AN ANALYSIS OF THE YAM MARKETING SYSTEM IN FAKO DIVISION OF CAMEROON*

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INTRODUCTION

In the South West Province of Cameroon, yam is one of the most important starchy food crops. In addition to providing food for the farm-firm household, yam farming has attained substantial commercial importance. According to Nganje, 39.4% of total yam production in the Fako Division of South West Province is sold [4]. A large proportion (66.1%) of yam sales in Fako Division is sold at traditional markets to either wholesalers, retailers or household consumers. About a third (30.8%) of the sale occurs at the home of the farmer while 3.1% of the marketing occurs at the farm [4].

Food marketing is defined as the performance of all business activities involved in the flow of food products and services from the point of initial agricultural production until they are in the hands of the consumers [3, p.6]. The food marketing system consists of marketing channels and a variety of firms (middlemen) who perform several functions. The generally accepted classification of marketing functions includes (a) Exchange functions:- buying and selling, (b) Physical function:- storing, transporting and processing, and (c) Facilitating functions:- standardizing, financing, risk bearing and market intelligence. In the case of highly perishable crops like yam, it is known that the physical and facilitating functions are relatively risky with several costly activities. Marketing costs for perishable crops like yam are usually more costly than less perishable products. Such high costs are usually due to transportation, storage and risk bearing functions.

Despite their value, middlemen are generally accused of making excessive profit at the expense of producers [3, p.27]. Many public servants and economists are strongly biased against middlemen [1,2]. In most developing countries, such perception generates a tendency of policies to maintain farmer prices and reduce consumer prices, with little concern for the middlemen who are suspected of making exorbitant profit. However, a close examination of the functions of middlemen in marketing of food crops will lead to a different opinion.

It is a common error to compare the price a farmer receives for a commodity and the retail price to the consumer to determine profit without examining the cost factors involved in time, form, possession and place utilities performed by middlemen. Marketing

is complex and productive but costly. The productive nature of yam marketing occurs mainly through place, time and possession utilities. These added utilities tend to be expensive for a bulky and perishable crop like yam. In this paper, it is hypothesized that when one takes into consideration the total cost (explicit and implicit) from the time middlemen buy food crops until the crops are sold to consumers, it will be realized that middlemen incur substantial marketing costs, and consequently, do not make excessive profits.

In the study, the concepts of market structure, conduct and performance are used to analyze yam marketing in the study area. The primary data used for this study were generated through formal interviews of yam producers and traders (middlemen). Yam farmers and traders in Fako Division were interviewed on their 1989 production and marketing activities. Localities and markets with major yam production were selected. The purpose was to select markets where yams are sold and localities where farmers grow and eventually sell yam. Seven localities and six markets were selected in Fako Division concurrently with three markets in Douala (a major cosmopolitan city and international part of entry and exit) where a great quantity of yams coming from Fako Division is eventually sold. A total of 35 farmers and 37 middlemen (traders) were interviewed.

RESULTS AND DISCUSSIONS

Description of the Market Structure and Conduct

Market Structure

The major participants identified in the yam marketing in the study area are the farmers (producers), retailers and consumers. It was observed that 83% of yam traders interviewed are classified as retailers. The producers sell their yam directly to consumers or retailers in their local rural market places. The retailers (middlemen) subsequently sell to consumers in urban and semi-urban markets. The marketing channel was found to be less complex and shorter when compared with that of corn marketing channels. This observation is consistent with that of Ayissi et al who indicated that the marketing stages of root and tuber crops are short [1].

It was found that half (51%) of the middlemen engaged in yam business do not handle any other product, 41% sell yams and one other product, while 8% sell yams and two other products. The products sold in addition to yams are usually gari, plantains, cocoyam and fruits.

The number of buyers and sellers in the rural as well as urban markets was sufficiently large to prevent individual influence. There were no government interventions or collusion among firms to fix prices. There were no barriers of entry or exit in the market. Yam marketing in Fako Division could be described as a competitive market.

Market Conduct

Rural markets were the main supply places for traders. The two major supply localities were Muyuka in the dry season and Muea in the wet season. Market places were found to be preferable than the house and the farm gate for transactions between farmers and traders.

