THE MARKET FOR ANIMAL-SOURCED FOODS IN TANZANIA: BUSINESS OPPORTUNITIES FOR SMALL-SCALE LIVESTOCK PRODUCERS?

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Abstract

Developing countries' consumption of high-value agricultural products, including animal-sourced foods, is anticipated to grow rapidly in the coming decades, fuelled by population growth, gains in real per capita income, and urbanization. Given that a large share of rural households in such countries keep some animals, a question arises as to whether the expanding market for animal protein represents a business opportunity for small-scale livestock producers. If consumers are anticipated to demand high-quality, highly-processed food products and do their shopping in supermarkets, there will be few opportunities for small-scale producers, who typically have insufficient human and financial capacity to meet that type of demand. Conversely, should consumers demand relatively low-quality and low-processed food products, then the growing market for animal-sourced foods will represent a major business opportunity for small-scale livestock producers. Available datasets and projections, however, while providing information on current and projected quantity of the different livestock products consumed at the commodity level, do not give details of preferred retail forms, outlets used and the desired safety and quality attributes. This paper presents the results of a rapid consumer survey undertaken by the Tanzanian Ministry of Livestock and Fisheries Development in collaboration with the World Bank-FAO-ILRI Livestock Data Innovation in Africa Project in Tanzania. The survey aimed at identifying preferred quality and safety attributes, retail forms and retail outlets for major livestock products and by type of consumers. Results of the survey, combined with nationally representative household datasets, allows describing both the quantitative and qualitative dimensions of the coming market for animal-sourced foods, which is anticipated to provide major business opportunities for small-scale livestock producers in the medium and short term.

Keywords: livestock, animal-sourced foods, consumption, small-scale producers, Tanzania

1. Introduction

The growing demand for animal-source foods in developing countries, dubbed the "Livestock Revolution" (Delgado *et al.*, 1999) anticipates unprecedented business opportunities for livestock producers. However, institutional and market imperfections make it difficult for many of those, and in particular for the disadvantaged, to tap into and benefit from the growing market for livestock products. The cost to society of such lost opportunities is justification for some form of public intervention, which helps smallholders access the market, improve their livelihoods and, in some cases, assist them in escaping poverty.

A major constraint on the design of effective investments to increase market access and utilization for smallholders is that, while information is available on trends in the overall consumption of animal products – such as those collected through household budget surveys – there are scant

data and indicators to properly characterize livestock markets to identify and analyze opportunities. This is the case not only for quantities demanded but also for consumers' preferences for quality and safety attributes, retail forms of the product, and retail outlets. Yet, this information is a pre-condition for appreciation of opportunities for smallholders' effective benefits from the "Livestock Revolution".

This paper presents results of a rapid consumer assessment and retailer survey undertaken by the World Bank-FAO-ILRI Livestock Data Innovation in Africa project in Tanzania[1], which aimed at identifying the quality and safety attributes, retail forms and retail outlets preferred by consumers of animal foods. Results of the survey, combined with available national data which provide indications on the income and expenditure elasticities for livestock products by different typology of consumers, are used to better describe the emerging opportunities in the market for animal source-foods.

The next section briefly presents both the demand and supply side of the markets for livestock products in Tanzania, including projections for the consumption of livestock products in Tanzania and the 'representative' livestock producers. Section 3 presents the methodology developed to appreciate the preferred quality/safety attributes, retail forms and retail outlets by consumers in different income brackets and section 4 reports the results of a rapid assessment conducted in rural and urban areas of Tanzania. Section 5 presents conclusions.

2. Livestock products' consumption and production in Tanzania

Tanzania is a low income country with a population of about 46.2 million that is expected to grow by almost 3% per year 2011-2015. As in many sub-Saharan African countries, Tanzania has been recently enjoying a high level of economic growth, averaging 7% per year 2001-2011, which on a per capita basis is 4.1%. Similar rates of growth are anticipated for the coming years, which translate into a growing demand for animal-sourced foods (World Bank, 2011). However, per capita consumption is expected to to increase only for poultry and milk. In percentage terms, according to data from the FAO Global Perspectives Studies Unit, between 2005/07 and 2030 the total consumption of beef, sheep and goat meat, pork, poultry and milk is anticipated to increase by 87, 71, 88, 148 and 108% respectively (table 1); over the same period, the Tanzania population is anticipated to grow from about 40.1 million people to about 75 million, which partly explain the relatively minor increases in the per-capita consumption of animal-sourced foods.

