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Structure, Conduct and Performance of fresh farmed catfish marketing system in Delta State, Nigeria

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Abstract:*The study analysed the structure, conductand performanceof fresh farmed catfishmarketing systemin Delta State using a multistage sampling method to select 83 respondents comprising 30 fish farmers, 25 wholesalers and 28 retailers. Data were collected through in depth interviews and focus group discussions and analysed using descriptive statistics, marketing cost, margin, price spread and gini coefficient analysis. Findings show that the market for fresh farmed catfish both at the wholesale and retail levels were competitive withginicoefficients of 034 and 0.38 for wholesalers and retailers respectively. The implication is that none of the traders could influence supply by decreasing or increasing the quantity they sell. Moreover, the study showed that fresh farmed catfish marketing was profitable as marketing margins obtained by traders per kilogram of fish marketed were above their marketing costs. However, the marketing system for fresh farmed catfish is faced with constraints such as high cost of fish, high cost of transportation, marketing loss due to sales of weak and dead fish, fish glut which results in low market prices, inadequate access to credit and poor road networks. To maintain efficiency in the catfish marketing system in the study area, the study recommends improvement in the transportation system, provision of better fish carriage system in order to reduce fish stress and marketing losses, linking catfish farmers and tradersto new market opportunities outside the present selling markets and developing the capacities of catfish sellers' fish preservation.*

Keywords:*market structure, fresh farmed catfish, conduct, performance*

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I. INTRODUCTION

Agriculture employs about 70% of the working population in Nigeria and contributes about 40% to the Gross Domestic Product (GDP) of the country (CIA, 2012). The agriculture sector is the largest economic activity in the rural area where almost 50% of the population lives and has been the mainstay of the economy since independence and despite several bottlenecks; it remains a resilient sustainer of the populace (Odetola&Etumnu 2013). The sector is divided into crop, livestock, fisheries and forestry subsectors with the crop and livestock sectors being the highest contributors to agricultural GDP (CBN, 2012). Though demand still exceeds local production in the fishery subsector, the subsector has recorded the highest average growth rate of 10.3% (1961-2011) compared to the 6% recorded in crop production in the same period (CBN, 2012). Essien&Effiong, (2010) asserted that the fishery subsector had an average contribution of 4.3% to total agriculture GDP and provides at least 50% animal protein. Also contributing to economic growth by enhancing food security and improving livelihood of fish farmers and their households.

Fish demand in Nigeria amounted to nearly 2.0million metric tonnes valued at more than $1.8billion in 2009, leaving approximately 600,000 tonnes of untapped market potential. Nigeria spends N100 billion on fish importation annually current fish demand and consumption stands at over 2.6million tonnes per annum while present importation rate is over 750,000 metric tonnes (Rondon and Nzeka,2010).In order to increase the domestic fish supply and reduce the huge dependence on fish importation, aquaculture, particularly catfish farmingis increasingly being promoted and adopted in the country as a fast agricultural value chain commodity with the capacity to produce significant quantities of table-ready fish on a sustainable basis, ensure food security and nutrition, provide jobs and increase income of farmers. (Federal Dept. of Fisheries, 2007). This rising trend in aquaculture continues to show promise of further rapid expansion given the state of decline of capture fisheries in the country. (FDF, 2010).With increasing production comes issues of efficient marketing. Marketing according to Kohls and Uhl (1985) isdefined asthe performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumers. Srivastava(1994) emphasizes that an efficient marketing system is important because if additional surpluses from production is not moved to the market to bring additional revenue to farmers, it may work as disincentive to increase production. Secondly, if the system does not supply agricultural commodities, such as oils, fruits, vegetables, milk, fish, meat at reasonable prices to consumers at the time and place needed

by them, increased production has no meaning in welfare society. Based on this background, this study is designed to analyse the structure, conduct, and performanceof fresh farmed catfish marketing system in Delta State, Nigeria.

