

## Price Modulation Policy of Federal Government of Nigeria: Effects on Fish Production

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### Abstract

The study investigated the effect of price modulation policy of Federal Government of Nigeria on fish production in Oyo State, South West Nigeria. A multistage sampling technique was used to select 150 respondents from 9 wards within Oyo State using well-structured questionnaire to obtain information on socio-economic characteristics of the respondents, types of fish cultured and the impact of price modulation policy on profitability of fish production. Data were analyzed using descriptive statistics, regression and t-test analysis. There is influx of young men (57.5%) in fish production in the study area with 95% of them having between 1-5 years of experience. *Clarias spp* is the most cultured fish species in the study area and cost per kg of fish produced after price modulation had a negative and significant ( $p < 0.05$ ) effect on profitability of fish production during the period of this study. T-test further showed that there was significant difference between production cost before price modulation (PCBF) and production cost after price modulation (PCAF). This could have negative health and welfare implications on the citizenry. Policy makers should therefore put in place welfare packages that will ameliorate the effect of this policy.

**Keywords:** Price modulation; Policy; Fish production

### Introduction

Fish is an important source of good quality protein required in human diets, it has the higher level of easily metabolisable protein, fats, vitamins, calcium, iron, and essential amino acids when compared to other sources of animal protein such as poultry and beef [1-2]. Aquaculture provides nearly 50% of the annual world fisheries production with 110 million tonnes of food fish in 2006. Half of all aquaculture production is finfish, a quarter is aquatic plants and the remaining quarter is made up of crustacean (such as shrimp, prawn, crabs, oyster and mussels) [3]. Although aquaculture activity in Nigeria started about 50 years ago [4], aquaculture production in Nigeria is currently about 40,000 metric tonnes contributing only 6% of domestic fish production [5]. Nigeria has become one of the largest fish importers in the developing world, importing about 600,000 metric tonnes annually [4]. Ifejika et al. [6] reported that in spite of the fact that over 1.5 million hectares of surface water area is available for fish culture; no appreciable result had been recorded in the aquaculture sub-sector due to instability in Nigerian policies which affect all aspect of her economy. One of such policies is subsidy reform or price modulation policy. According to Ebewore et al. [7], Subsidy is a price intervention policy measure whereby financial assistance is granted by a government for the purpose of promoting public welfare. The adjustment of price shocks along the chain of fish producers is an important characteristic of the functioning of fish markets. As such, the process of price transmission through the supply chain has long

attracted the attention of agricultural economists as well as policy makers. Due to subsidy reform introduced in Nigeria within 2015/2016 fiscal year and other monetary policies of the Federal Government of Nigeria, the cost of performing production function of fish is assumed to have been affected through increase in transportation cost and cost of fish production inputs. It is therefore imperative to study the effect of these policies which was termed price modulation by the Government on fish production in Oyo state South-West Nigeria. The introduction of price modulation policy by the Federal Government of Nigeria during the same period had also brought about controversy of what the overall effect of such policy on agricultural production and products will be most especially fish production and products. It was assumed that the policy will increase the cost of production, reduce farmers gain and reduce purchasing power of consumers thus the need to carry out this research. This study therefore aimed at describing the socio-economic characteristics of fish producers in Oyo State, identify the types of fish they culture as well as determining the impact of price modulation policy of Federal Government of Nigeria on their production of fish.

### Methodology

#### Study area

The study was carried out in Oyo state, South-West Nigeria. The study area has heterogeneous population of Yoruba, Igbo and Hausa. Oyo state is located in the south west geopolitical zone of Nigeria. Oyo state consist of 33 local government areas which are Akinyele, Afijio,

Egbeda, Ibadan north east, Ibadan north west, Ibadan south east, Ibadan south west, Ibarapa central, Ibarapa east, Ibarapa north, Ido, Irepo, Iseyin, Kajola, Lagelu, Ogbomosho south, Oyo west, Oyo east, Atiba, Atigbo, Saki west, Saki east, Itesiwaju, Iwajowa, Olorunsogo, Oluyole, Ogo-oluwa, Surulere, Ori ire and Ona ara. The state covers a total of 27,249 square kilometers of land mass and it is bounded in the south by Ogun state, in the north by Kwara state, in the west partly by Ogun state and partly by Benin republic, and in the east by Osun state. The state has four political zones namely-Saki, Ogbomosho, Oyo, and Ibadan/ibarapa out of which one zone was studied which was Ibadan/Ibarapa. The study population comprises of different fish species processors in Oyo state metropolis.