Table 1. Tanzania current and projected consumption of selected livestock products

	Total consumption (000, MT)		Per capita consumption (kg / Lit)	
	2005/07	2030	2005/07	2030
Beef	262.5	490.7	6.5	6.5
Sheep and goat	40.9	70.0	1.0	0.9
Pork	13.5	25.4	0.3	0.3
Poultry	51.8	128.3	1.3	1.7
Milk	944.2	1962.9	23.5	26.0

Source: Courtesy of the FAO Global Perspectives Studies Unit

[1] http://www.africalivestockdata.org/afrlivestock/

A major question for policy makers is whether the expanding market for livestock products provide a major opportunity for livestock producers, thereby contributing to growth in the agricultural sector, and to poverty reduction in the (mostly poor) livestock producing areas. Indeed, according to Tanzania's 2008/09 National Panel Survey, about 61% of rural households keep some animals in Tanzania and that, at the same time, 60% of the rural poor are partly or wholly dependent on livestock for their livelihoods. The average herd size for a livestock keeping household is about 2.1 cattle equivalent (250 kg live weight), indicating that in most cases livestock producers are not specialized and, most likely, are unable to produce high quality surplus meat and dairy products[2]. Most of these producers, therefore, will be able to tap into the business opportunities provided by the growing market for animal foods only if consumers will demand relatively low-quality low-processed food products. However, information on the quality and safety attributes, retail forms and retail outlets preferred by consumers of animal foods is currently not available in any systemized of consistent form.

3. Methodology

A methodology was developed to capture information about different forms of Tanzanian consumers' preferred quality and safety attributes, retail forms, and retail outlets[3]. First, expert informants were interviewed to identify major types of retail outlets, including butcheries, roadside outlets, wet (open air) markets, small retail shops, supermarkets and milk vendors/ kiosks; as well as to identify five major quality/safety attributes for each product. For instance, for beef the following five attributes were identified: (1) Freshness; (2); Fat content; (3) Marbling; (4) Cleanliness of premises / presence of flies; (5) Packaging. An important criterion to select the attributes used here was that they had to be 'visible' to the enumerator, who could then attach a quality score to the product consumers were buying / retailers were selling. The simple (unweighted) sum of extant quality attributes was used as a scoring system as in Table 2. Weights could have been used to arrive at more nuanced quality/safety scores, but expert informants could not agree on specific criteria for such weights, particularly pointing out the differences likely to be expressed by different types of consumer.

Table 2. Quality / safety scale for livestock products

Number of positive attributes	Quality score
0-1	low
2	lower-medium
3	medium
4	upper-medium
5	good

As a second step, two sets of questionnaires were designed and administered to assess the level of wealth / income of consumers who were buying a given livestock product, in a given retail form, in a given retail outlet and of some observable quality. The first questionnaire was administered to retailers, and the second to consumers, of beef, chicken, eggs, goat meat, dairy products, and pork. Operators in a sample of retail outlets were asked questions regarding their perception of customers' level of income, trend in their sales of livestock products, and the main constraints on expansion of their businesses. Consumers were asked questions on the reasons why they purchased from a particular outlet, trends in their consumption of nominated retail products, willingness to spend more on specified livestock products; and two questions on means of trans-

[2] The 2008/09 Tanzania National Panel Survey data are freely available for download at http://go.worldbank.org/U6O4OFC7U0

[3] Jabbar et al. (2010) present an extensive discussion on quality and safety for livestock-related products

port, which were then used to cluster consumers into three income brackets. Enumerators also assessed quality both in consumers' observed purchase and on display in surveyed retail outlets.

