

**CONSUMER DEMAND FOR BRANDED AND PACKAGED PROCESSED FOODS:
THE CASE OF RURAL AND URBAN TOWNS IN TANZANIA**

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Abstract

This paper elicit the demand for packaged and branded processed food products in selected urban and rural towns of Tanzania, where 630 consumers were randomly selected from two urban and four rural towns based on their size and distance from the primary city Dar es salaam. Garrett's Ranking Technique and Multinomial Logistic Model were used to assess consumer's purchasing habits and drivers of choices for branded and packaged processed foods. Results show that there are variations and some similarities in consumer habits in rural and urban towns, and in small and big towns on: - the type of processed foods bought, source of processed food, preference on brand types and drivers of consumer choices. The study shows that majority of the consumers in urban towns are driven by "quantity" while the rural consumers are driven by "storage" when buying packaged maize flour; on the other hand, "large volume" drives urban consumers, and "safety" rural consumers when buying packaged edible oil. In addition, the study showed that consumers from both rural and urban towns prefer branded to unbranded products due to their preference for "good sensory attributes". Furthermore, results from the Multinomial Logistic Model report education, income, level of refinement and price to have a significant influence on the choice of a brand type for edible oil; while household size, trust, safety and nutrition are important factors influencing the choice of a brand type for maize flour. Implying choice of brand is different for different products, depending on the proliferation of these brands.

Key words: Consumer, Processed Food, Rural, Urban, Brand, Package, Maize Flour, Cooking Oils

1. Introduction

The dynamics of dietary patterns is observed among both rural and urban consumers across Africa, majorly due to growth of both population and per capita income, leading to the increase in the consumption of processed foods (Tschirley et al., 2015). Packaging and branding are among the attributes that influence consumers at point of sale (Silayo and Speece, 2007; Malik et al., 2013), since they influence consumer's perceptions about a product (Rundh, 2005). However according to a study done in Tanzania in 2012, awareness and use of packaged food

labeling information was found to be very low among consumers (Gwantwa, 2012). Food labeling is an information source providing knowledge about food items and dietary intake (Lin et al., 2004; Dimara and Skuras, 2005) according to which responsible food choices can be made (Davies, 2000). Unpackaged (loose) food products or “Limited label information food” (LLIF) lead to information asymmetry between producers and consumers (McCullough and Best, 1980). Therefore, loose or LLIF products penetrated in rural and urban areas is a source of concern, as this may promote the prevalence of unhealthy food choices by consumers of processed foods, or may prompt poor progress of the industrialization policy, as safe and health-conscious consumers are likely to shy away from buying unlabeled industrial processed foods (Marietta *et al.*, 1999).

Therefore this study is important because for a long time people in developing countries including Tanzania lived in rural areas and worked in the agricultural sector whereby large proportion of food was grown for household consumption (Gómez *et al.*, 2013), but now there is an increase in purchase of foods, For example, In East and Southern Africa, 61-83 percent of the middleclass food is purchased, where 70-80 percent of the purchased food is processed and 44-55 percent perishable (Tschirley *et al.*, 2015). Furthermore, studies focusing on habitual heterogeneity of consumers among rural and urban consumers aiming at resolving the problem of information asymmetry have not been done in developing countries like Tanzania, to the best of the authors knowledge, studies that have been conducted relating to packaging and branding, include those on awareness (Gwantwa, 2012), perception (Mmari *et al.*, 2015) and penetration of packaged and branded products in retail outlets (Ijumba *et al.*, 2015). Different from this study, which include the rural consumers, composing a large segment of the population basing on the Tanzanian population and housing census of 2012, studies that have been conducted in Tanzania, concentrated only on the urban consumers. Most importantly, increased purchase of processed foods comes with both intended and unintended consequences; some of the unintended consequences include health and safety effects which can be exuberated with the problem of information asymmetry.

In this regard, the aim of the paper is two folds; firstly, the paper aims to assess consumer purchasing habits of branded and packaged processed foods in rural and urban towns; secondly, the paper aims to assess the drivers of purchasing packaged and branded processed foods among urban and rural consumers.

1.1 Role of packaging in influencing purchase decisions

Various researchers identified diverse roles of packaging and most of them relate either to logistic or marketing functions (Prendergast and Pitt, 1996; Rundh, 2005) and functional role, where the package can provide a safe and convenient storage for the food and reused to store other products (American Chemistry Council, 2007). Packaging influences a number of business and management-related areas (Nilson *et al.*, 2011) and is known to perform multiple functions (Rundh, 2005). According to (Robertson, 2005) package performs communication role and displays and promotes the product in the supermarket shelf by attracting the consumer's attention and creation of a positive impression in order to get the consumer buying the product in a highly competitive environment (Gofman *et al.*, 2010). Previous studies that have looked at packaging have assessed how packaging design influence consumer preference/choice for a product (Rundh, 2005; Silayoi and Speece, 2007; South Africa); how packaging design has influenced brand value through extended usage (Rundh, 2005; Lofgren, 2005); and how packaging design influence brand perception (Hofmeyr and Rice, 2000). Literature indicates information (product information and information about the technologies used in package); visual elements (graphic, size/shape, aesthetic) and functional

design elements (protection, storage, transportation, opening, resealing functions and economic function) are the main packaging elements affecting consumer purchase decisions (Silayoi and Speece, 2007; Wang and Chou, 2010).

Previous international research has mainly focused on:- consumer perception of food packaging and its influence on food choices (Texeira and Badrie, 2005); use of food labels and factors influencing use (Samson, 2012; Hyandye *et al.*, 2012; Kalmama *et al.*, 2018); consumers' usage of nutritional labels (Drichoutis *et al.*, 2006; Mannell *et al.*, 2006; Jike_Wai., 2011; Uwaegbute *et al.*, 2015); interpretation of nutritional labels (Shannon, 1993); attitude towards nutrition labels (Shine *et al.*, 1997); willingness to pay for nutrition labels (Loureiro *et al.*, 2006); and the extent in which label usage behavior influences the purchasing decision (Baltas, 2001). In Tanzania, most of the studies on packaging have been on the stocking, perception and importance of packaged foods among urban consumers (Mmari *et al.*, 2015; Gwantwa, 2012, Snyder *et al.*, 2015; Ijumba *et al.*, 2015). Previous studies did not concentrate on the rural consumer and did not study consumer preference when basing on packaging and branding as attributes that resolve the problem of information asymmetry, therefore the present study tries to fill the aforementioned void.