Sixty percent (60%) of the farmers usually store some of their yams. The storage methods used were barns (52.38%); at home/house (23.81%) and underground or covered with leaves on the ground (23.81%). For traders, 86.49% of them are renting stores for storage, the others (13.51%) have no storage facility and usually handle small quantities of yams. The average storage duration recorded for traders was about 2 months, the longest duration being 5 months and the shortest was 2 weeks. For farmers, the average storage duration was also about 2 months, with the longest being 6 months. The storage duration was not very different between farmers and traders. Consequently, traders are not particularly in a better position than farmers to benefit from seasonal price variation, because they can not store for longer periods than the farmers.

For the farmers, 88.51% of their yams are sold on cash basis and only 11.49% are sold on credit. In the study area, yams are generally sold in heaps of 100 tubers by wholesalers and some farmers, whereas retailers and other farmers sell in heaps of 2, 3, or 4 yams. The final price is usually determined through a process of bargaining. The majority of the traders (81%), indicated that the major determining factors when fixing final price are the purchasing price of their yams and the marketing costs.

The five periods for yam marketing in Fako Division are:

Period I (Nov. Dec. Jan)	Period II (Feb. Mar. Apr.)	Period III (May)	Period IV (June, July, Aug)	Period V (Oct.)
This is the harvesting period in Malende area and the planting period in Bonakanda area.	This is the planting period in Malende area and the growing period in Bonakanda area.	This is the early harvesting period in Bonakanda area and the growing period in Malende area.	This is the harvesting period in Bonakanda area and the growing period in Malende area.	This is the early harvesting period in Malende area.

Analysis of Market Performance

To assess the performance of the system, the analyses are focused on two concepts: the gross and net margins and the profit ratios of traders. The following formulae were used for the analysis:

$$GM = SP - PP \quad (1)$$
$$NM = GM - MC = SP - (PP + MC) \quad (2)$$
$$MC = TC + SC + ED + Tx + HC + OC + OL \quad (3)$$
$$NM = SP - (PP + TC + SC + ED + Tx + HC + OC + OL) \quad (4)$$

Where

GM = Gross Margin, NM = Net Margin, MC = Marketing Cost, SP = Selling Price, PP = Purchasing Price, TC = Transportation costs, SC = Storage costs, ED = Equipment Depreciation, Tx = Taxes, HL = Hired labor costs, OC = Opportunity cost of capital and OL = Opportunity costs in self labor. All prices and costs are in CFA Francs.

Gross margin represents the difference between the price retailer pays to the farmer and the retail prices charged to the consumer. Gross margin does not take into consideration the marketing costs which are very important for correct assessment of the total marketing activities. Net margin results from the deduction of the marketing costs from the gross margin; and is the appropriate assessment of economic profit to the trader (middleman).

The marketing costs consisted of transportation, storage, equipment depreciation, taxes, hired labor, opportunity cost of capital and opportunity cost of labor for trader/middlemen.

The average farmgate prices (in FCFA) that middlemen paid to farmers for a kilogram of yam are presented in Table I.

TABLE I: Farm-gate Prices of Yam in Different Market by Period (in FCFA/Kg)

Market	Period I	Period II	Period III	Period IV	Period V	Average
Muea	78.52	91.11	127.41	112.59	98.89	101.70 (18.95)
Mile 17	75.93	82.96	120	137.41	129.26	109.11 (27.885)
Limbe	74.81	101.11	131.48	143.33	129.63	116.07 (27.797)
Muyuka	71.85	80.50	118	110.75	90.74	94.36 (19.619)
Likomba	75.19	107.78	132.59	115.19	129.63	112.08 (23.009)
Douala Cen.	84.81	129.63	203.70	168.52	160.90	149.51 (44.746)
Deido	92.59	154.44	185.19	152.96	111.11	139.26 (37.075)
Agip	86.67	134.81	179.27	147.86	118.05	133.33 (34.404)
Average	80.05 (7.185)+	110.29 (26.772)	149.70 (33.929)	136.07 (21.247)	121.02 (21.779)	119.40

Table I shows that the highest average farmgate price occurred in period III. This is when harvesting is just starting in Bonakanda zone. At this period there is scarcity of yam because Bonakanda zone is undergoing early harvesting and it is the growing period in Malende zone.

