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Comparative Analysis of Consumers' Preference for Imported Rice and Locally Produced Ebonyi Rice World (ERW) in Ebonyi State, Nigeria

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Abstract

This study conducted a comparative analysis of consumers' preference for imported rice versus locally produced Ebonyi Rice World (ERW) in Ebonyi State, Nigeria. The specific objectives of the research were to: determine consumers' preference for imported rice and Ebonyi Rice World (ERW) based on physical attributes; compare consumers' preference for imported rice and Ebonyi Rice World (ERW) based on cooking attributes and ascertain consumers' preference for imported rice and Ebonyi Rice World (ERW) based on eating attributes. The study adopted a cross-sectional developmental survey design using a descriptive approach. The sample size of approximately 384 respondents was determined using Cochran's formula. Primary data were collected through questionnaires distributed to respondents in Ebonyi State, with additional questionnaires shared via online platforms. The data were analyzed using simple tables and percentage analysis, while hypotheses were tested through regression analysis using IBM SPSS Version 25. The findings revealed that all three attributes—physical, cooking, and eating—were statistically significant in influencing consumer preferences and their willingness to pay more for a particular brand of rice. The study concluded that these three factors play a crucial role in shaping consumer choices and their readiness to pay a premium for a brand. It recommends that rice brands focus on enhancing the visual appeal and packaging of their products. Attractive and high-quality packaging can create a strong first impression and communicate premium quality to consumers. Investing in packaging design, sustainability, and convenience may help increase consumer preference and willingness to pay higher prices.

Keywords: Consumer Preference, Imported Rice, Ebonyi Rice World (ERW), Locally Produced Rice, Physical Attributes, Cooking Attributes, Eating Attributes, Rice Quality

1. Introduction

One of the most significant grains in the world, rice (Oryza sativa) is native to Asia and provides energy to around half of the world's population (Tagliapietra, Soares & Clerici, 2024) [33]. The world's primary rice-producing regions are East and South Asia. China is the world's top producer of rice (more than 210 million metric tons), followed by Bangladesh, Vietnam, Indonesia, India, and the rest of the globe (FAO, 2017).

Rice is considered a very special food of choice in Nigeria which is consumed by virtually all households in urban and rural areas accounting for more than 20% of all meals consumed per week, often in different forms (Terwase & Madu, 2018; Price Water House Coopers, 2022) [34, 31]. This indicates how rice is important in the household's food consumption. It is one of the foods whose consumption is unaffected by geography, religion, culture, or tribe. In Nigeria, 85% of households spend between 6 and 6.6% of their total income on rice (Osabuohien *et al*., 2018 [30]; Toluwase *et al*., 2019; Bello *et al*., 2020 [11]; Obayelu, *et al*., 2022 [25]). Nigerian rice consumption is increasing at a rate of 5.1% annually due to population growth, rising income levels, fast urbanization, and a shift in consumer preferences toward locally grown rice as a result of the federal government's ban on the importation of foreign food (Kamai *et al*., 2020; Aiyedun *et al*., 2021; Okoro *et al*., 2023) [20, 3, 28].

Given that rice can be cultivated in all of Nigeria's ecologies, it is a potential source of revenue and jobs. Only roughly 11 states are reported to grow rice commercially, and 80% of the nation's yearly output comes from small-holder farmers (Ugalahi *et al*., 2016) [36]. Taraba, Kano, Lagos, Ebonyi, Kaduna, Niger, Kebbi, Cross-River, Enugu, Borno, and Benue are these states (PWC, 2022). Rice production in the country continues to increase rapidly because of the embargo on foreign rice importation

thereby increasing consumer demand for local rice. It has been envisaged that this will lead to an increase of 15 million metric tons of rice production from the 3 million hectares of the consolidated farm land by 2025 (USAID, 2019) [37]. This high demand enhances business opportunities and hence prospects for increased income for many participants in the rice value chain (Coulibaly *et al*., 2014) [12]. Rice value-adding processes like winnowing, parboiling, drying, and milling are thought to be profitable business opportunities that can raise industry participants' profit margins.

Consumer preferences, however, are dynamic and influenced by a variety of elements, including cultural views, taste, scent, cooking quality, aesthetics, and income. Given that rice is now the most eaten staple in all Nigerian families, it is more important than ever to comprehend these choice dynamics. In the South-East, Ebonyi State is a major center for rice cultivation. The introduction of Ebonyi Rice World (ERW), a locally packed and processed rice brand, demonstrates an effort to make local rice more competitive through improved quality and branding. Anecdotal evidence, however, suggests that many consumers still favor imported rice, which raises serious questions regarding the physical, cooking, and eating qualities of ERW in contrast to imported varieties.