1.2 Role of branding in influencing purchase decision

For a consumer to buy a brand they must first be made aware of it, in a situation where the consumer is aware of a number of brands which fit the relevant criteria, the consumer is unlikely to spend much effort in seeking out information on unfamiliar brands. However, Mc Enally and Chernatony (1999) documented that, consumers' brand preferences over time shift due to changes in brand identity, consisting of brand awareness, purpose, differentiation, and offerings. Consumer preference for a brand is also influenced by brand image pertaining to brand credibility, brand character, consumers' overall attitude towards the brand, and consumers' feelings for the brand.

Internationally, much has been done on consumer preference for food brands, some of these studies include:- Kumar *et al.* (1987), who examined factors influencing the buying decision for various food products by cross tabulating brand and Country of Origin (COO) against age, gender, and income; and found that brand and COO were independent of age, education and income; and brand image was more important than the COO. Nielsen *et al.*, (1998) assessed consumer preference for cooking oil brands in France, where brand preference was associated with healthy attributes. Sampathkumar (2003), studied brand preference in soft drinks in Andhra Pradesh and found that there was a difference between urban and rural consumers on their brand preference; and that consumers from both rural and urban towns purchased soft drinks in the nearest store followed by supermarkets/shopping malls then others. The study found that the method of physical distribution played a very vital role in a brands success and failure in the market. Nandagopal and Chinnaiyan (2003), also conducted a study on brand preference of soft drinks in rural Tamil Nadu, using Garrets ranking technique, to rank factors influencing the soft drinks preferred by rural consumer and found that good quality, price and availability were the main factors influencing consumers' preference for a specific brand. Other studies related to brands include studies on consumer preference for small versus big brands, on superior versus generic brands and on superior versus retail brands. However not much has been done in Africa and specifically Tanzania on brand preference and brand type, some of the few studies on branding and food include (Karanja, 2015; Groote and Chege, 2012; Kimenju, Karanja and Munyoki, 2016; Mukiira *et al.*, 2017; Bwana, 2020). Therefore, this study adds to the literature by bringing in an African perspective, in an economy where there is a recent proliferation of branded products in both rural and urban areas.

2. Study design and methods

2.1 Study area

To ensure a representation of urban and rural consumers, the study area was selected based on distance from the major City Dar es salaam (Morogoro and Dodoma) and town size (with a population less than 10,000, small rural town; with a population between 10,000-20,000, medium rural town). Further, two urban secondary cities were selected based on their distance from the major city Dar es salaam; and four rural towns (two small and two medium) were randomly selected in the East to West swath from the primary mega city. The two urban cities were chosen such that, one was close (Morogoro) and one away from Dar es salaam (Dodoma). For the rural towns, one small (Msanga and Matombo) and one medium (Turiani and Hombolo) town was chosen closer to each of the secondary urban towns.

2.2 Sampling design

Data was collected in 2017 from the two urban and four rural towns, where 630 consumers were randomly selected in a disproportionate sampling to participate in a study on food purchases and decision making. In the two urban towns, consumers were randomly selected from two types of retail outlets – supermarkets at the core of the cities and retail shops at the open local markets. The selection of the two types of outlets was based on the assumption that consumers of different demographic characteristics such as education level and incomes do shop in such outlets. Since the study targeted food decision makers, we systematically excluded retail outlets at the outskirts of the township. This was informed by the rapid reconnaissance findings that, such shops were mostly frequented by kids and maids/helpers who were not food decision makers. The consumers were interviewed on the weekdays and weekends to capture the diversity. A third of the consumers were interviewed from the supermarket outlets and two thirds from the shops at the local open market.

In the four rural towns, the consumers were randomly selected from the retail outlets in the core of the township. The interviews were conducted on both the day when the periodic market took place and on a non-market day in order to capture a whole range of consumer diversity. To be included in the study, respondents were asked screening questions and interviewed as they exited the shopping premises. Only consumers involved in food decision making and who had purchased maize flour or cooking oil in the past year participated in the study. Because the majority of the food decision makers in Africa are women, two-thirds of the sample were women.

2.3 Product

Due to the increased purchases of processed foods in both urban and rural towns, this study chooses to assess the purchasing habits for cooking oil and maize flour among many processed food. Cooking oil and maize flour were chosen because of their frequent use among consumers (as informed by the rapid reconnaissance, cooking oil is among the most frequently purchased products), their source and distribution (as a local/processor, regional or national brand); their differentiation in terms of quality (especially cooking oil).

2.3.1 Brand categorization

In this study we categorized brand in terms of unbranded and branded products, where the branded products are categorized in terms of their geographical indicator (for maize flour

and cooking oil) and quality (for cooking oil only). Geographically, brand is in terms of the national brand, regional brand and local brand. The national brand is a brand that is distributed and consumed in the whole country (i.e. a brand that can be found in at least three of the agro ecological zones); while the regional brand is a brand that is produced within a specific region and targets consumers within and around that specific region, for example a branded maize flour that is produced and consumed in the central zone of Tanzania comprising Dodoma and Singida regions is a regional brand. Local brands (which are usually processor brands (small processors)), on the other hand, are usually from the locality and targets the local market in that specific geographical area, example, a local cooking oil brand that targets consumers within its locality (district/village) in one of the regions in Tanzania. The unbranded processed food in this study comprised of the totally unbranded but packaged processed food and the ones which consumers declared unknown to them. Based on the definition of big and small brands by (Ehrenberg et al., 1990 and Uncles et al., 1994), National brands can qualify to be termed as big brands, while regional and local brands fall into the category of the small brands.

Branding in this study was also categorized interms of quality, where market price was used as a factor for categorizing cooking oil into high quality brands and generic brands. In line with Shugan (1984) and Yang *et al.* (2019), who found that consumers associated high prices with quality (that consumers perceived brands to be of high quality (superior brands) when the price of the brand was high; and of low quality when the price was low); using price, we also categorise cooking oil interms of high quality brands and generic brands.

2.3.2 Packaging

In this study both processed food products (maize flour and cooking oils) are categorized into packaged form and loose form. In packaged form, the product is being sold to a buyer as a sealed product by a wrapper or container hence facilitates handling, storage and commercialization. The food package is the container that holds, protects and preserves the food product. Loose form is the one that processed food product is being sold to a buyer without product's own container or wrapper (ie the product is scooped in $\frac{1}{8}$; $\frac{1}{6}$; $\frac{1}{4}$; $\frac{1}{2}$; or 1kg/litre).