The lowest average price is observed in period I. This is the harvesting period in Malende zone and yam is abundant in the market. The average farm price in period I is 41% less than that of period IV which corresponds to the harvesting period in Bonakanda

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+Figure in the parenthesis is the standard deviation.

area. In general, the level of yam production in Malende zone is greater than that of Bonakanda zone, so the quantity of yam available on the market is considerably less in period III. The highest average price is observed in the off season (period III) and the lowest average price occurs in the major havesting season (period I).

The market prices presented in Table II also reflect the same trend of price variation as in the farm gate prices with the highest occurring in period III and the lowest in period I.

TABLE II: Market Price of Yam in the Different Markets by Periods (in FCFA/Kg).

Market	Period I	Period II	Period III	Period IV	Period V	Average
Muea	101.85	127.41	150	151.11	146.67	135.41
Mile 17	107.33	124.44	153.11	169.26	167.78	144.38
Limbe	148.52	176.30	202.22	178.89	181.85	177.56
Muyuka	111.85	125.81	149.59	145.72	140.04	134.60
Likomba	108.15	140.74	177.04	172.96	166.67	153.11
Douala Cen.	123.33	169.63	291.48	228.52	252.96	213.18
Deido	145.19	193.33	259.26	188.15	166.67	190.52
Agip	138.26	161.08	251.47	180.30	168.82	179.98
Average	123.06 (18.57)+	152.34 (26.37)	204.27 (56.259)	176.86 (25.405)	173.93 (34.578)	166.09

The lowest average prices were observed in Muyuka (134.6 FCFA/Kg) and Muea (135.41 FCFA/Kg). The highest average market prices were observed in the Douala area markets:

Agip (179.98 FCFA/Kg), Douala central market (213.18 FCFA/Kg) and Deido (190.52). Muyuka and Muea are rural markets where selling is dominated by the producers, while the Douala area markets are urban in nature and are dominated by middlemen (traders).

Using equation (1), the estimated gross margins are presented in Table III with the highest average gross margin occurring in period III. Consequently, the highest average net margin will also be observed in this period, because the marketing costs are assumed to be the same for all periods.

TABLE III: Gross Margins for Yam in Different Markets for Different Periods (in FCFA/Kg).

Market	Period I	Period II	Period III	Period IV	Period V	Average
Muea	23.30	36.30	22.59	38.52	47.78	33.70
Mile 17	31.40	41.48	33.11	31.85	38.52	35.27
Limbe	73.71	75.19	70.74	35.56	52.22	61.48
Muyuka	40	45.31	31.59	34.97	49.30	40.23
Likomba	32.96	32.96	44.45	57.77	37.04	41.04
Douala Cen.	38.52	40	87.78	60	92.06	63.67
Deido	52.60	38.89	74.07	35.19	55.56	51.26
Agip	51.59	26.27	72.20	32.44	50.77	46.65
Average	43.01 (15.864)+	42.05 (14.564)	54.56 (24.405)	40.78 (11.369)	52.90 (17.084)	46.60

The marketing costs for the market places are presented in Table IV and Figure I which show that, the opportunity cost of trader's labor (OL) is the highest marketing item, constituting 51.2% of the total marketing costs. The next major cost item is transportation, which constitutes 33.52% of the total marketing costs.

TABLE IV: Marketing Costs of Yam for the Different Markets in FCFA/Kg).

