3R Kenya Practice brief 015

Consumer purchasing behaviour and risk perceptions about milk products in Kenyan towns

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Kenya is a high milk consuming population. The per capita consumption is in excess of 110 litres and is projected to double by 2030 with increasing shares of processed products. The large and fast growing market for dairy and milk products is fuelled by rapid urbanization and expanding middle class population with habit of dietary changes.

The larger customer base for processed milk products are urban consumers. These consumers are in advantaged position relative to rural consumers to demand for quality products given their greater access to information on food quality and safety standards. The Kenyan constitution (Articles 43 and 46) entitles consumers to quality, safer foods, which in essence is to protect consumers from health hazards and to promote good public health. Attaining high standards of food quality and safety is essential towards sustaining the high and growing milk consumption demand with increasing shares of processed products being witnessed in Kenya. However, there are challenges delivering on this constitutional entitlement despite institutional frameworks put in place.

The quality and safety of traded dairy and milk products raise public health concerns. The safety concerns are about intentional adulterations, microbial contamination, antibiotic drug residuals, aflatoxin contamination and the use of unapproved chemical preservatives and food additives. These concerns are regardless of raw or processed products, informal or formal market outlets. The informal outlets include farm and home delivery and mobile hawking. There are semi-formal market outlets including retail shops, kiosk and milk bars. The formal market outlets where consumers purchase their milk and dairy products is supermarket.

In the urban centres, consumers have a choice to a variety of raw and processed milk products from diverse market outlets (informal, semi-formal or formal). The urban consumers being the larger customer base, their milk purchasing behaviour and risk perceptions should be relevant in product development and food control system.

This study assessed consumer milk purchasing preferences and perceived risk exposure among a random sample (n=368) of consumers in four towns during cross sectional survey. A larger proportion of the sample consumers were urban residents (0.83), young (< 35 years old) females (0.57) with post-secondary level education (0.48). The socio-demographic characteristics in presented in Table 1. The demographics depicts a sample of a low income socioeconomic group of consumers.

Table 1. Socio demographic characteristics of the sample consumers

Demographic characteristics	Frequency	Proportion	Chi square (χ^2)
Gender			6.793*
Female	209	0.568	
Male	159	0.432	
Age (years)			135.364**
≤ 35	211	0.573	
36 - 50	128	0.348	
≥51	29	0.079	
Education formal level completed			74.630**
Primary	42	0.114	
Secondary	150	0.408	
Post-secondary	176	0.478	
Residents			164.446**
Rural	61	0.166	
Urban	307	0.834	

Significance =*p<.01; **p<.001

Key messages

- A large majority urban consumers are educated, young females and more frequently they purchase milk and dairy products from supermarkets, except raw and sour (mala) milk.
- Consumers purchase more and spend more on cheaper milk products (raw and pasteurised milk) than high value, expensive products (cheese, butter).
- Product attributes important to consumers are price and quality over safety
- Majority of consumers are aware of government regulated food standards but fewer have confidence in government enforcing them and so considered private safety regulation and certification as alternative.

Consumers associate packaged and long life milk with high risk of chemical contaminants; raw milk directly from the farm and milk from vending machine with high risk of antibiotics; and raw and un-chilled raw milk from mobile traders, kiosks and milk bars with high risk of unhygienic handling and adulteration

Policy recommendations

- The large market share is for raw milk, next to this is packaged milk then fermented dairy products (yoghurt and mala) and flavoured milk drinks.
- Support retail innovations that deliver to consumers affordable quality milk products.
- For dairy business and marketing in the country, high retail milk price will exclude a significant part of the customer base.
- Strengthen quality control systems for packaged milk in the market including supermarkets, they are better positioned to demand from suppliers delivery of quality and safer milk, with consistency and traceability.
- The supermarkets have potential role in enhancing milk quality assurance, which can benefit the industry and consumers with traceability.

