this result indicates that cooperative effectiveness is positively related to the average number of members per factory and not, as the widespread view holds, to the total number of members in the cooperative itself. The two scatter plots below offer a visual presentation of the aforementioned results.

**Mean Cooperative Payments by Average Members per Factory**



**Mean Cooperative Payments by Total Members per Cooperative**



The quality of coffee produced and the average yield achieved by members also have a significant and positive effect on per kilogram payments. A one kilo per tree increase in yield is correlated with an increase in payments of Ksh 6.85 - a significant amount given a sample average payment of Ksh 10.05. When one takes into account the extremely poor mean yields presently realized, and thus the potential for a large improvement in future yields, this translates into a significant increase in the payments growers could earn.

The third part of the empirical investigation uses variables constructed from the two previous tests to examine the relationship between cooperative level mismanagement and farm-level productive efficiency. Having controlled for most sources of payment variation, a large component of the resulting error term from the payment regression is taken as a proxy for management competency across cooperatives. A dichotomous variable was then constructed that categorizes as relatively effective those cooperatives whose actual payments exceeded the predicted payments. Cooperatives which had actual payments falling short of predicted payments were classified as mismanaged. The estimates of productive efficiency were then regressed on a set of covariates, including the constructed management competency dummy, to determine the sources of inefficiency.

As expected, a positive and significant relationship exists between members of cooperatives that are better managed and their level of technical efficiency. Other significant determinants of technical efficiency included access to extension services, with growers who had been visited by an extension agent at least once in the past two years being more efficient. The fraction of the total payment given as an advance at the beginning of the season also had a positive effect of technical efficiency. This points to the crucial importance of providing smallholders farmers, who are often cash constrained and have limited access to credit, with some form of advance payment on their output in order to facilitate the purchase of critical inputs, such as chemical fertilizer and hired labor. Though coffee cooperatives traditionally provided such a service in the form of Coffee Advance Payment Schemes (CAPS), the cooperatives' present state of indebtedness severely limits their capacity to do so.

**SUMMARY AND POLICY IMPLICATIONS**

This paper studies the consequence of the changes in the laws governing cooperatives that effectively shifted all the managerial and administrative responsibility of running a cooperative to its members. For almost a decade now, the smallholder coffee sub-sector, organized into cooperatives, has witnessed a significant

deterioration in several key indicators. Both yields and total output have declined, payments to farmers have plummeted, and the relative price of Kenya coffee in the world market has declined compared to the average price of Colombian Milds - the type of coffee mainly grown in Kenya.

The study reveals that a portion of the decline in cooperative performance can be attributed to the gross level of mismanagement prevalent in cooperatives. Indeed, evidence exists of a vicious cycle that threatens to lock coffee cooperatives in this state of ineffectiveness. It is shown that lower yields result in reduced payments. In turn, lower payments by inefficient cooperatives negatively impacts grower technical efficiency, causing lower yields. A vicious cycle ensues.

These findings yield several policy implications. First, efforts need to be taken to ensure that politically savvy and self-interested individuals do not continue to manipulate the process of electing board members. A feasible step toward this end would be to require that elections are carried out by secret-ballot in the presence of objective cooperative elections supervisors. Second, in order to pressure cooperatives to operate efficiently and to provide growers with alternative options should cooperatives continue to stagnate, growers should be allowed to sell their output to the highest bidder. The current circumstance of coffee cooperatives presents a golden opportunity to make this shift into competitiveness, as the main justification for voluntary membership no longer applies. When cooperatives used to provide their growers with credit, fertilizers, pesticides, extension advice etc., requiring growers to sell their output to their respective cooperatives was simply a way to ensure repayment of services the cooperative provided. As cooperatives today rarely provide these services, this argument is moot. Increased competitiveness would require the insurance of a legal system that can formally enforce contracts. Putting such a regulatory mechanism in place would yield significant externalities beyond the coffee smallholder sub-sector.

Beyond changes in the institutional apparatus of cooperatives, the study confirms the significant and positive impact that the provision of fertilizers, pesticides, and extension services has on coffee yields. Given the extremely low fertilizer and pesticide application rates evident in the sub-sector, and a weak extension system, mechanisms designed to boost the use of these inputs could have a large, favorable impact on yields. This could help jump-start the ailing sub-sector, given that farmer payments increase with yields and growers respond to higher payments with greater investment in coffee production and higher yields.

## ABOUT THE AUTHOR

Andrew G. Mude is a Ph.D. candidate in Economics at Cornell University. This brief is based on his paper "Imperfections in Membership Based Organizations of the Poor: An Explanation for the Dismal Performance of Kenya's Coffee Cooperatives."

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