

**ECONOMIC ANALYSIS OF ARTISANAL FISHING IN EPE LOCAL
GOVERNMENT OF LAGOS STATE, NIGERIA: PRICE- SUPPLY
RELATIONSHIP**

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Target Audience: Artisanal fishing industrialists, fishery scientists,
researchers and livestock economists

ABSTRACT

An economic analysis of artisanal fishing in Epe, Lagos State was carried out to determine the existing relationship between fish supply by fishermen and the market prices as indexed by the price of close substitutes and cost of production.

Data were obtained from a random sampling of 100 artisanal fishermen from 10 cooperative societies in the Local Government Area, utilising a designed structural questionnaire and oral interview. All data were subjected to multiple correlation analysis to determine the existing relationship between quantity of fish, and price of close substitute (meat) and cost of production.

The results indicate that the coefficient of determination R^2 was 21 percent and statistically significant at 5 percent Z test and connotes a strong co-relationship between the quantity of fish supplied by the fishermen with the prices and cost of production. It was also found that both the coefficients of meat and cost of production were positively signed with 1.58 and 0.02 respectively, an indication of a weak correlation.

Over all, the results showed a sharp shift in the consumption pattern from fish to meat which was cheaper and even more available.

Key words: Economic analysis, artisanal, fishing, price-supply relationship, Lagos

INTRODUCTION

Artisanal fisheries contribute a significant proportion to the total fish production in Nigeria. Between 1988 and 1992, artisanal fisheries accounted for between 35-68% of the total fish production in Nigeria (1,2), engaging a significant number of persons. However, the same source indicates a downward trend in fish production output within the period.

Artisanal fishing involves the production of fish by small holder fishermen with mostly crude fishing gears. It is characterized by low capital investment normally between ₦100,000 and ₦500,000 (3). However, with inflation over

he years, the capital requirement for artisanal fishing has undergone a considerable increase (4).

The importance of artisanal fish production to the Nigerian livestock industry demands that adequate investigation be carried out, to assess its present structure and factors affecting production, in order to ensure that there is improvement in fish production from this fishery subsector. This focus is justified by the fact that fish is an important source of protein coupled with the fact that fish importation has gradually been on the increase since 1975 (5), thereby impinging heavily on the dwindling nation's foreign reserve. It is expected that a proper understanding of fisheries business transactions in Nigeria, will open vistas for improved local production, and reduce importation(6). As a step towards realizing the above, this paper is focused on the relationship between market price of fish production through artisanal fishing and the level supplied by the fishermen in Epe Local Government Area of Lagos State, Nigeria.

MATERIALS AND METHODS

Data and sources

The nature of the study necessitated the use of both primary and secondary sources of data. However, the primary source of data came from 100 artisanal fishermen from 10 randomly selected autonomus cooperative societies in Epe Local Government Area of Lagos State. Information on such variables as quantities of fish supplied in kilogrammes, market prices of fish, relative market prices of close substitute (meat) and cost of fish production during the study were collected using questionnaires.

The secondary data were obtained from the Federal Department of Statistics (7), which provided vital information on demand, supply cum import of fish in Nigeria (1975-1985) and the projected fish production and consumption in Nigeria (1990-1997) respectively.

Statistical analysis

The data from the primary source were analysed with a multiple regression analysis. Specifically, a multiple relationship between the price of fish and the quantities supplied at market equilibrium situation. The result obtained was confirmed by the Z - statistics testing at 5% level of significance.

RESULTS AND DISCUSSION

From the research result, Table 1 shows the average quantity of fish supplied by the ten cooperative fish farmers, with the price of fish and its close substitute, as well as the cost of producing such fish in Epe Local Government Area.

It is found from the result that the average quantity of fish supplied by the artisanal fishermen at the prevailing period was 2138.4 kilogrammes, with N25,398 as the average cost of production (C), at the relative price of N118,571.

Contrarily, an average amount of N263,808, was established as the price of close substitute (P_2) for fish, which increased with a large difference of N145,257 of the relative price (P_1). This high increase in the price of the close substitute could be attributed to high rise in the price of fish (P_1) which affected the supply, demand and the price of meat (close substitute, P_2)

Nevertheless, a 75 percent profit of N93,173 was realized from the sales of the quantity of fish supplied by the ten fishing cooperative societies in the study area, attesting to the profitability of artisanal fishing.

Table 1: Average quantity of fish supplied, price of fish, price of close substitute (meat) and cost of production of fish

Quantity supplied (Kg)	Price of fish (N) (P_1)	Price of meat (N) (P_2)	Cost of production fish (N)
231.2	12,716	27,744	2,772
199.8	10,390	23,976	2,256
248.3	14,153	29,796	2,514
203.9	13,460	31,668	1,998
220.6	10,580	26,472	2,514
236.6	14,432	28,392	3,030
202.7	10,540	24,324	2,256
202.3	9,915	24,276	3,030
220.4	12,345	26,448	2,514
172.6	10,040	20,712	2,514
Total 2138.3	118,571	263,808	25,398

Table 2 gives the result of the multiple regression analysis to show the relationship between price of fish (P_1), the cost of production (C) and the price of close substitute (P_2)

Table 2. Result of M.R.A. (Multiple Regression Analysis)

Variables	Symbol (terms)	Coefficients
Constant term	b_0	-323.97
Price of fish (P_1)	b_1	-3,4771
Price of close substitute, meat (P_2)	b_2	1.5804
Cost of production	b_3	0.02291
Multiple coefficient of determination(%)	R_2	21.102
Number (N)	N	100
ZB/2 (Calculated)	$p < 0.05$	4.59
ZB/2 (Tabulated)	$p = 0.05$	0.196

The results of the multiple regression analysis indicate that the regression coefficient (b_1) for price of fish was negative (-3.48) but significant at 5 percent Z-test which implies that as quantity supplied decreased, the price of fish

increased. This of course, was true with respect to our "*a priori*" expectation. Furthermore, the coefficient of close substitute (P_2) and cost of production (C) were positively signed (1.58 and 0.03 respectively), with P_2 significant at 5 percent Z-test. Both however, indicated a positive relationship with the quantity of fish supplied. The implication was that the increase in the price and cost of fish production caused a change from both supply and consumption of fish to meat, whose prices and costs of production were cheaper.

Finally, R^2 value showed that the variables in the model used accounted for 21% of the variation in quantity of fish supplied by the artisanal fishermen.

CONCLUSION AND APPLICATION

1. It is inferred from the study that the quantity of fish supplied by the artisanal fishermen determined the price of fish at Epe.
2. Increase in the cost of production and the prices of fish caused a shift from the consumption of fish to meat and other cheaper protein substitutes.
3. It is expected that a better understanding of the dynamics of the cost structure of fish and fish production vis-a-vis other close meat substitutes, would encourage the adoption of a favourable price mechanism for fish, thereby promoting the artisanal fishing industry for increased output.

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