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Food values and purchase decisions in an emerging market: lessons learned from Kenya

RESUMEN

El objetivo de esta investigación se centra en analizar la posible existencia de clústeres de consumidores en Kenia dependiendo de su apreciación de los valores de los alimentos. Con tal objetivo de investigación, se estudiaron diferencias en la valoración de los valores de los alimentos considerando rasgos sociodemográficos de 500 consumidores a través de un cuestionario estandarizado. En el análisis empírico se calculó la prueba de correlación de Spearman, análisis clústeres en dos pasos y regresiones logísticas. Los resultados muestran la existencia de variaciones respecto de las preferencias de los valores de los alimentos entre segmentos, determinadas por factores económicos y socioambientales. El valor de nutrición y el valor de impacto ambiental fueron los valores más y menos preferidos, respectivamente.

Palabras clave: Valores de los alimentos, características sociodemográficas, África Subsahariana, regresión logit, análisis de conglomerados en dos etapas



Food values and purchase decisions in emerging market: Lessons learned from Kenya

ABSTRACT

The objective of this research focuses on analysing the possible existence of consumers clusters in Kenya depending on their appreciation of food values. For this research objective, differences in the appreciation of food values were studied considering the socio-demographic traits of 500 consumers through a standardized questionnaire. In the empirical analysis, Spearman's correlation test, two-step cluster analysis and logistic regressions were calculated. The results show the existence of variations in food value preferences between segments, determined by economic and socio-environmental factors. Nutrition value and environmental impact value were the most and least preferred values, respectively.

Keywords: Food values, sociodemographic characteristics, Sub Sahara Africa, Logit regression, Two-step cluster analysis

JEL classification: M3; L66



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FOOD VALUES AND PURCHASE DECISIONS IN EMERGING MARKET: LESSONS LEARNED FROM KENYA

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1. INTRODUCTION

Final consumers' food decisions are in general a complex phenomenon, in which it is possible to distinguish the intervention of several and very diverse variables (e.g., Shepherd, 1989; Wansink and Sobal, 2007; Jaeger et al., 2011; Vabo and Hansen, 2014; Martínez-Ruiz and Gómez-Cantó, 2016). For this reason, studying why consumers choose specific foods over others, and how these decisions, can be influenced, is of great interest (Grunert, 2002; Lusk and Briggeman, 2009; Carroll and Vallen, 2014; Martínez-Ruiz and Gómez-Cantó, 2016). It is not to be gainsaid that food is fundamental for all human beings because proper consumption is essential for a healthy and enjoyable life. However, each human beings possess different values attached to what proper consumption means to them—thus making it central to behavioural choices.

Values are important not only for individuals' food choices but also for public policy and marketing plans. Values have the same ranking in business circles as it does as a major concern in a public sector responsibility area. Values are regarded as being crucial to a business's ability to compete and succeed (Anderson and Wynstra, 2005; Lindgreen and Wynstra, 2005; Porter and Kramer, 2011). While values are typically understood as a product-centred notion on the supply side of the food market, consumer behaviour and marketing research have questioned whether this product attribute paradigm with its perspective on value is congruent with what customers value (Woodall, 2003; Khalifa 2004; Sanchez-Fernandez and Iniesta-Bonillo, 2007; Gallarza et al., 2011). However, the contribution of Lusk and Briggeman (2009) focused on values (in this case consumer food values)—a cornerstone of the literature on food values—has laid down the gauntlet to addressing the question of how food values relate to consumer values.

Ever since 2009, some studies that have assessed the value of food have shown that consumers are well-being inclined during the food decision-making process as they show more preference toward the safety value of consuming foods (for instance Lusk and Briggeman (2009); Bazzani et al. (2018) on United States of America and Norway consumers, respectively) while some other authors had shown that some consumers have more inclination towards price paid for food, some towards the appearance and some towards the impact that the production of the food has on the environment (Izquierdo-Yusta et al., 2019 on Spanish consumers).

Also, food values have been used to discuss consumer purchase satisfaction, loyalty, and post-purchase behaviour across different food outlets (Izquierdo-Yusta et al., 2020; Pérez-Villarreal

et al., 2020). Not just to mention that the majority of these studies had focused on developed economies, with less knowledge about consumers from emerging markets or the social environmental factors that influence consumer behaviour towards food values (Femi-Oladunni et al., 2021). The work of Femi-Oladunni et al. (2023) and Antwi and Matsui (2018) are exceptions, because, to the best of our knowledge, their work on food values in Nigeria and Ghana represents the only research that has discussed food value in the context of Sub-saharan Africa (SSA) purchase behaviour.

However, part of the numerous knowledge gap not filled by the authors like Antwi and Matsui (2018) is that their work focused more on the most preferred value, the socio-environmental factors that influence the preference remains a question. In addition, Antwi and Matsui (2018) did not control for some pertinent socio-environmental factors (for instance, the different types of the food market as they only focused on the local market, and no attention was given to ethnic differences considering it is a key trait of consumption and behaviour in the region) that could influence the decision-making process.

Unlike Antwi and Matsui (2018), Bazzani et al. (2018) controlled for socio-environmental factors of the American and Norwegian consumers, and their findings revealed consistency of Safety value as the most preferred value across all socio factors, but it is not clear yet if this preference will remain consistent when the conversation is applied to the context of an emerging economy. Hence, the knowledge gap in this context remains less explored.