2.4 Data Analysis

The descriptive statistics assessed consumer purchasing habits in urban and rural towns. The assessment included consumer actual purchases of packaged and branded products. In addition, the amount purchased for both loose and packaged and in different retail outlets was analysed using the descriptive statistics. On the other hand, the Garrett's ranking technique is used to assess and rank factors influencing the purchase of processed products, packaged products and branded products. In addition, the Multinomial Logit Model (MNL) is used to analyze consumer preference for brand type. MNL was used to test the null hypothesis that no relationship exists between demographic, socio-economic and behavioral factors of the consumers and choice of brand type (National Brand, Local Brand and Regional Brands). Furthermore, the Binary Logistic Model was used to assess factors influencing the purchase of high quality brands.

The Garrett ranking technique

The technique requires a consumer to rank the various factors that they consider when purchasing different product types (in this case packaged products, branded products and

specific brand type). These orders of merit were transformed into units of scores by using the following formula:

$$\% \text{ position} = \frac{100(R_{ij} - 0.50)}{N_j} \dots\dots\dots (1)$$

Where:

R_{ij} - Rank given for the ith factor by the jth individual,
 N_j - Number of factors ranked by the jth individual.

The percent position was converted into scores by referring to the table given by Garrett and Woodworth (1969). Then for each factor the scores of the individual respondents was added together and divided by the total number of respondents for whom scores were added. The mean scores for all the factors were then arranged in descending order and the most influencing factors were identified through the ranks assigned. The prime advantage of this technique over a simple frequency distribution is that the factors are arranged based on their severity from the point of view of respondents hence, the same number of respondents on two or more factors may have been given different ranks (Zalkuwi *et al.*, 2015).

Table 1: Factors influencing preference for packaged processed food products

S/N	Reasons for choice of packaged product	Meaning
1.	Convenience	Easy to handle
2.	Storage	Easy to preserve
3.	Safety	State of being protected
4.	Quality	Signals of high quality
5.	Recycling	Reusable packaging
6.	Quantity	Buying in Large Volume
7.	I don't Care	Just Buying (No specific reason)
8.	Cleanliness	Trusting that the package is clean
9.	Just Preference	It is type of product I just prefer to buy
10.	Expired Date	The date after which the product is not valid
11.	National Certified Standards	Government Official symbol of standard product

Table 2: Factors influencing preference for branded processed food products

S/N	Reasons for choice of branded product	Description
1.	Safer	Being safer than other brands
2.	Nutritious	Being nutritious than other brands
3.	Good Sensory Attributes	Aroma, texture, test, color attributes
4.	Processor	Trusting the processor
5.	Local processor	The product if fresh
6.	Fortified	Improved quality of food
7.	Availability	Just buying what is available
8.	Price	Affordable price that can be met by consumer
9.	Natural	No artificial chemicals used/added
10.	Refined	No purities / it is clear
11.	Allergic	It does not cause allergies

Multinomial Logistic Model (MNL)

Since choices of alternative brand types of maize flour and cooking oils available to consumers are naturally unordered. Unordered choice models such as the Multinomial Logit and Probit models are recommended (Hu and Palta, 2006). Therefore, to analyse consumer preference for brand type (National versus Regional versus Local), the Multinomial Logistic Model (MNL) was used. The present study adopted the MNL to analyze factors for the choice of brand types of maize flour and cooking oils, because the Multinomial Probit Model is less restrictive than the Multinomial Logit Model; however, a Multinomial Probit Model has many computational expenses (Fentie and Rao, 2016).

We use the Multinomial Logistic Model to test the hypothesis that socio-economic and behavioral factors of the consumers have no effect on the choice of a brand type (National Brand, Regional Brand and local Brand). The model assumes a set of alternatives; in this case, the alternative brand types to be exhaustive, mutually exclusive and finite. The MNL was expressed as shown in equations that follow:-

Let P_{ij} represent the probability of choice of any given brand type of processed food by consumers as shown in Equation 2;

$$P_{ij} = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + e \dots \dots \dots (2)$$

Where i takes values (1, 2, 3), each representing the choice of brand type either maize flour or cooking oils (national brand =1, local brand =2, regional=3). X_i 's are demographic, socio-economic and consumer's behavioral factors affecting choice of a brand type, β are parameters to be estimated and e is randomized error. With j alternative choices, the probability of choosing technique j is given in equation 3.

$$Prob(Y_i = j) = \frac{e^{z_j}}{\sum_{k=0}^j e^{z_k}} \dots \dots \dots (3)$$

Where Z_j is a choice and Z_k is alternative choice that could be chosen (Greene, 2000). The model estimates are used to determine the probability of choice of a brand type of specific processed food given j factors that affect choice X_i . With a number of alternative choices log odds ratio is computed as shown in equation 4.

$$\ln \left(\frac{P_{ij}}{P_{ij^*}} \right) = \alpha + \beta_1 X_1 + \dots + \beta_k X_k + e_k \dots \dots \dots (4)$$

Where, P_{ij} and P_{ik} are probabilities that a consumer will choose a given brand type and alternative technique respectively. $\ln \left(\frac{P_{ij}}{P_{ij^*}} \right)$ is a natural log of probability of choice j relative to probability choice k , β is a matrix of parameters that reflect the impact of changes in X on probability of choosing a given brand type, α is a constant and e is the error term that is independent and normally distributed with a mean zero. The parameter estimates of the MNL provide only the direction of the effect of the explanatory variable on the response variable but do not represent either the actual magnitude of change nor probabilities.

The Multinomial logit model is as given in equation 5 below

$$P_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i \dots \dots \dots (5)$$

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The choice of brand types of maize flour is then given as shown in equation 6 and the choice of brand types of Cooking oils is then given as shown in equation 7;

$$P_{ij} = \beta_0 + \beta_1 Location + \beta_2 Sex + \beta_3 Age + \beta_4 EDU + \beta_5 MonthlyIncome + \beta_6 Food\ Daily\ Expnd + \beta_7 HH_{Size} + \beta_8 Safer + \beta_9 Nutritious + \beta_{10} Sensory\ Taste + \beta_{11} Natural + \beta_{12} Processor + \beta_{13} LocalProcessor + \beta_{14} Fortified + \beta_{15} Out\ of\ Stock + \beta_{16} Affordable\ Price + \epsilon_i \dots \dots \dots (6)$$

$$P_{ij} = \beta_0 + \beta_1 Location + \beta_2 Sex + \beta_3 Age + \beta_4 EDU + \beta_5 MonthlyIncome + \beta_6 Food\ Daily\ Expnd + \beta_7 HH_{Size} + \beta_8 TrustTheProcessor + \beta_9 Health + \beta_{10} Sensory\ Taste + \beta_{11} Natural + \beta_{12} Processor + \beta_{13} LocalProcessor + \beta_{14} Fortified + \beta_{15} Out\ of\ Stock + \beta_{16} Affordable\ Price + \beta_{17} Fortified + \beta_{18} Allergic + \beta_{19} Affordable\ Price + \epsilon_i \dots \dots \dots (7)$$

