



Cooperative membership and dairy performance among smallholders in Ethiopia



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ARTICLE INFO

Article history:

Received 29 June 2013

Received in revised form 12 August 2015

Accepted 29 January 2016

Available online 13 February 2016

Keywords:

Cooperatives

Dairy producers

Propensity scores matching

Rural poverty

Technological innovation

Ethiopia

ABSTRACT

This study assesses the impact of cooperative membership among dairy producers in Selale, Ethiopia. We selected ten impact indicators: proportion of dairy income to total household income, total dairy income, proportion of crossbred cows to the total number of cows in the herd (indicator of technological innovation), amount of feed bought (another indicator of technological innovation), milk production, milk productivity, commercialization, price per liter of milk, price per kg of butter and the share of milk production that is processed at the household level. In order to minimize the biases that may arise by simply comparing members and non-members, we employed a propensity score matching technique. The empirical analysis shows that cooperatives are strong in facilitating technological transformations and commercialization but weak in offering better prices. These findings suggest structural trade-offs between different domains of cooperatives' action. Overall, our study concludes that cooperatives can be efficient business institutions to foster rural development and food security.

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Introduction

Increasing population, urbanization, and the rise in consumers' income is expected to increase the demand for milk and milk products in Ethiopia, since they constitute an important part of the Ethiopian diet. Ethiopia has the largest cattle population in Africa and milk production is by far dominated by small-scale landholders. Such conditions create opportunities for achieving a higher level of market integration by small farmers, particularly for serving urban consumers, which could induce significant improvement in rural income. Several governmental policies and interventions by the international cooperation have been put in place recently aiming to foster the development of the incipient modern dairy value chain (which involves processing and pasteurization) supplying the growing urban market in Ethiopia. It is worth noting that currently most consumers in Ethiopia still buy raw milk (which is most of the time boiled at home).

Due to a variety of structural constraints, the incidence of transaction costs tends to be particularly high among small-scale agricultural producers. When integrating into markets, small-scale agricultural producers face a wide range of challenges, most of them related to transaction costs. This includes transportation

costs, the cost of accessing high quality services, technology and inputs, the costs of meeting standards, and in general the costs associated with coordinating product attributes and delivery conditions along the value chain (Kydd and Dorward, 2004). Producers' organizations can play an important role in reducing such costs, and therefore in facilitating market integration (Staal et al., 1997). The role of producers' organizations in reducing transaction costs and facilitating market integration of small-scale farmers is expected to be particularly important in the dairy sector, since the perishable character of the products makes more likely opportunistic behavior by buyers (potentially a major source of transaction costs), in comparison with products that can be stored. Furthermore, dairy production is a risky venture, with potential high transaction costs arising from price fluctuations and the seasonal demand of milk. Uncertainties related to demand and spoilages are particularly high in Ethiopia, in part due to the fact that Orthodox Christians use to fast during holy days all along the year (up to about 200 days per annum). During fasting days, followers of the Orthodox Church refrain from consuming products derived from livestock, including dairy products (Tefera et al., 2010). During prolonged fasting periods, demand and prices are depressed. In addition, the adoption of cooling transportation for milk is still in an early stage of development in Ethiopia, which increases substantially the risks of milk spoilage.

In the study area we could identify two production systems under which dairy farmers are operating. On one hand, some

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farmers have adopted a relatively more intensive production system, which relies on a higher use of cross-bred cow varieties and agro-industrial feed. On the other hand, other farmers adopt a relatively more extensive production system with high reliance on local cow varieties and less nutritive pasture feed. As far as marketing channels are concerned, dairy farmers in the study area have numerous outlets in which they can sell their milk. The main ones include primary cooperatives and private traders or processors (e.g. Mamma milk). Other minor markets include restaurants, hotels and individual consumers. Marketing to consumers in urban areas is however only possible through the bulking, transportation and delivery services of the cooperatives. Primary cooperatives in the study area have formed a cooperative union, which gathers a large proportion of the milk produced by the primary cooperatives and supply it mainly to processors in Addis Abeba. At the time of the fieldwork, the union did not carry out any further processing of the milk, only basic quality checks, bulking and delivery.

By means of providing bulking and bargaining services, cooperatives may enhance market access and help farmers avoid the hazards associated with a perishable product with uncertain and variable demand. By means of pooling supply purchases and sales, dairy marketing cooperatives can contribute to decrease price risks and enhance bargaining power of dairy producers (Holloway et al., 1999). In addition, cooperatives can serve as a vehicle for the dissemination of dairy technologies and to gain access to a range of benefits derived from the action of agents outside the value chain, such as government subsidies, donor funds and outputs of research and development. For instance, the dairy cooperatives in the study area are assisting their members to access nutritive feed, animal vaccines and high-yielding cow varieties. In addition, many donor and non-governmental organizations organize their rural development and poverty reduction interventions through cooperatives and other farmers' organizations (Bernard and Spielman, 2009). In Ethiopia, the government has stressed the importance of cooperatives as vehicles to improve commercialization and to alleviate poverty amongst the resource-poor farmers (Getnet and Anullo, 2012), and these organizations have been targeted as key institutions in national plans to foster rural economic development.