To fill this gap, this paper focused on an economy described by Kenyan Wall Street (2021) as one of the fastest-growing economies in SSA –albeit the World Bank has classified it as a lower-middle-income country, yet it represents a relevant example of populations with the world's lowest-income people. The Kenyan experiment offers more dynamic to access social and environmental factors that influence consumer preferences because more than a third of Kenya's population lives below the international poverty line amid high-income inequality (World Bank, 2018).

In specific, some statistics from the World Food Programme in 2018 reflect that one in four children is stunted; 80% of Kenya's population is under the age of 35 and 35% of Kenyans of working age are unemployed (World Food Programme, 2018). Furthermore, according to data from 2018, a large part of the population, including 500,000 refugees, required food aid (World

Food Programme, 2018), a situation that is still unchanged and even worse off according to World Food Programme (2021).

Against this backdrop, it is compelling to inquire into discerning the social and environmental influences which shape consumer clusters based on their respective appreciation of food values. This paper contributed to the extant literature by focusing on Nairobi's (Kenya) population and the values governing the purchase decisions of consumers.

Building on the idea of the food values framework pioneered by Lusk and Briggeman (2009), this paper tries to analyse the economic and social environmental sociodemographic characteristics that underlie the food values these consumers appreciate most. Thus, this article adopted the identification method of Femi-Oladunni et al. (2023) where they departed from the extensive list of food values and its classifications of the existing works of literature (Lusk and Briggeman, 2009; Lister et al., 2014; Antwi and Matsui 2018; Bazzani et al., 2018; Izquierdo-Yusta et al., 2020).

In addition, in understanding the economic and social environmental factors that could influence the appreciation of food values, this article included variables such as the estimated monthly income, age, gender, level of education, the most often patronized food markets (e.g local, formal "supermarket", and online food market), and the ethnicity of the consumers. Hence, this paper explores individual preferences of this set of values (price, safety, environmental impact, nutrition, and weight and measure) as well as hypothesize if consumers' preference for them is influenced by economic and social environmental factors.

To do this, data was extracted from a standardized questionnaire responded to by 500 consumers resident in Nairobi and was analyzed using a Spearman correlation test, a two-step cluster analysis, and a logistic regression model. The Spearman correlation was used to determine how closely the rated food values vary, a two-step cluster analysis was utilized to organize the consumers into clusters based on how closely they are related. After the clustering analysis, the logistic regression model was used to predict the probabilities of different possible outcomes of the categorically distributed response variable (the food values cluster groups, two in total) with respect to the predictor variables that were used to capture economic and social environmental factors.

This paper provides strong support for the relationship between socioeconomic factors and food values preferences from an emerging market perspective and it advances the literature on the characteristics that are behind the most appreciated food values that influence consumer food decisions in a geographical region that Femi-Oladunni et al. (2021) highlighted as practically unexplored. Not limited to the fact that this region is least explored, Shepherd (1989) underscored that factors related to the external economic and social environment are key factors that influence food choice.

Thus, this paper contributed to guiding food policy makers, producers, and marketers in stimulating pre- and post-purchase aspects like product labelling, market positioning, consumer targeting, consumer satisfaction and loyalty across market segments. In specific, this paper will help policymakers to prioritise key informative labels on foods, it will help food producers and marketers understand better the position to hold in the mind of the consumers relative to their preferences which could ripple on to strategic market targeting by consumer segmentation.

The structure of this paper is as follows: Section 2 discusses the conceptual framework, Section 3 discusses the methods and procedure, Section 4 presents the result and discusses the result, and Section 5 concludes.

2. CONCEPTUAL FRAMEWORK

2.1. Kenya's geographical and socio-economic context of food choice behaviour

According to Mwangi and Josephine (2014), Kenya's economy is seen as the anchor of the Eastern Africa Communities (EAC), including Burundi, Rwanda, South Sudan, Tanzania, and Uganda. Kenya's economy is an important participant in fostering the continental integration that the Africa Free Continental Trade Area (AfCFTA) promises. Thus, Kenya's economy is an important participant in fostering the continental integration that the Africa Free Continental Trade Area (AfCFTA) promises. All economic sectors of this country's economy have a key role to play in this regard; most importantly the agro-food sector, as this is a key driver in the country's economy (UNEP, 2015). To grow and flourish, local and multinational food stakeholders both need to identify and create niches to strategically grow inclusively with consumers (Weatherspoon et al., 2001).

For inclusive growth, local food producers and multinational food producers must understand the characteristics of their consumers that influence how they behave (Pearson et al., 2011). Consensus in the behavioural literature drifts towards the opinion that consumer food choice behaviours are most likely to be influenced by factors related to economic and social environmental factors (Shepherd, 1989; Grunert, 2011; Antonelli, 2020).

On the one hand, income is a key economic factor that can be used to predict food choice patterns because, with higher income, consumers possess more purchasing power to consume more healthy foods and think less about trade-offs and vice versa with lower income (Pechey et al., 2013; van Lenthe et al., 2015). Regarding income, the populace of Kenya represents part of the world's populace classified as low-income earners (World Bank, 2021). However, among these low-income earners, there are income earners who belong to the top of the pyramid and income earners at the base of the pyramid in Kenya. As such, behavioural patterns will vary within the populace as well.

On the other hand, the social environmental factors like age, gender, level of educational attainment, and ethnicity likewise remain a key clog because they are variables commonly used to analyse consumers' attitudes/habits and their understanding of feeding knowledge in behavioural studies (for instance, Wardle et al., 2004; Stran and Knol, 2013; Ogundijo et al., 2021). In specific, the relationship between socioeconomic status by gender, age, and level of education has been proven to influence healthy food choice behaviours (Dibsdall et al., 2003; Bihan et al., 2010).

