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Returns to Scope? Smallholders commercialization through multipurpose cooperatives in Ethiopia

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This paper addresses the extent to which the scope of the smallholder cooperatives' activities may affect their performance in commercializing their members' surplus output. The paper uses a simple analytical framework to show that under specific conditions, a cooperative's engagement in non-commercialization-related services may disrupt its membership structure and affect its commercialization performance. The model's predictions are supported by recently-collected data on 176 smallholder grain marketing cooperatives in Ethiopia.

1. Introduction.

Over the recent years, several studies have emphasized the importance that smallholder agriculture can play to reduce poverty in developing countries (Hazell et al., 2007, World Bank, 2008). However, although often more efficient in production, smallholders tend to face comparative disadvantage when it comes to market their output (Poulton, Dorward and Kydd, 2005). The reason is often that smaller farmers face disproportionately high transaction costs, in particular when these costs are invariant with the quantities commercialized (De Janvry et al. 1991, Goetz, 1992, Key et al. 2000). In return, lack of commercialization may lead to low specialization, low productivity and hence lower income (Timmer, 1997).

These constraints are particularly severe in many African countries where the structural plans of the 1980's have led to the rapid withdrawal of the state from its productive functions in rural areas. It was then expected that the private sector would quickly replace the highly inefficient parastatal and government controlled cooperatives, to provide farmers with the necessary input and commercialization services. However, with the exception of a few cash crop sub-sector (Jayne and Jones, 1997, Piesse et al. 2005), such implication of the private sector did not occur (Dorward et al. 2004, World Bank, 2008). Instead, new member-controlled organizations have flourished in many countries with the purpose of fulfilling farmers' needs when both the state and the markets failed (Uphoff, 1993, Berdegue, 2001, Mercoiret et al, 2006, Mercoiret and Mfou'ou 2005, Bernard et al., 2007). Eventually, policy makers have come to re-consider collective action mechanisms to promote rural development, making farmers organizations key partners for the design and implementation of agricultural policies (Collion and Rondot, 2001, World Bank, 2003).

These organizations strongly differ from their predecessors in several ways. They are member staffed and controlled as opposed to being state instruments to organize economic policies. They are service organizations as opposed to the collective production models that proved unsustainable in most settings (Deininger, 1995). Finally, these organizations are often multipurpose in the service they offer, ranging from marketing activities for members to public goods for the entire

community they belong to.¹ This orientation is often driven by forces external to the organization, ranging from the buying of the organization's local legitimacy in the face of community pressures to remain economically equal (Bernard, de Janvry and Sadoulet, 2006), to partners' pressures (Chirwa et al., 2005). As highlighted in several case studies (e.g. Chirwa et al., 2005, Stringfellow et al. 1997, Delion, 2000, Coulter et al., 1999) this broad scope of activities may sometimes however come at the expense of economic performance. This may be particularly the case when the scope of activities extend beyond those that are complementary in their provision or their benefits (Lele, 1981, Collion and Rondot, 2001). Reasons commonly cited often have to do with the burdening of managers induced by such wide array of activities. This paper investigates another channel linking scope of activities to economic performance, via its effects on membership structure. Our discussion relies on the example of grain marketing cooperatives in rural Ethiopia.

Over the recent years, cooperative (re)development has become a central thrust in the Federal Government's agricultural development strategy. The main objective is to enhance farmers' capacities to commercialize their produce, further leading to increased agricultural productivity and rural households' income. However, cooperatives are also expected to engage in a broad range of activities, ranging from input provision to HIV prevention and literacy trainings.

Using recently collected dataset on 176 marketing cooperatives, we first derive a series of regularities linking cooperatives marketing performance, members motivation, and activity portfolio. Our results show that while 71% of the marketing cooperatives are also engaged in providing social services to their members, more than 40% of them had not sold any of their members product in the 12 months before the survey. Further, we find that members' prime motivation to participate is not necessarily linked to the marketing services provided by the organization. One way to explain these results is that marketing cooperatives perform poorly because they are in fact composed of members more interested by the other services provided by the organization they belong to.

This hypothesis is further illustrated in a simple analytical framework linking the multipurpose character of the organization to potential members with different sets of interests. The results indicate that under heterogeneous membership, providing an additional non-commercialization-related service to members, will contribute to increase the coordination costs within the cooperative without increasing the commercialization performance of the organization. For members only interested in the commercialization services, these additional costs may be discouraging leading to their departure from the organization, thereby decreasing further the marketing performance of the organization. The model's predictions are then tested on the data and support the above hypothesis across several specifications.