A double stratified sampling method was used to arrive at the final sample. The first stratum consisted of urban and rural locations; the second of nominated categories of retail outlet in each location. Within each of the six categories of retail outlet, 3 outlets in urban areas and 3 outlets in rural areas were randomly selected, for a total of 36 outlets. Retailers were interviewed and, in each type of outlet, 4 consumers randomly selected –i.e. the first 4 that purchased some livestock products when the interviewer was in the retail show– were also interviewed, for a total of 144 consumers. Note that with this approach, while the number of consumers interviewed the different retail outlets is constant, there are differences in the size of the sub-samples of consumers purchasing the different types of livestock products, as table 2 below clearly shows.

Primary data collection (surveys) was undertaken during the month of October 2011, and took place in selected rural and urban locations. Urban outlets were visited in the districts of Ilala (Kariakoo) and Temeke (Tandika), while rural outlets were visited in Ilala district (Chanika).

Table 3. Sample sizes

Retail outlet	No. of retail outlets visited	No. of consumers interviewed	Livestock product	No. of consumers interviewed
Butcheries	6	24	Beef	36
Roadside outlets	6	24	Chicken	16
Wet markets	6	24	Eggs	20
Small retail shops	6	24	Pork	16
Supermarkets	6	24	Dairy	40
Milk kiosks / vendors	6	24	Goat	16
Total	36	144	Total	144

4. Results

4.1. Observed quality scores

Across all livestock products, results indicate that urban retailers offered generally higher quality and safety than did rural retailers except in the case of roadside outlets (Figure 1). Supermarkets obtained the highest score in the case of urban retailers, whereas butcheries ranked first among rural retailers. There is little difference among rural retailers in terms of quality and safety attributes' scores, with all of them obtaining medium quality scores. The difference is more pronounced among urban retailers where supermarkets scored 5 (good quality) and roadside outlets scored 2.5 on average (lower medium quality). Generally livestock products sold by urban retailers obtained higher quality and safety scores than did those sold by rural retailers, with the exception of pork[4].

4.2. Consumer type

Consumers were differentiated into three wealth / income brackets according to a straightforward proxy criterion: they were considered poor if they did not own any means of transport; belonging to the middle class if they owned a bicycle or a motorcycle; be among the rich if they

[4] Available from authors

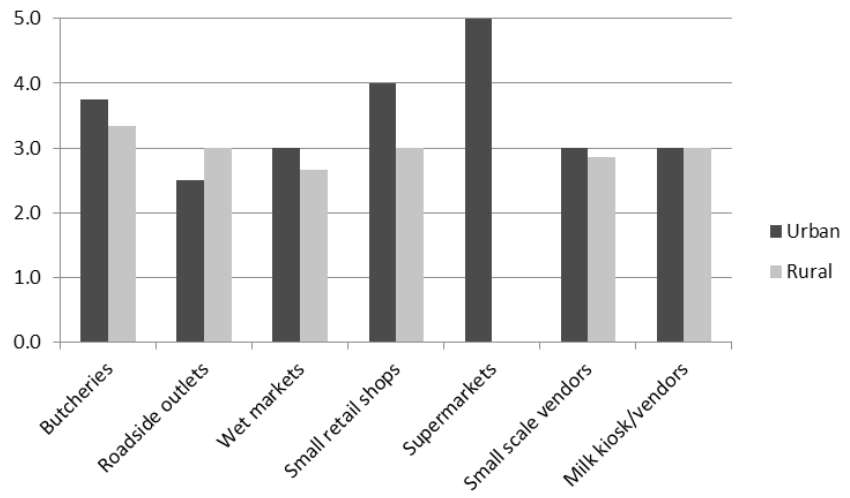

Figure 1. Average quality and safety scores in different retail outlets, urban and rural areas

owned a car. This criterion was considered as the most appropriate by expert informants but, admittedly, alternative criteria were not tested. The distribution of consumers by income status / ownership of means of transport is presented in table 3 below. Overall, 40% of consumers were assessed as poor; 30% as belonging to the middle class and 27% as better-off.