As for ethnicity, some traditional food practices and taboos in some societies may contribute to particular groups of the population having traditional food (Meyer-Rochow, 2009; Chakona and Shackleton, 2019). Furthermore, social factors and cultural practices have a very great influence on what people eat because people who are members of ethnic clusters will have grown up in a particular way, which means their points of view and attitudes about dietary preferences will all be strongly influenced by their ethnic community (Ngugi et al., 2018; Wessel and Brien, 2010). In Kenya's frame of reference, over 70 ethnic groups coexist, with the three major ethnic groups being the Kalenjin, Kikuyu, and Luhya.

In addition, the type of food market most often patronized (local food market, formal market "supermarket" and online market) are important factors that can influence purchase decisions because they offer different peculiarities (Swoboda and Morschett, 2001; Soukup, 2011). For

instance, consumers in emerging markets often patronize the local markets because it characterises a market model that allows consumers to purchase foods in smaller quantities, and negotiate prices, it as well offers the opportunity to request credit opportunities (Figuíé and Moustier, 2009).

The presence of formal markets often referred to as supermarkets have increasingly grown and are continuously showing a tendency to provide foods with high processing levels (Popkin, 2017) while they are a further contrast to the local markets vis-à-vis product variation, price, and shopping ambience (Hawkes, 2008). On the other hand, with the ascent in internet utilization in recent decades across the globe, the online retail food market is beginning to grow and is becoming common among consumers at the top of the income pyramid (Ogbo et al., 2019).

To sum up, while these social environmental factors have been used to understand consumer behaviour regarding purchase decisions, it is still unclear if these factors strongly influence the appreciation of food values. If we are most likely what we eat, assessing if individual-specific economic and social environmental factors influence the appreciation of food values offers an interesting point of view to the extant literature on consumer behaviour.

2.2. Lifestyle and Food Values

Since the introduction of lifestyle concepts to consumer research in the mid-'60s, understanding how consumers appreciate values in their food lifestyle gives producers and marketers an edge. According to Izquierdo-Yusta et al. (2019), the food-related lifestyle (FRL) model of desired higher-order product qualities refer to characteristics that may apply to food values pioneered by Lusk and Bridgeman (2009) to explain food preferences on a stable set. Izquierdo-Yusta et al. (2019)'s contribution is interesting in this line of thought because it proposes a connection between Lusk and Bridgeman's (2009) food values and the FRL of Grunert et al. (1993).

The list of food values pioneered by Lusk and Bridgeman (2009) include appearance –the degree of attractiveness of the food–, convenience –the ease of cooking and/or consuming the food–, environmental impact –the effect of food production on the environment–; fairness –the degree to which all parties involved in the production and exchange of the food benefit equally–; naturalness –the degree to which the food is produced without modern technologies–, nutrition –the amount and type of fats, proteins, vitamins, etc., contained in the food–, origin –the place

where the agricultural products are grown—, price —the amount of money paid for the food—, safety —the degree to which the consumption of the food will not cause any illness—, taste —the degree to which the consumption of the food is appealing to the senses— and tradition —the preservation of traditional consumption patterns.

In addition to these values, some other values have been added by others, without this having adulterated the broad idea pioneered by the work of Lusk and Bridgeman (2009). Bazzani et al. (2018), for example, added animal welfare —the well-being of farm animals— and novelty —food as something new that you have not tried before—, albeit they dropped the tradition value because of its interpretation volatility across consumers.

Moreover, based on the connection Izquierdo-Yusta et al. (2019) established between Lusk and Bridgeman's (2009) food values and the FRL of Grunert et al. (1993), Izquierdo-Yusta et al. (2019) further revealed a classification of consumers in three different clusters. Wherein the first is consumers who appreciate price by also giving considerable attention to appearance and taste value, the second is consumers who appreciate more taste and convenience value, and the third cluster is those who considered values related to health, the environment and social responsibility. Thus these works motivated that while food values can be adapted to avoid interpretation bias, it is very useful to discuss lifestyle-related behaviours clusters.

For the sake of this study, the food values identification approach utilized by Femi-Oladunni et al. (2023) to explain their case study in Lagos City, Nigeria was adopted. According to their approach, they departed from the extensive list of food values and its classifications of the existing works of literature (Lusk and Briggeman, 2009; Lister et al., 2014; Antwi and Matsui 2018; Bazzani et al., 2018; Izquierdo-Yusta et al., 2020) (see Table 1 for the list of values Femi-Oladunni et al., 2023 used).

2.3. Hypotheses development

Having established the approach proposed to discuss food values and consumer preferences (discussed in section 2.2 as utilized by Femi-Oladunni et al., 2023), the broad objective of this paper is to contribute knowledge to the extant literature on food values from the perspective of consumers in emerging markets. Hence, the broad hypothesis is to test if the appreciation of food values in consumer clusters is influenced by individual-related variables — income, age,

gender, marital status, and education— and social contexts like the type of food market most often patronized and the ethnicity of consumers.

Table 1. Description of food values used

Food Values	Definition
Price (P)	The amount paid for food
Safety (S)	The extent to which consumption of food will not cause illness
Environmental Impact (EI)	The effect of food production on the environment
Nutrition (N)	The amount and type of fat, protein, vitamins, etc., food contains
Weight and Measures (WM)	The visual size and measurement of the food

Source: Femi-Oladunni et al. (2023)

In specific, the idea of testing the appreciation of food values in consumer clusters is motivated by the work of Izquierdo et al. (2019) who tested for significant differences among clusters of consumers clustered by their food value preferences. This article sorts to test the significant differences in the appreciation of food values by consumer clusters in an EAC country depending on the socio-environmental context peculiar to an individual. Hence, the following hypotheses are posited:

Regarding the influence of variables associated with the individual:

H1: There are significant differences in the appreciation of food values in consumer clusters depending on monthly income.