The specific objectives are to:

1. analyze the market structureof fresh farmed catfish in Delta State;
2. describe the market conduct using nature of contract relationship in terms of purchases and sales and the method of payment used.
3. examine the market performance using marketing cost, margin and price spread
4. discuss the constraints faced by participants in the marketing system

II. Theoretical Framework

2.1.1 Structure-Conduct-Performance(S-C-P) APPROACH

The structure-conduct-performance approach is a tool designed by Edward S. Madson in a pioneering work in 1939, and followed by Bain *et al.* (1987) as cited in Wolday(1994). It was developed in the United States of America to analyze the market organization of the industrial sector but it has been widely applied in assessing agricultural marketing systems. The approach according to Scarborough and Kydd, 1992 is used to analyse the relationship between functionally similar firms and their market behavior as a group and provides a broadly descriptive model of the nature of various sets of market attributes, and the relationship between them and performance.

2.1.2 Market structure

Market structure consist of those characteristics of the organisation of the market that seem to exercise strategic influence on the nature of competition and pricing within the market (Bain, 1968). The most salient characteristics of market structure according to Scarborough and Kydd (1992), Reddy et al,(2004) Maiangwa*et al*., 2004 are ; the number and size distribution of firms in relation to the size of the market; the degree of the product differentiation among outputs of the various sellers in the market; and Barriers to entry or freedom to entry and exit from the market by potential marketing entrants. Staal, (1995) opined that the process of obtaining a license or professional qualification or skill to the need of having a minimum amount of capital or other resources in order to operate successfully and lack of initialcapitalcould effectively restrict entry of new firms into the market. Structure also relate to the degree of market knowledge which is available to these firms, Olukosi*et al*., (2005).

2.1.3 Market conduct

Market conduct describes thebehaviour of the firms or the decision that firms make in relation to their pricing and output policy and other competitive tactics (Olukosi and Isitor, (1990), Reddy, 2004).The major aspects according to Scarborough and Kydd (1992) include pricing and selling policies and tactics, overt and tacit inter-firm co-operation, or rivalry, and research and development activities. Olukosi and Isitor, (1990) pointed out that the most important factors used in assessing market conduct are methods of determining price and output, sales promotion policy, product policy, the presence or absence of exclusionary tactics directed against established rivals or potential entrants and research and development. Staal(1995) explains that the market behavior of firms will determine whether or not they compete and whether they are acting innovatively to improve market efficiency.

2.1.4 Market performance

Market performance is the appraisal of the extent to which the interactions of buyers and sellers in a market stimulate results that are consistent with social purposes (Olukosi*et al*., 2005). It refers to the impact of structure and conduct and is measured in terms of variables such as prices, costs, and volume of output (Bressler and king, 1970). Also, by analyzing the level of marketing margin and their cost components, it is possible to evaluate the impact of the structure and conduct characteristic on market performance (Bain 1968). As a method for analysis the S-C-P paradigm postulates that the relationship exists between the three levels distinguished. One can imagine a causal relations starting from the structure, which determine the conduct, which together determine the performance (technological progressiveness, growth orientation of marketing firms, efficiency of resource use, and product improvement and maximum market services at the least possible cost) of agricultural marketing system in developing countries (Meijer, 1994).

III. Materials And Methods

3.1.1 STUDY AREA

Delta State lies approximately between longitude 5.00 and 6.45 East and Latitude 5.00 and 6.30 North. The State has a population of 4,098,094 and total land mass area of 16, 842 square kilometer (6503 square miles) (National Population Commission (NPC), 2006). Delta State is made up of 25 Local Government Areas (LGA) with Asaba as the capital city. The State is known for intensive fish production and marketing.

