

# Livestock Policy Analysis Brief No. 6

## Smallholder dairying under transactions costs in East Africa

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In peri-urban areas of the world where cattle are present, dairy farming has typically been part of the adjustment in production patterns of smallholders faced with shrinking arable land, higher population density and rising wage rates. In sub-Saharan Africa, where the economic viability of smallholder agriculture has come under increasing pressure, smallholder peri-urban dairy development has not been widespread outside of the East African highlands. Understanding the nature of constraints limiting smallholder peri-urban dairying so as to promote this activity and improve the livelihoods of smallholders is, therefore, a key public policy issue for African countries.

### The relevance of transaction costs

It is now widely accepted that the costs of arranging exchange may reduce or even prevent exchanges from occurring, and give rise to institutions and organisations to offset their negative impacts. Transactions costs include the costs of searching for and screening trading partners, bargaining with potential trading partners to reach an agreement, transferring (transporting, processing, packaging and securing title) the exchanged product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement.

The nature of milk and its derivatives partly explains the high transactions costs associated with dairying. As a highly perishable and bulky product, milk requires rapid transportation to consumption centres and processing at relatively high cost. This may involve substantial losses due to spoilage and result in small quantities marketed, thereby limiting marketing outlets for small dairy producers.

In eastern Africa, empirical evidence on the nature and importance of transactions costs in dairying is scarce. As a result, the few studies that have addressed the issue have tended to infer the magnitude of transactions costs incurred from indirect evidence of lack of commercialisation. Indirect as such evidence may be, it suggests that both small- and large-scale dairy producers face high transactions costs, though at different levels, and that these influence production and marketing behaviour in a manner detrimental to efficiency and equity.

### Case studies: Kenya and Ethiopia

The role and potential effects of transactions costs on the structure of dairy production and marketing in eastern Africa can be illustrated using data from recent surveys of dairy co-operatives in Central Province, Kenya, and of dairy producers in the Addis Ababa peri-urban area, Ethiopia.

Data for the two countries show that only a small portion of domestic dairy production is marketed. In

Ethiopia, which has significant per capita milk production, only 5% of estimated national production was commercialised in the early 1990s. In Kenya, the African country with the largest number of smallholder dairy producers selling milk off-farm, estimates of commercialisation in 1990 range from 43 to 48%.

In Ethiopia, most milk and dairy marketing occurs through the informal sector. Almost 88% of all urban milk is supplied as raw milk through the informal market, largely by small producers. Few large farms or collective marketing organisations exist, so that production and marketing costs reflect the dispersed and small-scale nature of the dairy sector. The parastatal collection system, the Dairy Development Enterprise (DDE) which acts as a buyer of last resort, handles only 12% of urban milk supply and pays the lowest average prices.

Thus, direct sales by producers to individual and institutional consumers, by-passing the dairy parastatal and private middlemen, constitute the bulk of milk sales in the Addis Ababa milkshed. In this environment, both producers and consumers of dairy products appear to put a premium on contracting with only a small number of clients/suppliers, suggesting that transactions costs are especially high in open milk markets.

There is, however, considerable variation in the importance of marketing outlets depending on the scale of production and on the location (proximity to urban markets). Consistent with this, sources of average dairy and dairy-related revenues and costs differ between small and large producers, and between urban and peri-urban producers of the same size. Since different producers face different levels of transactions costs, depending on asset (capital intensity) and information levels, season and location, they respond to these differential costs with differential sales strategies.

As a general rule, transactions costs increase with distance due to the increased costs of information and risk of dairy product spoilage before a buyer is found. Thus, farmers located further away from Addis Ababa have significantly less attractive options for disposing of their milk. Average revenue per tonne of milk in the survey was remarkably similar across producer types. But the unit cost for large urban producers was much lower than for other types of producers, especially with respect to feed costs. Low credit availability, combined with the capital intensive nature of large-scale dairying, could partially explain the predominance of small-scale production.

Overall, smallholder dairy producers in the Addis Ababa milkshed appear to generally face higher transaction costs than larger producers. The prices received by producers decrease with distance and appear to vary considerably depending on the size of sales and the flexibility of contractual relationships between producer and consumer, smaller producers receiving lower prices than larger producers in some marketing channels (e.g. dairy parastatal).

In terms of organisations of collective action, Kenya's experience with the Kenya Co-operative Creameries (KCC) as a buyer of last resort seems to indicate that a full-fledged parastatal processing company like the KCC can lower transactions costs during the initial phase of smallholder dairy development. Indeed, KCC initially served to reduce transactions costs faced by individual producers through pooling risk, lowering collection and search costs, making inputs available to them and rendering milk supplies more reliable.

In recent years, however, KCC's financial performance has been severely compromised by pan-seasonal and pan-territorial pricing policies adopted for political reasons. Milk prices paid by KCC to co-operatives and producers have failed to keep pace with increases in input prices, and payments for milk supplied have been delayed, exposing producers to higher risks and irregular cash flow.

In 1992, the Kenyan Government liberalised the dairy industry, revoking the KCC's monopoly on urban milk sales. This resulted in the rapid development of a variety of 'self-help groups' and dairy co-operatives mainly marketing raw milk. These co-operatives had largely emerged in response to the continued delays in milk payments by the KCC and began to explore alternative market outlets, but only in regions where transportation and other transactions costs permitted. In avoiding KCC payment delays, however, these co-operatives had to contend with the considerable uncertainty and high transactions costs of searching for market outlets, screening, bargaining, monitoring contractual agreements with customers etc.

### **Some policy implications**

Comprehensive policy recommendations require a more detailed study of the structure and determinants of transactions costs and their impacts on the behaviour of economic agents. However, some tentative policy implications can be drawn from the evidence already available for Ethiopia and Kenya.

First, because of the potentially important role of collective organisations in lowering transactions costs in dairy marketing, government actions are required to provide an enabling and supportive environment for collective action in the dairy sector. Such actions should include reducing the bureaucratic obstacles to effective formation and management of co-operatives and self-help groups, support of market information flows (e.g. market opportunities and prices), resources for training in management and planning and, where appropriate, greater access to credit.

Another action to support smallholder dairy development would be greater transparency of dairy marketing policies, and greater consistency in their implementation. In Kenya, greater transparency is likely to be required with regard to liquid milk marketing by private processors in urban areas. The 1992 liberalisation has yet to be finalised, perhaps discouraging investment and marketing activities by private dairy companies, including producer-based co-operatives. Ethiopia's policy concerning privatisation of state dairy farms and the DDE has yet to be made definitive, and government support for the formation of genuine co-operatives is uncertain. It is important that caution should be taken before policies are adopted which impede the indigenous and sometimes informal market mechanisms which currently serve smallholder producers.

Opportunities also exist for research to better document transactions costs that are observable. Perhaps what is most needed is methodological development with regard to conceptualisation of transactions costs and how to measure them. Research on household and subsector models that better integrate both existing transactions costs and institutions and contracts that govern individual transactions, would be beneficial in a broader sense to improve policies and promote the well-being of rural smallholders.

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For more information on this issue see: Staal S.J., Delgado C. and Nicholson C. 1997. Smallholder dairying under transactions costs in East Africa. *World Development* 25(5):779-794.