These concerns have a direct bearing on the study's objective, which is to examine consumer preferences for imported and locally produced Ebonyi Rice World (ERW) rice. By evaluating traits such grain appearance, texture, fragrance, cooking behavior, and overall palatability, the study provides evidence-based insights into the actual factors impacting consumer choice in Ebonyi State. This comparison approach is essential for determining the marketing strategies and quality improvements needed to boost consumer approval of domestic rice as well as whether locally produced ERW can successfully compete with imported brands.

1.1 Statement of the Problem

Notwithstanding Nigeria's continuous efforts to promote domestic agricultural production, the country's use of imported rice remains extremely high. Many customers still firmly prefer imported rice, despite the well-known local brand Ebonyi Rice World (ERW) being recognized for its superior quality. This persistent preference raises questions about how competitive locally produced rice is in terms of appearance, cooking techniques, and eating quality. While imported rice is often perceived as being cleaner, more consistent, and easier to prepare, locally produced ERW rice is touted as being fresher and more nutrient-dense. Nevertheless, there is still a dearth of real data comparing the two from the perspective of consumers.

The situation is worse in Ebonyi State, known as the "rice hub of the Southeast," where one would expect higher demand for locally processed rice. Observations suggest that consumer preferences may still favor imported varieties, which poses challenges for local producers, marketers, and legislators. If the specific aspects impacting consumer preference—such as physical, cooking, and eating characteristics—are not well understood, local rice producers may continue to face reduced market share, lower profitability, and weakened competitiveness against imported brands.

Customers' preferences for locally produced Ebonyi Rice World (ERW) and imported rice in Ebonyi State must thus be compared in this study. The outcomes will assist stakeholders in improving rice quality, boosting market acceptance, and promoting sustainable local rice production.

1.2 Objectives of the Study

The following were the specific objectives:

1. To determine consumers' preference for imported rice and Ebonyi Rice World (ERW) based on physical attributes.
2. To compare consumers' preference for imported rice and Ebonyi Rice World (ERW) based on cooking attributes.
3. To ascertain consumers' preference for imported rice and Ebonyi Rice World (ERW) based on eating attributes.

1.3 Research Questions

1. To what extent does physical attributes influence consumers' preference and willingness to pay for one brand over the other?
2. To what extent does cooking attributes affect consumers' preference and willingness to pay for one brand over the other?
3. To what extent does eating attributes influence consumers' preference and willingness to pay for one brand over the other?

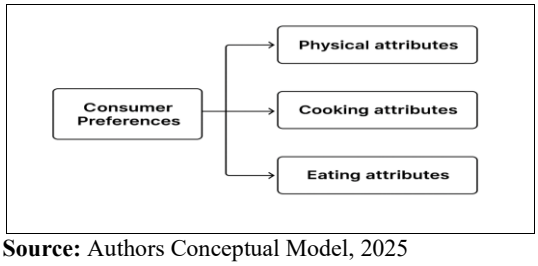
1.5 Hypotheses of the Study

The following research hypotheses have been formulated in null form.

1. Physical attributes do not significantly influence consumers' preference and willingness to pay for one brand over the other.
2. Cooking attributes do not significantly affect consumers' preference and willingness to pay for one brand over the other.
3. Eating attributes do not significantly affect consumers' preference and willingness to pay for one brand over the other.

2. Review of Related Literature

2.1 Conceptual Literature



Source: Authors Conceptual Model, 2025

Fig 1: Conceptual Model for the Study

2.2 Ebonyi Rice World (ERW)

There are three standard rice mills in the three senatorial zones of Ebonyi State that includes: (Ebonyi Central Ikwo, Iboko (Ebonyi North) Osoeda (Ebonyi South) Odogwu (2018) [27]. The company was established to provide quality rice products that will compete with imported brands of rice. The major objective is to provide access for rice farmers and rice businessmen to mill their rice to the highest quality because poor milling limit their competitiveness in the

market. The company produces various size packages ranging from 5kg, 10kg, 25kg and 50kg. Brands of Ebonyi Rice World include: Ebonyi super, Ebonyi Gold, Mata Dei Gold (Field Survey, 2023).

2.3 Imported Rice

Imported brands of rice describe various brands of rice packages offered for sale and consumed in Nigeria that are not locally produce in the country. Nigeria import rice from Thailand, China, India, Brazil etc. Packages include 25kg and 50kg. Brands offered in the market include: caprice, Stallion, Royal to name only a few (Field Survey, 2023).

2.4 Consumers Preference of Imported Rice to Locally Produced Rice

Studies as to the reason, consumers prefer imported over domestic was based on the quality attributes of the products. Rice marketing is mainly influenced by the attributes present in the rice products which is observed by consumers as they are more interested in the quality attribute for their health. But consumption pattern and preference are been affected by a range of economic and socio-cultural factors which have variation across the various geo-political zone in Nigeria (Godwin, 2012, FAOSTAT, 2010) [17, 15]. According to Emodi and Dimelu, (2012) [14] some of the significant measures of preference include: physical appearance and variety. The variety of rice product determines the type of menu which it will be used to prepare to the satisfaction of the consumer's preference. Different varieties of rice are used to prepare different menu suitable for such occasion.