The remainder of the paper is organized as follows. In Section 2 we first introduce the evolution of cooperatives in Ethiopia over the past decades. We then present a number of regularities observed in these cooperatives and use them to construct an argument explaining their activity portfolio and their marketing performance. We model in Section 3 members participation to multipurpose cooperatives. Section 4 presents the data used to test the model's predictions. The empirical equations are specified and estimated in section 5. Section 6 concludes with a discussion of policy implications.

¹ For instance, Bernard et al. (2007) find that 56% of the organization involved in market-oriented services for their members were also engaged in the provision of local public goods. Similar estimates reach 69% in Burkina Faso.

2. Commercialization performance of Ethiopian cooperatives: towards a hypothesis.

Cooperatives have a long and tumultuous history in Ethiopia. Under the military regime in particular (1974-1991) cooperatives were used to organize peasants, monitor agricultural prices, levy taxes, extend government control at the local level, and promote socialist ideology through forced participation. Soon, farmers came to view these cooperatives as synonymous with government oppression. The system collapsed immediately after the government overthrow in 1991.

Since 1994, the Federal Government of Ethiopia has expressed renewed interest in cooperative development to support smallholder's participation to market (Proclamations 85/1994 and 147/1998). This was later re-affirmed in the Sustainable Development and Poverty Reduction Program (SDPRP, 2002) and the Plan for Accelerated and Sustained Development to End Poverty (PASDEP, 2005), in which cooperatives are given a central role in the country's rural development strategy. The objective by 2010 is for cooperatives to provide marketing services to 70% of the rural population.

Up to now, this renewal of cooperatives has generated contrasted results. Using nationally representative data, Bernard et al. (2007) show that despite their rapid spread since 1994, cooperatives tend to be located in areas with already better access to markets and lower exposure to price and environmental risks. Overall, only 9% of the farmers are cooperative members, with poorer households less likely to participate.

Part of this low incidence seems driven by people's poor assessment of cooperatives' capacities in providing marketing services. For instance, 42% of non-members with access to a cooperative in their kebele² indicate that they do not participate because they felt the organization is not effective.³ Among the members, although 82% are satisfied with their participation in the organization, it is not necessarily related to the marketing services they offer: for only 40% of the members, the main benefits they have derived from the cooperative are linked to the commercialization of their output. In addition, 60% of the members do not feel obligated to sell their product through the cooperative, among which 71% have sold none of their past season production to the cooperative and only 14% have sold all of it.⁴ A possible conclusion is that the marketing functions of the cooperatives are not the primary attraction for the members.

This contrasts with the findings of Bernard et al. (2007), who show that when they do provide marketing services, cooperatives perform relatively well, obtaining prices for their members' produce which are on average 7% higher than what they would have obtained by themselves. However, only 59% of the cooperatives which declare being engaged in the marketing of members' product had actually performed such activities over the year 2005. At the same time, most of them declared being engaged in other types of activities, ranging from input provision (84%), credit (54%), agricultural extension (23%), price information (71%), processing of agricultural products (19%), consumption services (62%), literacy trainings (12%), HIV prevention (23%), and provision of public infrastructures (15%).^{5,6} Although it is clear that some of these services may be complementary to the commercialization activities of the cooperative,

² In Ethiopia, *kebeles* or peasant associations (PAs) are the smallest administrative unit below the *woreda* (district) level. For purposes of comparison, *kebeles* correspond to villages in other countries.

³ Source: Authors' calculation from the household module of IFPRI (2006) Cooperative survey.

⁴ Source: Authors' calculation from IFPRI-EDRI-CSA (2005) Smallholder Commercialization survey.

⁵ Source: Authors' calculation from the cooperative module of IFPRI (2006) Cooperative survey.

⁶ The provision of these services (including HIV prevention and literacy trainings) is in line with the Five Year Plan (2005-2010) of the Federal Cooperative Commission.

others appear quite remote from it. Such is the case for social services such as consumption, literacy trainings, HIV prevention or public infrastructure. Overall, 74% of the marketing cooperatives have engaged in at least one such social service. Interestingly, the average membership size in these organizations is nearly twice as large as in the more specialized organizations. The average per-member landholding is however 25% larger in the latter ones.

Based on these descriptive statistics we propose the following explanation for the 41% of marketing cooperatives that did not provide such services to their members in 2005. By proposing a large range of services that do not complement marketing activities, they may have evicted members originally interested in the marketing services, to the benefit of members more attracted by the social activities. In the end, the “marketing cooperative” is one composed of individuals who would rather not sell their output via the cooperative. In the next section, we develop a simple analytical framework to further illustrate this argument.