H2: There are significant differences in the appreciation of food values in consumer clusters depending on age

H3: There are significant differences in the appreciation of food values in consumer clusters depending on gender.

H4: There are significant differences in the appreciation of food values in consumer clusters depending on marital status.

H5: There are significant differences in the appreciation of food values in consumer clusters depending on education attainment

And associated with the social context of the individual:

H6: There are significant differences in the appreciation of food values in consumer clusters depending on the type of market most frequently patronized.

H7: There are significant differences in the appreciation of food values in consumer clusters depending on ethnicity.

To test these hypotheses, firstly, this article estimated the correlational preferences of food values, secondly, it performed a cluster analysis to cluster consumers into food value preference groups. Lastly, this paper estimated a logistic regression model to verify which social environmental predictor variables best help to predict consumers' preferences.

3. METHODS AND PROCEDURE

3.1. Sample, procedure, and instruments

The primary data used for this analysis were collected using a structured questionnaire obtained from a field survey that was made possible by a synergy between the authors of this article and Datastat Research and Training center which has large expertise in collecting data on the field in our study area.

The diversity of the Nairobi County populace out of the 47 counties in Kenya makes it a good study sample to check how consumers appreciated food values. Located in the south-central part of the country, Nairobi is the most populated (estimated to be over 4 million people according to the Kenya National Bureau of Statistics) county in Kenya (KNBS, 2020). As stated earlier, Nairobi County portrays every Kenyan ethnicity- over 70 of them (World Population Review, 2022). Out of these over 70 ethnic groups, the major ethnic groups are the Kalenjin, Kikuyu, and Luhya.

Additionally, due to the urbanization characteristics of Nairobi, it is experiencing spatial shifts that have opposing effects on agriculture and the private production of food. Hence, unlike rural residents in other parts of Kenya who can privately produce their foods rather than buy them, the residents of Nairobi County often purchase their food rather than privately produce it- this makes it a good case study in the country to study consumer purchase behaviour.

The data collection process lasted 6 weeks in 2020 (8th June-17th July). Respondents were aged 18 and above and were residents of Nairobi. The survey was targeted at 500 random respondents. Table 2 shows the technical details of the research below.

Table 2. Technical details of the research

Universe	The resident population in the county of Nairobi (Kenya).
Sample unit	A resident person living in the county of Nairobi (Kenya).
Data collection method	On-field structured questionnaire dissemination.
Number surveyed	500 valid surveys.
Period of information collection	8 th of June- 17 th of July (2020).

The scale this article used to measure food values was adapted from Izquierdo-Yusta et al. (2019; 2020), who had previously adapted Lusk and Briggeman's (2009) scale. Thus, respondents were specifically asked to score their appreciation of food values on a Likert scale from 1 to 5, where 1 was the least appreciated response choice and 5 was the most appreciated response option when deciding to purchase food. Before the respondents were asked to rate their appreciation of food values, a section requested the respondents to provide individual-related sociodemographic variables such as their estimated monthly income, age, gender, and level of educational attainment.

Afterwards, information regarding social context like "which" food market they often patronize and "to which" ethnic group they belong was asked. After each respondent had provided their sociodemographic background and social context, each respondent was asked to rate their appreciation of these values on a scale of 1 (the least appreciated) to 5 (the most appreciated).

Presented in Table 3 are the descriptive statistics generated from the survey. As seen in this table, most of our respondents earn more than the minimum wage, which was 13,500 Kes as of when this data was collected (Kenya National Bureau of Statistics) Also, among the respondents, 43.2 % of them are male while 56.80% are female. The average age was 45.42 years, and most of our respondents patronize the formal retail store (32.8%) and the local market (57.8%) –only 9.4% of them often patronize the online food market, such that many of the respondents are very much interested in feeling the physical experience of purchasing their food products rather than making their purchase online. Finally, the respondents spread across the

four major country's ethnic groups: 23.80%, 16.80%, 52.80%, and 6.60% are from the Luhya, Kalenjin, Kikuyu, and Others, respectively.

Table 3. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Obs.
Price	3.374	1.1937	1	5	500
Safety	2.928	0.9319	1	5	500
Environmental Impact	2.084	1.3101	1	5	500
Nutrition	4.396	1.0025	1	5	500
Weight and Measure	2.218	1.2055	1	5	500
Estimated Monthly Income	84,698	78,818.22	10,000	600,000	500
Age	45.424	11.9241	18	68	500
Gender		Percentage (%)			Obs.
Male		43.20			216
Female		56.80			284
Marital Status					
Single		4.20			21
Married		81.80			409
Divorced		6.20			31
Widow/Widower		7.80			39
Education					
Primary		29.80			149
Secondary		16.80			84
Undergraduate	OND	29.20			146
	B.Sc/HND	6.80			34
Postgraduate	Master	8.40			42
	PhD	9.00			45
Food Market					
Supermarket (Formal Retail Store)		32.80			164
Local Market		57.80			289
Online Market		9.40			47
Ethnicity					
Kalenjin		16.80			84
Kikuyu		52.80			264
Luhya		23.80			119
Luo		6.60			33

Notes: Obs.: Observations. WM rank: Weight and Measure rank. OND= Ordinary National Diploma. HND=Higher National Diploma. B.Sc.= Bachelor's degree. PhD= Doctoral Degree. * The log values of the estimated monthly minimum wage were calculated, and 15,000 Kes is the lowest wage permitted by the law at the time this overview was completed.

