Cost and Return Analysis of Fresh Fish Marketing in Kebbi State, Nigeria.

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ABSTRACT

Improving the supply of fish protein to teaming population of consumers within and outside Kebbi State requires an understanding of its marketing costs and returns; hence, this study investigated costs and return analysis of fresh fish marketing in Kebbi State. Six fishing communities in Kebbi State were purposively selected while 82 fishermen 68 traders were randomly selected from lists of fishermen and traders' cooperatives. These respondents were interviewed using structured questionnaires in addition to Focus Group Discussions (FGDs) conducted with representatives of the cooperatives. Descriptive statistics and net return model were used to analyse the cost and return data collected on fresh fish marketing. Results obtained revealed that fishermen, wholesalers and retailers make a net return of NGN 58.22, NGN 266.95 and NGN 466.95 per every basin of fresh fish (15Kg) sold respectively. The fishermen could make NGN 208.22 per basin when they sell directly to retailers in the urban market. The difference between marketing cost and revenue were estimated at 7.85%, 25.84% and 30.46% for fishermen, wholesalers and retailers respectively. Transportation charges and cost of cool storage were the principal marketing costs of fishermen and traders respectively. This study concludes that the marketing of fresh fish in Kebbi State was profitable. However, the profit level could be enhanced through economies of scale by engaging in collective marketing to reduce storage and transportation costs. Therefore, the study recommends that the actors in the marketing system of fresh fish should embrace cooperative marketing.

Key words: Artisanal, Fresh Fish, Marketing, Profitability

INTRODUCTION AND BACKGROUND STATEMENT

Fish marketing like the marketing of other agricultural products entails performance of various functions along the distribution chain of the commodity. These include physical functions (processing, assembling, packaging/grading, transportation, storage/preservation,), exchange, facilitating and institutional functions. In performing these functions, the actors involved (fishermen, processors, traders, commission agents, etc) play specific important roles (Suleiman, 2007). The sustainability of such services has relationship with costs and returns involved. In general, components of marketing costs are of interest to policy markers because such knowledge can serve as the basis for reducing inefficiencies or establishing interventions that reduce such costs. A rather simplistic illustration is as follows: where transport is the principal marketing cost, the

policy response includes improvement of infrastructure such as roads and rail lines. When labour constitutes the major cost component, the policy response is to induce adoption of labour-saving devices such as machinery (Pomeroy, 1989). In a similar study reported by Torres, et.al (undated), brokers at the Navotas Fish Port located in southern Tagalog, Philippines attribute a major portion of their marketing costs to hired labour, market fees and depreciation. In the small-scale fishery of Matalom in province of Leyte, Philippines; at least 41% of total variable costs are accounted for by transportation (Pomeroy, 1989); this was even higher for villages farther from the major retail market. In the Gulf of Nicoya, Costa Rica, at least 44% of total monthly expenditures by primary buyers are allotted for ice (Scheid and Sutinen 1981). Against this background, the artisanal fishery in Kebbi State became the focus of this study. This study aimed at estimating costs and returns of actors along the

fresh fish marketing channel to unveil areas of intervention by researchers, extensionists and policy markers. This will assist in developing the artisanal fishery and hence improve the supply of fish protein to teaming population of consumers within and outside Kebbi State.

METHODOLOGY

Multistage sampling procedure was employed for selecting samples in this study. The twenty-one local government areas (LGAs) in Kebbi state were considered as a cluster within which, local government areas were purposively selected to cover communities along the important hydrological references of the State namely; Flood Plains of Sokoto Rima River (FPSRR) and river Niger. Two LGAs were purposively selected along the FPSRR namely; Argungu and Birnin Kebbi, while one local government was selected along the river Niger hydrological reference. Selection of these locations was based on their importance in the artisanal fishery industry of the State. Similarly, in each of the LGAs, two fishing communities were purposively selected. In the communities, fishermen and traders' associations were identified and lists of their respective members were used as a guide for random selection of respondents. The number of respondents randomly selected in each location was based on the proportion of fishermen and traders operating in the locations. The exact population figures of these operators were unavailable as at the period of this study. However, information obtained from the fisheries unit of Kebbi State Agricultural Development Project revealed that 50% of fishermen and traders in the State operate in Yauri local government area. Thus, a total of eighty-two fishermen and sixty-eight traders were covered across six fishing communities from three LGAs in Kebbi State. A total of 41.5% of the fishermen involved in this study were covered inYauri LGA, while 29.3% was covered in each of Argungu and Birnin Kebbi LGAs. On the other hand, 47.1% of the interviewed traders were from Yauri and 26.5% were covered in each of Argungu and Birnin Kebbi LGAs. Structured questionnaires were used to interview fishermen and traders individually, while checklists were used as guide to elicit for qualitative information during focus group discussions conducted with representatives of fishermen and traders associations. Data collected include daily catch, market prices, costs and returns components from marketing of fresh fish, etc.