3. Understanding the marketing performance of cooperatives: a simple conceptual framework.

In this section we present a model linking a cooperative’s marketing performances, to the scope of the activities it offers and the resulting incidence on farmers’ participation to the organization. Several studies have argued that by broadening their portfolio of activities, cooperatives often jeopardize their capacities to fulfill their initial purposes, in particular when these activities are far fetched from each other (Lele (1981), Collion and Rondot (2001)). Two main explanations are generally found. First, for a given size of the organization, engaging in new activities leads to more management difficulties which may negatively affect the quality of the service initially provided (Stringfellow et al. (1997)). Second, for cooperatives specialized in a given activity, an increase in membership can lead to increased coordination costs between members, offsetting the benefits linked to economies of scale (Stockbridge et al. (2003)). The present model attempts to link these two lines of arguments using a framework adapted from Choi, E. Kwan, and E. Feinerman (1993).⁷

Consider a locality with two types of individuals : ($i=1, 2$), poor and non-poor, for instance. In terms of commercialization, all households are characterized by a reservation profit, π_0^i which is their maximal profit obtained from selling their agricultural surplus, when not participating to the cooperative – π_0^i is null if the household is autarkic. π_0^i is therefore defined as :

$$\pi_0^i = (p_q - TC^i)q^i(v^{i*}) - p_v v^{i*}$$

where p_v is the price of inputs, v^{i*} is the optimal quantity of inputs bought by the household, and p_q stand for the price of q – the amount of output the household sells.

The cooperative provides two types of services to its members. First, it serves as a marketing outlet to its members. As such it collects produce from members and delivers it to buyers downstream in the chain. This service is likely to reduce transactions costs (through scale) and higher selling prices (as a consequence of superior bargaining strength). The said benefits are

⁷ Refers to: Choi, E. Kwan, and E. Feinerman (1993). “Producer Cooperatives, Input Pricing and Land Allocation,” *Journal of Agricultural Economics*, 44, 2, 230-244.

assumed to work only through transactions costs for simplicity. The total amount marketed is denoted by M . In line with the literature on smallholders' commercialization (e.g. de Janvry, et al. 1991; Goetz 1992; Key, et al. 2000), we further assume that the greater the service, the lower the transaction costs: $TC^C = TC(M)$, $TC' < 0$.

Second, the cooperative provides another service, E , which we consider not related to agriculture marketing (such as craft training, or literacy classes etc.). The introduction of multiple objectives in the cooperative may be motivated by the desire to make it more attractive to farmers. Not all households value these extra benefits however. Let α_1^i and α_2^i be preference weights that the household attaches to profits from commercialization and to E . Being weights α_1^i and α_2^i are assumed to sum to 1. For simplicity, we assume that only type-2 individuals are interested in the second services offered by the cooperative, such that $\alpha_1^1 = 1$ and $\alpha_2^1 = 0$.

Finally, participation in the cooperative is assumed opened to anybody living in the locality, as long as he/she is able to pay the membership fee t constant across members. An individual's maximum benefit from participating in the cooperative, B^{i*} , can therefore be written as follows:

$$B^{i*} = \alpha_1^i (p_q - TC^C) q^1(v^{i*}) - p_v v^{i*} + \alpha_2^i E - t$$

His/her decision to join the cooperative is then given by the comparison of the benefits he/she can obtain through membership, to his/her reservation profit.

That only type-2 individuals are interested in E implies that type-1 member households can be viewed as profit maximisers, i.e., $B^1 = \pi^1$. These individuals will only participate into the cooperative if the benefits obtained from participating exceed their reservation profit':

$$\pi_c^1((p_q - TC^C(M)), p_v; t) - \pi_0^{1*} \geq 0$$

The cooperative's problem can be stated as that of maximising the benefits of type-2 members subject to the incentive compatibility constraint corresponding to type-1 households.⁸ The cooperative should also satisfy a no loss constraint according to which the sum of the membership fee collected should cover the coordination costs linked to both the size of the cooperative, and the overall scope of these activities altogether.

$$\begin{aligned} & \underset{M, E, t}{\text{Maximize}} \alpha_1^2 ((p_q - TC^C(M)) q^2(v^2) - p_v v^2 - t) + \alpha_2^2 E \\ & \text{s.t. } \pi_c^1((p_q - TC^C(M)), p_v; t) - \pi_0^{1*} = 0 \\ & \text{and } nt - C(M, E) = 0 \end{aligned}$$

The corresponding Lagrangian function is given by:

⁸ Alternatively, the cooperative problem could be to maximize the benefits of type 1, subject to the incentive compatibility constraint of type 2 members. The results are however very similar.

