

## **Factors Influencing Consumer Behavior In Regard To Choice Of Rice Brands In Kenya.**

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### **Abstract**

*Rice is one of the most widely consumed grains in the world, and China and India are the largest consumers due to their huge population. Demand for rice in Kenya is expected to continue increasing, given a projected population growth rate of 2.7% per year. In recent years, competition between local and international brands has been witnessed in the Kenyan rice market. To make things worse, every supermarket in Kenya has its rice private label displayed on the shelves. Among the local brands, Mwea Pishori is the most famous brand. The purpose of this paper was to investigate the factors influencing consumer behavior in regard to choice of rice brands in Kenya. This study adopted a survey and co- relational research design. The study was grounded on a behaviorists' theory that explains behavior in terms of stimuli and responses. A stimulus 'is a factor or agent that provokes interest, feelings, perception, enthusiasm or physical response' while a response 'is the action taken after the reception of stimuli'. The stimuli included external factors, internal factors, marketing factors and customer characteristics. The response was rice brand choice. The study adopted survey and co- relational research designs, and data was collected through interview from a sample of 340 respondents. Structured questionnaires were used to collect primary data from the selected respondents. The sample size was determined using Krejcie & Morgan (1979) table and formula. Data was analyzed quantitatively in order to address the objectives. Binary logit regression models to test the relationship between explanatory variables and rice brand choice in Kenya. The association and effect of the internal factors, external factors, customer characteristics and market factors identified for this study were all significant. Rice marketers should design their marketing communication and rice distribution strategies with the findings of this study in mind. Findings are also important to the government policy makers, particularly policies related to rice importation.*

**Keywords:** *Consumer Behavior, Rice Brands choice, Internal Factors, External Factors, Customer Characteristics and Marketing Factors*

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### **I. Background of the Study**

According to Shahbandeh (2023) rice is one of the most widely consumed grains in the world. Given its huge population, China consumes more rice than any other country, and slightly over 155 million metric tons consumed in 2022/2023. India is ranked second with 108.5 million metric tons of rice consumed in the same period. Rice was introduced in Kenya in 1907, and with time it has become a very important cereal in Kenyans' diet occupying third position after maize and wheat. According to international Rice Research institute, national rice consumption is estimated at 949,000 metric tons compared to an annual production of 180,000. Rice demand in Kenya is projected to rise to 1,290,000 tons in the near future given Kenya's projected population growth rate of 2.7% per year (IRRI). Competition between local and international brands is very high. The brands available in the supermarkets are: Copia, Ranee, Pure Health, CIL, Pearl, Mwea, Kapunga, Mara, Fzami, and Maarfu, Butterfly and Merry's Gold among others. Among the listed brands, Pakistan rice, Ranee, sun rise, DAWAAT, Basmati rice and Pearl are the famous foreign brands while the rest are local brands. Among the local brands, Mwea Pishori is the most famous brand. Apart from these brands, every supermarket in Kenya has its rice private label displayed on the shelves.

Various studies have been done on consumer brand choice behavior; for instance, Ballantyne, Warren & Nobbs(2006) investigated evolution of brand choice. The aim of this study was to identify the salient features that impacts on brand choice. The study reported that emotional and symbolic attachments to brand image have impact on brand choice. Vasquez & Begona (2007) investigated effect of customer characteristics on brand choice behaviour, and findings indicated that customer characteristics were important when consumers are making choices between different brands. Liem, Gregory & Lulu (2021) studied the role of brand salience in customers' intentions in regard to brand choice decisions in the charity sector. The brand salience composed of brand prominence and brand distinctness, and the two components were found to be important when new customers were intending to make brand choice decisions. Those studies were done outside Kenya, and not necessarily on brands for food products, yet in Kenyan food market, foreign brands are evident, and are

competing with locally manufactured foods. They range from milk, rice, beverages, pasta, tomato pastes and ketchup-cooking oil, etc. Evidence is available for research on beverage brands (mainly on product characteristics for tea and brand switching) in Kenya Koech et.al (2018). Research should be carried out on food products and customer related variables, market factors and factors in the external environment. This study focused on foreign and local rice brands. There has been an issue of imported rice flooding Kenyan market, yet Kenya produces a substantial amount of rice in Mwea, which is branded as Mwea Pishori. The question one would ask is what factors influencing the consumers' choice of rice brands (Mainly between foreign and local brands) in Kenya?

