ANALYSIS OF BEAN MARKETING CHANNELS IN KENYA AND TANZANIA

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Abstract

The common bean is a major staple food crop in Eastern and Southern Africa, providing dietary protein and calories. This study identified lack of adequate information on the marketing channels of the bean marketing systems in Kenya and Tanzania. The objective of this study, therefore, was to define the bean marketing channels across the borders of Northern Tanzania and Southern Kenya. The study hypothesized that the average bean price in terminal markets is approximately equal to estimated marketing costs. Purposive sampling was used to select two out of five districts of Kilimanjaro province and four out of ten districts of Arusha province. However, systematic random sampling procedures were used to select bean farmers and traders. Structured questionnaires were used to collect primary data from 64 farmers, 78 retailers and 51 bean wholesalers. The gross marketing margins and marketing costs analyses were used to evaluate the beans marketing system. The results show that the dominant marketing channel was from the farmer to upcountry assemblers to wholesalers/long distance wholesalers to wholesaler/retailer to retailer and finally to the consumer. Majority of the farmers (92.1%) produce dry beans for local markets, while 7.9% produce for the export market. A large proportion of the farmers (81.4%) sold their dry beans to upcountry assemblers and farm gate markets. In Arusha market, there was no significant difference between the average marketing cost and the average market price. This indicated that the average market prices approximated the marketing costs. The analysis of the marketing margins showed that the farmers' share (producer participation) in the price paid by the consumer is 45.65%, while those of the Nairobi long-distance wholesaler and Nairobi wholesaler were 14.88% and 9.65% respectively. These indicate that margins varied with the nature of marketing costs incurred by the various participants. The study concludes that producer participation should be increased by reduction of marketing costs through the removal of Horticultural Crops Development Authority (HCDA) levy and 3.5% import duty by the Kenya government

Key words: Bean marketing, marketing channels, costs and margins

Introduction

The common bean (*Phaseolus vulgaris L.*) is a major staple in Eastern and Southern Africa, where it is recognized as the second most important source of dietary protein and the third most important source of calories (Wortmann, 1998). Animal protein is seldom affordable by the poor in developing countries, so the bean provides the chief and sometimes the only source of protein. Beans are specifically important as a component to carbohydrate staples such as rice, corn, plantains, cassava, and other cereals, root and tuber crops. The combination of legumes and cereals provides a very good balance of amino acids. Maize and beans together provide a well-balanced protein, beans supplying the lysine deficient in maize and

maize providing the sulphur amino acids, cystine and methionine, which are lacking in beans (Mukoko, 1989).

Bean consumption in Eastern and Southern Africa exceeds 50 kilograms per person per year, reaching 66 kilograms per person in parts of Kisii, Kenya (Wortmann, 1998). The bean is a readily available and popular food to both the urban and rural population in Uganda. In 1987, the Food and Agriculture Organization (FAO) estimated Uganda's bean consumption as 29.3 kg. per capita (Kirkby, 1987). However, recent studies show that the per capita bean consumption in Uganda's Nabongo area is about 58 kg per year (David, 1999).

Dry beans can be consumed, boiled alone or mixed with cereal grains, especially maize (to form a meal known as '*githeri*' in Kenya or '*makande*' in Tanzania), sorghum or rice. Beans are also mixed with cooking banana especially in Kagera, Tanzania and Uganda, or mashed with Irish potatoes to form '*mataha*' dish for Kenyans. Green shelled beans, tender leaves and immature pods are some of the forms in which beans are consumed (Korir, 2005; Kosgei, 1998; Ouedraogo et al, 1994 and Rugambisa, 1990).

Apart from its primary role of supplying essential nutrients, the common bean is also commercially important. Though the primary objective of small farmers in producing beans is home consumption, the surplus is sold whereupon marketing becomes a major consideration. In central Ethiopia, farmers grow the white pea bean for export as their cash crop (Abebe and Kefene, 1989; Abebe, 1987). This study recognized the importance of the common bean both for domestic consumption and for commercial purposes.

The Problem

The problem is that little is known about the nature of the bean marketing systems in Tanzania and Kenya. Stakeholders have insufficient knowledge as pertains the marketing channels that beans pass through, from the producer to the consumer; and the nature of marketing margins that accrue to various market participants.

