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ANALYSIS OF CONSUMER'S PREFERENCE FOR SELECTED VALUE-ADDED CATFISH IN UMUAHIA METROPOLIS, ABIA STATE NIGERIA

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ABSTRACT

The study examined consumer's preference for selected value-added catfish in Umuahia Metropolis. A multi stage sampling technique was employed in the selection of sixty (60) respondents for the study. Data were collected using questionnaire. Data were analysed with descriptive statistical tools and ordered probit. The result revealed that smoked catfish, barbecue, cooked and fried catfish were the significantly consumed in the study area, while frozen catfish was not. The preference for the selected value-added catfish in their order of magnitude was smoked (85.0%, barbecue (81.7%) and fried catfish (66.7%). The result of the ordered probit regression showed that 51.4% of variation in the dependent variable was explained by the independent variable in the model. *Further result showed that age was statistically significant and positively related to preference for barbecue, smoked catfish and fried catfish at the 1% level of probability; education was statistically significant and positively related to preference for barbecue, smoked catfish and fried catfish at the 1% level of probability and Income was statistically significant and positively related to preference for barbecue, smoked catfish and fried catfish at the 5% level of probability. The most common reasons for the preference of value added catfish in the study area were price of catfish and health benefits. There is need for further investment in innovation and extension services, in order to enhance the supply of more value added products of catfish to consumers.*

Keywords: Preference, Valued added catfish

INTRODUCTION

In Nigeria, the fisheries sub-sector is classified on the basis of type and structure into artisanal, industrial and aquaculture (FDF, 2013). Also, the Nigeria's fisheries subsector has a critical potential in different perspectives because of its natural endowment, ranging from suitable ponds, reservoir, inland water, and wetlands, to rivers among others. These endowments ensure the supply of catfish such as bonga, mackerel, tilapia, carp and catfish among others to the populace all year round. Over the years, capture fisheries in Nigeria have been known to be a major supply of catfish for human consumption (FAO, 2012). However, the declining trend of catfish from capture fisheries in recent years, due to water pollution and increased demand caused by the human population growth, have made aquaculture the major source of supply of catfish.

Catfish is the major product from aquaculture and accounts for over 90% of fish cultivation (Igoni-Egweke, 2018). Catfish is taking the lead among other farmed fish because of its uniqueness, ease of domestication and its high demand in Nigeria. Due to its low caloric value, low in fat, higher protein retention compared to other protein sources and low cholesterol content it is a safe source of animal protein with attendant health benefit such as reduction in anaemia and kwashiorkoris. Catfish is rich in minerals, vitamin, unsaturated fatty acids, and amino acid and has no hard connective tissue hence digested easily (Holma and Maalekuu, 2013).

Although catfish is a healthy component of human's diet, the availability of its vital nutrients has been shown to be largely dependent on the value addition to the catfish (Mphande and Chama, 2015) through various means. Value addition is defined as any additional activity that changes the nature and form of raw resources thereby increasing market value as well as utility. Thus, value addition for catfish is an important strategy aimed at adding economic value and possibly widens the market performance of the product while reducing the problems of post-harvest losses in catfish products (Kyule, 2014). Value addition in catfish from various fishery site are carried out by various processes before it reaches the markets in order to prolong its shelf life (Idah, 2013) and increase market value. The most important factor in this case is the prevention of losses during post-harvest. The value addition process can be through drying of catfish by smoking which is referred to as smoke dried, exposing of the catfish to sunlight which is known as sun drying and the use of preservative additives such as salt, canning among others (Adenike, 2014). The rationale for value addition on catfish is to retain its nutritional value, preserve the benefits of its rich composition and to avoid costly and debilitating effect

of catfish-borne diseases with the sole aim of meeting consumers' satisfaction (Sulieman, 2012). It also revolves around the fact that catfish is regularly consumed by those who are conscious of healthy eating, as catfish has various essential nutrients, is easily digestible and contains almost all the vitamins, hence, the high preference in favour of catfish (Istvan, 2018). Consumer preference is the act of ranking different products from the perspective of relative intensity of desire for a product over others, without regard to prevailing market prices and consumer's income (Garba *et al.,* 2014). Consumers' preferences are important elements of demand theory and most of the economic analysis for market demand is based on price income and perception (Moses, 2015). However, consumer's preference for catfish over other meat types in recent times has increased and this development could be attributed to market price, consumer taste, consumer wealth (Balogun, Akinyemi and Adesun, 2018)as well as to the fact that most consumers are knowledgeable that catfish is safe for consumption and is not associated with health issues such as cardiovascular diseases, high blood pressure, cholesterol, Alzheimer, and cancer, but Fish can sometimes serve as a solution to existing health problems and Regular consumption of fish can reduce the risk of various diseases and disorders (Oyewole O.E. and Amosu, 2012). It is worth noting that some catfish species are basically rejected by consumers because of their unattractive shape, color and flavour among others. However, increased knowledge and awareness of human requirement for healthy growth have focused increasing attention on the unique roles of fisheries resources in human development (Sahele, 2014). Catfish preferences are affected by a number of factors ranging from consumers' geographic, social, to cultural characteristics (FAO, 2013). It is also exaggerated by several factors, including sensory (freshness, taste, and smell) and non-sensory factors (personal behavior, views, risk perception, and so on) (Rahman, 2020).