Despite their many potential advantages, cooperatives however are prone to face a number of important challenges, such as free-riding, corruption, principal-agent problems or different sorts of mismatches between the individual and collective interests (Ortmann and King, 2007). In Ethiopia, cooperatives suffer from low managerial capacity, difficulties in accessing working capital, free-riding behavior by farmers and other major constraints that hamper their performance. Some of these problems have stemmed from the troubled history that the Ethiopian cooperatives experienced. As highlighted by Kodama (2007), the Ethiopian cooperatives have passed through many unpleasant phases. Firstly, the Imperial era (1930–1974) and the Derg period (1974–1991) when cooperatives were used as instruments for authoritarian governmental interventions. The corruption that arose from this external interference led to the collapse of many cooperatives. After the fall of the Derg regime, the new government started to revive cooperatives and allowed them to hold a higher degree of autonomy, though still under some control from the “cooperative offices” (governmental bodies in charge of regulating and monitoring cooperatives' performance). Currently however, as evidenced in the study conducted by Getnet and Anullo (2012), cooperatives in Ethiopia are growing in terms of number, type, membership size and capital.

The development impacts of cooperatives depend on their capacity to deliver good quality services and to put in place an inclusive and efficient governance system that enable them to cope with the problems mentioned above. Such impacts hence cannot be taken for granted and they are determined by the ability of

cooperatives to surmount their structural and contextual problems. In order to assess the development impacts of dairy cooperatives in rural areas (the extent to which they are contributing to facilitate market integration and the economic development of small-scale producers) we need to examine two key aspects: (i) who are the members of cooperatives (what type of farmers benefit from their services) and (ii) how is the performance of such members, in comparison to non-members, influenced by the services provided by the cooperative. That is, we need to assess to what extent and how members benefit from cooperative services. The combination of these different issues will enable us not only to evaluate the effects of membership, but also to shed some light about the mechanisms through which such effects take place.

The main objective of the present study is to identify the determinants and impacts of cooperative membership among small-scale dairy producers in Ethiopia, and thus to contribute to assess to what extent and how producers' organizations can be catalyst of rural economic development. For doing so, we compare the performance of cooperative members with otherwise similar non-members dairy farmers, controlling for observable biases using matching techniques. More specifically, in this paper we address the following two main research questions: (i) What are the factors determining the probability of cooperative membership? and (ii) What are the main impacts at the household level of cooperative membership among dairy producers in Ethiopia?

The remaining of the paper is structured as follows: The next section provides some working hypotheses about determinants of membership and the impact of cooperative membership. Then, we present the methodology we have followed, including the sampling procedure, the variables considered and the econometric techniques we used. Our empirical results are presented in afterwards and finally we discuss our findings and some implications in the last section of the article.

Determinants and impacts of cooperative membership

Collective action among farmers is costly and not always leads to the expected outcomes. In the case of agricultural cooperatives, there are different sources of costs of collective action: (a) Collective decisions may require investment in time, particularly if the member of the cooperative is committed to participate in decision making stances, such as commissions and assemblies; (b) There might be temporary costs associated with being loyal to the cooperative. For instance, competitors to the coop may offer better prices during some seasons, to which loyal members cannot tap to; (c) Collective decision regarding the services provided by the cooperative may also entail some costs derived from the heterogeneity of farmers. If not all the members coincide on the demand for services from the coop, decisions may be costly for some (due to, for instance, concessions of the minority group to the request of the majority); (d) Costs may also arise from the vulnerability involved in being exposed to opportunistic behavior of other members or cooperative managers. The costs of mismanagement, in terms of capital loss, for instance, are collectively distributed. The perception and incidence of these costs, as well as of the benefits derived from cooperative membership, may vary considerably among farmers not only due to farmers' diversity with regards to production profile, size or level of market integration, but also because agricultural cooperatives are very diverse, in terms of specialization, services delivered and internal governance. Even within Ethiopia, there are significant differences between the cooperatives with regards to service delivery, market orientation, composition and socio-economic context. Due to the heterogeneity of farmers and cooperatives it is reasonable to expect that the willingness to participate is not homogeneously distributed among landholders. The analysis of the determinants of cooperative membership

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