Objectives

The general objective of the study was to analyse the bean marketing system in northern Tanzania as a surplus area, and Nairobi as a deficit area, and how the two areas are linked by cross border marketing channels. The study aimed at determining the bean marketing channels and evaluating the performance of the bean marketing system by use of marketing costs and marketing margins analyses.

Hypothesis

The average bean price in terminal markets is approximately equal to estimated marketing costs i.e. H_o: $\mu = \hat{c}$

Methodology

The Study Area

The study was done between February 2002 and June 2002 in the northern zone of Tanzania and Nairobi area of Kenya. The northern zone of Tanzania includes Arusha and Kilimanjaro regions (provinces). This zone lies between 35^0 43' and 38^0 28' East and $1^0$45' and $6^0$0' South, and is an important area in the production of beans, contributing 13% of Tanzania's national production (Kamau et. al., 2000). Four

administrative districts in Arusha region, namely Arumeru, Monduli, Karatu and Mbulu and two districts in Kilimanjaro region, namely Moshi and Hai were covered. Kenya was studied mainly as the area of common bean destination for consumption, with particular focus on Nairobi, the capital city. Within these two countries, the main wholesale and retail markets of Arusha, Moshi, Himo, Namanga, Taveta and Nairobi were surveyed. Arusha and Moshi markets are the largest two markets of the northern zone while Namanga, Himo and Taveta markets are the major exit points of beans from Tanzania into Kenya.

Type of Data

Primary data relating to the bean varieties traded, quantities offered for sale, selling prices, sources of bean stocks, and transaction costs (handling, duties and levies, transportation, and storage costs), units of measure, and the exchange rates were collected for analysis.

Data Analysis

The Statistical Package for Social Scientists was used to generate descriptive statistics on trader characteristics. These included the various sources of bean stocks by traders, the bean market outlets, transport costs, mean marketing costs and mean market prices. The Microsoft Excel program was used to generate the gross marketing margins for each of the market participants. The marketing margins and marketing costs analyses were used to evaluate the performance of the bean marketing system in place.

Results and Discussions

Bean Marketing Channels in the Study Area

The bean commodity was established to flow from the northern zone of Tanzania hinterland into the regional market centres of Arusha and Moshi. From these markets, the beans flow northwards to Nairobi, through Namanga border point. However, other stocks flow to Mombasa (via Taveta), Tanga, Dar es Salaam and Zanzibar.

The majority of the farmers (92.1%) produce dry beans for local markets, while 7.9% produce for export market. The farmers who produced for export were those contracted by Pop Vriend to produce Mexican 142, for the canning industry. The survey revealed that these beans were locally cleaned in Tanzania and exported for canning abroad. In the year 2001, 81.4% of the farmers sold their dry beans to upcountry assemblers and farm gate markets.

The long-distance wholesalers sourced their bean stocks from assemblers and wholesalers and did the bulk of cross border bean export trade. The dominant marketing channel that the beans were established to flow was from the farmer to upcountry assemblers to wholesalers/long distance wholesalers to wholesaler/retailer to retailer and finally to the consumer.

Regional Transportation Costs

The transport costs for beans from the farm gate to terminal markets and within regional markets were inquired. These costs are shown in table 1.

Table 1: Regional Route Specific Transport Costs Per 110 Kg Bag

Route	Distance (KM)	Rail				Road			
		Tsh.	Ksh.	US$	Cost/KM (US$)	Tsh.	Ksh.	US$	Cost/KM (US$)
Mbulu-Arusha	**200**	**-**	**-**	**-**	**-**	**2,000**	**156.25**	**2.08**	**0.0104**
Arusha-Moshi	**70**	**-**	**-**	**-**	**-**	**1,000**	**78.10**	**1.04**	**0.0149**
Arusha-Nairobi	**250**	**-**	**-**	**-**	**-**	**5,504**	**430.00**	**5.73**	**0.0229**
Taveta-Nairobi	**486***	**1,536**	**120**	**1.6**	**0.0033**	**-**	**-**	**-**	**-**

Source: Authors' Survey, 2002
**This is the distance by rail. The cost per bag consists siding charges charged at the rate of Ksh. 960 per 36 ton wagon, Ksh. 35,640 fixed charge per wagon and a value added tax of Ksh. 6,588 (18% VAT).*

The Kenya Railways Corporation charges lower rates of transportation for agricultural commodities than for industrial goods. The cost is based on the distance, wagon capacity, siding or terminal charges and value added tax. At the time of survey, the railway connection from Taveta to Arusha was not operational. The figures show that, in Kenya, rail transport is cheaper than road transport by lorries (it would cost US$ 0.0033/km to transport a bag of beans by railway, and US$ 0.0229/km by road along the Arusha-Nairobi highway). The table also shows that the shorter the distance, the more expensive it is to transport beans.