These rice characteristics are either intrinsic or extrinsic that attract their desire some of which are considered on the ground of health and safety. Jang and Silk (2009) [19] mentioned some of these qualities to include physical attribute, cooking attribute, and eating attribute. In their recommendation, they advocate that retailers should take cognizance of these quality attributes since according to them, these attributes influence consumer demand and this activity is determined at the purchase point (Banovic *et al* 2009) [9]. These authors went on to say that the following characteristics—pricing, taste, swelling capacity, cooking time, cleanliness, odor/aroma, color, grain shape, and suitability for different recipes, among others—are what determine whether consumers prefer local or imported rice. Mergenthaler *et al*, (2009) [22] further supported the idea when they also noted that preference for locally produced rice or imported largely depends on factors that influence consumers' perception. They outlined the factors to include physical attributes, cooking attributes and eating attributes. These attributes as confirmed by the authors contribute significantly to purchase intentions.

Ogundele (2014) [26] confirmed that eating attribute include taste, aroma, flavor and texture. Physical attribute comprises stones presence, husk, grainshape, broken grains and colour while cooking attribute include: easy to cook, swelling capacity, grain size and cohesion. These attribute are the reason consumers prefer one brand over the other in line with one's preference and this determine purchase intention. In order to get maximum satisfaction, consumers are prepared or willing to pay a premium price for a particular sort of characteristic in a product, such as quality, health, and safety. In their studies, Iddrisu *et al*. (2019) [18] agreed that consumers evaluate product attributes or quality based on a variety of factors, which they explained as situation, knowledge, motivation, and involvement. Producers, marketers, researchers, and practitioners are very interested in product features and ratings because buyers consider these factors before making a purchase.

The attributes that mean quality in the mind of consumers' and moreover how the consumers weighs it may change overtime. They affirmed that consumers generally prefer food products with high quality for their consumption. They pointed out that since consumers typically base their purchasing decisions on these beliefs, it is critical to comprehend how consumers perceive quality (Rijswik & Frewer, 2008) [32]. Marketers have connected the quality attribute with consumers' perceptions of quality. According to Galamwat and Yabe (2010), Bruneian customers typically buy imported goods rather than domestic ones since they are more readily available. Additionally, they looked at Bruneian consumers' inclinations and readiness to pay for natural rice. The study's findings demonstrated that urban customers were willing to pay for natural rice and preferred rice with long grains. Nigerian customers choose imported rice over locally produced rice, according to a 2010 survey by Akaeze. He also noted that Nigerian consumers do so because of the cleanliness, swelling capacity, taste, availability and grain shape. He further stated that restaurants and fast food businesses are the most preferred customers because they use them in their businesses.

In their study of consumer preferences and acceptability of domestic and imported rice, Tomlins *et al*. (2005) [35] discovered that customers favor raw and parboiled international rice over local rice. However, Diako *et al*. (2010) [13] found that consumer preferences vary by country and that consumers are primarily concerned with product quality and price when making purchases. They observed that American customers favor rice that is associated with particular processing and cooking methods. In contrast to Europeans, who favor long grains devoid of fragrance, they claimed that Middle Easterners preferred long grains and well-milled rice with a strong perfume. The Japanese, who love well-milled rice yet have recently processed short grains, such as japonica rice, were also mentioned. They stayed in Thailand because they claimed to prefer long-grain, well-milled Indica rice (Galawet & Yabe, 2010) [16].

Basaorun (2009) noted that consumers in Japan, Korea, North China and Taiwan prefer buying rice at low price and as a result there are increasingly demands for locally produced rice in these countries because the price is cheaper than imported ones. Some of the authors discussed effect of marketing factors such as brand names, advertising and other communication tools (Opoku & Akoli, 2009) noted that United States show strong response to brand names and packaging.

2.5 Theoretical Literature

This study is adopted consumers' willingness-to-pay. Hanemann (1991) developed earlier work on utility theory and expressed preference valuation, which led to the widespread adoption and formalization of the Consumers' Willingness-to-Pay (WTP) Theory in consumer economics. According to the theory, customers base their judgments on what to buy on how much money they are ready to give up in order getting a product that provides them with usefulness, satisfaction, or superior perceived quality. Among the theory's fundamental presumptions are: rational consumer behavior, in which people select the product that

best suits their needs. Complete consumer preferences, which allow customers to rank goods according to qualities they find important (such as taste, scent, and appearance). Higher quality draws higher WTP, suggesting that buyers are prepared to spend more for products they believe to have better qualities. Information affects WTP, meaning that customers' valuation is impacted by increased understanding of a product's features.

