

RURAL FISH MARKETING IN AFRICA: SOME EMPIRICAL CONSIDERATIONS FROM NIGERIA

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Abstract

This paper focuses on rural marketing in Africa. A case study of fish marketing was undertaken in Nigeria in 1982. An analysis of the socio-economic profile of the respondents studied indicated that women rather than men were involved in marketing. However, there was a family linkage in the fishery industry in that the women often obtained supplies of fresh fish from their husbands who were often fishermen. This reduced possible collusive activities on the part of the middlemen, implying that the system was relatively efficient, particularly in *economic* terms.

An analysis of marketing margins indicated that frozen fish marketing, which had refrigerated facilities at the producer and wholesale levels, was *technically* more efficient than fresh fish marketing which did not have these facilities and was less well organized. The main implication of the Nigerian case study for Africa is that rural market development centres on adequate provision of infrastructural facilities for storage, processing, transportation etc.

Introduction

The objective of this paper is to analyse the nature of rural marketing in Africa on the basis of a Nigerian example. The data used here were obtained from a study of fish marketing which was undertaken in selected areas of Nigeria in 1982, (Adekanye 1983). Primary data were collected in the *Cross River State* of Eastern Nigeria. A sampling frame of fish sellers and consumers was first constructed for selected fishing communities and markets in the study area. A total of 92 fish sellers and 90 consumers were then randomly selected for study from the sampling frame. Several groups of fishermen were also studied. Primary data collection was effected through *continuous* residence in the study area for five weeks in August-September 1982. Secondary data were obtained from the Federal Department of Fisheries, the State Fisheries

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Department, the Nigerian Institute of Oceanography and Marine Research, etc. Selected aspects of the fish marketing system in the study area are first discussed below. Then estimated marketing margins are appraised.

I. Empirical Findings

The main empirical findings of the study are:

(i) The fish sellers were mainly women (91 per cent of the respondents). This predominance of women is an important feature of agricultural marketing in West Africa (Adeyokunu 1970; Antonio 1968; Hodder and Ukwu 1969.)

(ii) There was a strong family linkage in the fishing industry, as the fishermen generally sold fish to their wives.

(iii) The commonest channel of distribution consisted of four transactions, with fresh fish moving from the fishermen to wives of fishermen, who were generally the local assemblers, wholesalers, then to retailers and finally to the consumers. Frozen fish moved from importing firms first to the commission agents and then to wholesalers, retailers and finally to the consumers.¹

(iv) Most fish sellers operated on a small scale, particularly in the case of fresh fish, so that retailers constituted about 75 per cent of all fish sellers in the study area with a turnover of about 125kg of fish per retailer per week, valued at less than ₦500 per retail establishment per week.² This smallness of the scale of operation is an aspect of underdevelopment and it is linked with an over-abundance of labour in marketing. Bauer regarded this as a rational substitution of a relatively abundant factor input (labour) for that which is scarce (capital). Other reasons for small scale operation included limited employment opportunities and the fact that little or no specialized skill is needed for rural marketing. The unskilled nature of the business is indicated by the fact that 82 per cent of the respondents had no form of formal education (Table 1). Furthermore, the main reasons given by them for engaging in fish marketing was that it was a family business (62 per cent), (Table 2). Other reasons included

¹ The two types of fishing industries in Nigeria are marine (large scale) and artisanal (local and small scale). Marine fishery consists of distant water fishery, involving the use of deep sea trawlers and inshore fishery within the continental shelf. Frozen fish is landed from the marine source either from foreign fishing companies who operate on a charter basis with Nigerian companies or from vessels owned by Nigerian firms. Artisanal fishery is more decentralised. It consists of small coastal canoes, brackish water and fresh water fisheries as well as fish farming. Artisanal fishery was the more important fishery industry in the study area and the fish caught was in most areas sold fresh.

² The Naira (₦) is the basic unit of Nigerian currency. As of January 1983, one Naira was approximately equal to £0.84 (sterling) or \$1.56 (US).

TABLE 1 EDUCATION OF RESPONDENTS

Education level	% of respondents
No education	81.71
Primary school only	18.29
Secondary modern or grammar	0.00
Total	100.00

Source: Survey data 1982.

TABLE 2 REASONS FOR ENGAGING IN FISH MARKETING

Reason	% of respondents
Find it easy to trade in fish	7.3
It is a family business	62.20
A lot of people buy fish	13.41
Others	17.07
Total	100.00

Source: Survey data 1982.

such responses as "this is the trade I was born into".

