

Structure and Performance of Catfish Market in Ibadan Metropolis, Oyo State, Nigeria

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Abstract: This study examines the structure, conduct and performance of catfish marketing in Oyo State, Nigeria. A cross sectional data used for this study were collected from 60 catfish sellers with the aid of a structured questionnaire. Data were analyzed using descriptive statistics, gross-margin analysis and marketing efficiency measures. One measure of market concentration; the Gini coefficient was employed in measuring the market concentration structure of the catfish market. Results revealed that though catfish business is highly profitable, the market is perfectly non-competitive in Oyo state. It is therefore recommended that soft loans should be given to the marketers to be able to buy the required quantity whose cost is cheap and affordable to would be buyers and consumers.

Keywords: Catfish market; Structure; Performance; Gini co-efficient; perfectly non-competitive.

I. INTRODUCTION

Nigeria is one of the African countries that are well endowed with a vast expanse of inland fresh waters and marine brackish ecosystem rich in aquatic life. Tall (2004), however, observed that Nigeria's fish production volume of 0.5 million tones cannot meet the annual demand of 1.3 million tonnes due to rising population and other inherent factors. The average annual fish consumption in Nigeria has, for some time now stagnated at 9.2kg per capita, which is quite below the world average of 13kg per capita, a situation that resulted in a huge supply and consumption gap. In the works of Kainga and Adeyemo (2012), fish and fish products contributed 6% to the gross domestic product (GDP) of the country in 2006. About 90% of fish produced in Nigeria is sold in the local market as a cheap source of protein to the growing population and fish is made up 40% of dietary protein consumption in the country (Kainga and Adeyemo, 2012).

The Nigerian fish market is characterized by indigenous mechanism depending on season, ability of buyer to bargain and of course the concept of demand and supply. However, a sustainable fish production depends on its marketing structure and performance to close up demand and supply gap. The structure, conduct and performance are some of the suitable characteristics of defining an adequate market situation that optimizes social welfare and maximizes the efficiency of the marketing system. A detailed study of a marketing system for any product will require an elaboration of its structure, conduct and performance. Therefore, this explains the stands in the business, mode of operation, the accepted practices and the business facilitating arrangement involve in marketing of commodity. In the light of this, it is therefore necessary to study the nature and competitiveness of catfish market to ascertain the adequacy of its market system in the study area. Literature exists that most studies in Nigeria focused on large scale fish farming (Mafimisebi, 2003; Yusuf et al., 2002 and Obasi, 2002), there has been little information on market structure, conduct and performance of players of catfish marketing. This study therefore will cover this gap.

II. OBJECTIVES OF THE STUDY

The overall objective of the study is to analyze the structure and performance of the catfish market in Ibadan Metropolis, in Oyo State of Nigeria. The specific objectives of the study include-

- 1) To analyze the structure of the catfish market in the study area.
- 2) Assess the profitability of catfish market in the study area.
- 3) Assess the efficiency of the market

III. THEORITICAL FRAMEWORK

Marketing can be assessed or measured to determine their efficiency in the areas of marketing structure and performance, market efficiency, marketing margin and market channels. Market structure may be defined as those characteristics of an organization to a market which seem to influence strategically the nature of competition and pricing within the market. (Olukosi *et al.* 2005) A marketing system is said to be good, if the structure, conduct and performance is critically examined. This structure, conduct and performance have been widely used in marketing studies of agriculture (Harris, 1982; Okunmadewa, 1990; Onu, 1997). Market performance is therefore the assessment of how well the process of marketing is carried out and how successfully its aims are accomplished. However, market performance could be regarded as the appraisal of the extent to which the interactions of buyers and sellers in a market stimulate result that is consistent with social purposes (Adegeye and Dittoh, 1985; Olukosi *et al.*, 2005). The marketing inputs are the costs of providing marketing services while outputs are the benefits or satisfaction created or value added to the commodity as it passes through the marketing system. Ejiola, (2011) defined marketing efficiency as the movement of crops and livestock from producers to consumers at the lowest cost consistent with the provision of services consumer desires. Markets are efficient when the ratio of the values of output to the value of input throughout the marketing system is maximized. The higher the ratio, the greater the marketing efficiency is considered to be (Tweelen, 1997; Arene, 1998). On the other hand, marketing margin is defined as the difference between purchase and sale prices (Ejiga, 1979; Tomek and Robinson, 1981). Marketing margin could be described as the difference in the price of a given commodity as it moves from the primary producer to the ultimate consumer. (Olukosi *et al.* 2005)

IV. METHODOLOGY

The study was carried out in Ibadan metropolis, Oyo State. It has an estimated land area of 3,123.30 km square with a population figure of approximately 2,550,593 as of 2006, giving a population density of 816.63person/km square. Tropical rain forest is the vegetation of Ibadan metropolis which makes it suitable for catfish farming. Oyo State is the gateway to the northern states of Nigeria and it is the first point of entrance to Southwest, Nigeria by traders bringing their merchandise from the north.

