

Building on an earlier exploratory study, in 2007–2008 the CGIAR's Standing Panel on Impact Assessment (SPIA) undertook an initiative in collaboration with seven CGIAR centers to augment the evidence of policy-oriented research (POR) impacts within the CGIAR system and to further the development of methodologies in this challenging area of impact assessment. Seven case studies were commissioned. This impact brief describes the major results that emerged from the International Livestock Research Institute (ILRI). The summary version of the full case study report can be found in: Kaitibie, S., Omoro, A., Rich, K., Salasya, B., Hooten, N., Mwero, D., and Kristjanson, P. 2008. Policy change in dairy marketing in Kenya: economic impact and pathways to influence from research. In: CGIAR Science Council. 2008. *Impact Assessment of Policy-Oriented Research in the CGIAR: Evidence and Insights from Case Studies*. A study commissioned by the Science Council Standing Panel on Impact Assessment. CGIAR Science Council Secretariat: Rome, Italy. (Available at <http://impact.cgiar.org/>)



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Changing Dairy Marketing Policy in Kenya: The Impact of the Smallholder Dairy Project

In Kenya, informal milk markets account for nearly 86 percent of milk supplies to consumers. The supply chain is dominated by small-scale milk vendors (SSMVs), including mobile milk traders and milk bar operators, as well as milk transporters and small-scale producers. Annual *per capita* milk consumption in Kenya is now estimated at 145 liters, more than five times the milk consumption in other countries in East Africa.

Despite the importance of SSMVs in the market, previous government policies did not adequately address the concerns of the farmers, traders, and consumers who make up these informal marketing channels. Prior to the policy change in 2004 that is the focus of this study, SSMVs were not officially recognized, and were often harassed as large, powerful dairy market players sought to increase their relatively small market share.

The Smallholder Dairy Project

The Smallholder Dairy Project (SDP) was a collaboratively implemented, integrated livestock research and development project. The project focused on research and advocacy to foster changes to the existing, outdated dairy policy so that the operations of SSMVs would be officially recognized. The SDP was implemented by the International Livestock Research Institute (ILRI), the Kenya Agricultural Research Institute and the Ministry of Livestock and Fisheries Development (MoLFD). It was funded by the UK Department for International Development.

An *ex post* assessment of the impact of the revised Kenyan dairy policy was conducted by ILRI in 2007. It investigated induced behavioral changes at the levels of field regulators and SSMVs, and estimated economic impacts on producers, SSMVs, and consumers. The role that research/coordination played in contributing to the policy change was analyzed, and the net benefits to the investment in the policy research component were estimated.

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Field interviews were conducted in the Nairobi area and in Nakuru in August 2007, with a sample of 61 milk traders (30 from Nairobi and 31 from Nakuru) and 5 field regulators (3 from Nairobi and 2 from Nakuru). Policy-makers, SDP researchers, and representatives of non-government organizations were also interviewed. Sample size and strategy were based on the need to collect information from as many traders as possible, given constraints of time and funds.

A focus on policy reform

During the initial SDP research phase (1997–2000), the main objective of the project was to characterize the production environment and to develop ‘best-bet’ technologies that would enable small-scale milk farmers to improve their livelihoods. The project’s second and final phase (2000–2005) involved more active engagement with policy-makers, with a view to achieving specific policy objectives. SDP’s strategy for influencing policy was to raise awareness of its research findings on the informal milk market, its importance for livelihoods and the associated public health concerns.

SDP determined that the informal sector accounted for a large proportion of jobs in dairy marketing and processing and that, in the larger economy, small-holder dairy farming supported over 350,000 full-time wage positions, including employment in milk collection, transportation, processing, and sale. These findings on job creation attracted the interest of government agencies and of the individuals responsible for drafting Kenya’s poverty reduction strategy paper.