3.2. Data analysis

To analyse the data, IBM SPSS v.28 was used. Specifically, Spearman Correlation Analysis, a two-step cluster analysis, and logistic regression analysis (LRA) were utilized to fulfil the objectives of this research. The Spearman Correlation Analysis was carried out to determine how closely the rated food values vary among them. Thus, the analysis is expected to reveal the extent to which the food values increase or decrease in parallel. The implication of this would be that a negative correlation shows the range in which a food value increases as the other decreases and vice-versa.

The two-step cluster analysis was utilized to organize the consumers into clusters based on how closely related they are, while the latter analysis (LRA) was adopted because, from the two-step cluster analysis, two unique cluster groups with good cohesion were identified. Hence, it was indicative to utilize a binary dependent variable, and the LRA best help to predict the probabilities of different possible outcomes of the dependent variable. This is further discussed in the cluster analysis section. Equation (1) below shows the binary model specification.

$$\log \frac{p}{1-p} = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k + \varepsilon \dots \dots (1)$$

Where $\log(p/1-p)$ is the response variable —the cluster group of an individual, β_0 is the intercept and $\beta_1 \dots \beta_k$ coefficients represent our sociodemographic variables, namely: estimated monthly income, age, gender, marital status, level of educational attainment, and ethnicity. Hence, the predictor variables are β_1 = estimated monthly income β_2 = age, β_3 = Gender, β_4 =Marital status, β_5 = level of educational attainment, β_6 = market type, and β_7 = ethnicity.

The interpretation of this model would imply that for a unit change in the predictor variable, the logit of the response variable to the referent group is expected to change by its respective parameter estimate given all the variables in the model are held constant. Since the parameters in this model are relative to the referent group, the interpretation of the predicted probability will be of the membership for one of the consumer food values cluster groups.

Also, the interpretation for variables like gender, marital status, level of educational attainment, most often patronized food market, and ethnicity—that is categorical, three categories— are discussed in reference. In specific, female is the reference group for gender, “single” is the reference group for marital status, and Luo is the reference group for ethnicity because their proportion among the Kenyan populace is not as high as other ethnic groups. Hence, setting the Luo as reference ethnic groups allows this article to discuss clearly, ethnic groups whose populations are dominant. In conclusion, the “Online market” is the reference group for the most often patronized food market, and the postgraduate is the reference group for “level of educational attainment.”

4. RESULTS AND DISCUSSION

4.1. Results

In the correlation analysis, results show that there exists a correlational relationship between food value preferences. In the findings from the cluster analysis, it revealed two distinct consumer cluster groups at an average Silhouette measure of cohesion and separation of 0.6 which indicated a good clustering (Dudek, 2020). The two unique consumer clusters this article identifies are ethical consumers and utilitarian consumers.

From these clusters, a logistic regression model was estimated and results revealed that hypotheses H1, H3, H4, H5, H6, and H7 can be accepted because there are significant differences in the appreciation of food values in consumer clusters depending on income, gender, marital status, level of educational attainment, food market type and ethnic groups. While H2 was rejected because there is no significant difference on age. This implies that income, gender, marital status, level of education, market type, and ethnic groups can be used to predict consumer food value clusters, albeit, age could not be used to predict the clusters.

4.2. Discussion

4.2.1. Spearman Correlation

Table 4 reports the Spearman correlation analysis of the respondent's food value preferences. Findings reveal that there is a positive correlation between the following pairs of food values: Environmental Impact and Nutrition, Environmental Impact and Safety, and Nutrition and Safety. This means that as one of the variables in the pair increases, the other variable also does. This positive correlation implies that respondents who believe that Environmental Impact is important are more likely to believe that Nutrition and Safety values are important, and those who believe that Nutrition value is important are more likely to believe that Safety value is important.

On the other hand, some of the pairs of values exhibit a negative correlation: Environmental Impact and Price, Environmental Impact and Weight and Measurement (WM), Nutrition and Price, Nutrition and WM, Price and Safety, and Safety and WM. The implication is that respondents who believe Environmental Impact is an important value in making food purchase decisions are less likely to believe that Price and WM are important. Also, respondents who

believe Nutrition is critical are less likely to think that Price and WM are relevant. Lastly, respondents who believe that Safety is important are less likely to believe that Price and WM are important.

Table 4. Spearman Correlation Analysis among food values.

	Price	Safety	Environmental Impact	Nutrition	Weight and Measure
Price	1				
Safety	-0.4189	1			
Environmental Impact	-0.8369	0.0003	1		
Nutrition	-0.4174	0.1627	0.2089	1	
Weight and Measure	0.6815	-0.5547	-0.5624	-0.5882	1

All correlations above 0.15 are significant at $p < 0.001$ or better (two-tailed test).

4.2.2. Cluster analysis

Cluster analysis is a statistical technique that works by organizing items or individuals into groups or clusters based on how closely related they are. Existing literature in the line of food consumer behaviour and marketing had established that consumers can be clustered into groups by their behavioural approach to purchase and consumption of food products.

For instance, Maehele et al. (2015) presented that some consumers are hedonic consumers due to their strong preference for taste, and other features of the food. Arnold and Reynolds (2003) hold that some consumers are more rational as they focus on the objective of food consumption which could, in the end, make them price-conscious (Maehele et al., 2015). Finally, whereas authors like Fuljahn and Moosmayer (2011) opine that consumers exclusively consider products as hedonic or utilitarian, Izquierdo et al. (2019) present three consumer groups with regard to food values.