3.1.2 SAMPLE SELECTION

The study population consisted of all catfish farmers and traders in the study area. The study adopted a multistage sampling method. For the fish farmers, the study used Snowball method in a preliminary survey to compile a list of catfish farmers in Delta State. Warri, Udu, Asaba and Uvwie Local Government areas were then purposively selected as LGAs with high population of catfish farmers and intensive fish marketing activities. Using the compiled list, 12, 7, 5 and 6 catfish farmers were randomly selected proportionate to number of fish farmers in Warri, Udu, Asaba and Uvwie LGAs respectively. In terms of the traders, two fish markets known for fresh fish marketing activities were selected from each of the selected LGA. Using purposive sampling method, 25 wholesalers and 28retailers were selected from these markets. This selection was guided by the homogeneity of the population (Ndiyo, 2005). The total sample for the study was therefore 83 comprising 30 fish farmers, 25 wholesalers and 28 retailers.

3.1.3 DATA COLLECTION AND METHOD OF ANALYSIS

Primary data were used for the study. Data were collected using structured questionnaires and a price and quantity recording template designed by the researcher. This was complimented with direct observation and Focus Group Discussion with fish farmers, wholesalers and retailers respectively. The study was conducted between January and February, 2017. Data were analysed using descriptive statistics such as frequencies and percentages. Market structure was explained using the degree of inequality in sales income of traders estimated with Lorenz curve and gini coefficient. Market performance was assessed using marketing cost, marketing margins and price spread of actors in the marketing system.

Gini-Coefficient

Gini-coefficient is obtainedby calculating the ratio of the area between the diagonal and the Lorenz curve divided by the total area of the half square in which the curve lies using the Lorenz curve
It is mathematically represented as:

$$G = \sum_{i=1}^{n} (T_i - T_{i-1})(F_i - F_{i-1}) \quad i = 1, 2, 3, \ldots n$$

Where:
G= Gini-coefficient
T_i-T_i-1= cumulative proportion of traders
Fi+Fi-1= cumulative proportion of the product handled by traders
n = number of traders (Wolday (1994)

The Gini coefficient is an aggregate inequality measure and can vary from 0 (perfect equality) to 1 (perfect inequality). The closer the value is to zero (0), the greater the degree of equality, the lower the level of concentration and the more competitive the markets are. Consequently, as the Gini coefficient approaches unity, the greater is the degree of inequality, the higher the level of concentration, the more imperfect the markets are and the lower the efficiency of such markets.

Net Marketing margin:

Marketing margin is the difference in price received by the producer and price paid by the ultimate consumer. Marketing margins are the actual amounts received by the marketing agencies in the marketing process.

Price spread:

It refers to the difference between price paid by the consumer (retailer's selling price) and price received by the producer for an equivalent quantity of the farm product. This price spread consists of marketing costs and margins of the intermediaries. It gives fair idea about relative efficiency of various marketing system and channels.

IV. Results And Discussion

4.1.1 MARKET STRUCTURE FOR FRESH FARMED CATFISH

Marketing channels constitute the chain of intermediaries through which various farm commodities pass between producers and consumers and they differ from commodity to commodity. (Reddy et al, 2004). The most commonly used channels identified in this study are:

Channel I : Producer (fish farmer) – Consumer
Channel II : Producer (fish farmer)– Retailer – Consumer
Channel III : Producer (fish farmer) –Wholesaler-- Retailer – Consumer

The total quantity of fresh farmed catfish marketed by farmer-producer in channel I, II and III during the period of study are 2000kg, 3000kg and 19000kg respectively(Table 1). This show thatmost (78.26%) of the total catfish marketed is sold through channel III while the least (8.70% of sales) used channel is the producer-consumer channel. According to the responses during the Focus Group discussions with fish farmers, sales directly to consumers occur occasionally where the fish farmers carry out auction sales allowing consumers to come to the farm and buy fish no matter how small the quantity they need.