The theory is relevant to the comparison research of imported rice and Ebonyi Rice World (ERW) since consumer preferences are closely connected with their willingness to pay for certain attributes including cleanliness, grain size, cooking quality, fragrance, and flavor. WTP theory explains why many consumers in Ebonyi State are willing to pay more for imported brands despite local availability, as consumers frequently view imported rice as superior. By using the theory, this study may determine whether higher-quality local rice can boost customers' willingness to pay as well as how physical, cooking, and eating characteristics affect consumers' valuation of ERW in comparison to imported rice.

2.6 Empirical Literature

Table 2.6.1: Summary of Empirical Studies

S/N	Author	Year	Title of Work	Place	Methodology	Findings
1	Abdulai & Hazell	1995	Factors influencing demand for local brown rice	Ghana (Volta & Greater Accra Region)	Survey, semi-structured questionnaire, descriptive statistics, Tobit Model, Chi-Square tests	Taste influenced patronage; price & technical attributes (colour, taste, nutrition, texture) significant; low acceptability; UGARS identified as supporting institution.
2	Moslay, Canney & Becker	2010	Consumer perception of Ofada rice	Ibadan North LGA, Oyo State, Nigeria	Multi-stage sampling, Tobit Analysis	Consumers preferred Ofada rice but 35.2% could not afford market price; foreign matter, long cooking time, high price caused preference for imported rice; household size & income significant.
3	Akande	2003	Nigerian customers' attitudes and perceptions of items manufactured abroad	Nigeria	Survey	Nigerian consumers believed that imported products were more dependable, sophisticated, fashionable, and reasonably priced than domestic ones.
4	Wuagh	1929	Hedonic pricing of agricultural products	Not specified	Hedonic pricing	Price of rice varied with physical attributes (colour, size, uniformity).
5	Arah	2003	Consumers' willingness-to-pay for organic rice attributes	Philippines	Conjoint analysis	Consumers valued eating quality, health safety, environmental factors, and certification; distance from farm influenced concern (certification vs environment).
6	Walisinghe & Gunaratne	2012	Rice quality features that consumers prefer	Sri Lanka	Conjoint analysis, focus group (185 consumers)	Colour & purity were significant attributes; price not significant; young urban consumers preferred quality attributes.
7	Anang *et al.*	2011	Customer preference for rice's superior qualities	Accra, Ghana	Descriptive statistics, Hedonic price model	Income & education affected preferences; consumers paid premium for taste, aroma, shape; valued cleanliness & absence of foreign matter.
8	Naseem *et al.*	2012	Economic evaluation of rice qualities chosen by consumers	West Africa	Hedonic pricing, discrete choice models	Consumers' implicit prices influenced by perceived quality attributes in imported & domestic rice.
9	Ahmad Hanis, *et al.*	2012	Rice qualities and consumer demand and readiness to pay	Malaysia	Conjoint analysis	Consumers valued food safety, taste, grain size; willingness to pay premium for safe, quality rice.
10	Opeyemi *et al.*	2015	Consumers' patronage of domestic & imported rice	Nigeria	Descriptive & inferential statistics (Logit analysis), survey	Household size & income influenced domestic rice patronage; taste, cleanliness & absence of foreign matter influenced imported rice preference.
11	Azabagaoglu & Gaytancioglu	2009	Consumer preference for rice varieties	Turkey	Focus group discussions, oral interviews, cluster analysis	Baldo & US Calrose varieties preferred due to cleanliness, palatability, cooking attributes; US Calrose chosen as best imported brand.
12	Diako *et al.*	2010	Consumers' perception & preference for aromatic rice types	Accra, Ghana	Descriptive & inferential statistics	94.9% awareness of imported rice; raw & cooked attributes (taste, aroma) influenced choice; Friedman test showed taste & aroma most important.
13	Mhlanga (in Obih)	2010	Price & product attributes in consumers' rice choice	Benin	Hedonic pricing, discrete choice modeling	Consumers willing to pay more for rice with less foreign matter, long grains, fast cooking, white over brown; urban consumers paid higher premium.
14	Lancon *et al.*	2003	Imported rice consumers' preferences	Nigeria	Survey	Cleanliness, swelling capacity, taste, availability & grain shape explained higher imported rice consumption.

