Analysis of Consumers' Preference for Local Rice among Households in Ekiti State, Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Author GTA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author AA managed the analyses of the study. Both authors read and approved the final manuscript.

Review Article

ABSTRACT

Consumers' preference for local rice determines its demand. Therefore, the study was carried out to analyze consumers' preference for local rice among households in Ekiti State. A multi-stage sampling procedure was used to select respondents for this study. A total of 240 women were randomly selected from three Local Government Areas (LGAs) in the State. Primary data were obtained with the use of a well-structured interview schedule. Data collected were analyzed using descriptive statistics as well as inferential statistic like logistic regression. The mean age of the respondents was 38 years and more than half (53.3%) of the respondents were females. Most (70.0%) of the respondents had a mean family size of 7 persons. Most (87.0%) preferred local rice and factors influencing consumers' preference for local rice include good nutritional value, quality of rice and good taste. Local rice was very much preferred by the respondents. Logistic regression shows that significant influence exists between price, taste, availability of rice and presence of particles and preferred choice of rice. Therefore, efforts should be made by the government to formulate price control policy on local rice for its affordability by the consumers and there should be improvement on processing technology of local rice to eliminate presence of particles for improved quality and good taste to enhance the consumers' preference for choice of rice. Also, the government should support farmers through provision of incentives and credit facilities so as to produce more local rice for its availability all year round.

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1. INTRODUCTION

Rice (*Oryza sativa*) as a cereal is an important staple food in most Africa countries. In most developing countries in Africa, rice accounts for 715kcal/caput/day, 27 percent of nutritional supply of energy, 20 percent of nutritional protein and 3 percent of nutritional fat [1]. In Nigeria, different ethnic groups consume rice. Rice is easy and convenient to prepare and it also allows for wide range of dishes which contribute to high consumption and demand by people. Rice provides a nation's population with the nationally required food security minimum of 2,400 calories per person per day [2]. An increase in production of local rice will improve the food security situation and lead to higher incomes for farmers and hence reduce poverty [3]. In Nigeria, every household greatly consume rice; both rich and poor. The status of rice as being a necessity in the households' food basket is a pointer to growing consumers' preference for rice on Nigeria [4]. They further stated that the incidence of demand-supply gap for rice in Nigeria has been an existing trend over the years and the trend would continue if appropriate measures are not taken despite the country's huge potential for rice production. Local rice is produced mostly by farm households at a subsistence level mainly for family consumption while the surplus is reserved for the market. Different types of imported rice compete with locally processed rice in both urban and rural areas. Imported rice is different from local rice based on taste, flavor, ease of cooking as well as the price offered. Despite the price and quality differential, however, there is still an overall acknowledgment of higher organoleptic properties of local rice [5]. One of the challenges in Nigeria is that rice importation is still required to meet the national demand despite the massive diversification to local rice production of rice in Nigeria; rice importation is still required to meet the national demand.

Low supply of local rice could partially be attributed to challenges facing local rice farmers such as unpredictable weather, shortage of storage facilities and low farm returns. Several efforts and policies have been put in place by the government towards making the country self-sufficient in rice production. However, consumer's choice is generally governed by taste, price, convenience, variety, and quality [6]. Consumer preference studies show that taste is an important attribute that tends to favour local rice, but it is not the most decisive attribute in many cases [7]. Hence, consumer's preference for local rice may vary from one consumer to the other which determines demand for it.

Household food security exists when all members, at all times, have access to enough food for an active, healthy life. This is possible when individual household member has access to various choices of food items for their consumption. Knowledge of preference for local rice and its determinants will improve food security of people and enhance consumers' satisfaction in the nation which in turn will re-direct efforts towards the achievement of the government's policy objective of becoming self-sufficient in rice production. The potential demand of a good depends on its attributes and consumers' characteristics [8,9]. Local rice is a one the most staple food in Ekiti State. The study therefore, analyses consumers' preference for local rice among households in Ekiti State. Specifically to; identify the preferred choice of rice; determine the extent of preference for local rice brand; and identify factors influencing consumers' preference for local rice in the study area.