(v) The marketing functions performed included buying and selling, financing, processing, transportation, etc., with varying degrees of efficiency. In particular, the related functions of processing and storage were performed not so much to add value to the commodity, but mainly to prevent spoilage for unsold stock, as the consumers preferred fresh to processed (smoked)³ or frozen fish.

(vi) In general, there were large numbers of small buyers and sellers, particularly for fresh fish, none of whom was large enough to influence average levels of prices. There was also relative freedom of entry although trade associations and cooperatives were active in a few instances. There was product differentiation on the basis of named variety of the fish (ray, grunters, tilapia, etc.) as well as commodity classification on the basis of the size of fish (small, medium and large). There was no institutionalized or public sources for market information, so that individual traders relied on private informal sources, while consumers depended on their ability to bargain, for arriving at what they considered as the right price.

The determinants of prices included the demand and supply of fish, the type of fish and the bargaining ability of the buyer, as well as the time of day. Fish prices tended to be higher in the morning than in the evening because of the sellers lack of storage facilities and the need to clear supplies in order to prevent spoilage. Prices for fresh fish were lower nearer the sources of supply than farther away near the urban areas, because of the additional value created for the consumer in transporting and making

³ The main method of processing and preserving fresh fish in the study area was by smoking.

the fish available in relatively more distant areas. In general, prices were the same for fresh and processed (smoked) fish, so that there was little price differential to compensate for the additional service of smoking the fish, indicating that the consumers did not really want the fish smoked. Nevertheless, the middlemen still smoked fish because of lack of a viable alternative. (vii) An assessment of socio-economic conditions in the fishing communities indicated that, as in most rural areas of Nigeria, the level of infrastructural facilities (roads, bridges, water supply, storage and processing equipment, education, etc.) was low.⁴

1. Marketing Margins

Marketing margins cover the costs of performing different marketing functions. In this sense, then, marketing margins include the cost of transportation, the cost of storage, risk bearing, etc. Alternatively, marketing margins can be regarded as consisting of all returns to the different factors of production used in marketing - land, labour, capital, entrepreneurship, etc. (Adekanye 1982). A functional analysis of marketing margins for fish is first undertaken below, by decomposing the margins into the different functions performed in fish marketing in the study area. Then, an analysis of the margins according to the different types of distributors is undertaken. Inter-market comparisons of the margins are then performed.

2. Functional Analysis

A functional analysis of the marketing margins for fish was undertaken by tracing a kg. of fish through the marketing system, from the point of production until the fish was in the hands of the ultimate consumer. It should be noted, though, that this is a highly aggregative process, involving considerable averaging, as different types of fish and different levels of markets (primary or farm gate, feeder or assembler and urban, central or consumer, markets)⁵ were involved.

On a functional basis, transportation costs were the largest single component of the marketing margins, accounting for 15.00 per cent and 17.39 per cent of retail prices for frozen and fresh fish, respectively, (see Tables 3 and 4). Storage costs were next highest, constituting 13 per cent and 14 per cent of retail prices for frozen and fresh fish respectively. Distribution costs included the cost of buying and selling, entrepreneurship, provision of market information, risk bearing, etc. and they came up to 13 per cent and 11 per cent of retail prices for frozen and fresh fish res-

⁴ Roads were particularly bad and often hardly motorable, leading to high transportation costs.

⁵ Primary markets, nearest to the fishing communities were mainly producer's or fishermen's markets. Feeder or assembler markets occupied an intermediate position between the producers in the fishing communities and the urban consumers. The central markets served mainly urban consumers.

TABLE 3 FUNCTIONAL ANALYSIS OF MARKETING MARGINS FOR FROZEN FISH

Function	Price (N/kg)	% of retail price	Gross marketing margins
Producer	0.86	53.75	
Transportation	0.24	15.00	
Storage	0.21	13.13	46.25
Distribution	0.20	12.50	
Processing	0.09	5.62	
Retail price	1.60	100.00	

Source: Survey data 1982.

TABLE 4 FUNCTIONAL ANALYSIS OF MARKETING MARGINS FOR FRESH FISH.