Source: Researcher's Compilation, 2025

2.7 Summary and Gap in the Reviewed Literature

A review of existing studies on consumer preference for rice reveals that much scholarly attention has been devoted to understanding the factors influencing demand for both imported and locally produced rice in different contexts across Africa and Asia. Nevertheless, a number of omissions are apparent in spite of this extensive coverage. First, Ebonyi State, Nigeria, where Ebonyi Rice World (ERW) has become a significant brand of locally grown rice, has received little attention in empirical research, which has mostly concentrated on Ghana, Nigeria generally, or other Asian nations. While previous studies have looked at consumer views in general, very few have compared the physical, cooking, and eating characteristics of imported rice with a particular indigenous brand like ERW. Lastly, the dynamic nature of consumer preference in response to market forces, awareness campaigns, and government policies promoting local rice production has not been sufficiently captured in existing studies.

Thus, by offering an empirical comparison of customer choice for imported rice against Ebonyi Rice World in Ebonyi State, this study aims to close these disparities, focusing specifically on physical, cooking, and eating attributes as determinants of preference and willingness-to-pay. It is anticipated that this contribution would to the body of knowledge regarding consumer behavior in staple food markets while offering context-specific insights for stakeholders in Nigeria's rice industry.

3. Methodology

3.1 Research Design

This study adopted latitudinal type of developmental survey. In latitudinal survey a sample made up of cross-section of the subjects is selected and studied at the same time, Nzelibe *et al*, (1996).

3.2 Area of the Study

A cross-section of Ebonyi State, one of the states in Nigeria's southeast, was chosen for this study in order to gather a variety of customer viewpoints. Three Local Government Areas (LGAs) from each senatorial zone—Ezza North LGA in Ebonyi Central Senatorial Zone, Ivo LGA in Ebonyi South Senatorial Zone, and Ohaukwu LGA in Ebonyi North Senatorial Zone—were the focus of the study. In order to provide a fair representation of the state's consumer preferences, these LGAs were purposefully chosen to guarantee geographic representation throughout the three senatorial zones.

3.3 Sources of Data

Both primary and secondary sources of data were used in this investigation. Customers of imported rice and locally produced Ebonyi Rice World (ERW) at a few Ebonyi State marketplaces were given structured questionnaires to complete in order to collect the primary data. The secondary data came from government publications, published journals, textbooks, earlier studies, and other web resources that offered further details on consumer behavior and rice consumption trends.

3.4 Population of the Study

The study's population included every rice consumer in Ebonyi State, Nigeria, with a focus on consumers of both imported and Ebonyi Rice World (ERW) rice brands.

3.5 Sample Size Determination

The sample size was determined using Topman's formula, a statistical procedure for estimating the sample size of an unknown or infinite population:

$$n = \frac{Z^2.\ p\ (1\text{-}p)}{e^2}$$

Where:

n is the necessary sample size.

Z = Z-value (for example, 1.96 for a 95% confidence level)

p is the estimated population proportion (e.g., 0.5 for greatest variability).

e is the error margin (for example, 0.05 for ±5%).

e=0.05 is a standard, reasonable choice for margin of error because it offers a balance of reliability and practicality, providing sufficient precision for general purposes while keeping costs and sample sizes within manageable limits.

Using these parameters:

$$n = \frac{(1.96)^2 \text{ X } 0.5\ (1\text{-}0.5)}{0.05^2}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 384.16$$

= 384 approximately.

The study employed a sample size of 384 respondents. This showed a 5% margin of error and a 95% confidence level.

3.6 Sampling Techniques

To encourage respondents to take part in the survey, the study used a convenient sampling technique. Convenient sampling size is chosen by the authors due to its ease in rapid collection of large number of responses.

3.7 Data Collection Instrument

Use of structured questionnaire was employed to gather responses. For this study the questionnaire was divided into two sections A and B. section A was gather data about respondent's socioeconomic factors while section B was collect data about rice attributes on Ebonyi Rice World and Imported Brands.

3.8 Method of Data Analysis

IBM's Statistical Package for Social Sciences (SPSS) Version 25 was used to analyze the data. The analysis was in two parts. The first section analyzed the respondents socio-economic characteristics while the second section analyzed the relationship between variables used in this study.

Table 3.1: Mode Specification/A Priori Expectation

S. No	Independent Variable	Dependent Variable	Models	A Priori expectations
1	Physical attributes (PHAT)	Consumers' Preference (COPR)	$y_1 = \alpha_0 + \beta_1 x_1 + \mu$	$\beta_1 > 0$, $p<0.05$: H_{O1} will be rejected
2	Cooking attributes (COAT)	Consumers' Preference (COPR)	$y_2 = \alpha_0 + \beta_2 x_2 + \mu$	$\beta_2 > 0$, $p<0.05$: H_{O2} will be rejected
3	Eating attributes (EAAT)	Consumers' Preference (COPR)	$y_3 = \alpha_0 + \beta_3 x_3 + \mu$	$\beta_3 > 0$, $p<0.05$: H_{O3} will be rejected

Source: Authors adoption, 2025

Where,

y_1, y_2, y_3, = Dependent variable

x_1, x_2, x_3, = Independent variable

α_0 = Constant

$\beta_1, \beta 2, \beta_3$, = Regression coefficients or Coefficients of the independent Variables.