Table 1: Quantity of fresh farmed catfish marketed through the different channels in the study area (in Kg)

Marketing Channel	**Channel No**	**Quantity sold (Kg)**	**% of sales**
Producer (Fish farmer) – Consumer	I	2000	8.70
Producer(fish farmer) – Retailer – Consumer	II	3000	13.04
Producer (fish farmer) – Wholesaler – Retailer – Consumer	III	18000	78.26
Total		23000	100.00

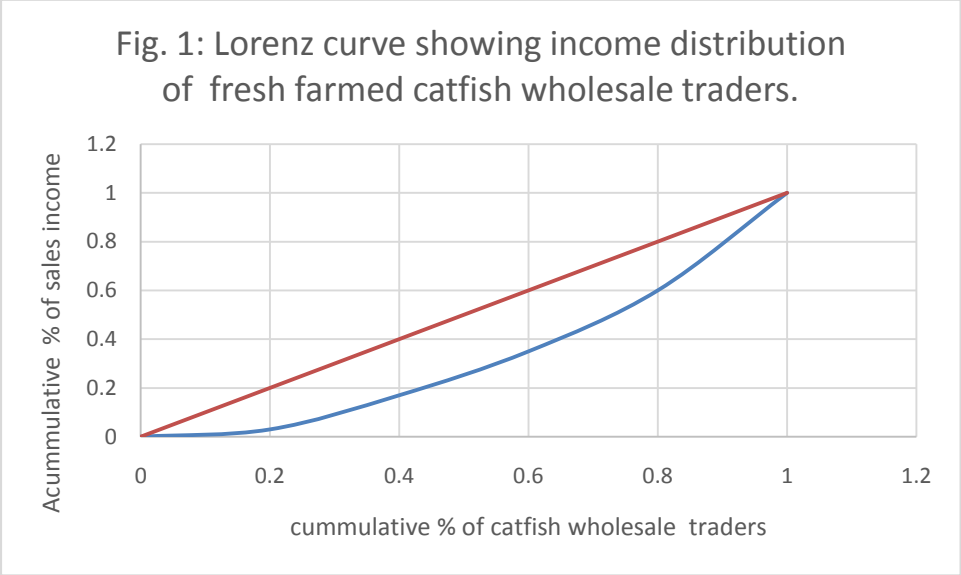
Source: own computation, 2017

Further to this, The Gini coefficient at the wholesale and retail level of live catfish marketing in the study area were estimated. The results obtained at both level were .034 and 0.38 for wholesalers and retailers respectively (only the results for wholesalers are presented in Table 2 & Fig.1). The results are quite similar at both levels and this indicates that that there was very small variation in the distribution of sales income of traders in the study area. The values are closer to zero (perfect equality) than 1(perfect inequality) and gave an indication that market shares among wholesalers and retailers are relatively similar. The implication is that none of the traders could influence supply by decreasing or increasing the quantity they sell. Each participants output was an insignificant part of the volume of trade in the market such that it could not affect the market price. Hence the market was considered to be competitive. The gini coefficient gives an indication that no trader in the marketing system of fresh farmed catfish in Delta State was exercising control over the market price. This is a typical feature of a perfect competitive market structure and a sign of efficiency in the market. However, findings of this study differ from Irhivben et al (2005) which viewed the market structure of catfish in Oyo State as being imperfect with a gin coefficient of 0.70 indicating high level of inequality in the sales income of marketing actors

Table 2: Computation of Gini coefficient for fresh farmed catfish markets in Delta State

Quintile	**Total income from sales**	**Proportion of income from sales**	**Cumulative income from sales**	**Proportion of quintile**
20	30,500	0.024787	0.024787	0.2
40	170000	0.138155	0.162942221	0.4
60	220000	0.178789	0.341731332	0.6
80	310000	0.25193	0.593661441	0.8
100	500000	0.406339	1.000000328	1
	1,230,500			

Source: Own computation, 2017



Area between the line of perfect equality and the Lorenz curve =0.5-0.33 =0.17
Total Area under line of equality = 0.50
Gini coefficient = 0.17/0.50=0.34

4.1.2MARKET CONDUCT

Market conduct was assessed using the nature of contract relationship in terms of purchases and sales existing among producer, wholesalers and retailers andthe method of payment used. Findings show that when purchasing their inputs, all(100%) producers indicated that they had verbal contracts with the suppliers of their inputs (fingerlings & feed). Sixty percent (60%) and 28.57% of the wholesalers and retailers respectively also use verbal contracts which they referred to as gentleman agreement. Which guarantees the constant supply of their products. These verbal agreements are based on trust in business relations over years.