Function	Price (N/kg)	% of retail price	Gross marketing margins
Producer price	1.64	47.54	
Transportation	0.60	17.39	
Storage	0.50	14.49	
Distribution	0.39	11.30	52.46
Processing	0.32	9.28	
Retail Price	3.45	100.00	

Source: Survey data 1982.

pectively. Processing costs were lowest, at 6 per cent and 9 per cent of retail prices for frozen and fresh fish, respectively. This reflects the fact that processing (smoking) was not highly priced by the consumer.

3. Market Comparisons of Margins

Estimated marketing margins are presented in Table 5 for three different types of markets (primary, feeder and central) in the study area. The inter-market comparisons of the margins revealed that:

(i) Average producer and consumer prices for fresh fish were generally lowest for the primary market, at N1.48 and N2.75 per kg., respectively.

TABLE 5 INTER-MARKET COMPARISONS OF MARKETING MARGINS FOR FRESH FISH

Market types	Producer price (N/kg.)	Consumer price (N/kg.)	Marketing margins	Marketing margins (%)
Primary	1.48	2.75	1.27	46.18
Feeder (Evening market)	1.74	3.59	1.85	51.53
Feeder (Day market)	1.74	3.86	2.12	54.92
Central	1.74	4.24	2.50	58.96

Source: Survey data 1982.

This is because the primary market was closest to the fishing community. Consequently, the costs of marketing (transportation, in particular) were relatively low, leading to the two lowest gross margins of 46.18 per cent.

(ii) The average consumer price was lower for the evening feeder market at ₦3.59 per kg. fresh fish compared with the average of ₦3.86 per kg. for the day market, resulting in a lower marketing margin for the evening market, (51.53 per cent) compared with that of the day market (54.92 per cent). The explanation for this was the fact that the sellers generally reduced prices in the evenings to clear supplies because of the high perishability of fish and inadequate storage facilities.

(iii) Consumer prices and marketing margins were highest in the central market. There were generally no fishing communities close to the central market, unlike in the case of the primary and feeder markets. Consequently, the share of retail prices that went to the producer was lowest for the central market at only 41.04 for fresh fish.

4. Distributor's Margins

The wholesaler's gross margins and mark-up are computed in Tables 6

TABLE 6 GROSS MARGINS AND MARK-UP FOR WHOLESALERS FOR FROZEN FISH

Average buying price Per 20kg. of Frozen Fish	= ₦ 17.25
Average transportation cost	4.55
Rent paid for stalls	3.60
Total marketing costs	8.15

Selling price per 20kg of frozen fish = ₦ 28.00

Gross margin = Selling price - Buying price = ₦(28 - 17.25) = ₦10.75

Net margin = Gross margin - Marketing costs = ₦(10.75 - 8.15) = ₦2.60

Mark up = $\frac{\text{Net margin}}{\text{Selling price}} \times \frac{100}{1} = \frac{2.60}{28.00} \times \frac{100}{1} = 9.29\%$

TABLE 7 GROSS MARGINS AND MARK-UP FOR WHOLESALERS FOR FRESH FISH

Average buying price per kg of fish	= ₦ 1.59
Rent paid on stalls	.65
Transportation	.80
Total marketing costs	1.45

Average selling price for one kg of fish ₦3.50

Gross margins = Selling price - Buying price
 = ₦(3.50 - 1.59)
 = ₦1.91

Net margin = Gross margin - Marketing costs
 = ₦(1.91 - 1.45)
 = ₦0.46

Mark up = $\frac{\text{Net margin}}{\text{Selling price}} \times 100$
 = $\frac{0.46}{3.50} \times \frac{100}{1} = 13.5\%$

and 7. For frozen fish the wholesalers' gross marketing margins were estimated at ₦10.75 per 20kg., constituting 38.39 per cent of wholesale prices. The total marketing cost was ₦8.15, constituting 29.11 per cent of wholesale prices and 75.81 per cent of the gross marketing margins. The net margin was estimated at ₦2.60 which was only 9.29 per cent of wholesale prices and 24.19 per cent of the gross margin. For fresh fish, the wholesaler's gross margins were estimated at ₦1.91, constituting 54.57 per cent of the wholesale price. The total marketing cost of ₦1.45 represented 41.43 per cent of the wholesale price and 75.92 per cent of the gross margin. The value for the net margin was ₦0.46. This was found to be only 13.5 per cent of the wholesale price and 24.08 per cent of the gross margin. The calculated wholesalers net margins of ₦0.46 per kg. of fresh fish and ₦2.60 per 20kg. of frozen fish included returns to the capital invested in the business, returns to management and profit.