μ = Stochastic error associated with the models

Table 4.1: Questionnaire Response Rate

Distributed	Number	Returned	Percent (%)	Withheld	Percent (%)
384	384	320	83.3%	64	16.7%

Source: Field work, 2025.

4. Data Presentation and Analysis

The target sample size for the study was 384 questionnaires, as indicated in table 4.1.. This number was selected based on statistical requirements to ensure a representative sample for reliable results. Out of the 384 distributed questionnaires, 320 were returned, representing 83.3% of the total distributed. This high return rate suggests a strong level of participation and interest from respondents, likely leading to a rich data set with minimal gaps.

4.1 Data Analysis

Table 4.2: Distribution of Socio-economic Characteristics of Respondents

Variables	Responses	Percent (%)	Remarks / Comments
1. Gender			
Male	180	56.3%	Majority of respondents are male.
Female	140	43.7%	Slightly fewer female respondents.
2. Age Group (in years)			
20-25	60	18.8%	Youthful group represented.
26-31	90	28.1%	Highest percentage; likely key consumer demographic.
32-40	80	25.0%	Middle-aged adults make up a significant portion.
41-50	50	15.6%	Fewer respondents in older age group.
51 and above	40	12.5%	Least represented; possibly retired or non-targeted.
3. Education (Yrs in School)			
None	10	3.1%	Very few without formal education.
1-6	30	9.4%	Small proportion with minimal education.
7-12	100	31.3%	Largest group; represents basic education level.
13-17	120	37.5%	Majority with secondary or higher education.
18 and above	60	18.8%	High number of educated respondents.
4. Monthly Income (in ₦000)			
20-80	80	25.0%	Lower-income group; likely younger individuals.
81-150	100	31.3%	Moderate income; significant portion of sample.
151-290	70	21.9%	Middle-income group.
291-400	40	12.5%	Smaller group; higher-income segment.
401 and above	30	9.4%	Few respondents in highest income bracket.
5. Number of Persons Living With			
None	20	6.3%	Few respondents live alone.
1-3	140	43.8%	Most common group size; likely nuclear families.
4-6	90	28.1%	Represents larger family households.
7-10	50	15.6%	Some respondents in extended family arrangements.
11 and above	20	6.3%	Small group in very large households.
6. Occupation			
Farming	90	28.1%	Majority involved in agriculture; relevant to rice demand.
Trading/Business	60	18.8%	Significant group; likely consumers of affordable options.
Civil Servants	70	21.9%	Stable income; potential for higher spending
Teaching/Education	40	12.5%	Moderate group; includes teachers and education workers.
Skilled Labor	30	9.4%	Includes artisans, technicians; moderate income bracket.
Unemployed	10	3.1%	Small group; potentially lower spending capability.
Students	15	4.7%	Likely young consumers, limited income.
Retired	5	1.6%	Small group, may have a preference for local rice.
7. Marital Status			
Married	160	50.0%	Half of respondents are married.
Single	130	40.6%	High percentage of singles, potentially younger.
Divorced	10	3.1%	Small percentage divorced.
Widow	10	3.1%	Very few widowed.
Widower	10	3.1%	Few respondents are widowers.

Source: Field work, 2025.

4.2 Test of Hypotheses

4.2.1 Test of Hypothesis (H_{01})

H_{01}: Physical attributes do not significantly influence consumers' preference and willingness to pay for one brand over the other.

Table 4.3: Regression Estimate

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.932[a]	.868	.852	21.933	1.980
a. Predictors: (Constant), Physical Attributes					
b. Dependent Variable: Consumers' Preference					

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25347.200	1	25347.200	52.691	.000[b]
	Residual	3848.400	8	481.050		
	Total	29195.600	9			
a. Dependent Variable: Consumers' Preference						
b. Predictors: (Constant), Physical Attributes						

There is a very significant link between customers' preference and readiness to pay for one brand over another (COPR) and physical attributes (PHAT), as seen by result 4.3, where the R correlation value is 0.932. With an R-squared of roughly 86.8%, our independent variables explain for (or predict) a significant amount of the variance in our dependent variable. Since we wish to make accurate predictions using the regression equation, the R-squared is equally crucial to us. The Adjusted R^2 is therefore.852. This indicates that the independent variables included in the model are capable of explaining roughly 85.2 percent of the variation in the dependent variable, with an average of 64.20, a standard deviation of 56.956 for PHAT, and a standard error of the predicted value of 12.454. The regression sum of squares, 25347.200, is more than the residual sum of squares, 3848.400, indicating that the model accounts for a greater portion of the variation in the dependent variable and that this variation is not the result of chance.