## **II. Research Problem**

As indicated above, demand for rice in Kenya is growing due to the growing population. According to ministry of Agriculture, in 2021, Kenya imported \$275M in Rice, mainly from Tanzania (\$96.2M), Pakistan (\$86.7M), India (\$81.5M), Thailand (\$5.98M), and South Korea (\$2.32M). Such imports on arrival to the country are packed as foreign brands, which competes with locally produced rice. As a result, the local rice farmers and millers have been complaining that there is no market for the local rice due to proliferation of the market by foreign brands and private labels, which are actually made from foreign imported rice. Given the number of rice brands in the Kenyan market, consumers are definitely suffering from 'over-choice' and 'choice fatigue'. This being the case, it's important for researchers to investigate what factors influence consumer's choice of rice brands in Kenya.

## **III. Purpose of the study**

The purpose of this paper was to investigate the factors influencing consumer behaviour in regard to choice of rice brands in Kenya. Information generated in the study will guide the rice traders in the country, and also guide government on policies related to rice importation into the country.

## **IV. Objectives of the Study**

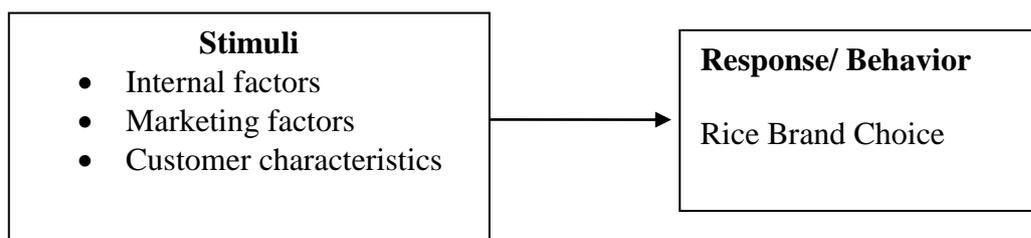
Specifically this study seeks to address the following objectives:

- a. To investigate whether internal factors (motive of buying, learning, perception and personality) are associated with the probability of choice of foreign rice brand over local brands
- b. To determine whether customer characteristics are associated with the probability of choice of foreign rice brand over local brands
- c. To determine whether factors external to the consumer are associated with the probability of choice of foreign rice brand over local brands
- d. To investigate whether marketing factors are associated with the probability of choice of foreign rice brand over local brands
- e. To examine whether Customer characteristics, external, internal and market factors have significant effect on the probability of consumers of rice choosing foreign rice brand over local rice brands in Kenya

## **V. Theoretical Literature**

The study was grounded on a behaviorists' theory that explains behaviour in terms of stimuli and responses (Jisana, 2014). According to (Jisana, 2014), a stimulus 'is a factor or agent that provokes interest, feelings, perception, enthusiasm or physical response' while a response 'is the action taken after the reception of stimuli'. Behaviorists understood that behavior is learned inside. The behavioral approach thus focuses on how the environment affects an organism's outward behavior. The living thing is handled like a "black box." Only an organism's outward behavior can reveal what is happening inside a box (Jisana, 2014). According to stimulus – response theory, the stimuli are of two types: marketing factors (product, price, promotion, place), environmental factors (economic, political, social & technological factors). Those factors interact with what is in the black box (internal factors and customer characteristics) to finally determine consumer behaviour or responses in terms of: product choices, brand choices, retail choice, dealer choice, purchase timing, purchase amount and purchase frequency.

Conceptual Frame Work



The theory relevant to each variable can be explained as follows: *Internal factors theory*- Kibera & Waruingi, (2007) identified four internal factors that influence consumer behavior. The first factor is the *needs and motives*. A need is the lack of something useful, and consumers are confronted with numerous unsatisfied needs. A motive is an inner state that directs consumers towards the goal of satisfying a felt need (Kibera & Waruingi, 2007). *Personality* is another internal factor which may influence consumer behaviour. It is the enduring characteristics that influences how an individual responds to stimuli (Kibera & Waruingi, 2007). These traits makes nonsumers unique, and this uniqueness influences consumer behaviour based on their ego. *Perception* is another internal component that might affect consumer behavior (Kibera & Waruingi (2007). It is the process by which individuals organize and interpret their sensory impressions in order to give meaning to their environment. It is characterized as the process by which we give incoming stimuli that we acquire through our five senses meaning (Orangi et tal 2023). Perception inputs are received through sensory mechanisms. Events, objects and people in the environment enter our perceptual field through senses of sight, hearing, smell and tastes. As a result, a person's perception of a given good or service is subjective and influenced by their thoughts and beliefs. Due to perceptual differences, even people with similar needs or wants might not choose the same products or services (Perner & Lars, 2010). This study analyses perception of rice brands in regard to what consumers have heard, experience with the smell, sight or looks after cocking it and taste.