Findings and Implications for the Sector

Milk products that consumer purchase

It is demonstrated in Figure 1 that the consumers were more likely to buy raw milk (0.68). Next they were more likely to buy packaged milk (0.57), yoghurt (0.48) or mala (0.37) and less likely (≤0.002) to buy cheese, butter, flavoured drinks or powder milk.

A closer scrutiny of average price and volumes purchased of various milk and dairy products is presented in Figure 2. From this, consumers purchased larger quantities of and spend more on the cheaper products (raw milk, packaged milk and Ultra-heat treated milk) when compared to the more expensive products (cheese, butter, ice cream). This purchasing behaviour is typical among poor consumers. They have a strong preference for cheaper, affordable milk products (raw milk, packaged milk and Ultra-heat treated milk).

This is reflected in the volume of raw milk purchased: about 5 times more than the volume of fermented milk products (mala and yoghurt) and about 2 times more than the volume of other fluid milk products. The corresponding weekly average expenditures on raw milk was up to 2.9 times more than was spent on fermented milk products and up to 1.3 times more than was spent on the other fluid milk products.

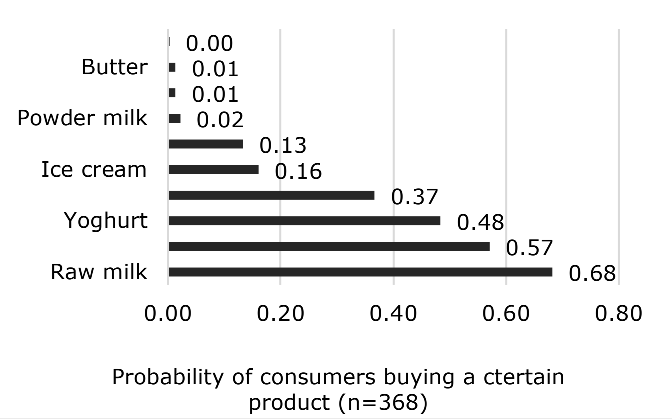

Figure 1 Proportion of consumers purchasing different milk products

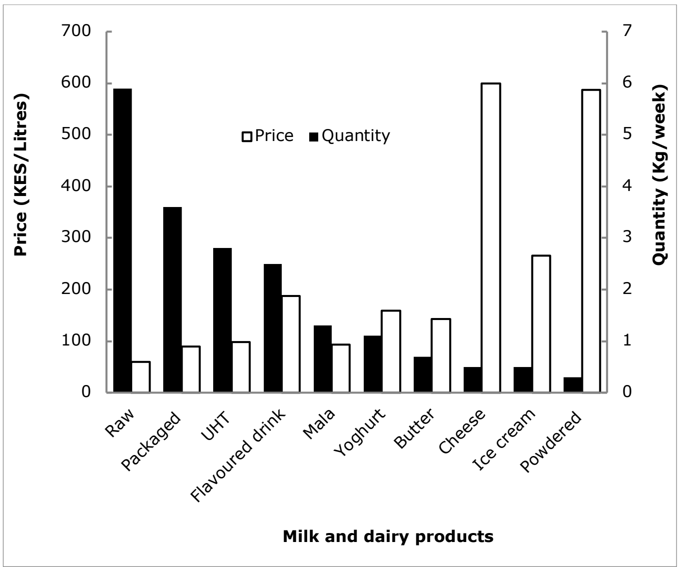

Figure 2 Geometric mean price and quantity of milk and dairy products purchased weekly

Market outlets where consumers frequently purchase milk products

Figure 3 reveals that the sample urban consumers were more likely to buy milk products from formal outlets (supermarkets). An exception is when buying raw milk and mala (sour milk), which they were more likely to buy from informal market outlets. Unlike raw milk, mala milk was more likely to be bought from both semi-formal and formal market outlets. It is notable that some of the consumers were more likely to buy ice cream from informal market outlets as well, which here are from street vendors.