When selling their products (fresh catfish), 33.33% and 20% of Producers (catfish farmers) and wholesalers respectively allow and keep to verbal contract agreements with their downstream actors. However, results show that most respondents have no verbal contracts at all in selling their products. Prevailing market situations determine who they sell their products to.

Payment in cash is the main method of payment used by most (93.33%, 80% and 78.57% producer, wholesalers and retailers respectively) when purchasing their products from their source of supply. However, few(20%) wholesalers pay in advance for their live catfish supply while 21.43% retailers used deferred payment method.

Table 3: Nature of contracts used by respondents during buying and selling of fresh farmed catfish

Contracts used	When purchasing		When selling	
Producer (30)	Frequency	Percentage	Frequency	Percentage
No contracts at all	0	0	20	66.67
Verbal contracts	30	100	10	33.33
Written contract	0	0	0	0.00
Total	30	100	30	100
Wholesalers (25)				
No contracts at all	10	40	20	80
Verbal contracts	15	60	5	20
Written contract	0	0	0	0
Total	25	100	25	100
Retailers (28)				
No contracts at all	20	71,43	28	100
Verbal contracts	8	28.57	0	0
Written contract	0	0.00	0	0
Total	28	100	28	100

When selling their products, payment in cash is the most predominantly used method for financial transactions among the marketing channel members. However, few (24%) of the wholesalers supply live catfish to retailers on deferred payment basis. The usually allow retailers to pay for the supply 1-2weeks after supply.

This is an element of credit in the marketing system and serves as an incentive to retailers. However, wholesalers explained that the deferred payments are allowed for retailers based on good relationship and reputation developed over time due to frequency of purchase of live catfish by the retailer.

Table 4: Method of payment applied in buying and selling of fresh farmed catfish in the study area.

	Farmer producers (30)		Wholesalers (25)		Retailers (28)	
Means of payment applied when buying						
	Freq.	%	Freq.	%	Freq.	%
Advanced payment	2	6.67	5	20	0	0.00
Deferred payment	0	0.00	0	0	6	21,43
Payment in cash	28	93.33	20	80	22	78.57
Means of payment applied when selling						
Received advanced payment	5	16.67	0	0	0	0
Deferred payment	3	10.00	6	24	0	0
Payment in cash	22	73.33	19	76	28	100

4.1. 3 FRESH FARMED CATFISH MARKET PERFORMANCE

Table 5: Marketing costs and margins of live catfish in the different channels(N/Kg)

Item	**Channel 1**	**Channel II**	**Channel III**
Producer			
Price received by producer	**850**	850	**700**
Cost of handling	50 (100)	50(100)	30 (100)
Total marketing cost (Producer)	50 (100)	50(100)	30(100)
Producer's Net price	**800**	800	**670**
Wholesaler			
Wholesaler Purchase price			**700**
Marketing cost			
Transport cost	-	-	35.00 (91.10)
Loading/unloading	-	-	0.20 (0.52
Market taxes and charges	-	-	0.62(1.61)
Marketing losses	-	-	1.3(3.38)
Communication charges	-		0.80(2.08)
Packaging materials			0.5(1.30)
Total cost (Wholesaler)	-		38.42(100)
Wholesaler selling price			**980**
Net margin of wholesaler			**241.58**
Retailer	-		
Purchase price by retailer		850	**980**
Marketing costs	-		
Transport cost	-	40.00 (91.12)	20.00(84.67)
Market fee/taxes	-	0.70(1.59)	0.62 (2.62)
Marketing losses		1.7(3.87)	2.2 (9.31)
Communication charges	-	0.8(1.85)	0.8 (3.39)
packaging material	-	0.7(1.59)	0.7(2.9)
Total marketing cost(Retailer)		43.9(100)	23.62(100)
Consumer price		1100	**1150**
Net margin of retailer		206.1	**146.38**