Table 4. Consumers by income status

Consumers	Less well off	Middle class	Better off	Total
Urban	26	25	21	72
Rural	32	22	18	72
Total	58	47	39	144

The result suggests that ownership of some means of transport, even if not the best predictor of level of wealth, seems to provide a reliable snapshot of the Tanzania population. For example, according to the 2008/09 National Panel Survey about 34% of the population live below the national poverty line. It is worth noting, however, that the concept of poverty used here is a relative one as, in most cases, the extreme poor or those living on less than 1 US$ PPP/day cannot afford to purchase livestock products. Data from the 2008/09 National Panel Survey indicate that about 38% of households do not consume livestock products in Tanzania, including 40% in rural areas and 29% in cities and towns.

4.3. Preferred retail outlets

The bar chart below (fig. 2) identifies the distribution of consumers by income bracket in the different retail outlets visited. Consumers of all income categories were found to purchase in all retail outlets. It appears, however, that less well-off consumers are more likely to purchase livestock products in roadside outlets, small retail shops than are middle-class and better-off consumers. These latter groups are more likely to purchase animal foods in supermarkets, butcheries and milk kiosks along the road. Wet, open air markets are the preferred retail outlets for all consumers.

There are two, complementary, explanations for these findings: first that relatively well-off consumers perceive as of low quality the animal products sold in roadside outlets and, when purchasing livestock products, tend to prefer specialized shops (butcheries) rather than small retail shops, which sell a variety of food products. A second explanation is that the median unit price

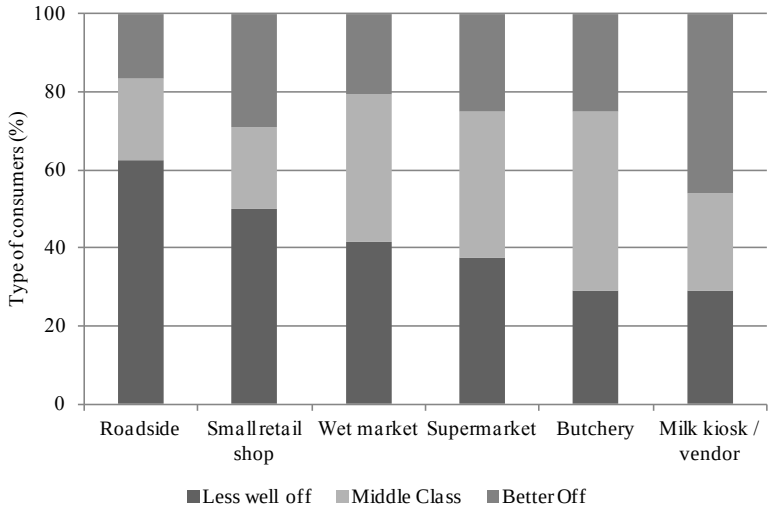

Figure 2. Types of consumers shopping in different retail outlets (%)

per livestock product was found to be significantly lower in roadside outlets and small retail shops (TzSh 2,250 and 2,400 respectively) than in butcheries and supermarkets (Tzsh 5,000 and 4,000 respectively). Prices of livestock products are very varied in open air markets, in which a range of livestock products are available; and relatively low for liquid milk, typically the cheapest source of animal protein for consumers.

4.4. Preferred retail forms

We present in the graphs below the preferred retail forms for beef, chicken and milk by consumers disaggregated into three income / wealth terciles. There were no differences in the preferred retail forms for pork and goat meats, which are always purchased in small pieces.

The results are consistent across the three livestock commodities, denoting some differentiation between the preferred retail forms for consumers in different wealth / income brackets. In the case of beef, poor consumers prefer purchasing either offals or mixed pieces, which are in general not consumed by the better-off. These are the cheapest beef products (offals in particular). Steak and sausages are apparently consumed by all types of consumer, but the sub-sample for these sub-products is very small and, therefore, we are not in a position to draw any clear conclusions in that regard.

As to chicken, again the less well-off are the only ones purchasing mixed pieces, such as legs and offal, whose price is low and averages about TzSh 1,300 per piece (*paja*). Live birds are bought by all consumers: these are largely appreciated as being more flavoursome than are industrially produced broilers. It should be noted that the price of live birds varies significantly, ranging from a minimum of TzSh 6,000 to a maximum of TzSh 12,000, which may indicate a segmented market.