2. MATERIALS AND METHODS

The study area was carried out in Ekiti State. Ekiti State is located in the Southwest of Nigeria. It has 16 Local Government Areas (LGAs). The State enjoys tropical climate with two distinct seasons. These are the rainy season (April–October) and the dry season (November–March). Temperature ranges between 21° and 28°C with high humidity.

The primary data were obtained through the use of pre-tested structured interview schedule. The instrument used was designed to achieve the specific objectives of the study. A multi-stage random sampling procedure was employed for this study. At this first stage, four (4) ADP zones were randomly selected. In the second stage, three (3) Local Government Areas out of the ADP zones were randomly selected. Then, two (2) communities were randomly selected from each Local Government Areas. Finally, ten (10) households were randomly selected from each community, making a sample size of two hundred and forty (240) households for this study.

Descriptive statistics analysis such as frequency counts, percentages and mean were used to analyse data collected on the respondents' socioeconomic characteristics and the specific objectives. Objective 2 was measured using 4-pointLikert scale as Very much prefer (3), Much prefer (2), Less prefer (1) and Not prefer (0). A binary logistic model was used to analyse analyze factors influencing consumers' preference for choice of rice.

2.1 Logistic Regression

Logistic regression is a statistical model employed in a binary dependent variable.

$$\log\left[\frac{p_i}{1-p_i}\right] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 +$$
$$\beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \varepsilon_1$$

The logit model allows for a relatively straight forward computation of the relative mean of the dependent variable or elasticity given the estimated coefficient of the regressors. The binary response in the study is whether the respondent prefers local rice or does not prefer local rice.

If Y is a random variable (dichotomous), it can then be assumed that Y takes the value of 0 or 1, where 0 denotes not prefer and 1 denotes prefer.

Where,

log   = logit function.

Pi   = dependent variable.

β= logistic coefficient for the independent variables.

$x_1 .. x_9$= price, packaging, texture, taste, availability of the product, flavor, colour, presence particles, stickiness.

ε_1 = error term.

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of the Respondents

The results from Table 1 revealed the socioeconomic characteristics of the respondents in the study area. The mean age of the respondents was 38years. This indicates that the respondents in the study area were in their active age. The study further revealed that 53.3 percent

of the respondents were female while 46.7 percent were male. The mean household size was seven (7) persons. This depicts that most of respondents had moderate household size. Most of the respondents (42.5%) earned between ₦61,000 - ₦90,000 as monthly income. The implication is that the respondents had moderate income.

3.2 Preferred Choice of Rice

The findings revealed that most of the respondent (87.0%) preferred local rice to imported rice. This implies that local rice was most specified choice by the respondents. This finding supports Musa et al.[10] who reported that almost all household respondents preferred local to imported rice.

3.3 Extent of Consumer' Preference for Local Rice Brand

The study revealed that 26.7 percent of the respondents very much preferred both igbemo and ofada rice, 20.8 percent of the respondents much preferred igbemo and ofada rice. Also, it was revealed that 19.2 percent of the respondents much preferred ofada rice only while 3.3 percent very much preferred igbemo rice only. This implies that the respondents had high preference for ofada rice in the study area. This finding corroborates the finding of Sowunmi et al. [11] who asserted that high preference for ofada among the respondents.

3.4 Factors that Influence Consumers' Preference for Local Rice

As shown from Table 4, it was revealed that 95.0%, 92.5% and 90.0% of the respondents identified that good nutritional value, quality of rice and good taste as factors influencing preference for local rice. This means that good nutritional value, quality of rice and good taste determine choice of local rice preferred. This finding is line with Danso-Abbeam et al. [12] who asserted that quality of rice increases local rice consumption preference. Also, the study supports [12,13] that good quality and taste of rice influence consumers' preference for local rice.

3.5 Estimates of the Logistic Regression

The results revealed that taste and availability of the commodity had a significant positive influence on consumers' preference for choice of rice. This implies that the increase in taste and its availability would increase the probability of

consumers' preference for choice of rice. This finding corroborates the finding of Opeyemi et al. [13] that taste and availability all year round had positive influence on the preferred choice of rice.