The other internal factor is *learning*, which is defined as the alteration of an individual's response or behavior due to practice, experience, or mental association, and it is another internal factor that can affect consumer behavior Kibera &Waruingi, (2007). Learning is mainly through condition or reinforcement. Applying conditional learning theory to marketing, it is argued that when the consumer is exposed to a situation repeatedly, it may result in positive or negative consequences. Positive consequence results in repeated purchase, while negative consequence results in shying away from the product or service.

*Marketing Factors Theory*- The influences of marketing relate to different elements of the marketing mix, which include product characteristics (e.g. quality and packaging), promotion, distribution channels, and pricing (Kotler et al., 2009; Churchill, 2021; Rajan, 2006). The concept of "product" covers a wide range of offerings available for customers to purchase or acquire, including physical goods, services, personalities, places, and ideas (Kibera & Waruingi, 2007). Another important aspect of marketing is the pricing of products or services, as highlighted by Kibera and Waruingi (2007). Price refers to the amount of value that customers are willing to pay for a particular product or service at a given point in time. The other marketing factor is the promotional activities (Kibera & Waruingi, 2007). There are six major components of promotional mix: advertising, personal selling, direct marketing, internet promotion, sales people and publicity (Kotler, et al 2009 & Jobber, 2010). In addition to those key promotional tools, marketers can use exhibitions and sponsorship to communicate with target audiences (Churchill, 2021). The other marketing factor that may influence consumer behavior is place/ Distribution Channels (Kotler et al. 2009). This is the chain of market intermediaries or middlemen used by a producer or marketer to make products or services available when consumers need them (Kibera & Waruingi, 2007). The intermediaries in the channels of distribution are the wholesalers, retailers and agents (Kibera & Waruingi, 2007).

*Customer characteristics*- those are demographic characteristics, and are in the psyche (Jisana, 2014). They include the age, gender, education, occupation and income. The study focused on relationship between those explanatory variables and the rice brand choice.

## VI. Research methodology

This study adopted survey and co- relational research designs, and data was collected through interview from a sample of 340 respondents. Structured questionnaires were used to collect primary data from the selected respondents. The sample size was determined using Krejcie & Morgan (1979) table and formula. Data was analyzed quantitatively in order to address the objectives. Correlation analysis was done before running binary logit regression models to test the relationship between explanatory variables and rice brand choice. To test the objectives 1-5, the following binary regression models were estimated:

**Binary logit regression model for dependent variable and customer characteristics:**

$$\text{Logit}(P(Y = 1 / X_1, \dots, X_n))$$

$$= \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \mu_1$$

Y= Choice (foreign rice brands =1, local rice brands = 0) where:

$$Y = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \mu_i \text{ where: } X_1 = \text{Age, } X_2 = \text{Gender, } X_3 =$$

Education,  $X_4 = \text{Income, } X_5 = \text{Occupation, while } u_i = \text{random error term}$

**Binary Logit Regression Model for Dependent Variables and Internal Factors**

$$\text{Logit}(P(Y = 1 / X_1, \dots, X_n))$$

$$= \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \mu_1$$

Y= Choice (foreign rice brand =1, local rice brands = 0) where: where:  $X_1 = \text{motive of buying } X_2 = \text{perception}$

$X_3 = \text{learning, } X_4 = \text{lifestyle while } u_i = \text{random error term}$

**Binary Logit Regression Model for Dependent Variables and External Factors**

$$\text{Logit}(P(Y = 1 / X_1, \dots, X_n)) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \mu_1$$

Y= Choice (foreign rice brand =1, local rice brands = 0) Where  $X_1 = \text{Family size } X_2 = \text{Social class } X_3 =$

sub-culture (Nationality) = while  $u_i = \text{random error term.}$

**Binary Logit Regression Model for Dependent Variables and Marketing Factors**

$$\text{Logit}(P(Y = 1 / X_1, \dots, X_n)) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \mu_1$$

Y= Choice (foreign rice brand =1, local rice brands = 0) Where  $X_1 = \text{price } X_2 = \text{retailer type frequently visited}$

$X_3 = \text{exposure to advertising/promotion while } u_i = \text{random error term.}$

## VII. Findings of the study

**Table 1: Correlation Analysis**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ri Rice Brand Choice	1																
2. Age	0.535001	1															
3. Gender	0.834000	0.613000	1														
4. Education(sec)	0.715000	0.512000	0.613000	1													
5. Above (Sec)	0.751000	0.583000	0.629000	0.782000	1												
6. Income	0.612000	0.712000	0.675000	0.415000	0.415000	1											
7. Occupation	0.722000	0.656000	0.614000	0.602000	0.532000	0.645000	1										
8. Motive	0.724000	0.612000	0.314000	0.502000	0.567000	0.654000	0.865000	1									