Nonetheless, the Durbin-Watson value is 1.980, which is near to 2, indicating that autocorrelation is not significant. In this sense, the model can be regarded as dependable since it seems to be free of autocorrelation. Consequently, -42.600 is the constant or intercept. This suggests that there will still be a -42.600 impact on customers' choice and willingness to pay for one brand over another (COPR) even when all model parameters are zero. Other factors not included in the model account for this. With a p-value of less than one percent and a positive regression coefficient of 35.600, the coefficients are statistically significant. The computed regression model is shown as follows using the data mentioned above:

$$COPR = -42.600 + 35.600PHAT + \mu$$

How much do physical characteristics affect customers' preference and readiness to pay for one brand over another in order to address the first study question? Next, we calculated the correlation between customers' preference and readiness to pay for one brand over another (COPR) and physical attributes (PHAT). The table below displays the findings.

Correlations			
		Consumers' Preference	Physical Attributes
Pearson Correlation	Consumers' Preference	1.000	.932
	Physical Attributes	.932	1.000
Sig. (1-tailed)	Consumers' Preference	.	.000
	Physical Attributes	.000	.
N	Consumers' Preference	10	10
	Physical Attributes	10	10

The aforementioned findings demonstrate a high positive correlation ($r=.932$, $p<0.05$) between all consumer preferences and the computed physical features. Since the p-value of 0.00 is less than 0.05, the correlations are significant. A statistically significant correlation or adequate meaningful evidence exists between physical attributes and consumer desire, as demonstrated by the correlation of 0.932, or around one, between the variables physical attributes and consumers' preference and readiness to pay for one brand over the other. We find that physical characteristics have a substantial impact on consumers' preference and willingness to pay for one brand over another because the p-value of 0.000 is less than the significance level of 0.05.

4.3.2 Test of Hypothesis (H_{02})

H_{02}: Cooking attributes do not significantly affect consumers' preference and willingness to pay for one brand over the other.

Table 4.4: Regression Estimate

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.932[a]	.868	.852	24.031	.868	52.675	1	8	.000	1.655
a. Predictors: (Constant), Cooking Attributes										
b. Dependent Variable: Consumers' Preference										

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30420.000	1	30420.000	52.675	.000[b]
	Residual	4620.000	8	577.500		
	Total	35040.000	9			
a. Dependent Variable: Consumers' Preference						
b. Predictors: (Constant), Cooking Attributes						

The R correlation coefficient of 0.932 in result 4.4 indicates that there is a very strong association between cooking attributes (COAT) and consumers' preference and willingness to pay for one brand over another (COPR). With an R-squared of roughly 86.8%, our independent variables explain for (or predict) a very good portion of the variation in our dependent variable. 0.868 is the Adjusted R^2. This indicates that the independent variables in the model are capable of explaining about 86.i percent of the variation in the dependent variable, with an average of 64.00 and a standard deviation of 62.397 for COAT. The estimation's standard error is 24.031. The regression sum of squares (30420.000) is higher than the residual sum of squares (4620.000), suggesting that the dependent variable's fluctuation is more likely to be explained by the model than by chance.

Nonetheless, the Durbin-Watson value is 1.655, which is near to 2, indicating that autocorrelation is not significant. In this sense, the model can be regarded as dependable since it seems to be free of autocorrelation. Consequently, -53.000 is the constant or intercept. This suggests that there will still be a -53.000 impact on customers' choice and willingness to pay for one brand over another (COPR) even when all model parameters are zero. Other factors not included in the model account for this. The regression coefficients are statistically significant since they are positive (39.000) and have a p-value of less than one percent. The computed regression model is shown as follows using the data mentioned above:

$$COPR = -42.600 + 39.000\ COAT + \mu$$

To what degree do cooking characteristics influence customers' preferences and readiness to pay for one brand over another in response to the second study question? The Correlation of Cooking attributes (COAT) and customers' inclination and willingness to pay for one brand over another (COPR) were then calculated. The table below displays the findings.

Correlations			
		Consumers' Preference	Cooking Attributes
Pearson Correlation	Consumers' Preference	1.000	.932
	Cooking Attributes	.932	1.000
Sig. (1-tailed)	Consumers' Preference	.	.000
	Cooking Attributes	.000	.
N	Consumers' Preference	10	10
	Cooking Attributes	10	10

The aforementioned findings demonstrate a substantial positive correlation ($r=0.932$, $p<0.05$) between the consumers' preferences and the estimated cooking qualities. The correlations are significant because the p-value of 0.00 is less than 0.05.

There is sufficient meaningful evidence or a statistically significant association between the variables of cooking qualities and customers' choice and readiness to pay for one brand over another, as evidenced by the correlation of 0.932, or roughly one. We find that cooking qualities have a substantial impact on customers' preference and readiness to pay for one brand over another because the p-value of 0.000 is less than the significance level of 0.05.