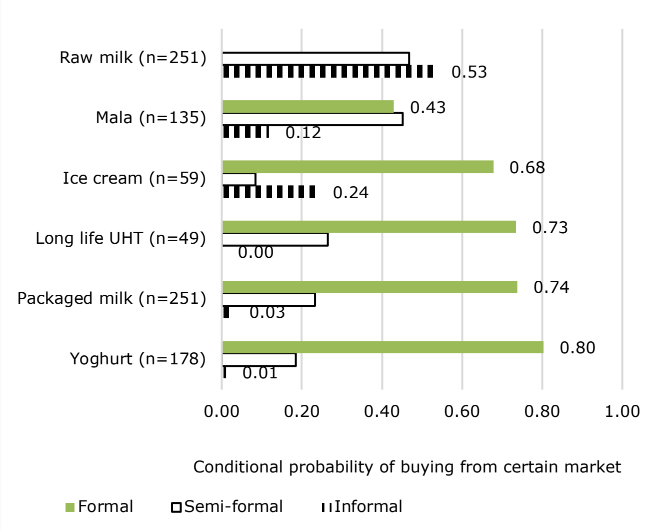

Figure 3 Probabilities of consumer purchasing milk product from a certain market outlet

Analysis of preference reasons for consumer to buy milk product from a certain market outlet clearly demonstrates (Figure 4) that consumers considered quality attribute when buying mala, yoghurt or ice cream. Price was a consideration when buying raw milk from informal or semi-formal market outlets and when buying long life milk from formal market outlets. When buying packaged milk, consumers considered quality when buying from formal market outlet but convenience when buying from semi-informal market outlet. Consistently, safety was a low consideration when buying milk products from any of the market outlets.

Consumer satisfaction and perceived risk exposure of the market outlets

Consumer satisfaction were measured on a scale of 1 (no risk) to 5 (high risk). The mean rank for each product is compared to packaged milk in multiple pairwise comparisons with Bonferroni adjustments. The study results illustrated in Figure 5 showed significant different satisfaction levels for the various milk products expressed by consumers. Satisfaction was highest for packaged milk and raw milk directly from the farms and was lowest for raw milk from mobile traders and from kiosks.

Consumers further ranked risk exposure on a scale of 1 (no risk) to 5 (high risk) in different milk market outlets. The results of this are illustrated in Figure 6. The results showed that consumers considered risk of chemical contamination to be high in milk products purchased from formal market outlets. In contrast, the other risks- antibiotics, bacterial load, adulteration and unhygienic handling were perceived high in milk from informal and semi-formal market outlets. From formal market outlets, consumers could buy pasteurized milk as packaged milk or as milk in vending machines and the ultra-heat treated milk. On the other hand, consumers bought raw, un-chilled milk directly from the farms or from mobile traders. Any of these milk products could be purchased from the semi-formal market outlets.