Among the various possibly identifiable value added catfish product in the study area, the strength of consumers' preference for the selected value added catfish product in the study is not known. While the determinants of demand for products as reveled by economic theory may not be assigned to the determinant of consumer's preference for selected value added catfish which has not be reveal by studies. There is dearth of studies on consumer's preference for selected value added catfish product in the study area which should be invaluable in the understanding of consumer behavior and to produce and prepare products that meet the consumer needs (Adeli, 2020). Furthermore, it is worthwhile to know that research on this topic is limited and none has been conducted in Umuahia Metropolis, Abia state, known to the

authors. Hence, we investigate the following research questions in a bid to filling the existing gap in research.

Research objectives

The specific objectives were to: identify various value added catfish in the study area; assess consumers' preference for the selected value added catfish; examine the determinants for consumer's preference for selected value added catfish; determine the reasons for the preference

METHODOLOGY

The study was conducted in Umuahia Metropolis, Abia State. Umuahia is the capital city of Abia State in South Eastern Nigeria. Umuahia has an estimated population of 359,230 (NPC, 2016). It has two Local Government Areas namely; Umuahia North and Umuahia South. Umuahia South has three Clans, which include; Ubakala, Olokoro and Umuopara. The Local Government council Headquarters is located at Apumiri in Ubakala.

Umuahia North consists of Ibeku (alongside the old umuahia environs) and Ohuhu. Its Local Government Council Headquarters is located at Ibeku.

Sampling Technique

A multi stage sampling technique was employed in this study. The first stage involved a random selection of two local government area which were: Umuahia South and Umuahia North. The second stage involved random selection of one autonomous community from the LGAs. In the third stage, there was a random selection of five (5) villages from the selected autonomous communities. In the fourth stage, a random selection of six household heads with the help of the village head was carried out. The sample size for this research was sixty (60) respondents.

Method of Data Analysis

Objective one, two and four of the study were analyzed using descriptive statistics which includes: tables, frequency, percentage and linkert scale. The objective three of the study was analysed using ordered probit regression analysis.

RESULT AND DISCUSSIONS

The various value added catfish in the study area

The various value added to catfish in the study area was analyzed with mean rating and is presented in Table 1.

Table 1: Distribution of respondents according to various values added to catfish

Variables	SA	A	UN	D	SD	Total	Mean
Barbecue	95	72	12	20	9	208	3.47
	19(5)	18(4)	4(3)	10(2)	9(1)		
Smoked	90	52	66	4	5	217	3.62
catfish	18(5)	13(4)	22(3)	2(2)	5(1)		
Fried catfish	10	72	42	22	12	158	2.63
	5(5)	18(4)	14(3)	11(2)	12(1)		
Cooked	50	88	39	30	0	207	3.45
catfish	10(5)	22(4)	13(3)	15(2)	0(1)		
Frozen	0	0	33	40	29	102	1.70
catfish	0(5)	0(4)	11(3)	20(2)	29(1)		
Grand mean							**2.97**

Source: Field Survey 2021, SA= strongly agreed, **A**=Agree, **D**=Disagree, **SD**=strongly disagree, **UN**=Undecided. A decision rule of 2.5 points was established that any mean score < 2.5 was not significant, while any means score ≥ 2.5 was significant to conclude that the various product identified in the table were available in the study area.

Table 1 shows the various value added to catfish in the study area. The result in Table 1 shows a grand mean of 2.97, implying that the respondents were somewhat undecided in agreement that barbecue, smoked catfish, fried catfish, cooked catfish and frozen catfish were the various value added product from catfish in the study area. An evaluation of the independent mean scores of the products showed that smoked catfish was ranked first with a mean of 3.62 (SA) followed by barbecue with a man score of 3.47 (SA). Cooked catfish ranked third with a mean score of 3.45 (SA)while fried catfish ranked fourth with a mean score of 2.63 (UD). From the result we can deduce that smoked catfish, barbecue, cooked catfish and fried catfish were the

significant value added catfish that were in the study area.. This finding is consistent with Ekundayo (2017) who reported that smoked catfish and fresh catfish were value added to catfish in Nigeria. Frozen catfish is common in riverine area among fishermen who hunts in river and ocean. Frozen catfish is mere state of preserving the freshness of the fish for a short while before arrival at the seaside or riverside.

Consumers' preference for the selected value added catfish in the study area

The distribution of respondents according to preference for selected value added catfish is presented in Table 2.