The population of this study consists of all catfish marketers in the study area. A multi stage sampling procedure was employed 150 respondents. Ibadan North and Akinyele Local Government areas were randomly selected in the state. Two wards each that are dominated by catfish sellers were purposively selected. Respondents were randomly selected proportionate to size of population of area from two wards in each local government. However, sixty respondents were selected for this study.

The structure of fresh catfish market was described based on findings on concentration, product differentiation, market knowledge and ease of/ barrier to entry or exit. The Gini coefficients were used to determine the degree of market concentration of catfish sellers in the market. According to Okereke and Anthonio (1988), Gini coefficient is more precise than Lorenz Curve. But other researchers like Pomeroy (1989) suggested Lorenz Curve as precise as Gini coefficient. The Gini coefficients were computed by using the following formula according to Okereke and Anthonio (1988).

$$G = 1 - \sum xy \dots\dots\dots (Eqn.1)$$

Where:

G = Gini coefficient.

x = Percentage share of each class of seller.

y = Cumulative percentage of the sales.

The Gini coefficient ranges from zero to one. A perfect equality in concentration (low) of sellers is expected if Gini estimate tends towards zero, while perfect inequality in concentration (high) of sellers is expected if Gini estimate tends towards one, if G = 1 market is imperfect, and if G = 0 market is perfect and competitive.

Gross margin analysis was used to assess the profitability of the catfish market for objective 2.

$$TR = P \times Q \dots\dots\dots (Eqn.2)$$

$$GM = TR - TVC \dots\dots\dots (Eqn.3)$$

$$\text{Profit} = GM - TFC \text{ OR } \text{Profit} = TR - TC \dots\dots\dots (Eqn.4)$$

Where

P = Price and Q = Total output (kg)

TR = Total revenue

TVC = Total variable cost

TC = Total cost

Market efficiency as stated in objective 3 is obtained as

$$M.E = \frac{\text{Total Revenue} - \text{Total Variable Cost}}{\text{Total Variable Cost} + \text{Total Fixed Cost}} \dots\dots\dots (\text{Eqn.5})$$

V. ANALYSIS AND DISCUSSION

Market conduct:

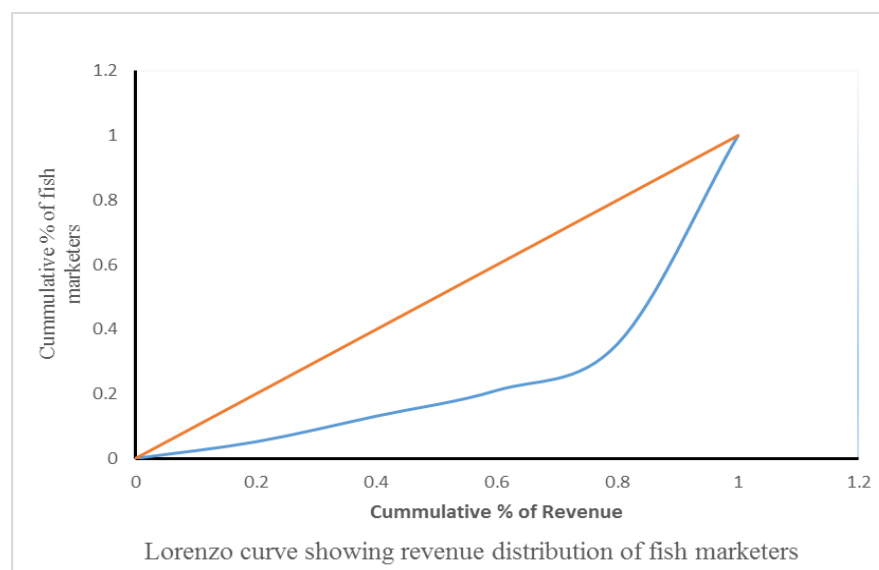
Catfish marketers have some basic functions which include buying, selling, financing, risk bearing and merchandising. The results showed that there were no product differentiations. Also, the prices of catfish were determined through bargaining powers of the parties involved (buyers and sellers) since there is non-uniformity of the prices of catfish in the study area.

The estimated value of the Gini-coefficient is 0.70 which means that there was a high level of inequality in the share of the market. The value of the Gini-coefficient would have been zero or close to zero if there was equality in the share of the market. Based on the perfect competition market model often used in economics as a standard by which structure of markets can be compared and evaluated, large numbers of buyers and sellers, low barrier to entry, product homogeneity and complete knowledge of alternative choices on the part of producer and consumer characterized the perfect competitive market model. Hence, by the result in the table below, the catfish market in Oyo state is an imperfect market as those features described above are likely to be completely absent from the result.