$$\ell = (\alpha_1^2 \pi^2 + \alpha_2^2 E) + \lambda_1 (\pi^1 - \pi_0^1) + \lambda_2 (nt - C(M, E))$$

After substituting for π^1 and π^2 , The first order conditions with interior solutions are given by:

$$\begin{aligned} (1) \quad \frac{\partial \ell}{\partial M} &= -(\alpha_1^2 q^2 + \lambda_1 q^1) \frac{\partial TC^C}{\partial M} - \lambda_2 \frac{\partial C(M, E)}{\partial M} = 0 \\ (2) \quad \frac{\partial \ell}{\partial E} &= \alpha_2^2 - \lambda_2 \frac{\partial C(M, E)}{\partial E} = 0 \\ (3) \quad \frac{\partial \ell}{\partial t} &= -\alpha_1^2 - \lambda_1 - \lambda_2 n = 0 \end{aligned}$$

The cooperative starts by deciding on the level of marketing services it wants to provide. Starting condition (1) for M , and substituting for λ_2 from condition (3), we obtain:

$$-(\alpha_1^2 q^2 + \lambda_1 q^1) \frac{\partial TC^C}{\partial M} - \frac{(\alpha_1^2 + \lambda_1)}{n} \frac{\partial C(M, E)}{\partial M} = 0$$

such that the level of M is implicitly given by:

$$-\frac{n}{(\alpha_1^2 + \lambda_1)} (\alpha_1^2 q^2 + \lambda_1 q^1) \frac{\partial TC^C}{\partial M} = \frac{\partial C(M, E)}{\partial M}$$

PROPOSITION 1: the cooperative expands its marketing services up to the point at which the reduction in transactions costs is matched by the rise in coordination costs.

We are now interested in investigating how an increase in the scope of the cooperative activities may influence its commercialization performance. One way to look at this, is therefore to look at the variations in the choice of M , when E is included or not. By comparing the first order condition on M , in these two situations, we obtain the following expression:

$$\left(\frac{\partial TC^C}{\partial M} \Big|^{M,E} / \frac{\partial TC^C}{\partial M} \Big|^{M} \right) = \frac{(q^2 + \lambda_1 q^1)}{(\alpha_1^2 q^2 + \lambda_1 q^1)} \left(\frac{\partial C(M, E)}{\partial M} / \frac{\partial C(M)}{\partial M} \right)$$

We note that coordination costs are likely to increase with the number of distinct services that the coop is expected to provide. In addition α_1^2 is strictly less than 1 by definition (otherwise type-2 households would not demand any E). It follows that the term on the right-hand-side of the equation is greater than 1. As a consequence:

$$\frac{\partial TC^C}{\partial M} \Big|^{M,E} > \frac{\partial TC^C}{\partial M} \Big|^{M}$$

The marginal transaction cost is higher when E is provided than not.⁹ This means that, compared to the case where M is the only service the coop provides, M is smaller when E is also offered by the cooperative.

PROPOSITION 2: By enlarging the scope of their activities, cooperatives negatively affect their marketing performance.

We also note that the larger the α_2^2 (the lower the α_1^2) the larger the reduction in the cooperative's marketing performance. With $\alpha_1^1 = 1$, larger α_2^2 translates into greater heterogeneity of preferences within the cooperative.

PROPOSITION 3: The larger the heterogeneity in the cooperative, the more the introduction of a new set of unrelated activities may affect the marketing performance of the organization.

These results may be compared to another scenario whereby the additional benefits offered by the cooperative are in fact closely related to marketing, such as for instance the provision of inputs. The gain, in this regard, may occur as greater access and/or lower prices. The cooperative has to determine the price (p_v) at which the input is sold to its members. Note that because there is now only one type of benefits (profits), the preference weights do not apply. In this case, the problem of the cooperative can be stated as follows:

$$\begin{aligned} & \underset{M, p_v, t}{\text{Maximize}} \quad (p_q - TC^C(M))q^2(v^2) - p_v v^2 - t \\ & \text{s.t.} \quad \pi_C^1(p_q - TC^C(M), p_v; t) - \pi_0^{1*} = 0 \\ & \text{and} \quad nt + (n^1 v^1 + n^1 v^1)p_v - C(M, V) = 0 \end{aligned}$$

Following the same step as above, and assuming marginal cost pricing for the input v , we obtain the following expression:

$$\left(\frac{\partial TC^C}{\partial M} \Big|^{M,E} / \frac{\partial TC^C}{\partial M} \Big|^M \right) = \left(\frac{\partial C(M, E)}{\partial M} / \frac{\partial C(M)}{\partial M} \right)$$

The eventual diminishing marketing performance of the cooperative is now only linked to the increase in the scope of the organization, without changes in members composition. Eventually, if the price offered by the cooperative leads to enhance input used and more produce marketed, the overall net effect on commercialization may be positive.