Own computation, 2017

The marketing cost in naira/kg of fresh farmed catfish were calculated for participants in the three channels identified in the study area. The cost incurred by the producer was N50, N50 and N30.00 per kilogram of live catfish sold in channel I, II & III respectively. The producer incurs the least cost marketing through channel III. This may be due to the fact that the producer sales to wholesalers in bulks greater than that which the retailer and consumer will buy and therefore benefits from economies of scale. Also results in Table 5 show that the total marketing cost incurred by wholesalers in channel III is N38.42/kg, out of this, transportation cost constituted the highest share(91.10%) followed by marketing losses due to weakness and death of catfish. The same trend is observed at the retail level of marketing where transportation cost constitutes 91.12% and 84.670% in channel II and III respectively. These findings are in line with Ugwumba and Okoh, 2010; Nwankwo, Oghenehogagame&Ugwumba(2017).and underscores the general need of improving the transportation system for transfer of agricultural produce particularly within the study area and in Nigeria as a whole. Furthermore, the magnitude of cost from marketing loss is also relatively high. There is need for research and development in the area of designing more convenient and fish stress free containers or carriage systems to reduce catfish transfer stress which lead to weak and dead fishes thereby leading to high market loss for traders. Results of the marketing margin shows that the marginsrealized by all intermediaries in the different channels of

marketing were higher than the cost incurred in marketing of fresh farmed catfish. The wholesalers received the highest margins (N241.58/kg of catfish) while the margins obtained by retailers in channels II and III are slightly different. The retailers earn higher margins (N206.1/kg) andseem better off obtaining their products directly from the fish farmers though they incur a higher level of transportation cost (channel II) compared to purchasing through channel III. The high transportation cost could be reduced if they organize themselves and make purchases as a group.

Table 6: Price spread for 1kg of fresh farmed catfish in the study area

Particulars	**Channel I**	**Channel II**	**Channel III**
Price received by producer	850(100)	850(77.27)	700(60.87)
Cost incurred by Wholesaler			38.42(3.34)
Net margin of wholesaler			241.58(21.00)
Retailer marketing cost		43.9(3.99	23.62(2.05)
Net margin of retailer		206.1(18.74	146.38(12.73)
Consumer price	850(100)	1100(100)	1150(100)

* Figures in parenthesis are the percentage shares of the items in consumer's price

The price spread showing the prices received cost and margins along the channels of marketing and their share in the consumer price are presented in Table 6. The share of the producer's price in the consumer price was highest in all the three channels of marketing. However, in Channel I, producers (fish farmers) have 100% share of the consumer price mainly due to the absence of other intermediaries in the marketing process. Consumers also have the opportunity of obtaining catfish at the least possible cost. Similar findings have been obtained in marketing agricultural produce directly to consumers by farmers (Hashim, 2009; Murthy et al, 2004). The retailers net margin constitutes 18.74% and 12.73% of consumer price in channels II and III respectively while the wholesalers margin constitute 21% (Table 6).

4.1.4 CONSTRAINTS FACED BY FRESH CATFISH TRADERS

Traders were asked to rank in order of severity the constraints the face in marketing their products. Findings show that high cost of fish was ranked as the first constraints. This the traders explained that the cost of fish limits the quantity they can purchase for sale at any particular time. High cost of transportation was ranked second by the traders. From Focus Group discussions, traders said they had to sometimes travel long distances on bad road to source for fish from farms. This increases their cost of transportation and lead to high incidence of fish losses as some fishes become weak and die during the process.Nwabueze and Nwabueze, (2011), also identified high cost of transportation as a majorconstraint to fish marketing. This is because the fragile nature of the product demands that the product be transported in special conditions requiring space and time. The third ranked constraint is marketing loss due to sales of weak and dead fish. Other constraintsfish glut which results in low market prices, inadequate access to creditand poor road networks.