The liberalization of the Kenyan dairy sector began over a decade ago. In 1996, the government set up the Dairy Industry Act Review Task Force to propose amendments to the 1958 Dairy Industry Act that would reflect the liberalization of economic policy generally. Between 1996 and 2004, revised draft policies and bills were submitted to the MoLFD policy committee three times. Paid advertisements were placed in local newspapers describing the benefits of legalization of SSMVs, but these were met with rebuttals in the same media by large processors. In May 2004, SDP and partners organized the Dairy Policy Forum, a consultative conference of stakeholders at which it was agreed that the policy of engagement with SSMVs would be supported. Consequently, the MoLFD issued a set of dairy industry regulations in September 2004, designed to streamline licence application processes for SSMVs.

Officials of the Kenya Dairy Board (KDB) – the country’s main regulatory and enforcement body – used the impetus provided by these regulations to institute training, certification, and licensing requirements for SSMVs. The 1958 Dairy Industry Act proscribed retail activities by SSMVs, although they could sell milk to government-approved processors if they met certain hygiene and handling conditions; the change engendered by the September 2004 regulations allowed SSMVs to operate in retail markets following training, licensing, and certification.

A change in behavior?

In late 2004, field regulators instituted some changes in enforcement activities following specific instructions from KDB and Public Health Department officials. Previous activities had been limited to policing and impounding milk and milk containers from SSMVs on the grounds that they were not allowed to engage in retail trade. Since the September 2004 regulations came into force, the KDB has been training SSMVs in milk handling, and licensing those SSMVs who undergo training. Field regulators now ensure that licensed outlets and premises operated by SSMVs meet conditions for milk hygiene, testing requirements and sanitation and that operators know how to comply with these conditions. Officials have undergone formal training to develop their skills in applying the regulations. However, while some regulators have helped SSMVs to gradually comply with the requirements of the new regulations, others have meted out punishments such as confiscating illegal containers and products, taking SSMVs to court, and, in the most extreme cases, revoking licenses.

Since the new policy came into effect, 40 percent of SSMVs reported that they have been harassed by KDB agents and other regulators, who tend to confiscate milk and milk containers and demand bribes.

Nevertheless, nearly all licensed SSMVs who had been in operation before the policy change reported that there had been a change in the behavior of regulators toward them since licensing, noting that they were now allowed to operate so long as they complied with all or most of the requirements.

Impact on transaction costs and marketing margins

Implementation of the revised Kenyan dairy policy should reduce transaction costs and, hence, market

margins. The impact study investigated the distribution of welfare benefits arising from these reduced transaction costs.

It is difficult to accurately identify and account for all relevant transaction costs. The study therefore expressed transaction costs in terms of the margin between farm and retail prices. The study used recall information from SSMVs due to a lack of documented information on actual prices paid and received during the periods before and after the policy change. Results for daily milk purchase and sale prices are presented in Table 1.

The study used September 2004 as the policy change date, and asked SSMVs to recall transactions in the immediate pre-policy change days, and then compare those to similar transactions in August 2007. In the Nairobi area, there was a Ksh0.80 per liter decline in margin that may be attributed to the new policy's effect of reducing market margins. In Nakuru, the decline in margin attributed to the impact of the new policy was Ksh0.27 per liter. While the decline in market margin may also have been affected over time by other factors such as fuel costs, the simplified framework applied here assumes that such cost changes are minimal and hence attributes all margin reductions to the policy change.

Welfare changes attributed to revised dairy policy

Changes were estimated in the surpluses that accrue to consumers, farmers, SSMVs, and input suppliers. The aggregate of these changes was then compared to project costs in order to estimate the returns to the policy-oriented research carried out by SDP. The

distribution of gains from the policy change is outlined in Table 2, for the Nairobi area and for the Kenyan economy as a whole.

Total economy-wide gross benefits accruing to the sector from the policy change are estimated at Ksh2,174.88 million per annum (equivalent to US\$33.5 million, at an exchange rate of US\$1 = Ksh65). More than half of the benefits accrue to producers and consumers. Nairobi area welfare gains account for approximately 18 percent of the economy-wide gains.