PROPOSITION 4: New activities may not necessarily lower marketing performance in the case of services closely related to the commercialization purpose of the organization.

These results are in line with the descriptive statistics proposed in the previous section. In essence, they indicate that under heterogeneous membership, providing an additional non-

⁹ There is no reason to expect the transaction cost function would change because the coop starts to provide an additional and distinct (social) service.

commercialization-related service to members, will contribute to increase the coordination costs without increasing the commercialization performance of the organization. For members only interested in the commercialization services, these additional costs may be discouraging leading to their departure from the organization, thereby decreasing M and hence the marketing performance of the organization.

4. Data and measures

The main data used in this paper come from a survey of 205 cooperatives conducted by IFPRI throughout Ethiopia during the summer 2006. The sample design included four regional strata (Amhara, Oromia, SNNP and Tigray). In each strata, 15 woredas were randomly selected, within which a maximum of four agriculture-related cooperatives were randomly selected from the lists available at the woreda cooperative office. Of the 205 cooperatives surveyed, 172 (84%) declared being engaged in the marketing of their members' production. This is the sample used in the following sections. For each cooperative questions about the organization's history, membership, activities (including marketing), governance structure, and external links were asked. Secondary data on the cooperatives' finances and assets were also gathered from the woreda cooperative office which is meant to perform yearly financial audits of each cooperative within the woreda.

Table 1 describes some of the information collected to characterize cooperatives, their performance and their activities. We find that cooperatives are rather large, with an average of close to 1000 members although with considerable variation in the sample (from 21 to 3664 members). Land cultivated per member averages 1.75 hectares, supporting the idea that cooperatives support smallholders, although not necessarily the smallest ones (the average landholding in Ethiopia is 0.8 hectares (CSA-EDRI-IFPRI, 2006). In the following section, we use the cooperative level aggregate landholding, Q , as a proxy for the potential produce to be commercialized.

Most of the cooperatives have been created (or re-established) within the past 10 years, in response to the Ethiopian Government promotion of these organizations, as described in Section 2. This is further supported by the fact that 59% of the cooperatives have received significant help from external partners at the time of their (re)establishment. In 80% of the cases, this help came from the government.

The second panel of the table describes the relatively poor commercialization performance of these marketing cooperatives. As mentioned in section 2 only 59% of the cooperatives which declare being engaged into marketing their members' produce have actually performed such activity over the course of the past twelve months. For the ones who did, the average value sold per member was 1116 Birr, and the median 73 Birr (less than \$10). Often however, this last measure did not exist within the cooperative registries, and was therefore collected from estimates by the woreda-level cooperative office, resulting in potentially large biases. For this reason, in the following estimations we restrict ourselves to the binary performance indicator: "the cooperative has provided marketing services to its members over the past twelve months".

Finally, the last panel reports the activities undertaken by the marketing cooperatives. It appears that most organizations are in fact multi-purpose ones: 74% of the marketing cooperatives that are also engaged in providing "social" services to their members.

<< Table 1 about here >>

In the left part of Table 2, we relate the above cooperative characteristics to their activities (only economic versus multipurpose). We find that multipurpose cooperatives have significantly larger number of members but lower average holding than specialized organizations suggesting that multipurpose activities tend to attract more members although with less individual potential for product aggregation. The right part of Table 2 reports the results of similar tests of differences this time between “performing” and “non-performing” cooperatives as measured by their provision of marketing services to their members over the past 12 months. We do not find significant differences in terms of membership, but find that average landholding is greater within performing cooperatives. We also note that multipurpose cooperatives are on average older than their specialized counterparts.

<< Table 2 about here >>

<< Figure 1 about here >>

Finally, the data indicate that 87% of these cooperatives condition membership on the household living in the same *kebele* and 65% impose an age criteria. 57% require that the new member buys a cooperative share and pays for his/her membership fee (averaging 45 Birr and 6 Birr respectively). Interestingly, only 36% select members based on their cultivation of a particular crop, and 8% on their ownership of particular assets (land or livestock). As assumed in the model, these statistics suggest a clear open membership policy from these organizations.

Overall, these results tend to support the basic assumptions of the model above, in that multipurpose cooperatives tend to attract more members which are potentially less interested by the marketing services of the cooperative, as represented in Figure 1. At the same time, we find that better performing marketing cooperatives tend to be the ones with higher average land cultivated. The next section develops a structural approach to further testing the model developed above.