Route Specific Marketing Costs for Beans Imported from Tanzania to Kenya

The analysis of route specific marketing costs enables the judgment of whether bean prices reflect marketing costs and hence gauge the performance of the bean marketing business. The major route specific marketing costs encountered by the traders as the beans are passed through the marketing system, from the farmer to the urban market centres are shown in table 2. The following are the notes that explain the costs in this table:

The exchange rate: At the time of the survey, the rate was 960 Tanzania shillings to 1 United States dollar to 75 Kenya shillings.

The unit of measure: In Tanzania, bags of beans are sold in '100'-kg units. However, weighing scales are not used; rather, an approximation is done by the use of 6-*debe* tins to imply 100 kg. It was found out that on weighing, this actually yielded 110 kg of beans. This unit (110 kg bag) is therefore used in this analysis.

Transport cost: The quoted transport cost per bag from Arusha to Nairobi was Ksh. 430. This, the traders said, included duties at border points. Long distance wholesalers paid this much to the transporters. It was therefore the duty of the transporter to pay any incidental duties at the border point. On arrival at the border point, however, the beans are transported across the border by head portarage, one bag after the other, a practice that does not attract duties. There may, however, be certain unknown

unofficial payments to government authorities for importation of goods. Transporters confided that they were often faced by certain embarrassments as they performed their duties, a fact that confirmed this. A certain portion of the Ksh. 430-transport cost may go to these payments. This cost is very high and forms 17.2% of all the marketing costs. At the time of the survey, maize traders sourced their maize from Nakuru and Eldoret towns of Kenya and transported it to Taveta, via Nairobi and Voi, a distance of about 450 km. They hired Kenya Railway wagons, whose capacity is 400 bags at a cost of Ksh. 70,000 (US$ 933 or Tsh. 896,000) per wagon. This represents a unit cost of Ksh. 175 (US$ 2.33 or Tsh. 2,240) per bag. This is evidently a far much cheaper mode of transport. With the revival of the East African Community, this means should be explored, especially so by the long distance wholesalers operating between Arusha and Nairobi.

Levies and duties: Tanzania's export duty of $ 2 per consignment and the cost of phytosanitary certificate of $ 15 per consignment translate to Ksh. 12.75/ bag, if the long distance wholesaler transports a consignment of 100 bags. Exporters can, however, exploit the economies of scale by trading in larger consignments. Kenya's HCDA levy charged by Kenya's customs authorities, at the tare of 3.5% of the value of produce translates to Ksh. 63/bag.

Table 2: Estimated Route Specific Marketing Costs in the Study Area

No.	Item	Karatu – Arusha Cost/110 kg Bag			Arusha – Nairobi Cost/110 kg Bag		
		T.Sh.	**US$**	**K.Sh.**	**T.Sh.**	**US$**	**K.Sh.**
1	**Purchase**	**20,607.14**	**21.47**	**1,609.93**	**25,600**	**26.67**	**2,000.00**
2.	**Handling**						
	Reweighing and rebagging				**64.00**	**0.07**	**5.00**
	Loading	**300.00**	**0.31**	**23.44**	**256.00**	**0.27**	**20.00**
	Unloading	**300.00**	**0.31**	**23.44**	**256.00**	**0.27**	**20.00**
3	**Tax**						
	District cess/tax	**200.00**	**0.21**	**15.63**			
	Market tax	**400.00**	**0.42**	**31.25**			
	Export duty & phytocertificate				**163.20**	**0.17**	**12.75**
	HCDA levy (Ksh. 1/kg produce)				**1,280.00**	**1.33**	**100.00**
	3.5% Import duty				**806.40**	**0.84**	**63.00**
4	**Transport**	**2,000.00**	**2.08**	**156.25**	**5,504.00**	**5.73**	**430.00**
5	**Storage**	**200.00**	**0.21**	**15.63**			
6	**Lodging and meals**	**50.00**	**0.05**	**3.91**	**256.00**	**0.27**	**20.00**
7	Total cost	24,057.14	25.06	1,879.46	31,936.00	33.27	2,495.00
8	Selling price	25,600.00	26.67	2,000.00	36,678.40	38.21	2,865.5
9	Marketing Margin/Bag	1,542.86	1.61	120.54	4,742.40	4.94	370.50