Table 1: Computation of Gini Coefficient

Quintile	Total revenue	Proportion of revenue	Cumulative revenue	Proportion of quintile
20	1664173	0.103488518	0.103489	0.2
40	2565680	0.159549739	0.263038	0.4
60	2574000	0.160067128	0.423105	0.6
80	4638400	0.288444198	0.71155	0.8
100	4638500	0.288450417	1	1

Source: Computed from field survey, 2015



Area between the line of perfect equality and Lorenzo Curve (A) = $0.5 - 0.15 = 0.35$

Total area under the line of equality (A+B) = 0.5

Gini coefficient = $0.35/0.50 = 0.70$

Market Profitability:

Table 2 presents profitability analysis of the market with respect to Gross margin and Net marketing margins of the respondents. The variable costs include cost of purchase, cost of transportation, labour cost and other operating expenses, while fixed costs covered cost of material assets for the business. The average total variable cost for catfish traders is ₦7,960, 285. Also, the average fixed cost and average total cost were ₦347,960 and ₦8,308,245 for the catfish marketers respectively. The results showed that the mean gross margin per year of the catfish marketers is ₦8,167,168. This implies that catfish marketing in the study area is profitable. Hence, it is advisable to embark on the business so as to make a living.

Table 2: Profitability Analysis

Item	Catfish (in Naira)
Variable/Cost per year of sales	
Total fixed cost	347, 960
Total variable cost	7,960, 285
Total revenue	16, 127, 453
Gross Margin	8,167, 168
Profit	7, 819, 208

Source: Computed from survey, 2015

Market Efficiency:

Marketing efficiency is the movement of goods and service from the producer to the consumer at the lowest cost consistent with the provision of the service that consumers desire and are able to afford. This holds true because it is natural for everybody to seek after his own interest i.e. the farmers would be after the sales of his produce at the highest price possible while the consumer would be purchasing quality goods and services at the lowest price possible.

Total Revenue = N16, 127,453

Total Fixed Cost = N 347, 960

Total Variable Cost = N7, 960,285

Market Efficiency = $(TR - TVC) / (TVC + TFC)$

$$= (16127453 - 7960285) / (7960285 + 347960)$$

$$= 0.98302$$

The Marketing efficiency result above indicates that catfish marketing system is efficient with efficiency value of 0.98 very close to 1. This implies that marketers are able to cover their activity cost (that is overhead cost and variable cost) with no loss in the business.

Socio-Economic Characteristics of Marketers:

A cursory look at table 3 shows that the business of catfish marketing is gender sensitive. This is based on the fact that looking through the table; one will see that out of 60 respondents interviewed for the study, 37 were female while 23 were male. This means that 62% percent of the catfish marketers are female while the remaining marketers were male.

Regarding the age of respondents in the study, one could see from table 3 that catfish business is a business for young people. From the table, 48% of the respondents were between the ages of 40 – 49years while 32% percent of the catfish marketers fall within the age bracket of 30 – 39 years. One could deduce from the result that it involves a lot of perseverance as well as standing as most catfish marketers do not rent store, rather, they make do with any little space, they lay their hands on, in the market to save money from rent.

On marital status of the catfish marketers in the study area, the table reveals that 90% of the catfish marketers interviewed are married while only 10% of the respondents are single. The implication of this result is that catfish marketing requires due diligence and seriousness having known that the business involves perishable items and one has to be very serious and careful to reduce loss, death and profit of the business.

Table 3 shows that catfish marketing in the study area is being carried out by people one could describe as moderately educated. 67% of those interviewed are people who have just primary School Leaving Certificate. This means that the business does not require much education as it is still done by small scale marketers.

On marketing experience, about 68% of the catfish marketers have 5 – 7 years' experience while about 20% have just 2 – 4 years' experience leaving the remaining 12% for those that have spent more than 7years on the business. From these result, one could see that catfish marketing is not a conventional business that people spent several years in building. The fact that it is usually done in small scale as well as with little space, calls for little expansion. Also, the business is seasonal and may not require huge investment that involved long term experience.

Table 3 reveals that all the respondents in the study area belong to association. The implication is that it gives room for imperfect market hence prices of catfish are not determined by the forces of demand and supply but rather that of association members. They decide the quantity as well as the price for their goods.