### Source of data and data collection

Primary data were used for this study. Data on socio-economic characteristics of the respondents, types of fish cultured and the impact of price modulation policy on profitability of fish production were collected using a well-structured questionnaire.

### Sampling technique and sample size

Multistage sampling techniques were employed in the selection of respondents. The first stage involved the selection of three (3) local government areas out of the thirty-three (33) local government areas of Oyo state using simple random technique. The local government visited included, Akinyele, Lagelu and Oyo East. The second stage involved the selection of three wards under each local government selected which give the total sum of nine (9) wards. The third stage involved the selection of five (5) communities under each wards using simple random technique, which give the total sum of forty-five (45) communities. The third stage involved the questioning of 10 processed fish mongers from each community selected using structured questionnaire which makes the total sum of 150 respondents used as the sample size.

### Data Analysis

The data were analysed using appropriate statistical tools. Data on personal characteristics and type of fish cultured were analysed using descriptive statistics (Percentage, frequency and mean) and bar chart. Multiple regressions were used to determine the impact of price modulation policy of Federal Government of Nigeria on production of fish and T-test was used to test the stated hypothesis.

### Result and Discussion

Simple descriptive statistics such as percentage, mean and frequency were used to analyze the objectives while chi-square analysis was used for the hypothesis testing.

This study (Table 1) indicated that out of 150 respondents, 62.5% falls within the age group of 30 years or less, 25.0% were between 31-40 years, 7.5% were 41-50 years and only 5.0% were 51-60 years of age. This indicates that majority of fish farmers in Oyo State are in their middle active age (<40). Similar finding was reported by Akinbile et al. [8] that majorly of fish farmers in Oyo state and Nigeria generally are in their active age, while people of age 50 years and above are most likely to have retired. Akinpelu et al. [9] also reported similar finding in their study of the gender differentials in knowledge and utilization of ICTS among fish farmers in Ido Local Government area of Oyo state South-Western Nigeria where it was reported that that majority of the

respondents fall within the age group less than 40 years. Yisa et al. [10] also observed similar result for rural women marketing fish in Niger State Nigeria.

Variable	Freq	%
<b>Age</b>		
≤ 30	75	62.5
31-40	30	25
41-50	9	7.5
51-60	6	5
Total	120	100
Mean	33	
<b>Sex</b>		
Male	69	57.5
Female	51	42.5
Total	120	100
<b>Marital status</b>		
Single	69	57.5
Married	51	42.5
Total	120	100
<b>Experience</b>		
01-May	114	95
06-Oct	6	5
Total	120	100
<b>Mean</b>		
<b>Education</b>		
Primary	111	92.5
Secondary	-	-
Tertiary	9	7.5
Total	120	100

**Table 1:** Socio-economic characteristics of respondent.

The result of this also shows that 57.5% of the respondents were male while 42.5% were female and 57.5% of them were single. This means that unmarried men dominate fish production in the study area, this is contrast with the report of many authors like Akinpelu et al. [11-13] were they reported that fish processing and marketing in Nigeria is dominated by women. This could be attributed to the influx of young people (mostly male) in the sector as indicated by the result of this study which show that most of the respondents had low experience (95% of the farmers had 1-5years of experience while 5% had 6-10 years' experience) on the job. This study also revealed that majority (92.5%) of the respondents had primary education while only 7.5% had tertiary education which shows that most of the farmers were not well educated and the government needs to improve on seminars,