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9. Perception	0.72400	0.61200	0.31400	0.50200	0.50250	0.60300	0.80500	0.60400	1								
10. Learning	0.61300	0.51300	0.31400	0.50200	0.40250	0.80450	0.60300	0.50250	0.60500	1							
11. Lifestyle	0.45100	0.68300	0.52900	0.68200	0.40510	0.60130	0.50130	0.30140	0.50200	0.60540	1						
12. Price	0.81200	0.41200	0.51500	0.31500	0.40150	0.60240	0.80120	0.60140	0.80200	0.40670	0.50540	1					
13. Retailer Type	0.52400	0.51200	0.61400	0.60200	0.60670	0.70540	0.70650	0.60130	0.50140	0.60020	0.60130	0.40140	1				
14. Exposure to promotion	0.62400	0.71200	0.11400	0.60200	0.40670	0.50540	0.60650	0.50120	0.20120	0.60150	0.50150	0.60150	0.70120	1			
Family	0.61400	0.61200	0.21400	0.50200	0.50670	0.60540	0.70650	0.60120	0.60120	0.70150	0.60150	0.80150	0.60120	0.60750	1		
Social Class	0.72400	0.51200	0.31400	0.60200	0.40670	0.60540	0.50650	0.40920	0.10000	0.60150	0.50150	0.60250	0.70220	0.50760	0.70760	1	
Sub-culture	0.62400	0.73200	0.11400	0.60720	0.40670	0.50540	0.70650	0.60520	0.30120	0.70150	0.50650	0.50350	0.60540	0.70860	0.00650	0.00700	1

For most variables, the correlation was significant at p-value = 0.05, apart from correlation between motive of buying and gender (r=0.314, p-value 0.142), between exposure to promotion and perception (r=0.212, p-value 0.063), and between exposure to promotion and gender (r=0.114, p-value 0.452).

**VIII. Research Findings**

**Table 1: Binary Logit Regression Model Results for Dependent Variable and Internal Factors**

Logistic regression	Number of obs	=	340
	LR chi2 (4)	=	251.24
	Prob > chi2	=	0.0000
Log likelihood = 68.26701	Pseudo R2	=	0.6703
Type of Rice Brand			
	Coef.	Std. Err.	z P> z
Learning	1.67543	.3555432	4.712 0.013**
Perception	1.256478	.7342560	1.71 0.011**
Motive(own use)	-1.165431	.845678	1.38 0.005**
Lifestyle	-.1534600	.654321	-0.24 0.012
_cons	1.670554	.1675432	9.97 0.000

\*\* p=value significant at 95% confidence interval

Results in table 1 indicated that the log likelihood statistic was 68.26701, while chi-square = 251.24, and was significant since (p-value =0.000) at 0.95 confidence interval. Consequently, the hypothesis that all regression coefficients in the model are zero is rejected. Therefore, a significant relationship was present between consumer behavior in terms of choice of rice brands and the explanatory variables in this binary logit

regression model. It can also be observed that learning and perception are associated with higher probability of buying foreign rice brand than if otherwise and association is significant (coef = 1.67543, p-value= 0.013) and (coef =1.256478 , p-value= 0.011) respectively. Motive of buying (\*own use) and lifestyle (health concious) are associated with lower probability of buying foreign rice brand than if otherwise and association is significant (coef =-1.165431 , p-value= 0.005) and (coef =-.1534600, p-value= 0.012) respectively.

**Table 2: Binary Logit Regression Model Results for Dependent variable and Customer Characteristics**

Logistic regression		Number of obs = 340		
		LR chi2(6) = 215.31		
		Prob > chi2 = 0.000		
Log likelihood = 78.32451		Pseudo R2 = 0.7056		
Type of Rice brand				
	Coef.	Std. Err.	z	P> z
Age	-.7520	.56543	1.33	0.026
male-gender	-1.033	.54321	-1.90	0.001
Occupation	.1681	.54560	0.308	0.003
Income	0.3341	0.5121	.6524	0.001
Edu-sec	- 0.6501	0.3982	-1.633	0.002
Edu-above-sec	0.4332	0.7672	0.565	0.001
_cons	1.6722	1.6781	0.996	0.000

Results in table 2 indicated that the log likelihood statistic was 78.32451, while chi-square =215.31, and was significant since (p-value =0.000) at 0.95 confidence interval. Consequently, the hypothesis that all regression coefficients in the model are zero is rejected. Therefore, a significant relationship was present between consumer behavior in terms of choice of rice brands and the explanatory variables in this binary logit regression model. Results further indicated that that age, occupation, income and education level above secondary are associated with higher probability of buying foreign rice brand than if otherwise and association is significant. However male gender and respondents with education below secondary level are associated with lower probability of buying foreign rice brand than if otherwise but association is significant.