Table 1: Factors influencing preference for brand type and the expected signs

Variable	Description	Measurement	Expected Sign for MNL
Sex	Sex of respondent	1 if respondent is Male,	-
Age	Age of household head	Years	-
Edu	Education of respondents	1 if Primary education and more, 0 non-educated	+
Location	Geographical location of the consumer	1 if urban, 0 if rural	+
HH_Number	Household size	Count	+
Monthly Income	Average Income Earned by Household head	Tshs	+
Expenditure on Food	Daily average income spent on food	Tshs	+
Safer	Being safer than other brands	1 if the factor is highly ranked by consumer 0 otherwise	+
Good Sensory Attributes	Aroma, texture, test, color attributes	1 if the factor is highly ranked by consumer 0 otherwise	+
Processor	Trusting the processor	1 if the factor is highly ranked by consumer 0 otherwise	+
Local processor	The product if fresher than far produced products	1 if the factor is highly ranked by consumer 0 otherwise	+
Fortified	Improved quality of food	1 if the factor is highly ranked by consumer 0 otherwise	+
Availability	Just buying what is available	1 if the factor is highly ranked by consumer, 0 otherwise	+
Price	Affordable price that can be met by consumer	1 if the factor is highly ranked by consumer, 0 otherwise	+
Refined	No purities / it is clear	1 if the factor is highly ranked by consumer,	+

Allergic	It does not cause allergies	0 otherwise 1 if the factor is highly ranked by consumer, 0 otherwise	+
Natural	No artificial chemicals used	1 if the factor is highly ranked by consumer, Otherwise	+

Binary Logistic Model

Consumer’s choice for purchasing either high-quality or generic brands of cooking oil is a dichotomous variable. For econometric analysis, binary logistic model is considered as an appropriate model in which both categorical as well as continuous independent variables are applicable (Maharjan and Joshi, 2011). The Logistic regression model was preferred from the multiple regression due to three reasons; 1) The dependent variable is dichotomous and discontinued; 2) The model is more appropriate monotonous function for the sample of gathered data compared to the criterion of the least squares of a multiple regression; 3) The model is preferred from a discriminant analysis, since the discriminant model is based on the hypothesis of the multivariate normality and the equal variance-covariance matrices across teams. Those hypotheses are not required in the logistic regression model. Here the dependent variable is a dichotomous variable “Y” which takes the value 1 with probability θ_i and the value 0 with probability $1-\theta_i$. The likelihood function is in equation 8 below:-

$$L(Y, \theta) = [\prod_{i=1}^{n_1} \theta_i][\prod_{i=n_1+1}^n (1 - \theta_i)] \dots \dots \dots (8)$$

The logit form of the model is a transformation of the probability $\Pr (Y = 1)$ that is defined as the natural log odds of the event E ($Y =1$). That is presented in equation (9):

$$Logit P_r(Y = 1 |X) = \beta_0 + \sum_{K=1}^K \beta_K X_K \dots \dots \dots (9)$$

The regression coefficients β ’s of the proposed logistic model quantifies the relationship of the independent variables to the dependent variable involving the parameter called the odds ratio. As odds we define the ratio of the probability that implementation will take place divided by the probability that implementation will not take place. That is:

$$Odds(E |X_1, X_2, \dots, X_n) = \frac{P_r(E)}{1-P_r(E)} \dots \dots \dots (10)$$

Formulation of the model concerns the influence of socio-economic, demographic and other influencing factors on choosing to purchase brand type (high-quality and the generic brand of cooking oil). The independent variables for the formulated model are: X_1 -geographical location, X_2 -age, X_3 -sex, X_4 - education, X_5 - income, X_6 -Household Size, X_7 – Convenience, X_8 –Storage, X_9 –safety, X_{10} –quality, X_{11} – recycling, X_{12} –Quantity and X_{13} -I don’t care. In the equation “Y” denotes the dependent variable as 1 for significant effect of independent factors on either (high-quality or generic brand) in equation (11) and 0 for insignificant effect.

$$Logit [\Pr (Y = 1)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \epsilon_{1r} \dots \dots \dots (11)$$

3 Results and Discussion

3.1 Respondents’ Socio-Economic Characteristics

Table 4 summarizes the socio-economic characteristics of the respondents, which is a diverse sample representing socio-economic characteristics of Tanzania consumers. Out of the 630 sampled consumers in the study areas, 266 were from rural and 364 urban towns. About a half of the respondents were the household heads both in rural and urban areas while the counterparts were the spouse. Because the study was interested in assessing the purchasing habits of processed foods in a household, interest was with a member of a household involved in food decision making. Therefore 1/3 of the respondents were female respondents, since in developing countries like Tanzania, women are usually the food decision makers (Alphonse and Alfnes, 2012; Cullen, 2012).

In line with the Tanzania Population and Housing Census (PHC) of 2012, over ninety percent of the respondents belonged to the working age group (15-64), both in rural and urban areas. More than 50% of the households in the study composed of household with between 4 and 8 members, which is in line with the average size of households in Tanzania (4.8 members) (URT, 2013). Also in line with the Basic Demographic and Socio-Economic Profile of Tanzania (URT, 2014), the study sample included higher literacy among urban than rural consumers. That is, a larger proportion of educated consumers in urban than rural towns (19% versus 2%); and a larger portion of consumers with primary and non-formal education in rural than urban towns (77% versus 45%). The average monthly income of the respondents was about TZS 450,000, where 85% of urban consumers and 67% of rural consumers earn more than TZS 200,000/month; which is in line with the estimated per capita GDP of 2017 (URT, 2018). See Table 4 for details.