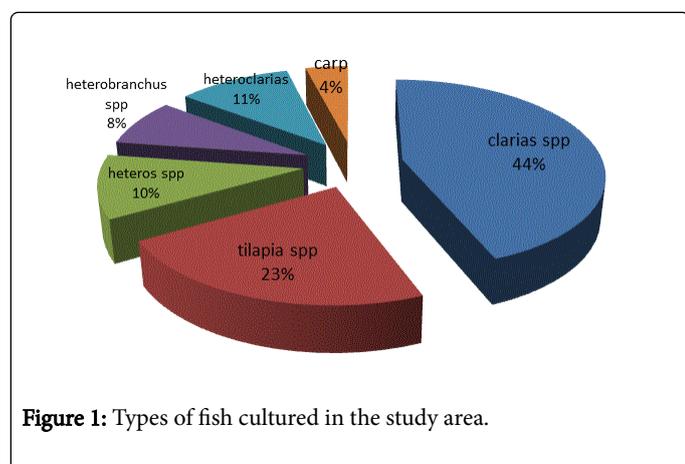
orientation for the farmers. Similar opinion was expressed by Ayo et al. [10,11,14]. More than half (55%) were Christians 40% were Muslims and 2.5% were either pagans or worshippers of other religions showing that these religion do not prohibit fish production. Seventy five per cent (75%) of the respondents in the study area had household size between 1-5 members and 25% had household size between 6-10 members. Yisa et al. [10] reported similar result that thirty five percent (35%) of the fish marketers from Katcha Local Government Area of Niger State, Nigeria had large household size with 4 children and above. Furthermore 45% of the respondents engaged in fish production as a primary occupation while less than 50% took fish marketing as secondary occupation, Ayelaja et al. [1] gave similar report in their study of the effect of insect infestation on the economic value of smoked fish sold in selected markets within Oyo State, South West Nigeria where it was reported that 98% of the respondents took fish marketing as secondary occupation.

### Types of fish cultured by the respondents

Table 2 shows the types of fish cultured in the study area, *Clarias* spp was the most commonly cultured spp in the study area with 82.5% followed by *Tilapia* spp with 42.5% while Carp was the least cultured fish in the study area with 7.5%. This is in line with the report of Ayelaja et al. [15,16] as well as Adewumi et al. [17] who stated that *Clarias* spp is the most cultivated fish spp because it enjoys wide acceptability in most parts of the country for its unique taste, flavour and texture (Figure 1).

Fish Type	Yes	No
<i>Clarias</i> spp	99 (82.5%)	21 (17.5%)
<i>Tilapia</i> spp	51 (42.5%)	69 (57.5%)
<i>Heterotis</i> spp	24 (20.0%)	96 (80%)
<i>Heterobranchus</i> spp	18 (15.0%)	102 (85%)
<i>Heteroclaris</i>	24 (20.0%)	96 (80%)
Carp	9 (7.5%)	111 (92.5%)

Table 2: Types of fish cultured in the study area.



### Impact of price modulation policy on profitability of fish production

The effect or impact of price modulation policy on profitability of fish production is shown in equation 1 while equation 2 shows the causality effect of production cost per kg of fish before and after price modulation on profitability of fish production.

The result of the study showed that the production cost before the price modulation policy of the Federal Government of Nigeria had a positive significant ( $p < 0.05$ ) effect on profitability of fish production in the study area. This implies that a unit increase (naira) of production cost per kg of fish produced before price modulation will increase the profitability per kg of fish production by 4.3%. However, the case was opposite after price modulation policy of the Federal Government of Nigeria as production cost after price modulation had a negative and significant ( $p < 0.05$ ) effect on profitability of fish production. This implies that a unit (naira) of production cost per kg of fish produced after price modulation will reduce profitability per kg of fish produced by 4.6% indicating that arbitrary change of Government policy do have direct impact on cost of fish production just as the price modulation policy have reduced the expected gains on fish farming in Nigeria during the period of this study. This opinion was further justified by the result presented on Table 3 where T-test was used to test for significant difference ( $p < 0.05$ ) in the cost of fish production before and after price modulation policy of the Federal Government of Nigeria. The result indicated that the mean cost of 1kg of fish produced was N318.38 before price modulation policy, however after price modulation policy; the production cost rose to N411.25. The percentage effect of price modulation on the production cost of fish was therefore estimated to have increased by 29.17% indicating that there is linear correlation between Government price policy and asymmetric price transmission. This is in line with the report of [18-19] who stated that asymmetric price transmission does not only respond to market power and market structure alone but there is also linear correlation between Government price policy and price transmission in the market. Price policy makers should therefore be cautious of the overall implications of their policy especially those policy reforms that could have inflationary implications on the citizenry and put necessary economic welfare measures that will cushion the adverse effect of this price modulation policy so as to improve living standard of Nigerians. Similar study that will compare the effect of price modulation policy of the Federal Government of Nigeria as well as similar Governmental reforms on the production and marketing of other products in Nigeria should be conducted. It is also important for Nigeria Economists to proffer indigenous economic models that can move the economy forward for the Government.

Variable	N	Mean	Std. dev	t	df	sig
PCBF	120	318.38	106.03861	32.89	119	0
PCAF	120	411.25	122.60178	36.745	119	0

Table 3: T-Test showing the result of hypothesis.

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