**Table 3: Binary Logit Regression Model Results for Dependant Variable and External Factors**

Logistic regression		Number of obs = 340		
		LR chi2(3) = 216.41		
		Prob > chi2 = 0.000		
Log likelihood = 67.63476		Pseudo R2 = 0.6703		
Type of Rice brand				
	Coef.	Std. Err.	z	P> z
Family Size	-1.6574	.5641	2.94	0.015
Social Class (L)	-1.2345	.68011	1.82	0.000
Sub-culture	.79671	.74325	1.072	0.013
_cons	2.4116	.61342	3.931	0.000

Results in table above indicates that Log likelihood statistic was 67.63476 while chi-square was 216.41 and was significant since (p-value =0.000) at 0.95 confidence interval. Consequently, the hypothesis that all regression coefficients in this model are zero is rejected. Therefore, a significant relationship was present between consumer behavior in terms of rice brands choice and the explanatory variables in this binary logit regression model. Results further indicated that that family size and social class are associated with lower probability of buying foreign rice brand than if otherwise and association is significant. Sub-culture (foreigner) is associated with higher probability of buying foreign rice brand than if otherwise and association is significant.

**Table 4: Binary Logit Regression Model Results for Dependant Variable and Market Factors**

Logistic regression		Number of obs = 340		
		LR chi2(3) = 236.31		
		Prob > chi2 = 0.000		
Log likelihood = 69.56789		Pseudo R2 = 0.6703		
Type of Rice brand				
Variable	Coef.	Std. Err.	z	P> z
Price	-1.4532	.65000	3.42	0.015

Exposure to promotion	1.1654	.79003	1.21	0.025
Type of retailer frequented (Supermarkets)	.7967	.74325	0.88	0.013
_cons	2.5705	.75717	3.395	0.000

Results in the table above indicates that Log likelihood statistic was 69.56789 while chi-square = 236.31 and was significant since (p-value = 0.000) at 0.95 confidence interval. Consequently, the hypothesis that all regression coefficients in this model are zero is rejected. Therefore, a significant relationship was present between consumer behavior in terms of rice brands choice and the explanatory variables in this binary logit regression model. Results further indicated that that exposure to promotion and type of retailer frequented (supermarket), are associated with higher probability of buying foreign rice brand than if otherwise and association is significant. Higher prices were associated with lower probability of buying foreign rice brand, and association is significant

**Table 4.5 Marginal effect for Full Binary Logit Model**

y = Pr(Type of the market selected) (predict)	=	.72708638
Logistic regression	Number of obs	= 340
	LR chi2(16)	= 248.47
	Prob > chi2	= 0.0000
	Pseudo R2	= 0.6437

Log likelihood = 96.3016

Type of Rice brand

Variable	Coef	Std. Err.	z	P> z
Learning	1.285	.37561	3.42	0.010
Perception	1.431	.83245	1.72	0.031
Motive	1.619	.68765	2.354	0.002
lifestyle	4.365	1.6075	2.72	0.035
Age	-0.680	1.7345	-0.392	0.043
Male_egender	-1.136	.54326	-2.209	0.001
Income	0.441	.56432	0.781	0.000
Edu-sec	-0.859	.2543	-3.378	0.001
Edu-above sec	0.569	.6675	0.852	0.010
Occupation	3.354	1.7651	1.900	0.003
Family size	-.0659	.64321	-0.102	0.001
Socioclass_L	-.3476	.54365	0.639	0.067
Socioclass_M	1.8151	.85463	2.124	0.005
Subculture	.74681	.35642	2.095	0.007
Exposure to pro	0.6781	.68743	0.986	0.067
Retailer type	0.6544	.135	4.847	.0030
Frequented (supermarkets)				
Price	-2.7654	.76541	-3.613	.004

Results for Marginal effects model in table 5 indicates that Log likelihood statistic was 96.3016 while chi-square = 248.47 and was significant since (p-value = 0.000) at 0.95 confidence interval. Consequently, it was concluded that goodness of fit for this model existed, and the hypothesis that all regression coefficients in this model are zero is rejected. Results indicated that the probability to buy foreign rice brands was lower for consumers of gender (male), education (secondary level) and social class. The probability also decreased with increase in family size and increase in price, and the effect was significant. All the other variables had high effect on the probability of choosing foreign brands over local brands.

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