2.1 Analytical Tools

2.1.1   Estimation of Net Return (NR)

$$NR = P - (\sum X_{1....n}) - K \dots\dots\dots\dots\dots \ (1)$$

Where:

NR = Net return from marketing of the product (fresh fish, smoked dried and sun dried fish),

$\sum$ = summation sign

X_1 = local government revenue (₦)

X_2 = Transport charges (₦)

X_3 = cost of loading/unloading (₦)

X_4 = Commission paid to selling agents (₦)

X_5 = Packaging or repackaging cost (₦)

X_6 = Cost of storage using cold facilities (₦)

X_7 = inputted labour cost for catching fish (₦)

X_8 = depreciation on fishing gears (per day) (₦)

P = Selling price of unit quantity of the product (fresh fish, smoked dried or sun dried fish) (₦)

K = Purchase price (from presiding participant in the marketing chain) (₦)

RESULTS AND DISCUSSION

Socio-economic characteristics of artisanal fishermen and traders in the marketing system of fresh fish in Kebbi State.

Both fishermen and traders involved in this study were all male. However, results of qualitative interviews revealed that, both male and female operates as fish traders in the State. On the other hand, only male were known to engage in fishing as a means of livelihood. Age composition of the actors (fishermen and traders) was similar. About 47.0% and 38.0% of fishermen and traders were young and active operators within age brackets 25 to 40 years. Actors above 50 years were minority (14.7% fishermen; 13.9% traders) among those interviewed. Some (17.6%) of the fishermen combined fishing and farming as means of livelihood whereas all the traders devotes their time to only fish trading. Despite this, both actors have many years of experience ranging between 5 to 20 years among 38.3% of fishermen and 75.0% of the traders. This is expected to give them good understanding of the artisanal fish industry in Kebbi State. Majority (52.9%) of the fishermen market their daily catch at watersides close to their communities. Other (35.3%) fishermen market their catches at other locations within the State. Fish traders (75.0%) operate in Yauri market, while 25.0% of them sell at an urban market in the state capital, i.e. Birnin Kebbi market. Fishermen handles mainly fresh fish while 83.3% of the traders handle fresh fish, 69.4% smoked fish and 11.1% sundried fish. Large proportion of fishermen (97.1%) and traders (55.6%) in the study location belongs to

cooperative societies. However, information from the qualitative interview conducted revealed that these fishermen and traders carry out their economic activities such as fishing and marketing individually. Apart from operating individually, results revealed that 88.2% and 66.7% of

fishermen and traders had attended informal Arabic Schools. Only 5.9% of the fishermen and 19.4% of the traders attained primary education. This implies low level of formal education especially among the fishermen (Table 1).

TABLE 1
Socio-economic Characteristics of Artisanal Fishermen and Traders in Marketing System of Fresh Fish in Kebbi State

Variable	Fishermen		Traders	
	Freq.	%	Freq.	%
Gender:				
Male	34	100	36	100
Female	0	0.0	0	0.0
Age (Years):				
25 – 40	16	47.06	14	38.39
41 – 50	13	38.23	17	47.22
Above 50	5	14.71	5	13.89
Marital Status:				
Married	34	100	34	94.40
Single	0	0.0	2	5.60
Major occupation:				
Fishing	28	82.40	0	0.0
Fish Trading	0	0.0	36	100
Farming	6	17.60	0	0.0
Years of Experience:				
5 – 20	13	38.23	27	75.00
21 – 30	15	44.12	6	16.67
31 – 40	5	14.71	2	5.56
Above 40 years	1	2.94	1	2.77
Major Fishing Locations:				
Waterside close to fishermen's village	18	52.94	0	0.0
Other Waterside within the state	12	35.29	0	0.0
Watersides outside the state	4	11.77	0	0.0
Major Trading Locations:				
Yauri market	0	0.0	27	75.00
Birnin Kebbi Market	0	0.0	9	25.00
Forms of Products Traded:				
Fresh Fish	34	100	30	83.30
Smoked dried fish	0	0.0	25	69.40
Sun dried fish	0	0.0	4	11.10
Membership of cooperative society:				
Yes	33	97.10	20	55.60
No	1	2.90	16	44.40
Educational Status:				
Primary School	2	5.90	5	13.89
Secondary school	2	5.90	7	19.44
Arabic Education	30	88.20	24	66.67

Net returns in artisanal fish marketing

The net returns from marketing of the fresh fish were estimated as the difference between participants' selling price and the total marketing costs incurred. The analyses were based on the

same unit of measure of the fresh fish (that is, per small basin of 15kg). Table 2 shows the marketing prices, costs and returns according to participants and market outlets.