The three consumer groups are namely, “utilitarian, hedonic and ethical consumer group.” According to Izquierdo et al. (2019), the utilitarian and the hedonic group characteristics are similar as earlier discussed by previous authors, their exploration of ethical groups portrays consumers as those who are more inclined towards social justice relating to food production (e.g., environmental impact).

Identifying the consumer groups in any economy or society is useful for producers and marketers because the group each consumer belongs to influences behavioural intentions and attitudes. For instance, according to Ryu et al. (2010), businesses that seek to improve consumer

perception of hedonic and utilitarian values gives their customers satisfaction and increases the positivity of customer towards the product of the brand, this could imply consumer retention.

As a result of this, to be able to guide producers and marketers about the traits of the consumer group in this experiment, this article carried out a cluster analysis. A cluster analysis can be adopted using K-mean cluster analysis, hierarchical cluster analysis, and two-step cluster analysis. In this study, the latter— two-step cluster analysis— was used. Unlike the former types of cluster analysis, the two-step cluster analysis enables simultaneous analysis of categorical and continuous data (Chiu et al., 2001; Norusis, 2008) which is quite relevant to the present study.

To identify the quality of clusters created by the two-step cluster analysis, the Silhouette measure of cohesion and separation must be considered. Hence, our data revealed a cluster cohesion at cluster level 2 (with an average Silhouette measure of cohesion and separation of 0.6) which implies good clustering (Dudek, 2020). By the clustering, this study identified 2 homogenous consumer segments in the context of the examined food values, which have been labelled: Utilitarian and Ethical consumers.

- **Utilitarian and Well-Being (C1)**

The first cluster (Utilitarian consumers) is the biggest (n=289) cluster out of the 2 clusters; individuals in this cluster earn a mean estimated monthly income of Kes 47,415.22. The Utilitarian cluster is largely dominated by Gen Y Male consumers with the highest proportion of individuals possessing a primary level of education. Every consumer in this cluster most often patronizes the local market and they are majorly from the Kikuyu ethnic group.

This article named the cluster group the utilitarian cluster because their most preferred to least preferred values respectively are Price, Nutrition, Weight and Measure, Safety and Environmental impact, and more importantly, this cluster is largely differentiated from the other cluster in values such as Price and Weight and Measure (see Figure 1), which corresponds with the classification realized by Izquierdo et al. (2019).

Table 5: Homogenous Cluster Description

C1: Utilitarian and Well-being (57.8%- 289 individuals)		C2: Ethical and Well-being (42.2%- 211 individuals)	
Age-	Gen Z--<24: 24 Gen Y--25-29:29 --30-34:14 --35-39:25 --40-44:58 --45-49:88 --50-54:7 Gen X--55-59:37 -- >59:7	Age-	Gen Z --<24: 24 Gen Y --25-29:7 --30-34:9 --35-39:14 --40-44:39 --45-49:43 --50-54:20 Gen X --55-59:25 -- >59:54
Gender	--Male: 209 (72.32%) --Female: 80 (27.68%)	Gender	--Male: 75 (35.55%) --Female: 136 (64.45%)
Marital Status	--Married: 241 (83.39%) --Divorced: 19 (6.57%) -Widow: 15 (5.19%) --Single: 14(4.84%)	Marital Status	--Married (1): 168 (79.62%) --Divorced (2): 12 (5.69%) -Widow (3): 24 (11.37%) --Single (4): 7 (3.32%)
Education	--Primary:114 (39.45%) -- Secondary:39 (13.49%) -- Undergraduate:87 (30.10%) -- Postgraduate:49 (16.96%)	Education	--Primary:35 (16.59%) -- Secondary:45 (21.33%) -- Undergraduate:93 (44.08%) -- Postgraduate:38 (18.01%)
Market	--Formal: --- --Local: 298 (100%) --Online: ---	Market	--Formal:164 (77.73%) --Local: --- --Online:47 (22.27%)
Ethnicity	--Kalejin:33 (11.42%) --Kikuyu:197 (68.17%) --Luhya:26 (9.0%) --Others:33 (11.42%)	Ethnicity	--Kalejin:51 (24.17%) --Kikuyu:67 (31.75%) --Luhya:93 (44.08%) --Others:
Mean monthly income: 47,415.22		Mean monthly income: 135,763	

Notes: Clusters are attained at Silhouette measure of cohesion and separation of 0.6; Percentage in parenthesis is calculated with respect to the proportion of the cluster sample population

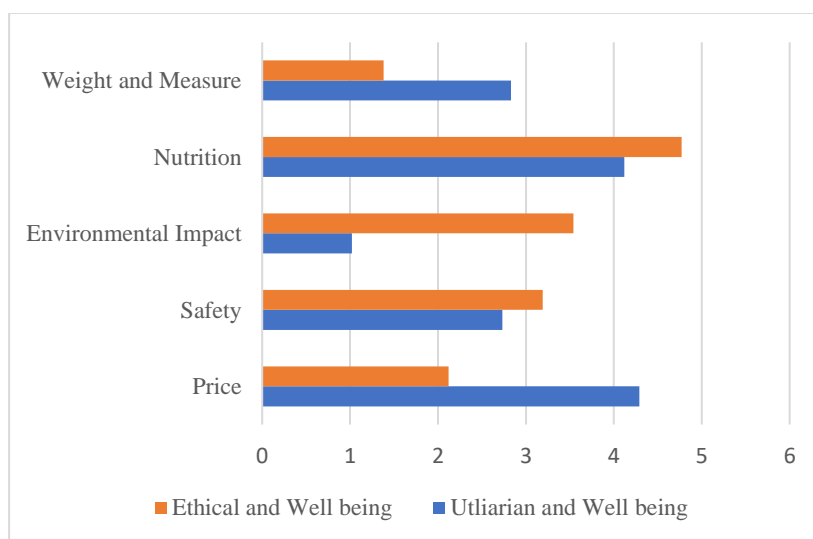


Figure 1. Consumer Cluster Chart

▪ Ethical and Well-Being (C2)