V. Conclusion And Recommendations

The study concludes that the market structure of live catfish in the study area is competitive. The conduct of trade participants can be assessed as cordial as producers, wholesalers and retailers are able to honourand keep verbal agreements which gives a sign of trust and collaboration in the marketing system. This is also confirmed by the existence of some element of credit services where some wholesalers sell fresh farmed catfish to retailers on deferred payment. Also, results of the marketing cost and margins show that the trade is profitable as margins obtained by all intermediaries in the marketing system were above their various marketing cost per kilogram of fresh farmed catfish. However, the study also show that the marketing system is faced with constraints such as high cost of fish, high cost of transportation, marketing loss due to sales of weak and dead fish, fish glut which results in low market prices, inadequate access to creditand poor road networks. To maintain efficiency in the catfish marketing system in the study area, the study recommends improvement in the transportation system in the study area by improving road networks and designing through research and development better fish carriage system in order to reduce fish stress and marketing losses. Also, there is need to link traders to new market opportunities outside the present selling markets and developing the capacities of catfish sellers' fish preservation will solve the problem of fish glut which leads to low market prices. Finally, government and other relevant stakeholders should create enabling environment for access to credit.

References

[1]. Bain, J. S. (1968): *Industrial Organisation*, John Willey and Son, New York, 71-87.
[2]. Bressler, R.S and King, R. A(1970),Market prices and interregional trade. New York, USA, John Wiley and Sons, 52 pp
[3]. Bain 1987 in Wolday, A., 1994. Food Grain Marketing Development in Ethiopia after Reform 1990. A Case Study of AlabaSiraro. The PhD Dissertation Presented to VerlagKoster University. Berlin 293p.

[4]. CBN 2012 in Odetola, T and Etumnu, C, (2013): Contribution of Agriculture to economic growth in Nigeria. A paper presented at the 18th Annual Conference of the African Econometric Society (AES) Accra, Ghana at the session organized by the Association for the Advancement of African Women Economists (AAAWE), 22nd and 23rd July, 2013.

[5]. CIA. (2012). *The World Fact Book*. Retrieved April 7, 2017, from https://www.cia.gov/library/publications/the- world-factbook/geos/ni.html.

[6]. Essien, A. I and Effiong, J.O (2010). Economic Implications of fish landings in Nigeria: A case study of Ayadehe and Oku Iboku Fishing Communities in Itu Local Government Area of AkwaIbom State, Nigeria. International Journal of Economic Development Research and Investment, 1(2&3):10

[7]. FDF (2007) Federal Department of Fisheries. Quarterly Bulletin 23: 13-18.

[8]. FDF (2010) Federal Department of Fisheries. Press Report of the Federal Ministry of Agriculture and Water Resources Abuja. Delivered by the Director of Fisheries at NiconNoga Hilton Hotel on 24 December 2010.

[9]. Hashim, S.R., 2009, A Perspective on agricultural marketing in India. Indian J. of Agric., Marketing. 23(3): 1-9.

[10]. Irhivben, B. O, Oluwakemi, E., Oluwafemi, Z, Yusuf, S. A (2015). Structure and Performance of Catfish market in Ibadan metropolis, Oyo State, Nigeria. International Journal of Science and Humanities Research. Vol3 Issue 3: 428-433

[11]. Kohls, R. L. and Uhl, J. N. (1985).*Marketing of Agricultural Products*, Sixth edition, Macmillan Publishers Company, New York, 19-21.