5. Empirical analysis

This section proposes a series of tests for the propositions in the above model. We begin by testing the general underlying model as summarized by Proposition 1. Accordingly, marketing performance responds positively to potential volume traded proxied here by total landholding in the cooperative, but negatively to the number of members which lead to increased coordination costs. As mentioned above, product aggregation is proxied by its potential given by the overall land cultivated by the cooperative members.

Table 3 presents the results of probit estimations regarding whether the cooperative has effectively engaged in marketing its members’ products over the past twelve months. Several specifications are proposed. Column (1) presents the results of the basic model. Results are rather clear, indicating that for a given level of potential volume traded, a one percent increase in the size of the organization typically leads 13 percent less chances that it provides marketing services to its members. On the opposite, a one percent increase in the level of the overall potential volume traded aggregation leads to 15 percent more chances that the organization has performed such activity over the past twelve months. These effects are robust to the introduction, in column (2) of *woreda*-level characteristics controlling for the market opportunities faced by the cooperative. Additional controls are added in column (3) to account for the fact that both age and external partners may well influence membership at the same time of being decisive in terms of marketing performance. We use the cooperative’s partners at the origin of the organization to

avoid two ways relationships with the organization's performance. REWRITE THIS SENTENCE
The results are now slightly lower than the initial ones, but remain with the expected sign and are statistically different from zero.

<< Table 3 about here >>

Another source of bias however may come from the potential reverse causality existing between M and n or Q . For instance, a well performing organization may attract more members than a weakly performing one.¹⁰ As a result, the obtained estimates on the effect of n on M are likely to understate the magnitude of the – negative – relationship. Similar arguments may apply to Q although the sign would then be undetermined. Such biases may be overcome using an external source of variation in both n and Q .

We use the above theory to justify the use of social activities as instruments for the size of the cooperative. Accordingly, the introduction of these activities should to an increase in the size of the membership. However, if poorer households may be more interested by such social services, it follows that the overall product aggregation should however only weakly increase as a result of the introduction of these activities. Assuming that the initiation of these activities is mostly driven by external partners, and that they do not directly influence marketing performance other than through membership, one can use the presence of these activities as a valid instrument for the size of the organization.

Table 4 reports results correlation results between various activities and the size of cooperatives (columns 1 and 2), and with the potential aggregated product as measured by the total land available among cooperative members. Accordingly, the introduction of these activities should lead to an increase in the membership size. However, if poorer households may be more interested in such social services, it follows that the overall product aggregation should only slightly increase as a result of the introduction of these activities.

In columns (1) and (3), we test for the effective significant influence of these activities on the size and product aggregation within the organization. The results indicate that consumption-related services as well as literacy training exert a strong positive influence on the size of the organization. The effect is somewhat lower on the product aggregation. In columns (2) and (4), we assess the robustness of these results by adding a series of additional explanatory variables. In particular, we use the initial size of the organization as a proxy measure for members mostly interested in the marketing services of the organization (by this we assume that social activities came later on in the cooperatives, which is the case for the vast majority of them). The results on social activities are robust across all estimations as well as the coefficients obtained on the initial membership variable. By contrast, the effect of social activities on product aggregation vanishes once one controls for initial product aggregation. In all estimations, partial F-tests indicate the joint significance of the variables to be later used as instruments.

<< Table 4 about here >>

¹⁰ Note however that the majority of the organization (75%) have seen their membership increase since their creation.

Table 5 reports the results of a two-stage least square linear probability model of marketing performance, using estimates in Table 4 to justify the use of social activities as instruments for size and product aggregation. The results suggest that the relationships identified in Table 3 hold once one account for potential sources of endogeneity. In addition, the results tend to be higher in magnitude than those obtained in Table 3, supporting the idea of a reverse causality. Overall, the results suggest that a 1 percent increase in the size of the organization may lead to a 0.5 decrease in the probability that the cooperative provides marketing services to its members. Finally, we use Sargan's (1958) and Basman's (1960) overidentification tests to verify that social activities are in effect not directly correlated with marketing performance. Accordingly, we cannot reject the exogeneity of our instruments at any reasonable confidence level.

<< Table 5 about here >>

6. Conclusions.

Over the past few years, policy makers have displayed a renewed interest in farmers organizations as a means to connect smallholders to markets. In Ethiopia, this has led to a nationwide plan to promote primary cooperatives. As it is the case elsewhere however, cooperatives are being asked to perform various tasks not necessarily related to each other. For instance, the Federal Cooperative Commission's five year plan states that farmers cooperatives shall be involved in the prevention of HIV, as well as in literacy trainings.