TABLE 2
Costs and Returns from Marketing of Fresh Fish among Market Participants in Kebbi State

Variable	Market Prices, Costs Components and Participants	Urban Market		
		Wholesaler	Retailer	% of Total Marketing Cost
	Fishermen (Direct sale to market participants)			
P	Average Selling Price	800	950	
X_1	Local Government Revenue	10	10	6.8
X_2	Transport Charges	68	68	46.0
X_3	Loading/unloading per basket	0	0	0.0
X_4	Commission	20	20	13.5
X_5	Packaging	50	50	33.8
	Total marketing cost	148	148	100.0
X_7	*Labour (based on 10.5hrs of labour = 1.31mandays)	524	524	
X_8	Depreciation on Fishing Gears (per day)	69.78	69.78	
$\sum X_{1....n}$	Total marketing cost +Labour Cost and Depreciation Value	741.78	741.78	
NR	Net Return	58.22	208.22	
	Wholesaler			
P	Average Selling Price	1300		
K	Purchase price	800		
X_1	Local Government Revenue	10		4.3
X_2	Transport Charges	38.55		16.5
X_3	Loading/unloading per basket	14.5		6.2
X_4	Commission	20		8.6
X_5	Re-packaging	50		21.5
X_6	Storage using cool facilities	100		42.9
	Total marketing cost	233.05		100.0
	Total marketing cost + K	1033.05		
	Net Return	266.95		
	Retailer			
P	Average Selling Price (Consumer price)	2000		
K	Purchase price	1300		
X_1	Local Government Revenue	10		4.3
X_2	Transport Charges	38.55		16.5
X_3	Loading/unloading per basket	14.5		6.2
X_4	Commission	20		8.6
X_5	Re-packaging	50		21.5
X_6	Storage using cool facilities	100		42.9
	Total marketing cost	233.05		100.0
	Total marketing cost + K	1533.05		
	Net Return	466.95		
	Consumer			
	Average Purchase Price (Consumer price)	2000.00		
	Total marketing cost along distribution chain	**614.10**		

The findings of this research revealed varied levels of net returns from the marketing of fresh fish among different actors in the study area. The estimation of returns was based on major marketing channels of the commodity. This research observed that fishermen sell fresh fish to wholesalers at rural market as well as transport fresh fish to urban centers where they sell to retailers through commission agents. Therefore fishermen enjoy different prices, incur marketing cost and hence have varied net returns in the marketing system. The lowest net revenue of NGN58.22 per (15kg) basin was made by the fishermen through sales to wholesalers at the rural market. Fishermen could make net returns of up to NGN208.22 in urban markets when they sell fish directly to retailers. Often, sales of fresh fish at the urban centers by the fishermen are targeted at the retailers to maximize returns. Retailers make the highest net returns of NGN466.95 followed by wholesalers who make NGN266.95 per every basin of 15kg. This shows an uneven

distribution of returns among the participants of fresh fish marketing system in the study area. This variation is illustrated in figures 1 and 2. Results show that marketing revenue and cost varies proportionately among the actors. Thus, the higher the marketing cost incur the more the revenue. This could be attributed to increase in value of the fresh along its value starting from fishermen to consumer. As one moves along the chain, marketing services provided varies and so also the costs of such services. This finding is similar to that obtained in a study conducted on structure and performance of wholesale marketing of finfish in Costa Rica (Scheid et.al. 1981). Scheid and Suniten (1981) explained that, the fact that retailers received the highest margin can be attributed to the facts that fish are usually sold by retailers in small quantities; higher operating costs prevailed at the retail level; and greatest spoilage and shrinkage losses are often assumed by retailers. The findings of this work also revealed that the proportionate difference between marketing costs and revenues of actors along the fresh fish value chain were 7.9%, 25.8% and 30.5% for fishermen, wholesalers and retailers respectively. Further analysis of marketing costs revealed that transportation charges constitutes the highest (46.0%) cost component among fishermen, mainly due to poor roads linking rural fishing areas and urban markets where better market prices are obtainable. Water weeds and poor water ways clearing and maintenance also contributes difficulties in water transportation, thereby increasing cost of transport. On the other hand, fish storage accounts for 42.9% of the total marketing cost of wholesalers and retailers. This was attributed to high cost of ice required for storing fresh fish. The energy required for ice production is mainly from electric generators due to erratic electricity supply in the study area (Figure 3).
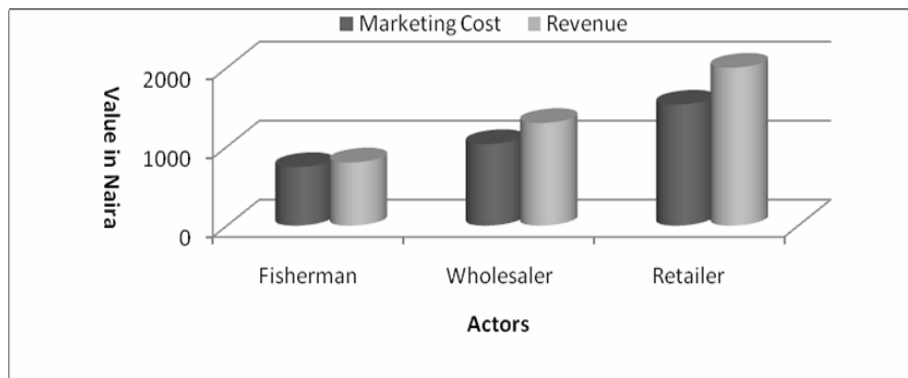