5. Efficiency Appraisal

Marketing efficiency is the movement of commodities from production into consumption at the least cost consistent with the services consumers want. Marketing efficiency appraisal, therefore, centres on a comparison of the costs of marketing with the satisfaction or the value added to a commodity in the marketing system. Marketing margins can therefore be used for assessing marketing efficiency. A high marketing margin is not necessarily an evidence of inefficiency however. It may simply mean that more highly priced services are performed to meet consumer desires.

Estimated marketing margins were higher for fresh than frozen fish - 52.46 per cent compared with 46.25 per cent of retail prices (Tables 1 and 2). This means that for every Nigerian Naira spent by the consumer, 52 per cent went into marketing in the case of fresh fish, compared with 46 per cent in the case of frozen. Was the marketing system for frozen fish more efficient than that of fresh fish? Our observation revealed that *technical efficiency* was certainly higher in the case of frozen fish than fresh fish, because of the more organized system and the use of refrigerated facilities at the producer and wholesale levels. However, *economic efficiency* was probably lower for frozen fish because the consumers preferred fresh fish. Furthermore, on average, just over 50 per cent of retail prices for fresh fish went into marketing - seeking out the sources of supply, transportation, risk bearing, processing, storage, etc. (Table 3). The wholesale mark-up (net margin) was 9 per cent and 14 per cent of retail prices for frozen and fresh fish respectively (Tables 4 and 5). When these are related to the functional components of the gross marketing margins for fish in Tables 1 and 2, the middlemen's margins for distribution (including buying and selling, risk bearing, entrepreneurship etc.) do not seem excessive. Transportation and storage appear to have been far more responsible for high costs.

6. Comparison with Other Estimates

Estimated marketing margins for frozen and fresh fish for Nigeria by the Federal Department of Fisheries are 42 per cent and 75 per cent of retail prices, respectively. Estimated marketing margins for the City of Lagos in South-Western Nigeria are 44 per cent and 69 per cent of retail prices for frozen and fresh fish, respectively (Adekanye 1983). Other estimates of marketing margins for other food commodities in Nigeria indicate that the proportion of retail prices that goes into marketing is about 37 per cent for fresh yam tubers, 43 per cent for rice, 37 per cent for maize, 54 per cent for yam/cassava flour, 54 per cent for cowpeas and 60 per cent for fruits and vegetables (Adekanye 1982). When the estimates are compared with those of the present study (47 per cent for frozen fish and 52 per cent for fresh fish) then, the rural fresh fish marketing system appears relatively less costly in comparison, for example, with the urban marketing system of Lagos-especially because Lagos, situated on the coast, is a fish producing area. It must be remembered, however, that marketing margins are a function of several variables, apart from relative efficiencies: the type of marketing services embodied in the commodities (processing for example), the degree of perishability, the distance between the producing and consuming areas etc.

II. Summary and Conclusion

A case study of rural marketing was undertaken in Nigeria in 1982. A total of 90 fish sellers and 92 consumers as well as several groups of fishermen were studied in Cross River State of South Eastern Nigeria. Women rather than men were involved in marketing. However, the women often bought their supplies of fish from their husbands who were usually fishermen, so that there was a strong family linkage in the fishing industry. The middlemen generally operated on a small scale, because of small capital outlay. Infrastructural inadequacies, particularly for transportation, storage and processing were responsible for high costs and reduced efficiency. Estimated marketing margins for frozen and fresh fish were 46 per cent and 52 per cent of retail prices, respectively. High marketing margins are not necessarily an evidence of marketing inefficiency. However, technical efficiency appeared higher for frozen than fresh fish in the study area, mainly because of the relatively more organized system of marketing and the use of refrigerated facilities at the producer and wholesale levels which resulted in relatively less wastage in frozen fish marketing.

The main policy implication of the empirical findings of the Nigerian case study for rural marketing in Africa is that infrastructural improvements are a necessary condition for market development. A family-based, cottage industry like the fishery economy studied in Nigeria is particularly useful and effective for reducing collusive activities of middlemen. Se-

veral African governments have often alleged that middlemen are *exploitative* and that they make uneconomic profits. The soldiers have often taken over supplies of foodstuffs, forcibly, from traders. As against this, however, the major conclusion that emerges from the Nigerian case study is that rather than being *exploitative*, the middlemen in Africa are *effective*, particularly in the rural areas, given the poor facilities available for transportation, storage and processing.

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