Effect of milk price on dairy consumption in low income households in Nairobi

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Presented at the Agriculture, Nutrition and Health Academy Week, Accra, Ghana, 25–29 June 2018

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Background

Raw milk is the most widely form of dairy purchased by consumers in Kenya; it is affordable, widely accessible and comes in variable quantities to suit consumers' purchasing power. The lower price and extensive distribution network makes **raw milk the only accessible form of dairy** for many consumers. Attempts by developing countries to adjust to international policies on food safety have increasingly seen governments develop and implement **policies that criminalize and repress the raw milk markets**, and promote the consumption of formally processed milk. The **impact of these policies on milk intake** in poor households is as yet **unknown**.

Methods

The study investigated the contribution of the informal dairy sector to the diet and nutrition security of poor households in peri-urban settlements in Nairobi, with a focus on the contribution to the diets of children, and explored the effect of an increase in price on household and child milk intake. The study included a household dairy expenditure survey and a 24-hour recall for one child in the target age in 200 low-income households having at least one child under 3 years of age. A choice experiment was further undertaken to explore intra-household milk allocation and consumption response to changes in milk prices. Expenditure and cross price elasticities of milk and other food items were estimated. A demand system model was used to examine the shift in demand of food items and dairy products driven by income and prices.

Results

Raw milk was purchased daily and represented 83% of household dairy consumption. Only 17% of households consumed processed packaged fresh milk (milk from the 'formal markets'). All children (6 months to 4 years of age) consumed raw milk (800 ml/child per week) and children only consumed processed packaged fresh milk in 7% of households (20 ml/child per week).

Households spent on average 73% of their monthly income on food items. The lower the income, the more was spent on food items and on cheaper food like grains. An increase in the price of raw milk by 10% will decrease its demand by 4.8%, and households will substitute its consumption with banana, eggs and *omena* fish (fingerlings).

In a scenario of increased prices, households will not stop buying raw milk, but may decrease the quantity purchased and replace it by other food items for either all the family members or only for children below the age of 4 years. Dairy intake by children may be altered as a consequence of price increases.

Table 1. Intake of dairy products by children between 6 and 48 months

	% consuming dairy products	Mean consumption ml/week/child (SD)	% consuming product "as is"	% consuming product as part of dish	
Unpacked raw milk	98.7	693.0 (585.34)	36.8	77.5	INFORMAL SECTOR
Unpacked fermented milk (mala)	1.7	0.6 (0.74)	0.9	0	
Unpacked yoghurt	0.9	0.2 (0.3)	0.4	0	
Packed pasteurized whole fresh milk	16.5	29.2 (31.80)	6.1	10.0	FORMAL SECTOR
Packed fermented milk (mala)	2.6	0.8 (1.03)	2.2	0	
Packed yoghurt	39.4	58.2 (147.27)	35.5	0	
UHT milk	6.5	12.9 (11.59)	3.0	4.8	
Powdered milk	1.3	0.00 (0.01)	0.4	0	

Table 2. Households compensated own- and cross-price elasticity from the QUAIDS model. Significant at *p < 0.1; **p < 0.05; ***p < 0.01

	Raw milk	Eggs	Omena fish	Banana
Raw milk	-0.481***	-0.039	-0.130*	-0.022
Eggs	1.016***	-0.101	0.434***	0.631***
Omena fish	0.787***	-0.017	-0.617***	0.208
Banana	1.093***	0.499***	0.384	-0.323

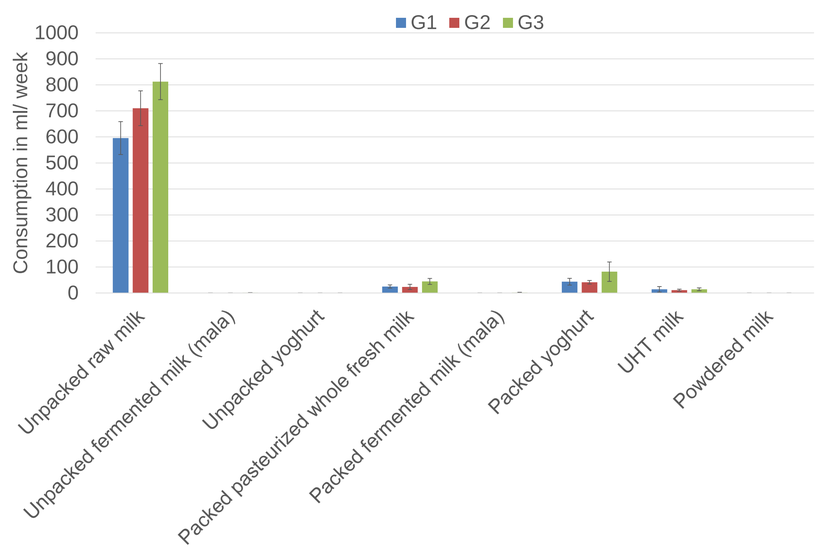

Figure 1. Weekly average consumption of dairy products of children (6-48months), by income group. G1 = Poorest group (<15,000 KES/ month), G2 = Middle group (15,001-25,000 KES/ month), G3 = Wealthiest group (25,001-30,000 KES/month). Error bars indicate standard error of the mean.

Conclusions

- Raw milk is consumed in poor households by preference and convenience.
- Children's weekly milk intake in peri-urban Nairobi is well below the recommended standards.
- In a budget-constrained scenario, households will reduce dairy consumption if prices increase over a certain ceiling.
- **Policies in the dairy sector should facilitate availability and affordability of dairy products:** Policies that may result in price increases are likely to decrease milk demand and milk consumption in children; the high milk own-price elasticity suggests that policies aimed at reducing the price of milk in the market or improving incomes are more likely to increase dairy consumption among children.

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The MoreMilk project is funded by the Bill & Melinda Gates Foundation, the UK government and CGIAR Research Program on Agriculture for Nutrition and Health.