Table 4. Consumer's Socio-economic characteristics

Variable	Categories	General		Urban		Rural	
		Freq.	%	Freq.	%	Freq.	%
Sex	Female	445	70.75	255	70.25	190	71.43
	Male	184	29.25	108	29.75	76	28.57
Status	HH Head	338	53.65	198	54.4	140	52.63
	Spouse	286	45.4	163	44.78	123	46.24
Age	15-64 (Working Age)	621	98.58	361	99.13	260	97.76
	60+(Elderly)	23	3.67	10	2.74	13	4.91
	15-35(Youths)	309	49.05	185	50.8	124	46.62
HH Number	Average(mean)	36(38)		35(38)		37(38)	
	1 to 3	192	30.47	117	32.14	75	28.2
	4 to 8	412	65.4	228	62.63	184	69.17
Education	8+	26	4.13	19	5.22	7	2.63
	Average	4(5)		4(5)		5(5)	
	Primary and Non-Formal	372	59.05	168	46.15	204	76.69
	Sec. and High School	137	21.75	92	25.27	45	16.92
	Certificate	47	7.46	36	9.89	11	4.14
Monthly Income	High Education	75	11.9	69	18.96	6	2.26
	Less than 200,000	144	22.87	55	15.09	89	33.47
	200,000+	486	77.19	309	84.75	177	66.63
	Average income (mean)	400,000(817,581)		600,000(1,030,918)		300,000(525,646)	

3.2 Consumer's Purchasing Habits of Processed Food

3.2.1 Purchasing habit of packaged food among urban and rural consumers

Table 5 summarizes the results for the purchasing habits of maize flour and cooking oil in urban and rural towns of Tanzania. In urban towns, the study found that majority of the consumers purchased packaged maize flour (55%) and cooking oils (59%) as compared to

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rural consumers, where only 29% purchased packaged maize flour and 24% purchased packaged cooking oil. A Kruskal Wallis Test revealed a significant difference ($p < 0.01$) in purchasing habits of rural and urban consumers (See table 5). The implication behind is that the problem of information asymmetry on processed foods purchased and consumed is more intensive among rural than urban consumers.

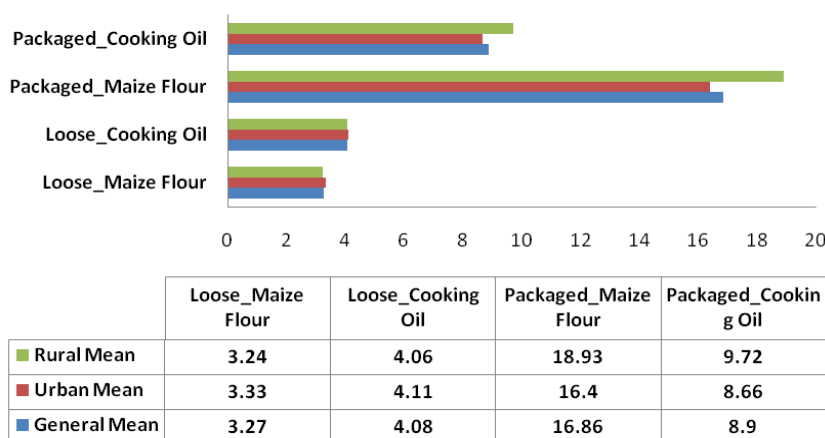
Table 5: Purchasing habit of packaged maize flour and cooking oil

Category	General n (%)	Urban n (%)	Rural n (%)	Asymp. Sig.
Loose Maize Flour	288(55)	142(45)	146(71)	.002***
Packaged Maize Flour	235(45)	175(55)	60(29)	.002***
Loose Cooking Oil	344(56)	146(41)	198(76)	.000***
Packaged Cooking Oil	274(44)	211(59)	63(24)	.000***

*** Significant at 0.01 ($p < 0.01$)

3.2.2 Amount of processed food purchased packaged and loose

Fig 1 summarizes the average amount of maize flour and cooking oil that is bought loose and that is packaged among urban and rural consumers. The results in figure one show a similarity between urban and rural consumers, they both buy in larger volumes when they buy packaged products than when they buy in loose form. Implying that quantity bought is among the driving factors for the purchase of the packaged processed food. Consumers in both urban and rural towns buy an average of 3kgs maize flour and 4 litres cooking oil when they buy loose; while urban consumers buy 16kgs maize flour and 10litres cooking oil when the buy them packaged, and rural consumers 19kgs maize flour and 9 litres cooking oil when packaged.



Note: Maize flour is in Kilograms (Kgs) and cooking oil is in Litres

Figure 1: Purchasing habits among rural and urban consumers: Packaged Vs Loose

3.2.3 Purchasing habits of branded foods among urban and rural consumers

Fig 2 and 3 illustrates that both rural and urban consumers have a strong preference for branded over unbranded products for both maize flour and cooking oil. That is, more than three quarters of the consumers from both rural and urban towns purchased branded maize flour and cooking oil. 78% and 83% urban consumers purchased branded maize flour and cooking oil respectively, while 76% and 74% rural consumers purchased branded maize flour and cooking oil respectively.

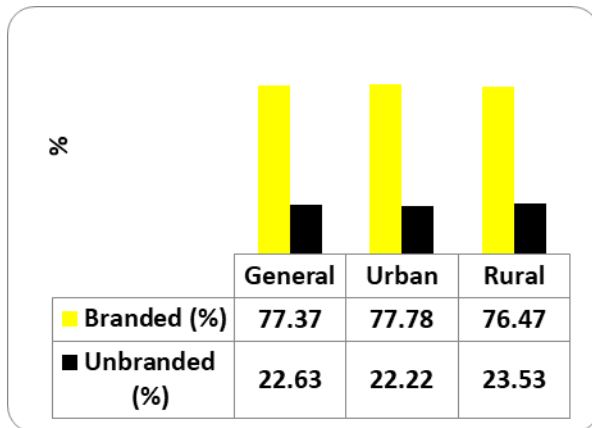


Figure 2: Branding of maize flour

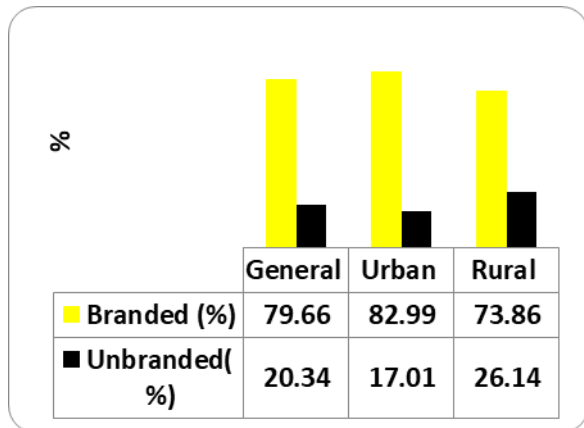


Figure 3: Branding of cooking oil

Furthermore, the study also analyzed preference for brand type among urban and rural consumers. The study reports stronger preference for local than national brands among consumers preferring branded products, this is true for both urban and rural consumers. Although local brands were generally preferred to national brands, for cooking oil, urban consumers preferred the national brand (55%) to the local brand (45%) (See Figure 5). Nevertheless, it was also found that the generic brands (defined as low quality brands) were preferred by majority of the rural consumers (77%), but the preference was not so much among urban consumers (51%), implying that urban consumers are willing to pay more for quality brands than rural consumers.