Previous papers have discussed the negative impact such enlarged scope of activities can have on managerial performance. In this paper, we have argued that such policy may eventually jeopardize the cooperatives' capacities to perform their marketing services towards their members, through its effect on membership structure. This may explain why more than 41% of the organizations explicitly engaged into marketing services have not performed any such activity in 2005.

We develop a simple model to illustrate our hypothesis. The predictions of which are tested on a newly collected dataset on 205 cooperatives throughout Ethiopia. The results are consistent with the model's prediction and across various specifications, showing that with open membership, externally imposed social activities lead to the entry of new members which may not necessarily contribute to the marketing services of the cooperative, although they contribute to the overall management costs.

Several policy implications can be derived regarding the functioning of farmers organizations. First, and as was clearly proven with cooperatives' experiences until the 1980s, these organizations need to pursue their own agenda and not the agenda of their partner. Second, open membership, although important from an inclusiveness point of view needs to be carefully handled in that it should not jeopardize the capacity of the organization to fulfill its primary objectives. Overall, although strong management skills are often needed in the running of day to day activities, the start of a new activity, especially unrelated to marketing services, should require the approval of all actual members.

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TABLES

Table 1 : Descriptive Statistics on Cooperatives

Variable	Unit / description	Mean	Median	Std. Dev.
<i>Cooperative characteristics</i>				
Membership (n)	Number of members in 2005	942.23	783	773.52
Aggregated product (q_c)	Total number of hectare cultivated by members	1541.45	950	1779.76
Average holding per member	In hectare	1.75	1.52	1.01
Age	Years	8.18	9.00	4.686
Partner at origin	1= received external help at creation	59.30 %		
<i>Marketing performance</i>				
Sold	1= has sold members' product over past 12 months	58.72 %		
Value sold last year	Birr (only for the coops that have sold something)	256,408.00	58,610.00	734,526
Value sold last year, per member	Birr (only for the coops that have sold something)	1116.30	72.69	6,982.90
<i>Activities</i>				
Activities	Total number, including marketing	4.63	5.00	1.65
<i>- Non-marketing activities</i>				
Non-marketing activities	1=involved in at least one non-marketing activity	74.41 %		
Number non-marketing activities	Total number	1.12	1.00	0.95
Consumption services	1=provides this service	62.20 %		
Literacy training	1=provides this service	11.62 %		
HIV prevention training	1=provides this service	23.25 %		
Public infrastructure	1=provides this service	15.11 %		
Any non-marketing activity	1=provides this service	74.41 %		
<i>- Marketing-related activities</i>				
Number Marketing-related activities	Total number, including marketing	3.51	4.00	1.05
Input provision	1=provides this service	83.72 %		
Credit	1=provides this service	54.06 %		
Extension	1=provides this service	23.25 %		
Price information	1=provides this service	70.93 %		
Processing	1=provides this service	19.18 %		

Table 2 : Multipurpose, marketing performances and cooperatives characteristics

	Activities			Has provided marketing services to members over the past 12 months?		
	Only economic	Mixed	Diff: p-value	No	Yes	Diff: p-value
Aggregated product (q_c)	1079.92	1700.10	0.0458 *	872.31	1720.68	0.0142 **
Membership (n)	574.56	1069.61	0.0002 ***	812.56	970.64	0.3002
Average land cultivated per member	2.05	1.65	0.0240 **	1.20	1.90	0.0004 ***
Age	5.77	9.01	0.0001 ***	7.27	8.25	0.5644
Partner at origin	61.36	58.59	0.7487	27.27	67.64	0.0000 ***

Source: Authors' calculation from IFPRI's 2006 Cooperative survey.

Figure 1:

Log (total number of members)