There is a significant negative influence between preferred choice of rice and price of the commodity and presence of particles. This suggests that increase in price would decrease the likelihood of consumers' preference for

choice of rice and decrease in price would increase the likelihood of consumers' preference for choice of rice. Also, more presence of particles such as stones and debris would elicit less consumers' preference for choice of rice and this could be because presence of particles in rice reduces its quality and vice versa. This finding confirms the finding of Ogundele [14] who reported that price and presence of particles had negative influence on the preferred choice of rice.

Table 1. Distribution of respondents' socioeconomic characteristics

Variables	Frequency	Percentages	Mean
Age (years)			
< 30	80	33.3	38
30- 40	62	25.8	
41-50	40	16.7	
> 50	58	24.2	
Sex			
Male	112	46.7	
Female	128	53.3	
Marital Status			
Single	93.6	39.0	
Married	117.6	49.0	
Divorced	12	5.0	
Widowed	16.8	7.0	
Household size			
< 5	50	20.8	7
5- 10	168	70.0	
11- 15	22	9.2	
Educational level			
Non formal education	16.8	7 .0	
Primary education	45.6	19.0	
Secondary education	88.8	37.0	
Tertiary education	88.8	37.0	
Occupation			
Farming	48	20.0	
Public service	54	22.5	
Trading	64	26.7	
Artisan	30	12.5	
Private service	44	18.3	
Monthly income (₦)			
< 30000	22	9.2	
30000- 60000	84	35.0	
61000- 90000	102	42.5	
100000 and above	32	13.3	

Source: Field survey, 2018

Table 2. Preferred choice of rice

Preferred choice of rice	Frequency	Percentage
Local rice	208.8	87.0
Imported rice	31.2	13.0
Total	240	100.0

Source: Field survey, 2018

Table 3. Extent of consumers' preference for local rice brand

Local rice brand	Very much prefer	Much prefer	Less prefer	Not prefer
Igbemo	7.92(3.3)	0(0)	0(0)	0(0)
Ofada	40.08(16.7)	46.08(19.2)	0(0)	0(0)
Both	64.08(26.7)	49.92(20.8)	7.92(3.3)	24(10.0)

Source: Field survey, 2018; Percentages are in parenthesis

Table 4. Factors that influence consumers' preference for local rice

Factors	Frequency	Percentage
Quality of rice	222	92.5
Size of grain	138	57.5
Good taste	216	90
Aroma of the rice	140	58.3
Easy to cook	106	44.2
Expands well when cooked	132	55.0
Has good nutritional value	228	95.0
Relative price of rice	140	58.3

*Source: Field survey, 2018; *Multiple responses*

Table 5. Estimates of the logistic regression

Factors	Coefficient	Standard error	Z	P-value
Price	-0.2380478***	-0.07928345	-3.00	0.000
Packaging of rice	-0.644035	0.932654	-0.69	0.490
Texture	0.2297338	0.7560311	0.30	0.761
Taste	0.8362681***	0.2873135	2.91	0.004
Availability	0.4018687**	0.1388029	2.14	0.037
Flavour	1.003259	0.811328	1.24	0.216
Colour	-0.805685	0.7000986	-1.15	0.250
Presence of particles	-1.17e-07**	4.65e-08	2.21	0.014
Stickiness	0.1541395	0.7686054	0.20	0.841
Constant	0.1011647	1.785151	0.06	0.955

*Source: Field survey, 2018; **, *** denotes Significant at the 0.05 and 0.01 probability level*

4. CONCLUSION AND RECOMMENDATION

The study analyzed consumers' preference for local rice among households in Ekiti State, Nigeria. Most of respondents (87.0%) preferred local rice to imported rice and this could be due to its nutritional value, quality and good taste. It was revealed that ofada rice and igbemo rice are very much preferred (26.0%) by the respondents and also, preferred ofada rice to igbemo rice in the study area. The results further revealed that taste, availability all year round, price and presence of particles as factors that significantly influence the consumers' preference for choice of rice.

High preference for local rice especially, ofada rice by the consumers justifies the need for the government to make more efforts on improved processing technology to eliminate presence of particles from choice of rice and to enhance good taste for consumers' preference. Since, price had a significant negative influence on consumers'

preference; therefore, efforts should be made by the government to formulate price control policy on local rice for its affordability by the consumers. Also, farmers should be encouraged to produce more local rice through the provision of incentives and credit facilities for its availability of all year round to the consumers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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