The second cluster (Ethical) is the smallest (n=211); individuals in this cluster earn a mean estimated monthly income of Kes 135,763—over 50% higher than individuals in cluster 1. Most consumers in this cluster are Gen Y, mostly females— 64.45% of them—. The majority of them possess a level of education higher than the primary and secondary levels. None of the individuals in this cluster patronizes the local market, they either patronize the formal retail food store or the online food store. They majorly are from the Luhya and the Kikuyu ethnic group— 44.08% and 31.75% respectively.

Consumers in this cluster rated Nutrition, Environmental impact, Safety, Price, and WM as their most to least preferred values respectively, and as seen in Figure 1, they clearly assess Environmental Impact strongly, far stronger than the other cluster.

4.2.3. Logistic Regression

The logistic regression reveals that the effects of age, gender, level of education, ethnicity, and income, show a significant effect, i.e., $\chi^2(4) = 38.168$ $p < .0005$ (see Table 6). The model explained 47% (Nagelkerke R²) of the variance in food values group clusters and correctly classified 75% of cases.

Table 6 presents the output of the logistic regression, having as a dependent variable consumer food values cluster group— utilitarian and ethical. Since the dependent variable is dichotomous, the predicted probability is of the membership for the ethical cluster. Hence, the interpretation will go as thus, keeping other predictor variables constant, for a unit increase in the predictor variable, a positive coefficient will imply that an individual is more likely to belong to the ethical cluster.

Thus, firstly, for every unit increase in estimated monthly income, — $\beta_1 = 0.151$, $p < 0.1$ — consumers are 1.1 times more likely to belong to the ethical cluster. Secondly, female consumers— $\beta_3 = 0.948$, $p < 0.01$ — are 2.58 times more likely to belong to the ethical cluster. Thirdly, consumers who are not single— married, divorced, and widowed— $\beta_4; x_1 = -3.396$, $p < 0.01$; $x_2 = -2.977$, $p < 0.05$; $x_3 = -3.705$, $p < 0.01$ — are more likely to be part of the utilitarian cluster. Fourthly, our results show that consumers with a primary and undergraduate level of

education— $\beta_5; x_1 = -1.641, p < 0.01; x_3 = -1.403, p < 0.01$ — are more likely to be utilitarian in comparison to postgraduate consumers who are more likely to be ethical consumers.

Table 6. Logistic Regression for Food Values Cluster Group

Variables	Coefficients	Odds Ratio
Income	0.151* (0.088)	1.163
Age	0.006 (0.014)	1.006
Gender Ref: Female	0.948*** (0.251)	2.58
Marital Status Ref: Single		
Married	-3.396*** (0.728)	0.034
Divorced	-2.977** (0.505)	0.051
Widowed	-3.705*** (0.662)	0.025
Education Ref: Postgraduate		
Primary	-1.641*** (0.396)	0.194
Secondary	-0.305 (0.490)	0.737
Undergraduate	-1.403*** (0.409)	0.246
Ethnicity Ref: Luo		
Kalenjin	2.160*** (0.642)	8.67
Kikuyu	0.271 (0.600)	1.31
Luhya	2.724*** (0.638)	15.247

Notes: *** $P < 0.01$; ** $P < 0.05$; * $P < 0.1$.

Ethical and Well-being—cluster 2— is the reference cluster

Lastly, consumers who are from the Kalenjin and the Luhya ethnic group— $\beta_7; x_1 = 2.160, p < 0.01; x_3 = -2.724, p < 0.01$ — are more likely to be in the ethical consumer cluster. While the Kalenjin are 8.67 times more likely to be in this food cluster, the Luhya's chance is almost twice— 15.25 times— as much as Kalenjin consumers. In contrast, those from the Luo ethnic group are more likely to be in the utilitarian cluster. It is worth noting that in the logistic regression model, the most often patronized food market was not included due to perfect prediction between consumers' food value cluster groups. For instance, all the consumers that belong to the utilitarian cluster most often patronize the local food market while none of the consumers in the ethical cluster often patronize the local market.

In conclusion, this article presents the following contributions to the emerging economies literature. First, ethical food values and utilitarian food values are negatively correlated. Second, food consumers can be targeted in groups of ethical and utilitarian. Finally, social, and environmental factors like income, gender, marital status, level of education and ethnicity can be used to predict consumers' food values cluster.

The implications of the earlier stated findings regarding how income influences food value preferences support the existing works of literature that had discussed consumer behavioural patterns being influenced by their income (e.g Peñaloza et al., 2017; Maehle et al., 2015; Izquierdo-Yusta et al., 2019). Thus, as income plays a key role in understanding the behavioural preferences of consumers with respect to the segment they might be categorized, our findings also substantiate the work of Ni et al. (2013) which affirms that low-income households have greater sensitivity to price increases in comparison to high-income households.