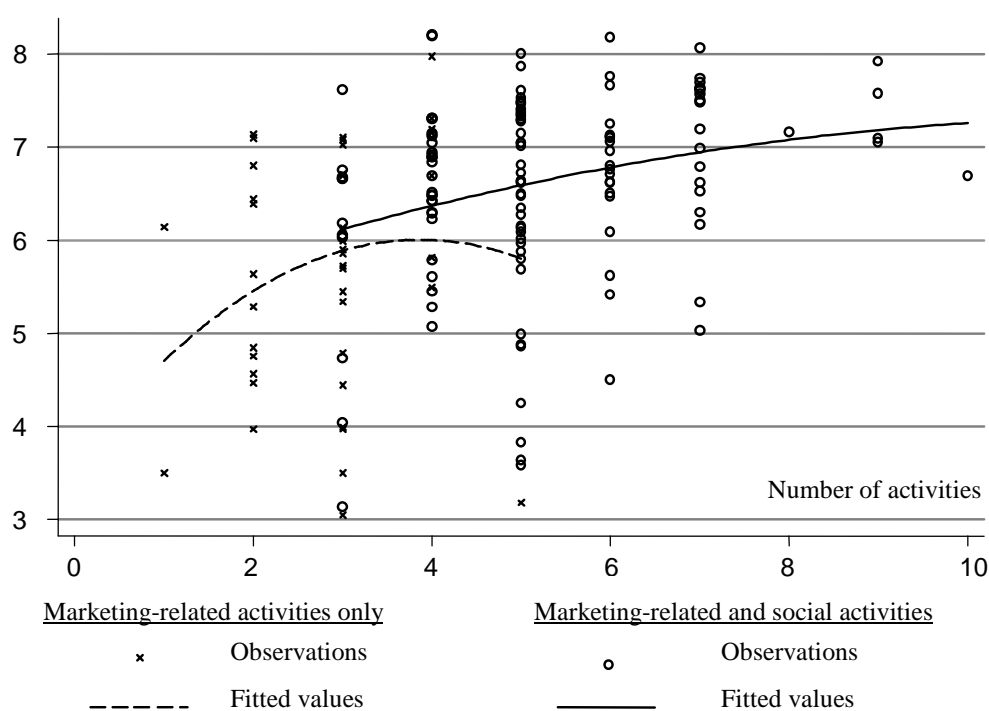


Table 3. Marketing performance of cooperatives.

	Linear probability model					
	(1)		(2)		(3)	
log n	-0.143	*	-0.170	**	-0.132	*
	(0.073)		(0.081)		(0.070)	
log Q	0.164	***	0.180	***	0.137	**
	(0.059)		(0.064)		(0.056)	
Age					0.002	
					(0.009)	
Partner at origin					0.219	
					(0.064)	***
Controls for market access			yes		yes	
Controls for population density			yes		yes	
# obs.	168		162		162	
R-squared	0.07	*	0.11	*	0.18	***

*: signif at 10% level, **: signif. At 5% level, ***: signif at 1% level

Robust standard errors are computed with clustering at the woreda level.

Standard errors in parenthesis

Table 4. Social activities and membership

	log <i>n</i>				Log Q			
	(1)		(2)		(3)		(4)	
Consumption ⁺	0.908		0.407		0.560		0.046	
	(0.210)	***	(0.133)	***	(0.242)	**	(0.174)	
Literacy ⁺	0.759		0.273		0.537		0.118	
	(0.282)	***	(0.163)	*	(0.307)	*	(0.183)	
HIV prevention ⁺	-0.316		0.055		-0.257		0.211	
	(0.254)		(0.110)		(0.309)		(0.141)	
Public infrastructure ⁺	-0.100		-0.277		0.210		0.048	
	(0.275)		(0.233)		(0.338)		(0.277)	
Log Initial membership			0.511					
			(0.085)	***				
Log Initial product aggregation							0.535	
							(0.096)	***
Age			0.040				0.054	
			(0.017)	**			(0.022)	**
Partner at origin			0.204				0.446	
			(0.122)	*			(0.185)	**
Financial help at origin			-0.384				-0.226	
			(0.172)	**			(0.234)	
Controls for market access			yes				yes	
Controls for population density			yes				yes	
Constant	5.821		2.453		6.333		2.759	
	(0.217)	***	(0.477)	***	(0.236)	***	(0.725)	***
Number of observations	171		158		171		158	
R ²	0.19		0.71		0.07		0.46	
F-test on significance of the ⁺ variables	0.0004	***	0.000	***	0.0716		0.0000	***

Note: Robust standard errors are computed with clustering at the woreda level. Standard errors in parenthesis.

*** = Significant at the 1 percent level; ** = 5 percent level; * = at the 10 percent level.

Table 5. Marketing performance of cooperatives, 2SLS

	(1)		(2)	
log membership	-0.589		-0.520	
	(0.206)	***	(0.195)	***
log aggregated product	0.637		0.540	
	(0.221)	***	(0.205)	***
Age			-0.001	
			(0.010)	
Partner at origin			0.112	
			(0.094)	
Financial help at origin			-0.032	
			(0.111)	
Controls for market access			Yes	
Controls for population density			Yes	
# obs.	162		156	
R-squared			0.17	
Sargan test, p-value	0.8417		0.7868	
Basmann test, p-value	0.8481		0.8049	

Note: instrumented: log membership and log aggregated product. Instruments: consumption services, literacy training, HIV prevention, public infrastructure provision, log initial membership. Neither Sargan nor Basmann test are significant such that H0 (no instrument is invalid) cannot be rejected at usual confidence level.