Table 3: Socio-Economic Characteristics of Catfish Marketers

Variable	Frequency	Percentage
Gender		
Male	23	38
Female	37	62
Total	60	100
Age		
30-39 years	19	32
40 -49 years	29	48
50 – 59 years	12	20
Total	60	100
Marital Status		
Married	54	90
Single	6	10
Total	60	100
Years of Formal Education		
11years	09	15
12 years	31	52
13 years	08	13
14 years	09	15
15 years	03	05
Total	60	100
Household size		
3 members	15	25
4 – 6 members	35	58
7 - 9 members	10	17
Total	60	100
Market Experience		
2 – 4 years	12	20
5 – 7 years	41	68
8 – 10 years	07	12
Total	60	100
Member of any Association		
Yes	60	100

VI. CONCLUSION AND POLICY RECOMMENDATION

The study examined the structure and performance of Catfish marketing in Oyo State, Nigeria. The Gini coefficient of 0.7 showed that catfish market in the study area is perfectly non-competitive market and that catfish marketing is profitable in the study area as shown by the gross margin result.

The socio economic characteristics confirmed that respondent's age, experience, marital status and association membership play a key role in influencing the price, structure and even the conduct of catfish marketing in the study area and these factors also determined the gross margin. The study however recommends provision of credit for all interested catfish marketers at low interest rate and enforces the use of standard and uniform scales in all catfish business in the study area and Nigeria at large. This is to reduce the sharp practices embarked upon by catfish marketers against consumers.

REFERENCES

- [1] Adegeye AJ, Dittoh JS (1985). *Essentials of Agricultural Economics*. Impact Publishers Nig. Ltd. Ibadan. Pp. 113-119.
- [2] Ejiga NO (1979). *The Marketing System for Agricultural Products in Kaduna State*, A consultancy, Institute of Agricultural Research, Zaria.
- [3] Ejiola MT (2001). *Spatial Rice Equilibrium and Fish Market Integration in Nigeria*, unpublished Ph.D Thesis, Department of Agricultural Economics, University of Ibadan.
- [4] Harris B (1982). *Agricultural Marketing in the Semi-Arid Tropics of Africa*, Development Studies Occasional Papers No. 7.
- [5] Iheanacho AC (2005). *Structural Characteristics and Performance of Retail Marketing of Eggs in Maiduguri Metropolis of Borno State, Nigeria*. *J. Sustainable Dev. Agric. Environ.*, 1:70-76.
- [6] Kainga, P. E. and Adeyemo, A. O. (2012). *Socioeconomic Characteristics of Fish Marketers in Yenagoa Local Government Area of Bayelsa State, Nigeria*. *World Journal of Young Researchers*, Volume 2, Pp. 1- 4
- [7] Mafimisebi TE (2003): *Yield Performance of Commercialized upland fish farms in Ondo State*. *Nig. J. of Animal Prod.*, 30(2): 336-342.
- [8] Obasi PC (2003): *Economics of fish farming in Imo State*. Unpublished Ph.D. Thesis, Department of Agricultural Economics, Federal University of Technology, Owerri. Pp.33-34.
- [9] Okereke, O. and Anthonio, Q. B. O. (1988). *The Structural Characteristics of Market for Grains in Eastern Nigeria*; In: T. O. Adekanye; *Readings in Agricultural Marketing*; Longman, Ibadan, Nigeria.
- [10] Olanunke N and Yusuf O, (2014): *Resource use efficiency in small scale Catfish farming in Osun State, Nigeria*. *Sky Journal of Agricultural Research* Vol. 3 (1), pp. 037 - 045, Available online <http://www.skyjournals.org/SJAR>
- [11] Olukosi JO, Isitor SU, Ode MO (2005). *Introduction to Agricultural Marketing and Prices: Principles and Applications*, Living Books Series, G.U. Publications, Abuja, Nigeria
- [12] Okunmadewa FY (1990). *An Economic Analysis of Alternative Food Marketing Arrangements in Oyo State*, Unpublished Ph.D Thesis, Department of Agricultural Economics, University of Ibadan, Nigeria.
- [13] Onu JI (1997). *Marketing of Cotton in Northern Nigeria*, Unpublished M.Sc. Thesis, Department of Agricultural Economics, University of Ibadan.
- [14] Onu J I, Okunmadewa F Y (2001). *Efficiency in Cotton Marketing in Northern Nigeria*, *Int. J. Econ. Dev.*, 1(1).
- [15] Pomeroy, R. S. (1989). *The Economics of Production and Marketing in Small-scale Fishing*. Gregory J. S. *Prices, Product and People; Analyzing Agricultural Markets in Developing Countries*, Lynne Rienner Publishers, Inc Boulder, Colorado.
- [16] Tweelen LG (1997). *Marketing of Agricultural Commodities*, In Gramer, G.I., Jensen, W.C and Southgate, D. O. (eds), *Agricultural Economics and Agribusiness*.
- [17] Yusuf SA, Ashiru AM, Adewuyi SA (2002). *Economics of Fish Farming in Ibadan Metropolis*. *Tropical J. of Animal Sci.*, 5(2): 116-128.