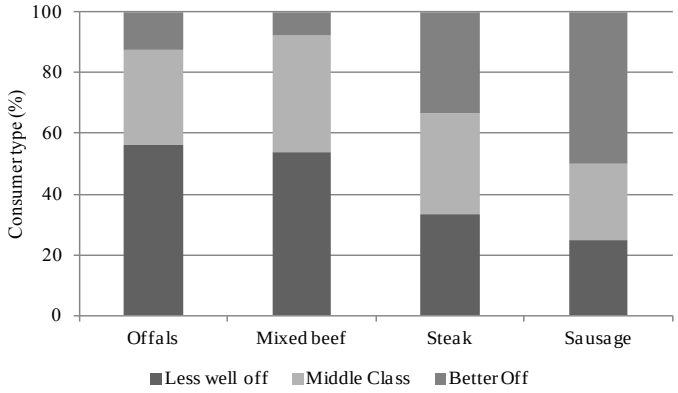

Figure 3. Beef: types of consumers (%) purchasing different beef sub-products

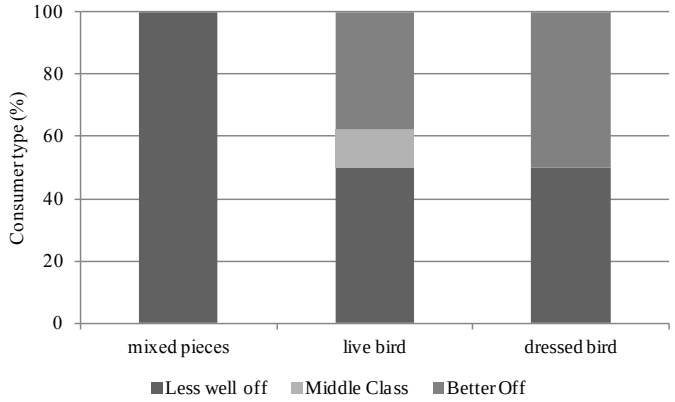

Figure 4. Poultry: types of consumers purchasing different chicken sub-products

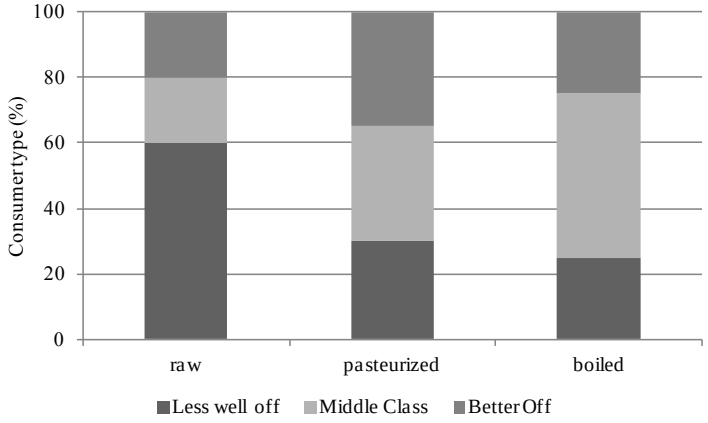

Figure 5. Milk: types of consumers purchasing different dairy sub-products

For milk, raw fresh milk – whose quality is often doubtful – is largely bought by poor and consumers; interestingly, however, its average and median price per litre were found to be not significantly different from those of pasteurized milk (both around TzSh 1,000 per litre), which could indicate that poor consumers purchase the products available in the retail outlet they visit, and/or that they assess as good the quality the raw milk they purchase. Boiled milked, which is bought at milk kiosks in urban areas, is mainly purchased by the middle class and the better-off, who can afford to pay only TzSh 500 on average for a glass of fresh milk.

4.5. Preferred quality scores by consumers

We present in Figure 6 the frequency distribution of quality scores by consumers in the three income brackets. Consistently with the observed quality/safety levels, which we found to be relatively high across all products and retail outlets, the average quality score is high for consumers of all levels of wealth. Paradoxically, better-off consumers seem to care less about quality and safety than consumers in other income brackets, but the differences are not significant. This result may also be due to the notably different preferences for retail outlets between income classes, exposing them to different levels of food safety and quality.