Figure 1: Variation in Fresh Fish Marketing Cost and Revenue among Actors.
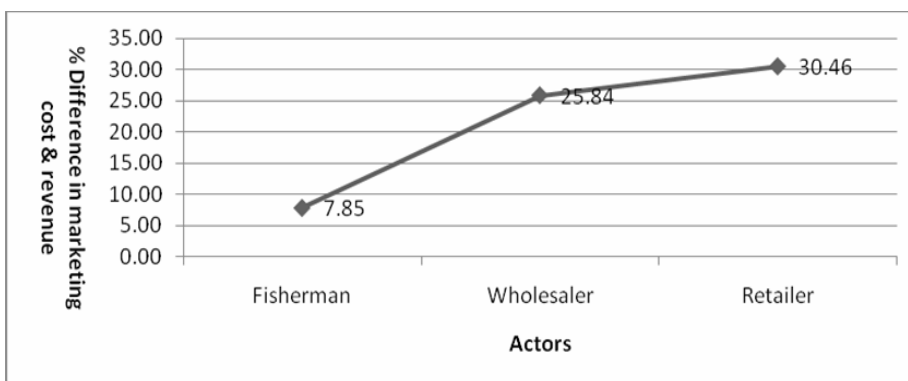

Figure 2: Variation in proportional Difference between Marketing Cost and Revenue of Fishermen, Wholesalers and Retailers in Kebbi State.
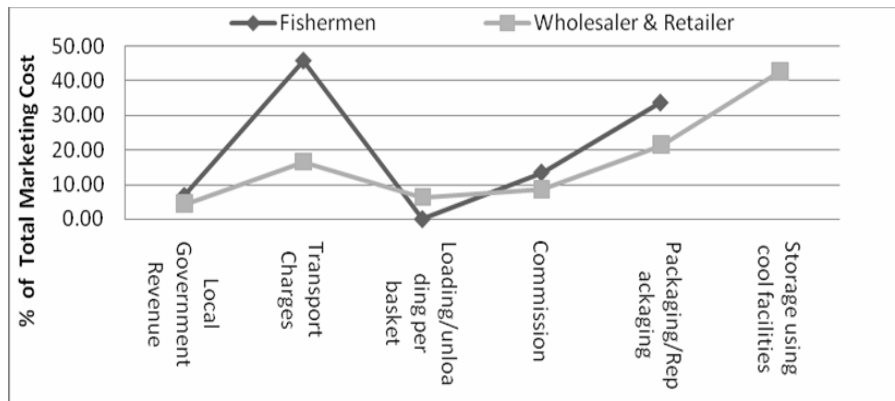
Figure 3: Variation in Fresh Fish Marketing Cost among Fishermen, Wholesalers and Retailers in Kebbi State, Nigeria

CONCLUSION AND RECOMMENDATIONS
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Fresh fish marketing in Kebbi State was profitable. The marketing cost, revenue and hence profit varies along the commodity marketing channel. Actors namely fishermen, wholesalers and retailers provide services along the marketing chain and differ in their cost and revenue components. Retailers incur more cost followed by wholesalers and then fishermen. However, retailers had the highest level of profit per basin (15kg) of fresh fish sold while fishermen obtained the least profit. Fishermen obtain more profit when they sell directly (reduce the length of chain) to retailers in urban markets. Transportation charges and cost of cool storage were the principal marketing costs of fishermen and traders respectively.

Recommendations

Actors could reduce their costs of marketing services and hence increase profits through economies of scale by marketing the fresh fish collectively (cooperative marketing) rather than the present practice of individual marketing. Thus, the actors need to have functional cooperatives (Fishermen, and traders' cooperatives). In line with this, the Kebbi State Agricultural Development Programme (KADP) should embark on a wide scale group formation and development activities in the fishing communities of the State. The State and Federal Government should improve the networks of roads and water ways as well as electricity supply in the fishing areas and important markets serving the fishing locations. This will reduce inefficiencies associated with excess transportation and cool storage costs associated with fresh fish marketing in Kebbi State.

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