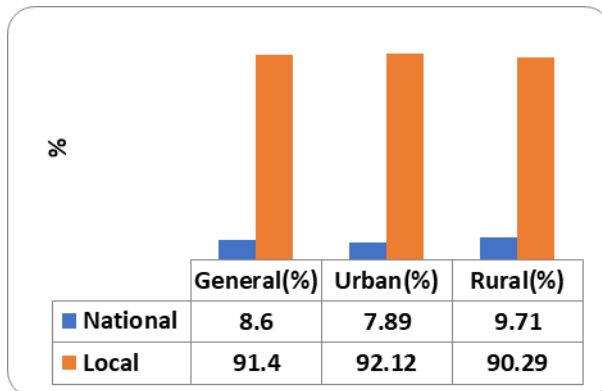


Figure 4: Brand types of maize flour

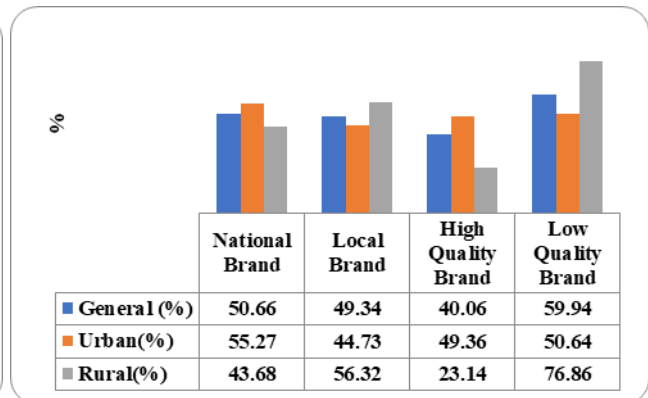


Figure 5: Brand types of cooking oils

Note:

National brands are produced in a specific geographic area but are consumed in a wider geographical area. Local brand in figure 4 and 5 included local and regional brands. Regional brands are produced within a specific region and targets consumers within and around that specific region, while local brands, which are usually processor brands, are produced from the locality and targets consumers within the locality. Brand quality was categorized based on price; high quality versus generic brand (defined as low quality brand).

3.2.4 Association between brand type and packaging status

Further, analysis was conducted to assess the association between packaging status and brand type, thus for both maize flour and cooking oil (national, regional, local or unknown brands) and for cooking oil (high quality or generic brand). Table 5 reports that in general, consumers purchase maize flour in both packaged form (44%) and loose form (56%). Where urban consumers mostly purchase packaged (60%) while rural consumers purchase maize flour scooped (77%). When buying branded maize flour consumers mostly buy maize flour packaged (72%) and buy maize flour in loose form when buying unbranded maize flour (76%). This is true among urban (72% buy unbranded maize in loose form versus 75% packaged branded maize flour) and rural consumers (91% buy unbranded maize flour loose and 65% branded maize packaged). See Table 6 below

Table 6: Brand type versus packaging of maize flour

Brand Types	General			Urban			Rural		
	Loose n (%)	Package n (%)	Total n(%)	Loose n (%)	Package d n (%)	Total n(%)	Loose n (%)	Packaged n (%)	Total n(%)
National	7 (2)	38 (17)	45 (9)	3(2)	22(13)	25(8)	4(3)	16(27)	20(10)
Regional	5(2)	35 (15)	40(8)	4(3)	28(16)	32(10)	1(0.7)	7(12)	8(4)
Local	57 (20)	97(42)	154 (29)	29(20)	81(46)	110(35)	28(19)	16(27)	44(21)
Unknown/ unbranded	219(76) 288	65(28)	284 (54)	106(75)	44(25)	150(47)	113(77)	21(35)	134(65)
Total	(100)	235(100)	523(100)	142(100)	175(100)	317(100)	146(100)	60(100)	206(100)

For cooking oil, Table 7 illustrates the association between packaging status and brand type in terms of both quality brands and geographic indication. Generally, consumers purchase cooking oil in both packaged (44%) and loose form (56%). Where urban consumers mostly purchase packaged (60%) while rural consumers mostly purchase cooking oil in a loose form (77%). Generally consumers buy branded cooking oil both packaged (88%) and loose (60%), with larger quantities bought packaged; unbranded cooking oil is mostly bought in loose form (40% loose versus 12% packaged).

This is also true among urban (88% buy branded cooking oil packaged Versus 65% branded cooking oil in loose form; while 12% of unbranded is bought packaged and 32% loose) and rural consumers (90% buy branded cooking oil packaged and 57% branded cooking oil in loose form; while 10% unbranded is bought packaged and 43% loose). The results are similar for quality brands, where the high quality brands are almost always bought packaged (90%); and the findings are the same among urban (91%) and rural consumers (95%).

Table 7: Brand types versus packaging of cooking oils

Brand Type	General			Urban			Rural		
	Packaged n(%)	Loose n(%)	Total n(%)	Packaged n(%)	Loose n(%)	Total n(%)	Loose n(%)	Packaged n(%)	Total n(%)
National	173 (51)	135(40)	308(50)	134(64)	60(43)	194(55)	75(38)	39(62)	114(44)
Local	56(17)	65(19)	121(20)	43(20)	27(19)	70(20)	38(19)	13(21)	51(20)
Regional	9(3)	4(1)	13(2)	8(3)	4(3)	12(3)	0(0)	1(2)	1(0.4)
Unknown/unbranded	31(9)	135(40)	166(27)	25(12)	50(35)	75(21)	85(43)	6(10)	91(35)
High Quality	129(53)	14(7)	143(32)	105(56)	10(10)	115(41)	1(0.9)	21(37)	22(13)
Generic	114(47)	195(93)	309(68)	81(44)	86(90)	167(59)	112(99)	36(63)	148(87)

Note: Both geographical and quality brand categories were treated independently in percentage wise

3.2.5 The association between packaging and retail outlets

The results in Table 8 and 9 indicate the various places where consumers buy processed foods (maize flour and cooking oils) and the respective amounts bought at different retail outlets. The study reports a number of different outlets where a typical consumer purchase processed foods. Consumers purchase processed foods from supermarkets, mini-

supermarkets, processors, wholesale shops, retail shops in town and retail shops at the outskirts (shops in the neighborhood).