Table 2: Distribution of Respondents According to their preference for value added catfish

Value added catfish	Frequency*	Percentage	Rank
Barbecue	49	81.7	2nd
Smoked catfish	51	85.0	1st
Fried catfish	40	66.7	3rd

Source: Field survey, 2021. *Multiple responses

Table 2 presents the consumers' preference for the selected value added catfish in the study. The frequency shows multiple responses, which means that a respondent preferred more than one value added catfish product. However, the preference for the selected value added catfish in their order of magnitude includes; smoked catfish (85.0%), barbecue (81.7%) and fried catfish (66.7%). The high preference for the selected value added catfish could be attributed to the fact that the products are readily available, tasty and nutritious – being consistent with Kyule, Opiyo, Ogello and Obiero (2016) who reported that fresh catfish, smoked catfish, fried catfish and salted catfish were the most preferred value added catfish in their study. This result can be adduced to the fact that smoked catfish has a more competitive supply than barbecue and fried catfish. Smoked catfish uses cut across households' use, eateries, hotels, restaurant etc. Barbecue catfish is also common in the study area but limited to specific consumers. Fried catfish is not very common as those in this line of business uses more of other frozen fish which are more accessible in conventional market.

Determinants of consumer's preference for selected value added catfish in the study area;

The ordered probit regression was used to estimate the determinants of consumer's preference for selected value added catfish in the study area is presented in Table 3

Table 3: Ordered probit regression analysis of the determinants of consumer's preference for selected value added catfish in the study area

Variables	Parameters	Coefficient	S. Error	Wald
Age	β_1	0.108	0.006	18.438***
Education	β_2	0.395	0.106	3.716***
Household size	β_3	0.011	0.012	0.917
Income	β_4	0.010	0.005	1.949**
Price	β_5	-0.008	0.006	-1.438
Chi-square	**178.789*** **			
Log likelihood	**- 93.201*** **			
Pseudo R^2	**0.514**			

Source: Field Survey, 2021, *** = Significant at 1% level, ** = Significant at 5% level * = Significant at 10% level

Result showed that the chi-square was 178.789 and statistically significant at 1% level of significance. The log likelihood was -93.201 and at 1% level of significance. The R^2 was 0.514, meaning 51.4% variability in the dependent variables were accounted for by changes in the independent variables. Three out of the five regressors were significant at various levels of significance.

The coefficient of age (0.108) was positive and statistically significant at 1percent probability level which implies that the age of the consumer was positively related to preference for smoked catfish, barbecue and fried catfish.

The coefficient of Education (0.395) was positive and statistically significant at 1% level of probability level. This means that Education status of the consumer was positively related to preference for smoked catfish, barbecue and fried catfish. This finding is consisted with Dalhatu and Ala (2010) who reported a positive relationship between education and preference for catfish.

The coefficient of income (0.010) was positive and statistically significant at 5% probability level. This mean that income level of the consumers is positively related to preference for smoked catfish, barbecue and fried. This implies that as the respondents' income increases,

their preferences for smoked catfish, barbecue and fried catfish increases too. This scenario is in line with a priori expectation as one determinant of demand for goods and service is level of income which ensures effective demand.

Reasons for the preference of value added catfish

Reasons for the preference for value added catfish is presented in Table 4.

Table 4: Distribution of respondents according to the reasons for the preference for value added catfish in the study area

Variables	Frequency*	Percentage	Rank
Price of catfish	49	81.7	1st
Income level	14	23.3	3rd
Product taste	26	45.0	4th
Product quality	31	31.7	5th
Product availability	23	31.7	5th
Health benefits	39	65.0	2nd

Source: Field survey, 2021 Multiple responses

The most common reasons for the preference of value added catfish in their order of their magnitude include: price of catfish and health benefits which ranked first and second respectively. With regard to price, an increase in price of value added catfish could reduce the preference for the selected product in time; this is consistent with the theory of demand. This finding is consistent with Kyule, Opiyo, Ogello and Obiero (2016) who reported the preference for value added catfish is high because of price. Furthermore, the educated status of the respondents necessitates preference on this basis of health implication. Income level of the respondents ranked third of which income is a determinant of demand. Other factors and ranking are: product taste (fourth), product quality and product availability (fifth)

CONCLUSION AND RECOMMENDATIONS

Based on the empirical results, smoked catfish, barbecue cooked and fried catfish were the significant value added product from catfish in the study area. The preference for the selected value added catfish in their order of magnitude includes; first: smoked catfish (85.0%), second: barbecue (81.7%), and third: fried catfish (66.7%).

Based on the findings of this result, the following recommendations were made:

i. Smoked catfish, barbecue and fried catfish were the most common value added products from catfish in the study area, there investment prospect in these enterprise while innovation and extension services is solicited in order to enhance the supply of value added products of catfish to consumers.

ii. Value added products from catfish are widely consumed in the study area because they are healthy. Producers should ensure that value addition process adhere to best production practice in health safety of the food.

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