Source: Authors' Survey, 2002

In this analysis, duties and levies are not added to the total marketing costs because the marketing is largely informal and therefore, does not attract them. This study hypothesized that the bean prices in terminal markets reflected the marketing costs. A sample of 10 wholesalers at Arusha had a mean wholesale price of Tsh. 25,600 with a standard deviation of 3,627.05. By use of a two tailed test, the marketing costs and mean market prices were tested for significant difference at 95% confidence level. In Arusha market, there was no significant difference, hence the hypothesis that market prices reflect marketing costs was accepted.

Marketing Margins Analysis

Marketing margins for the different market participants at different levels in the marketing chain were calculated. Table 3 shows the marketing margins per bag and the corresponding % margins.

Table 3: Marketing Margins for Various Participants in the Study Area

Market participant	Price /110 kg bag			Margin/110 kg bag			% Margin
	Ksh.	Tsh.	US$	Ksh.	Tsh.	US$	
Farmer (Tanzania)	**1,610**	**20,607**	**21.46**	**1,610**	**20,607**	**21.46**	**45.65**
LD W/Saler* (Arusha)	**1,850**	**23,680**	**24.66**	**240**	**3,072**	**3.20**	**6.81**
W/Saler (Arusha)	**2,000**	**25,600**	**26.66**	**150**	**1,920**	**2.00**	**4.20**
LD W/Saler (Nairobi)	**2,525**	**32,320**	**33.66**	**525**	**6,720**	**7.00**	**14.88**
W/Saler (Nairobi)	**2,866**	**36678**	**38.21**	**341**	**4,358**	**4.54**	**9.65**
Retailer (Nairobi)	**3,526**	**45,140**	**47.02**	**661**	**8,462**	**8.81**	**18.70**

Source: Authors' Survey, 2002
**LD: Long distance; W/Saler: Wholesaler*

From the analysis above, the farmer's share (producer participation) in the price paid by the consumer is about 45.65%.; i.e. the farmer is getting 45.65% of the price that the final consumer pays. This margin is rather low. Mendoza 1995, studied the marketing margins for potatoes grown in the North of Chuquisaca, Bolivia, and found out that the producer participation was 54%. This result indicates that there is need to look into ways of reducing the marketing costs, so that the producer's share can be increased.

The long distance wholesaler in Nairobi is getting 14.88% of the consumer's price. Although this looks large, the transportation cost forms the bulk of this share. These shares generally reflect the kind of marketing functions and services the market participants have performed. For example, the wholesaler at Arusha has a share of only 4.2%. This wholesaler gets this little because he just buys the beans, stores, and sells it, with no transportation or sorting costs. In contrast, the Nairobi retailer gets a higher share of 18.7% for she is involved in a thorough sorting and cleaning exercise, transportation, and payment for watchmen and city council license fees, which the consumer has to pay for.

To gain further insight into the margins of various participants, typical farmers' and traders' gross margins were analysed. The results show that it costs a farmer Tsh. 17,976.80 to produce a 110 kg bag of beans. This bag sells for Tsh. 20,607 at the farm gate. The farmer therefore gets Tsh. 2,630.20/110 kg bag for his management, which is equivalent to 5.83% of the price the consumer pays at the retail market.

Conclusions and Recommendations

The major markets for beans from northern Tanzania are Arusha, Tanga, Dar es Salaam, and Zanzibar towns of Tanzania, and Nairobi and Mombasa towns of Kenya. The dominant marketing channel that the beans were established to flow was from the farmer to upcountry assemblers to wholesalers/long distance wholesalers to wholesaler/retailer to retailer and finally to the consumer. Although the bean marketing system is generally efficient with market bean prices reflecting the marketing costs, the producer participation is low. The study recommends the reduction of marketing costs, and thereby increasing the producer participation, by the removal of HCDA levy and the 3.5% import duty by the Kenya government.

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