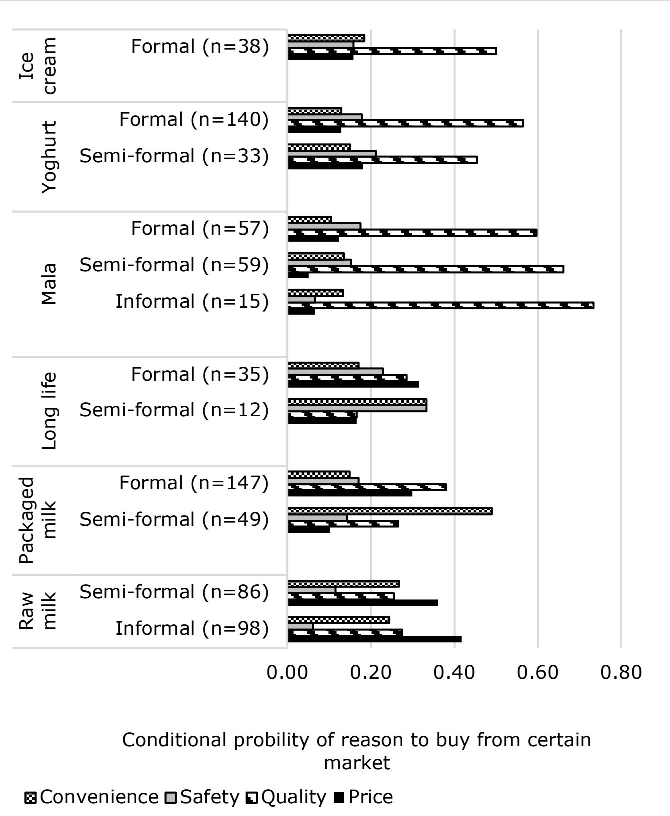

Figure 4 Preference reasons for consumer buying milk product from a certain market outlet

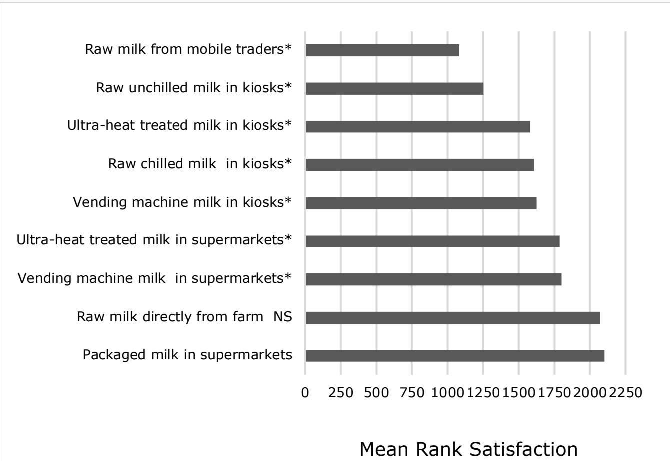

Figure 5 Consumer satisfaction levels (1=not satisfied, 2=little satisfied, 3=neutral 4=satisfied, 5=very satisfied) for milk products in reference to packaged milk (*p<0.00625)

Consumers were presented with specific statements for which they were to express their degree of agreement. The statements are in Figure 7 and were about government actions, consumer confidence, precautions deployed and the capacity in national milk safety management.

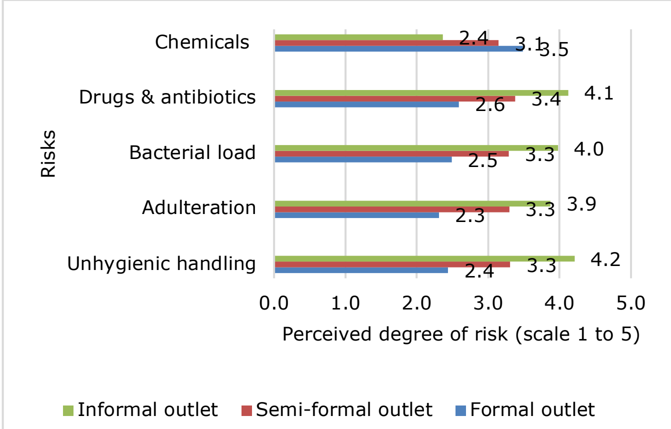

Figure 6 Geometric mean rank (1=no risk, 2=low risk 3=moderate low risk, 4=moderate high risk and 5=high risk) of risk exposure in different market outlets

A larger proportion of the consumers (>0.6) were in agreement that they were aware that Kenya government enforces safety and quality standards for traded milk by monitoring compliance. However, fewer had confidence with the safety of traded milk (0.53) and the government control system in place (0.28). Despite the low confidence, only a few of the consumers applied safety precautions to buy milk products from markets displaying mark of quality (0.38) or licensed outlets (≤ 0.30). Though a larger proportion of the consumers believed that the government has adequate capacity to check milk quality and safety (0.67), also a large majority (0.58) considered that the private food safety regulation and certification would be better than government regulated food safety standards.