Marketing Cost								
Market	**TC**	**SC**	**ED**	**Tx**	**OC**	**HL**	**OL**	**TOTAL**
Muea	11.340	1.302	0.017	0.463	0.463	0.005	16.930	30.520
Mile 17	9.200	3.584	0.189	0.239	0	0.018	34.940	48.17
Limbe	17.370	3.624	0.264	1.250	0	0.080	32.180	54.77
Muyuka	14.770	2.435	0.059	1.108	1.624	0.013	23.750	43.76
Likomba	10.590	1.127	0.313	0.369	0	0.129	23.550	36.08
Douala Cen.	18.780	19.51	0.339	1.654	0	0.106	17.130	57.52
Deido	18.780	5.843	0.140	1.180	0.295	0.024	17.260	43.52
Agip	18.780	4.20	0.056	1.18	1.214	0.012	17.040	42.480
Average	14.950	5.20	0.172	0.92	0.450	0.048	22.84	44.60
% TOTAL	33.521 (4.053)+	11.65 (5.98.5)	0.38 (0.124)	2.06 (0.506)	.10 (0.632)	.10 (0.049)	51.20 (7.244)	100

TC = Transportation costs
SC = Storage
ED = Equipment depreciation
Tx = Taxes
HL = Hired Labor
OC = Opportunity Cost of Captial
OL = Opportunity cost of Labor

Table V indicates that, the highest average net margin is obtained in period III, while the net margins in period I and period IV are negative.

This shows that traders do not fare well during harvesting periods (Periods I and IV). These losses are compensated with profits from periods II, III and V.

In the case of market location, the highest average net margins are registered in Douala Central & Deido, which are urban markets, while the lowest is in Mile 17, a rural market. The average net margins are negative in two rural markets (Mile 17 and Muyuka), meaning that traders are losing in these markets, but they continue to stay in the business. This is probably due to the fact that, in some markets like Mile 17 and Muyuka, traders sell other commodities like plantain, cassava, cocoyam and fruits, which are more profitable and constitute a larger volume of their sales porfolio.

TABLE V: Net Margins for Yam in the Different Markets and for the Different Periods (in FCFA/Kg).

Market	Period I	Period II	Period III	Period IV	Period V	Average
Muea	- 7.19	5.78	- 7.93	8.00	17.26	3.18 (10.715)
Mile 17	-16.77	-6.69	-15.06	-16.32	-9.65	-12.90 (4.485)
Limbe	18.94	20.42	15.97	-19.21	-2.55	6.71 (17.182)
Muyuka	- 3.76	1.55	-12.17	-8.79	5.54	- 3.53 (7.253)
Likomba	- 3.12	-3.12	8.37	21.69	0.96	4.96 (10.465)
Douala Cen.	-19	-17.52	30.26	2.48	34.54	6.15 (15.463)
Deido	9.08	-4.63	30.55	-8.33	12.04	7.74 (15.426)
Agip	9.11	-16.21	29.72	-10.04	8.29	4.17 (18.107)
Average	11.59 (13.211)+	0.15 (12.226)	9.96 (19.643)	-3.81 (13.664)	8.29 (13.546)	2.0

Another important explanatory factor is the traditional perception of cost of labor by traders and farmers in most developing countries. To most of them, cost consists of only out of pocket expenses (explicit cost). Consequently, implicit cost for resources owned by the individual and utilized in production is not considered as cost but as "**profit**" to management and/or family labor. The average opportunity cost of proprietor's labor is 22.84 FCFA per kilogram and if it is not considered as part of the marketing cost, then the net margins for Mile 17 and Muyuka markets are also positive. Since the farmers do not consider the labor resource as a cost item, they assume their net margin as positive. However, an accurate definition of cost should include both implicit and explicit costs and these are reflected in the calculation of the net margins.

Figure 1 also shows the distribution of the producer prices and marketing costs as a percentage of the consumer price for yams in the FAKO division of Cameroon. The farmers' share is about 72% of the retail price. Comparatively, this is considerably greater than it is for various other commodities, such as eggs (62%), beef (57%) and chicken (52%). [3, pg. 195]. Unprocessed crops, such as yams, potatoes and other root crops, usually have a high farm share which may be a result of a minimal degree of processing and transportation and other related marketing costs. The marketing costs and the net margin are approximately twenty-seven percent (27%) of the retail value. The largest component of the marketing cost is the opportunity cost of the operator's labor which is approximately 51.3% of the total marketing cost. The second largest component of the marketing cost is transport which is roughly 33.5%.

Average profit ratio, measured by net profit as a percent of sale at market places, are presented in table VI. The average profit ratio for the system is 1.2%. Given that the average profit ratio for the system is comparable and below the 3% ratio generally found for all food marketing systems, there is no evidence of traders making exorbitant proft in marketing of yam in Fako Division of Cameroon.