The net present value (NPV) of the stream of net benefits was calculated for the economy-wide model. Research costs estimated at US\$5 million were assumed to be spread equally over the first 8 years, corresponding to the life of the project and ending in the year 2004 when the policy change was effected. Benefits were assumed to start accruing in year 2005 and, for the purpose of this analysis, to continue to the year 2039. However, from the year when benefits start accruing, additional annual costs were imputed for training and licensing of SSMVs, cess fees and other statutory costs including municipal/council fees, commerce fees, and health inspection fees amounting to a total of Ksh864 million (US\$13.3 million per annum). The cess fee is a tax collected by the KDB, which should technically be collected at the farm level. However, because small-scale producers are not easily tracked (unlike large producers), KDB officials have routinely opted to collect cess fees at bulking and collection points, where SSMVs operate. This adds a tax burden to SSMVs.

Interest rates of 1.99 percent (real interest rate in Kenya; base year 2007), 5 percent, and 15 percent were used. The NPV equals Ksh28,288 million at

Table 1.
Average daily prices of milk and market margins before and after the policy change

	Nairobi price (Ksh/liter)			Nakuru price (Ksh/liter)		
	Purchase	Sale	Margin	Purchase	Sale	Margin
<i>Before policy change</i>						
Average for all SSMVs	15.35	21.48	6.13	14.42	20.85	6.42
<i>After policy change</i>						
Average for all SSMVs	16.60	21.93	5.33	15.81	21.96	6.15
Reduction in margin attributed to policy change			0.80			0.27
Average margin over all locations and trader types, before policy change						6.26
Average margin over all locations and trader types, after policy change						5.72
Overall average reduction in margin attributed to policy change						0.54

Table 2.
Distribution of gains from the policy change

Change in benefits (Ksh m)	Reduction in transaction cost at SSMV level			
	Economy-wide		Nairobi area	
	Ksh (m)	US\$ (m)	Ksh (m)	US\$ (m)
Annual benefits to consumers	520.84	8.01	95.01	1.46
Annual benefits to producers	1,042.62	16.04	193.78	2.98
Annual benefits to SSMVs	280.60	4.32	48.67	0.75
Annual benefits to input suppliers	330.82	5.09	58.63	0.90
Total annual benefits	2,174.88	33.46	396.09	6.09
Annual expenditure on SDP (1997–2004)	40.63	0.63		
Annual costs of training and licensing (2005–2039)	37.42	0.58		
Annual cess fees (producers and SSMVs 2005–2039)	803.17	12.36		
Other annual statutory costs (2005–2039)	23.39	0.36		
Benefits minus costs (economy-wide)	1,270.27	19.53		
Net present value (NPV) @1.99%	28,288	435		
NPV@5.00%	14,979	230		
NPV@15.00%	3,051	47		
Internal rate of return (IRR) = 55%				

the 1.99 percent interest rate, Ksh14,979 million at 5 percent, and Ksh3,051 million at 15 percent. SDP costs are easily recouped, the NPV being greater than zero under all three interest-rate scenarios. This project will continue to be worthwhile until the cost of capital exceeds 55 percent (which is equivalent to the internal rate of return).

The annual benefits of the policy change for SSMVs, amounting to nearly Ksh281 million, fall far below the estimated total annual costs of fees, training and other costs of Ksh864 million. Hence, if a significant portion of these costs, especially cess fees, were to be levied at the SSMV level, SSMVs would be worse off as a result of the policy change, which is contrary to the intention of the SDP and its advocacy partners. This raises questions about the appropriateness of the cost-sharing arrangements in the implementation of the regulatory changes.

Attributing impact and establishing the counterfactual

Attributing the benefits of policy change in a multi-institutional effort is a complex exercise. SDP provided

evidence that catalyzed, speeded up, and swayed the debate in one direction. The policy change is technically still in process, with regards both to the final parliamentary passage of the main regulation and to the implementation of training and licensing activities. Consequently, the problem of attribution is compounded by an outcome that is still unclear and not easily measurable.

To present a measure of the project's economic impacts, estimates of NPV were recalculated, first assuming that the Kenyan policy review and legalization of SSMVs would have been delayed by 20 years without SDP (as suggested by the former SDP Project Manager) and then using a more conservative estimate of 10 years, with benefit streams extrapolated through 2039. NPV continues to be positive even if legalization is postponed beyond 2004. The directly attributable impacts of SDP, as measured by the differences in outcomes with and without the project, are also positive, suggesting that legalization is essentially beneficial. However, legalization must be undertaken within an equitable cess assessment framework.