[12]. Maiangwa, M. G., Olukosi, J. O., Philips, D. O. A., Ahmed. B., Musa, M. W. and Adeogun, A. O. (2004). The Supply, Demand and Marketing of Major Staple Food Crops in Nigeria. A Paper Presented at the Annual Conference of Nigerian Association of Agricultural Economics (NAAE), held at Ahmadu Bello University, Zaria, November 3rd-5th, 2004, 15 pp.

[13]. Meijer, P.W.M., (1994). The Function of Maize Market in Benin, Bert Broundjin, Benin. pp. 11-32.

[14]. Murthy, D. S., Gajanana, T. M. and Sudha, M. (2004) Post harvest loss and its impact on marketing cost, margins and efficiency: A study on grapes in Karnataka. Indian J. of Agric. Econ., 59 (4): 772-786

[15]. NPC (2006). National Population Commission. Population Census of the Federal Republic of Nigeria. Census Report. National Population Commission, Abuja.

[16]. Nwabueze AA, Nwabueze EO; The problems of fresh fish marketing in Oshimili South Local Government Area ofDelta State,Nigeria. International Journal of Economic Development Research and Investment, 2011;2(1): 99-104.

[17]. Nwankwo, N. T. O, Oghenehogagame, P. Ugwumba, C. O. A, 2017. Price efficiency and profitability of fresh fish marketing in Delta State, Nigeria. Scholars Journal of Agriculture and Vertinary Sciences. Vol 4(4): 160- 166.

[18]. Ndiyo, N. A (2005). Fundamentals of Research in Behaviourial Sciences and Humanities. Wusen Publishers. 182- 189.

[19]. Odetola, T and Etumnu, C, (2013): Contribution of Agriculture to economic growth in Nigeria. A paper presented at the 18th Annual Conference of the African Econometric Society (AES) Accra, Ghana at the session organized by the Association for the Advancement of African Women Economists (AAAWE), 22nd and 23rd July, 2013.

[20]. Olukosi, J. O. and lsitor, S. U. (1990): *Introduction to Agricultural Marketing and Prices* Principles and applications, Living Book Series Abuja,

[21]. Olukosi JO, Isitor SU, Ode MO (2005). Introduction to Agricultural Marketing and Prices: Principles and Applications, Living Books Series, G.U. Publications, Abuja, Nigeria

[22]. Rondon, M and nzeka, u.2010. Strong Demand continues expanding fish exports to Nigeria. Global Agricultural Information Netwrok (GAIN). USDA Foreign Agricultural Service. Retrievedfrom http//:www.nigerianseminarsandtraining.com/articles-pdf.strong

[23]. Reddy, S.S., P.R. Ram, T.V. Sastry and I.B. Devi 2004. Agricultural Economics. Oxford publishing Company Ltd, New Delhi. India: 646p

[24]. Scarborough, V. andKydd, J., 1992. Economic analysis of Agricultural Markets. A manual marketing series 5, chartham UK: Natural resource institute:172p

[25]. Srivastava, G .C. (1994). An empirical investigation into production, marketing and export potential of vegetables in Bihar. In A. Prasad and J. Prasad (Eds.), Development Planning for Agriculture. New Delhi: Mittal publication.

[26]. Staal, J., 1995. Marketing and Distribution system. Livestock policy analysis. ILRI training manual2.

[27]. Ugumba, C. O. A and R. N. Okoh, 2010. Price spread and the determination of catfish marketing income in Anambra State. Nigeria Journal of Agriculture and Social Sciences. Vol6.No. 4 73-78

[28]. Wolday, A., 1994. Food Grain Marketing Development in Ethiopia after Reform 1990. A Case Study of AlabaSiraro. The PhD Dissertation Presented to VerlagKoster University. Berlin 293p.

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Ohen, S.B. "Structure, Conduct and Performance of fresh farmed catfish marketing system in Delta State, Nigeria." IOSR Journal of Business and Management (IOSR-JBM) , vol. 19, no. 9, 2017, pp. 53–60.