FIGURE 1

PRODUCER PRICES AND MARKETING COSTS AS A PERCENTAGE OF CONSUMER PRICES

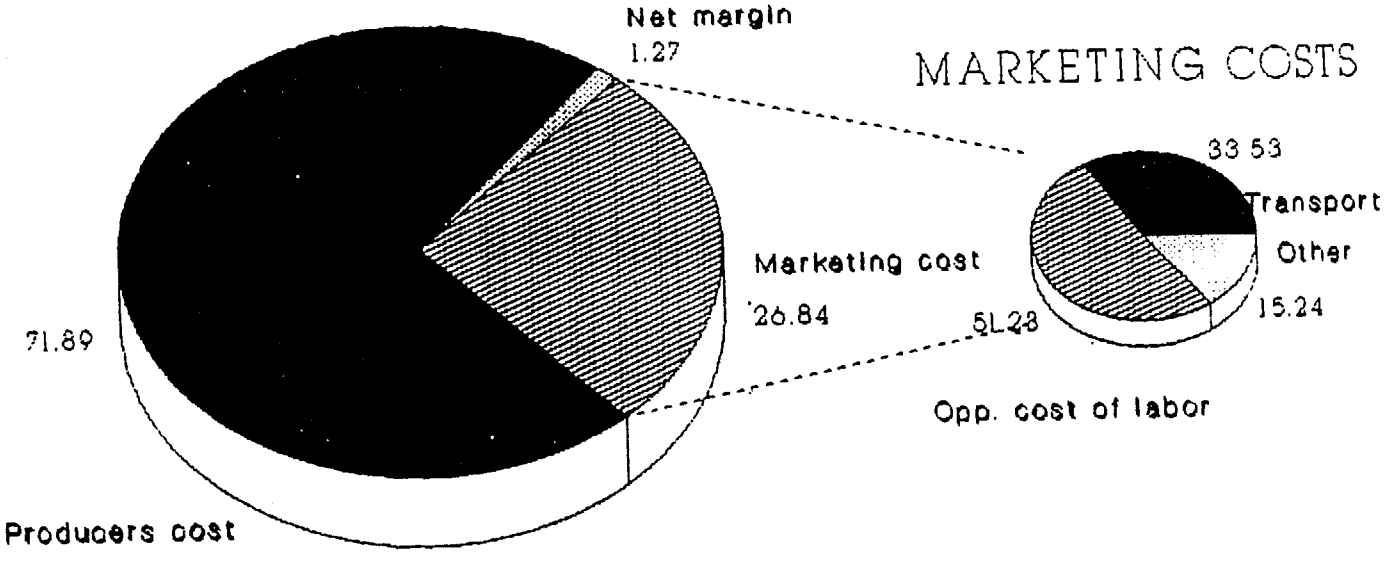

TABLE VI: Average Profit Ratios for Yam in the Different Markets.

Market	Price Ratio
Muea	2.3 %
Mile 17	-8.9 %
Limbe	3.8 %
Muyuka	2.6 %
Likomba	3.2 %
Douala Cen.	2.8 %
Deido	4.0 %
Agip	2.3 %
Average	1.2 %

CONCLUSION

It is concluded that the yam marketing structure in the study area is close to that of a perfect competitive market with a relatively high degree of competition, very few barriers of entry or exit, and some degree of specialization in yam marketing.

Rural markets serve as the supply places for traders with most transactions occurring at the market place. Both middlemen and farmers are involved in yam storage with average storage period being two months. Yam prices are determined through bargaining with no government intervention.

The average marketing cost of yam is relatively high with opportunity cost of the proprietor's labor and transportation making up 51.2% and 33.52% respectively of the total marketing cost. The average net margin for the system is 2.0 FCFA/Kg with a profit ratio of 1.2%. The farmer's share is 72% of the retail price.

The net margins and profit ratios indicate that middlemen are not making exorbitant profits in marketing of yam in Fako Division of Cameroon. The yam marketing system therefore, is considered to be efficient.

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