Majority of the consumers in urban areas buy packaged maize flour from retail outlets in town (30%), processors (29%), and wholesalers (21%); while loose maize flour is mostly bought at the outskirts (55%) (retail outlets close to consumer homes). On the other hand, consumers from rural towns, mostly buy packaged maize flour at the retailer outlets in town (41%), the wholesalers (26%) and retail outskirts (22%), while, like urban consumers, loose maize flour is mostly purchased at the retail outskirts (69%). See Table 8

Table 8: Retail outlets where consumers purchase maize flour

Buying Places	Urban			Rural		
	Packaged n (%)	Loose n (%)	Amount	Packaged n(%)	Loose n(%)	Amount
Supermarket			7	0	0	0
Mini-market	10(9)	0(0)	19	0(0)	0(0)	0
Processor	31(29)	17(22)	6	6(10)	17(12)	4
Wholesalers	22(21)	0(0)	6	15(26)	1(0.7)	5
Retail Town	32(30)	15(20)	8	24(41)	27(18)	4
Retail outskirts*	12(11)	77(55)	2	13(22)	101(69)	2

Note: Average amount is in Kgs

***Retail Outskirt are the buying places close to residential area**

Cooking oil in urban towns is mostly bought packaged at the processors (38%) and retail outlets in town (23%), whereas is mostly bought loose at the retail outskirts (55%), retail outlets in town (23%) and processors (22%). On the other hand, rural consumers mostly buy packaged cooking oil at the retail outlets in town (40%) and at the retail outskirts (27%), while loose cooking oil is mostly purchased at the retail outskirts (64%). See Table 9

Table 9: Retail outlets where consumers buy cooking oil

Places	Urban			Rural		
	Packaged n(%)	Loose n(%)	Amount	Packaged n(%)	Loose n(%)	Amount
Supermarkets	5(3)	0 (0)	7	0 (0)	0(0)	0
Mini-supermarket	17(10)	0(0)	10	0(0)	0(0)	0
Processor	66(38)	31(22)	15	10(16)	36(18)	10
Wholesale shops	26(15)	0(0)	23	10(16)	1(0.5)	13
Retail Town	41(23)	32(23)	13	25(40)	34(17)	12
Retail Outskirt	20(11)	77(55)	8	17(27)	127(64)	3

Note: Average amount is in liters

3.2.5 Retail outlet, packaging and quantity purchased

When urban consumers buy packaged maize flour, they buy the most (20kgs) at the wholesale outlets followed by the processors while they buy the least (7kgs) at the supermarkets; rural consumers buy the most (20kgs) at either the wholesalers, processors or retailers in town, while the least is purchased at the retail outskirts (15kgs). On the other hand,

loose maize flour is bought the most from the processor (8kgs) and the least at the retail outskirts (2kgs) among urban consumers; while it is bought the most at the wholesalers (8kgs) and the least at the retail outskirts (2kgs) among rural consumers (See Table 9). As informed by the rapid reconnaissance, loose maize flour is probably bought the most at the processor, because at the processors, consumers can refill/reuse old bags hence fetch a wholesale price while saving the added price that is for packaging.

For cooking oil, urban consumers buy packaged cooking oil in large volumes (6.5 litres) when buying at the supermarket, processor or wholesaler; while they buy the least at the retail outlets in town (3.5 litres). On the other hand, rural consumers buy packaged cooking oil in large volumes (10litres) at the processor and the least at the retail outskirts (5litres). While when buying loose the largest volumes are sourced at the processor in both urban (4.6litres) and rural towns (2.6 litres); and the least at the retail outskirts (0.85 litres urban towns versus 0.35litres rural towns) (See Table 10). Like for the case of maize flour, consumers buying at the processor can take advantage of the price and can refill/reuse old packaging material hence save the added price that is for packaging.

Table 10: Average size (kg) of packaged and loose maize flour versus outlets

Outlets	Maize flour					
	General		Urban		Rural	
	Loose	Packaged	Loose	Packaged	Loose	Packaged
Supermarkets	0.00	8.86	0.00	7.00	0.00	0
Mini-supermarket	5.00	13.13	5.00	10.29	0.00	0
Processor	7.77	17.74	8.53	17.39	6.41	21.67
Wholesalers	8.00	23.38	0.00	23.20	8.00	23.67
Retail Town	5.37	17.08	4.12	15.94	6.47	21.06
Outskirt	2.16	13.34	2.40	12.47	1.97	14.62

Table 11: Average size (Lts) of packaged and loose cooking oil versus outlets

Outlets	Cooking Oils					
	General		Urban		Rural	
	Loose	Packaged	Loose	Packaged	Loose	Packaged
Supermarkets	0.00	6.50	0.00	6.67	0	0
Mini-supermarket	3.00	5.37	3.00	5.65	0.00	0
Processor	3.65	7.25	4.61	6.53	2.63	10.00
Wholesalers	0.75	5.97	1.00	6.00	0.50	5.89
Retail Town	0.83	6.87	1.37	3.52	2.62	5.07
Outskirt	2.14	4.88	0.85	4.89	0.35	4.88

3.3 Factors influencing the purchase of packaged products

Using the analysis from Garrett's ranking technique, the study shows that, in general, the top three reasons considered by the packaged maize flour consumers are "quantity" as they buy in large volumes (10.80 urban and 5.07 rural), convenience (10.36 urban and 5.93 rural) and storage (10.20 urban and 7.01 rural); while the least factors are expired date (0.50 urban and 0.42 rural) and certification on standards (0.35 urban and 0.29 rural), see fig 6. The results

from this study are a bit different from a study conducted in Dodoma Municipality whereby, protection and safety were ranked as the most important factors influencing consumer choices for packaged products (Mmari *et al.*, 2015), for this study safety comes as the fourth influencing factor among both urban and rural consumers. However, a study conducted in India find similar results as our study, where urban consumers buy packaged products because of ease carriage (convenience) and rural consumers because of storage (Sehrawet and Kundu, 2007).