4.3.3 Test of Hypothesis (H_{03})

H_{03}: Eating attributes do not significantly affect consumers' preference and willingness to pay for one brand over the other.

Table 4.5: Regression Estimate

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.946[a]	.895	.882	20.418	.895	68.546	1	8	.000	2.140
a. Predictors: (Constant), Eating Attributes										
b. Dependent Variable: Consumers' Preference										

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28576.800	1	28576.800	68.546	.000[b]
	Residual	3335.200	8	416.900		
	Total	31912.000	9			
a. Dependent Variable: Consumers' Preference						
b. Predictors: (Constant), Eating Attributes						

The result 4.5 indicates that the R correlation coefficient is 0.946, indicating a very significant association between eating attributes (EAAT) and consumers' preference and willingness to pay for one brand over another (COPR). With an R-squared of roughly 89.5%, our independent factors explain for (or predict) a good portion of the variation in our dependent variable. 0.88.2 is the Adjusted R^2. This indicates that the independent variables included in the model are capable of explaining approximately 88.2 percent of the variation in the dependent variable, with a standard error of the estimation of 20.418, with an average of 64.00 and a standard deviation of 59.546 for EAAT. Substantial variance in the dependent variable may be attributed to the model since the regression sum of squares (28576.800) is more than the residual sum of squares (3335.200), indicating that the variation represented by the model is not the product of chance.

Nonetheless, the Durbin-Watson value is 2.140, which is somewhat higher than 2, indicating that autocorrelation is not significant. In this sense, the model can be regarded as dependable since it doesn't seem to have any significant autocorrelation problems. Consequently, -49.400 is the constant or intercept. This suggests that there will still be a -49.400 impact on customers' choice and willingness to pay for one brand over another (COPR) even when all model parameters are zero. Other factors not included in the model

account for this. With a p-value of less than one percent and a positive regression coefficient of 37.800, the coefficients are statistically significant. The computed regression model is shown as follows using the data mentioned above:

$$COPR = 49.400 + 37.800EAAT + \mu$$

To what degree do eating characteristics influence customers' preferences and readiness to pay for one brand over another in response to the third study question? Next, we calculated the correlation between customers' preference and readiness to pay for a particular brand (COPR) and their eating attributes (EAAT). The table below displays the findings.

Correlations

		Consumers' Preference	Eating Attributes
Pearson Correlation	Consumers' Preference	1.000	.946
	Eating Attributes	.946	1.000
Sig. (1-tailed)	Consumers' Preference	.	.000
	Eating Attributes	.000	.
N	Consumers' Preference	10	10
	Eating Attributes	10	10

The aforementioned findings demonstrate a substantial positive correlation ($r=0.946$, $p<0.05$) between the consumers' preferences and the estimated cooking qualities. Since the p-value of 0.00 is less than 0.05, the correlations are significant. There is enough substantial proof or a statistically significant correlation between customer choice and culinary attributes, as seen by the correlation of the variables eating attributes and consumers' choice and readiness to pay for one brand over the other, which is 0.946, or roughly one. We find that cooking qualities have a substantial impact on customers' preference and readiness to pay for one brand over another because the p-value of 0.000 is less than the significance level of 0.05.

5. Conclusion and Recommendations

5.1 Conclusion

Consumers' preferences and willingness to pay more for a brand are greatly influenced by physical, cooking, and eating characteristics, according to the study. Consumer decisions are largely influenced by physical characteristics like appearance and packaging, culinary characteristics like ease of preparation, and eating characteristics like flavor and texture. The relevance of maximizing these elements to improve brand appeal and boost customer loyalty is highlighted by the substantial connections and statistical significance across all three dimensions. Brands that prioritize these qualities are probably going to witness increased sales and better customer satisfaction. Therefore, we draw the conclusion that Ebonyi Rice World is superior to imported rice.

5.2 Recommendations

The study offers the following recommendations:

1. Companies should concentrate on enhancing their products' packaging and aesthetic attractiveness. Good, eye-catching packaging may convey premium quality to customers and provide a good first impression. Investing in packaging that is convenient, sustainable, and well-designed may boost consumer preference and willingness to spend more.
2. Products should be designed with simplicity of preparation and cooking efficiency in mind. Busy customers looking for convenience may be attracted by time-saving features, straightforward instructions, or pre-made solutions. Items that make cooking easier and enhance the whole culinary experience will probably fetch a higher price.
3. Companies should make investments to enhance flavor, texture, and the whole sensory experience. Products that offer exceptional taste and dining experiences typically foster significant customer loyalty, and sensory qualities are essential for customer pleasure. To make sure their products meet or beyond customer expectations, businesses should carry out taste tests, focus groups, and sensory assessments.

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