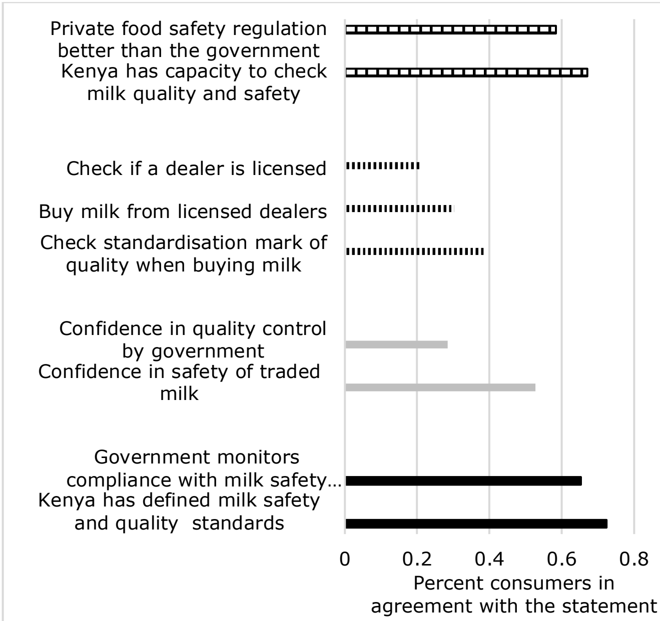

Figure 7 Percent consumers in agreement with statements on government actions, consumer confidence and precautions deployed, and capacity for national milk safety management.

The large market share is for raw milk, next to this is packaged milk then fermented dairy products (yoghurt and mala) and flavoured milk drinks. Though commanding the largest consumption demand, raw milk attracts public health concerns on safety issues. Responding to consumption demand for raw milk therefore require innovative retail that offer quality and affordable milk to consumers. Consumers value price before quality while they place low value to safety. The implications for business and marketing is that high retail milk price will exclude a significant part of the customer base.

The study observed a growing consumption demand for flavoured milk drinks among the high value milk products (cheese, butter and powder milk). This presents a niche business opportunity in the dairy industry.

To consumers, packaged milk does not offer distinct quality advantage over raw milk, except milk from mobile traders. Raw milk in the informal outlets is retailed in variable quantities matching a wide range of those with low purchasing power. Consumers are therefore advised to continue with their tradition of boiling raw milk before consuming in tea or in the diets.

The milk vending machine is a retail innovation to consider for offering consumers affordable milk retail price. In this study, consumers expressed confidence in vending machines operated in supermarkets. For wide-scale uptake, authorities have to strengthen quality assurance and apply stringent checks on hygiene and ethical practices [21].

In this study, supermarkets emerged strategic formal milk market outlets, more appealing to young consumer urban population. Supermarkets have the capacity to assure delivery of quality and safer milk, with consistency and traceability of origin of the supply. The dairy sector need explore how effective supermarkets can in enhancing milk quality assurance.

Milk processors should be concerned that consumer's associate processed milk (packaged milk and long life milk) with high risk of chemical contamination. It is a reflection of inadequate product information to inform consumers on their purchasing decisions. In advertising the products, processors need demystify what is involved in processing. Working together with the regulating agencies, milk processors can shape positive consumer perception by providing public information on approved chemicals and actual chemicals used and on safety to humans.

A large proportion of consumers are aware of the government regulated food standards but fewer have confidence in them. They consider private safety regulation and certification a better alternative. The implication is that information on food safety issues from the government agencies are less likely to inform consumer food purchasing decisions. To address this low consumer confidence, the government agencies in food control systems need to deploy effective communication strategies so as to become credible source of information and trustworthy to consumers

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