The implication of gender behavioural differences towards being ethical or utilitarian— females being more likely to be ethical consumers— could be that female consumers are more deontological than male consumers. For instance, the findings presented corroborate studies like Friesdorf et al. (2015) and Dalton and Ortegren (2011) which reveal that males are prone to be more utilitarian than ethical compared to females.

Although with a more careful interpretation, the role marital status plays could be likened to a dependency ratio or the family size because keeping other variables constant, results tend to support that those who are single are likely to be ethical consumers. The implication of this could be that, with bigger family sizes, consumers are more likely to be inclined to utilitarian values of food consumption. This also corroborates the work of Koschate-Fischer et al. (2018) which supports that consumers are likely to be price conscious towards a product through life-changing events like the birth of a child, retirement, marriage, etc.

The explanation behind the role level of education plays is most likely a causative factor because, with a higher level of education, the income of an individual is most likely going to be higher, it could also be the case that with a higher level of education, consumers are better oriented towards ethical values. Hence, as seen in the results, higher-income consumers are more likely to be ethical consumers. And with higher income, the hierarchy of needs of an individual is more likely to be in the level of needs higher than individuals with lower income.

Thus, making consumers with higher levels of education less conscious about utilitarian values and more conscious about ethical values.

To round off, the explanation behind why the Luhya ethnic group and the Kalenji ethnic group are more oriented towards ethical values could be because of the level of income. As explained earlier, a higher level of income appears to correlate with whether a consumer is likely to be utilitarian or ethical. Although the Luhya ethnic group have a mean estimated income higher than the Kalenji ethnic group from the data analyzed, those from the Luhya and the Kalenji ethnic group possess higher mean income than the Luo's and the Kikuyu's.

5. CONCLUSIONS

The position of Nairobi (Kenya) in the EAC makes it an important clog in the role of economic development and regional integration of the African tale. As well, it is not to be gainsaid that its role makes it an attractive economy for fast-moving consumer goods. As such, the objective of this paper is to analyze the possible existence of consumer clusters in Kenya depending on their appreciation of food values.

To fulfil this objective, a field study was directed by a data collection organization (“Datastat Research”) in the local community of Nairobi whose skill in gathering information in the field was utilized. The field information assortment went on for quite some time in 2020. Respondents (500 of them) are all of age and were inhabitants of Nairobi County, Kenya. To analyze the data, the Spearman correlation, 2-step cluster analysis and the logistics model were adopted.

Findings from the Spearman correlation analysis revealed consumers who believe that environmental impact is important are more likely to believe that nutrition and safety values are important, and those who believe that nutrition value is important are more likely to believe that Safety value is important. Also, consumers who believe the environmental impact is an important value in making food purchase decisions are less likely to believe that price and weight and measure value are important. Furthermore, consumers who believe that safety is important are less likely to believe that price and weight and measure values are important.

From the 2-step cluster analysis, 2 different clusters of consumers were identified. The clusters are labelled as (i) utilitarian and well-being consumers, and (ii) ethical and well-being

consumers. The logistic model showed strongly that estimated monthly income plays a huge role because as income increases, consumers are more likely to be ethical and as income decreases, consumers are more likely to be utilitarian consumers. Along the same line, other factors like gender, marital status, level of education and ethnic identities can be used to predict consumers' food values cluster. Another notable finding is that, overall, consumers' most and least preferred values are nutrition and environmental impact respectively.

The implication of these findings is compelling for food producers and marketers, and policymakers. For food producers and marketers, highlighting the nutritional benefits of food whenever branding their products and positioning themselves in the market using the nutritional benefits of their products could be a good strategic tool to gain an advantage over competitors.

Albeit the impact of food production in the environment is the generally least preferred value, there is a preference for the value among high-income earning consumers compared to the low-income earning consumer. Hence, the environmental benefits of the food production process could be a tool for the strategic labelling of high-end products.

Also, food producers and marketers can develop marketing strategies that appeal to both ethical and utilitarian consumer groups. For instance, they can create marketing campaigns that focus on the ethical values of their products for female consumers while focusing on the utilitarian values for male consumers. They can also use pricing strategies that appeal to low-income individuals/households by offering discounts or promotions that make their products more affordable. In summary, food marketing campaigns can be targeted at ethical and utilitarian consumers based on their level of income, age, marital status, level of educational attainment, the market type often patronized, and ethnic groups.

For food policymakers, there is a clear need for food security policies to make nutritious food accessible to everyone irrespective of their income class. This is useful considering that there is a segment of the population just looking at the utilitarian aspect, which could imply that there is a segment of the population having food accessibility issues.

While the environmental impact is the least preferred value among a majority of the population, it should be a top priority for policymakers to ensure that food insecurity does not increase and that having enough access to food will put all segments of consumers (utilitarian and ethical)

in conscious pensée about the environmental impact of food production which is important to capture the ripple effect of global warming.

In addition, policymakers can develop policies that promote ethical and utilitarian food values. For example, they can provide incentives for food producers who use sustainable practices or create policies that promote healthy eating habits.

An eminent limitation of this study is that it is an experimental study and not a complete portrayal of the populace of Nairobi County because it only focuses on 500 respondents in an economy of over 4 million people. The findings anyway give some knowledge into what the best bet is. One more limitation we experienced was during the information collection process- we utilized a field review because the respondents were not impulsive to online studies.

As future exploration lines, it would be fascinating to survey what would be the case if we test and hypothesize food value preferences of utilitarian consumer preferences against ethical consumer preferences when factors like the one postulated in Engle's theory are controlled for, and further, if we control for food inflation in the light of a constant income. In addition to these lines, would consumers switch brands or remain loyal if income remains constant and food inflation continues to rise?

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