The most plausible reason for this findings is that, most likely, consumers in low income brackets purchase less frequently livestock products than middle-class and better-off consumers and, for them, any purchase of animal-sourced food purchase is considered as a major and occasional expense, contemplated with some consideration and caution. In other words, before buying any livestock product, poor consumers want to be sure that its overall quality is relatively good. Indeed, the perceived quality and safety is by far the most important determinants for consumers' stated reason for choice of retail outlet, followed by its being a 'known and trustworthy' premises.

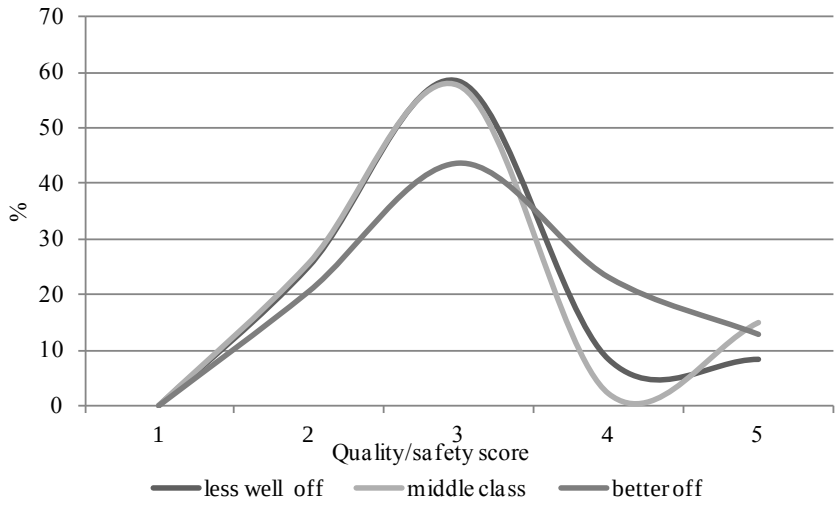

Figure 6. Frequency distribution of quality/safety score by type of consumer

5. Conclusions

This paper presents preliminary findings of a rapid appraisal conducted in Tanzania in 2011 for which the objective was to characterize the market for animal-sourced foods in terms of preferred safety and quality attributes, retail forms and retail outlets by different type of consumers. A methodology was developed to this end, which consisted of developing a matrix of visible quality and safety attributes. This was then used to attach an overall quality score to livestock products available in markets. Interviews administered to both consumers and retailers in randomly selected rural and urban retail outlets were then used to record buying behaviour and preferences over quality and retail outlet. Proxy measures of consumer income were employed.

Results indicate that consumers in different income / wealth brackets shop in different markets and prefer different retail products and that, on average, the overall quality of the livestock products sold / purchased is good, in both urban and rural areas and for consumers in all income brackets. These are important findings, for two reasons. First, they indicate that there are major opportunities for smallholder livestock producers to better utilize the market for animal-source foods in Tanzania, a country in which the majority of consumers is relatively poor or, as indicated by a nationally representative survey, still has yet to become 'rich enough' to purchase and consume livestock products (see Simon, 2000). Second, the results suggest that demand-driven interventions to increase the quality and safety of livestock products may be an effective way to enforce safety and quality standards, in the interests of avoiding the spread and dissemination of zoonoses and food-borne disease.

Results demonstrate that differentiation in products within a commodity group, and in qualities and retail outlets, is present in developing countries. The analysis presented here offers commercially valuable insight into the apparent opportunities for smallholder producers at those levels of product, quality and retail outlet specificity, and in association with the variety of incomes amongst consumers. To overcome barriers to smallholder livestock holders' access to the market opportunities, public or external intervention may be warranted. This study focuses on the demonstration of a readily-applicable method of identifying the opportunities offered.

The results of the rapid assessment are preliminary, and based on a relatively small sample. They are however credible, and logical inference can be drawn from them. We plan to analyze further the data, including a comparison with results from a similar survey undertaken in Uganda, and build on this experience to refine the methodology and re-apply on larger samples of consumers.

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