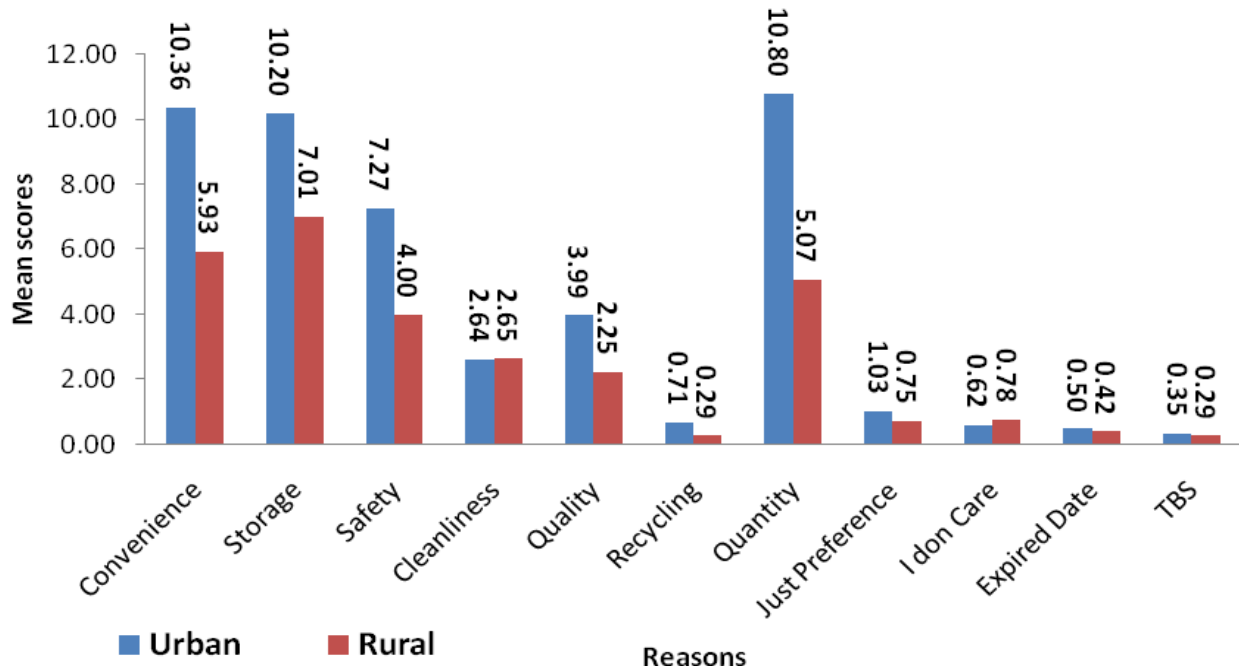


Figure 6: Factors driving the purchase of packaged maize flour

On the other hand, in line with Mmari *et al* (2015), both urban and rural consumers of edible oil choose packaged products because of their interest in safety (11.06 urban and 13.63 rural); followed by quantity (10.67 urban and 13.28 rural) and storage (8.63 urban and 10.33 rural); consumers ranked recycling (0.82 urban and 1.15rural) as the least reason for buying packaged products. The results are also in line with a study done among rural consumers in India at Ahmedabad Gujarat, where health and convenience were identified as the most important factors influencing the purchase of packaged processed foods (Shahir and Amola, 2015).

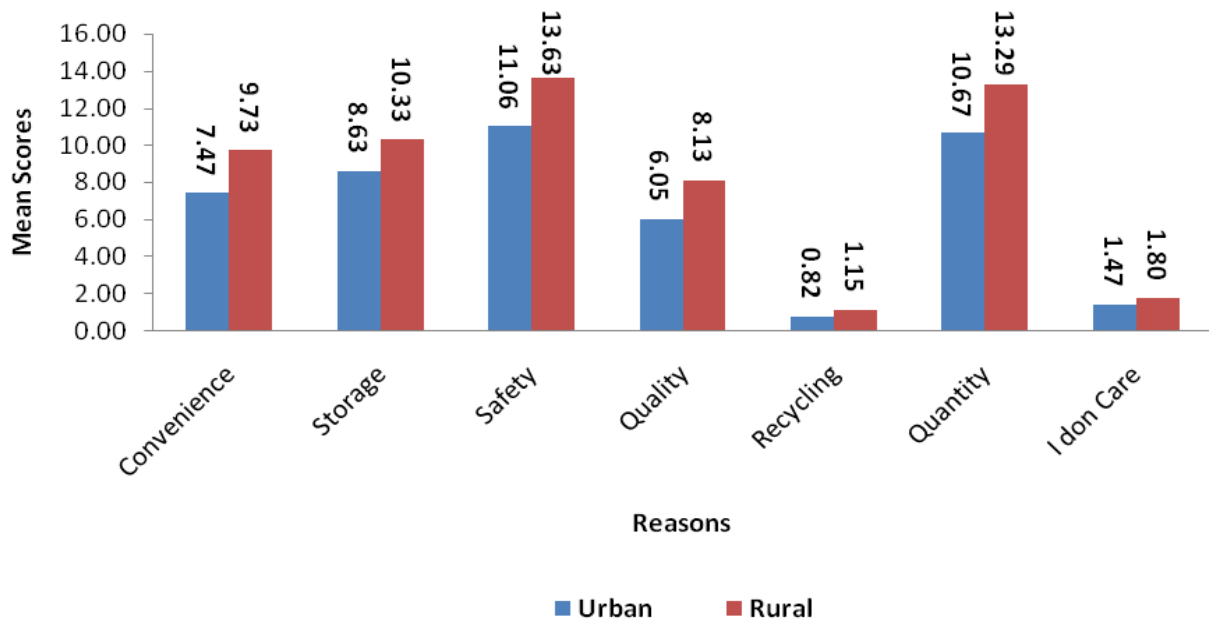


Figure 7: Factors influencing the purchase of packaged cooking oil

3.4 Factors influencing the purchase of branded products

Preference for branded products (maize flour and cooking oil) were assessed using the Garrett's ranking technique, where in Fig 8 the study shows that, both rural and urban maize flour consumers considered sensory attributes (30.02 urban and 33.96 rural); followed by safety attributes (15.90 urban and 23.96 rural) as important factors influencing their preference for branded products. In addition, trust (13.41) was important among urban consumers, while nutrition (12.88) was important for preferring branded products among rural consumers. These results are contrarily to studies done in Kenya by (Karanja, 2015; Groote and Chege, 2012; Karanja and Munyoki, 2016) where price, quality and fortification were reported as important factors influencing the purchases of branded maize flour.

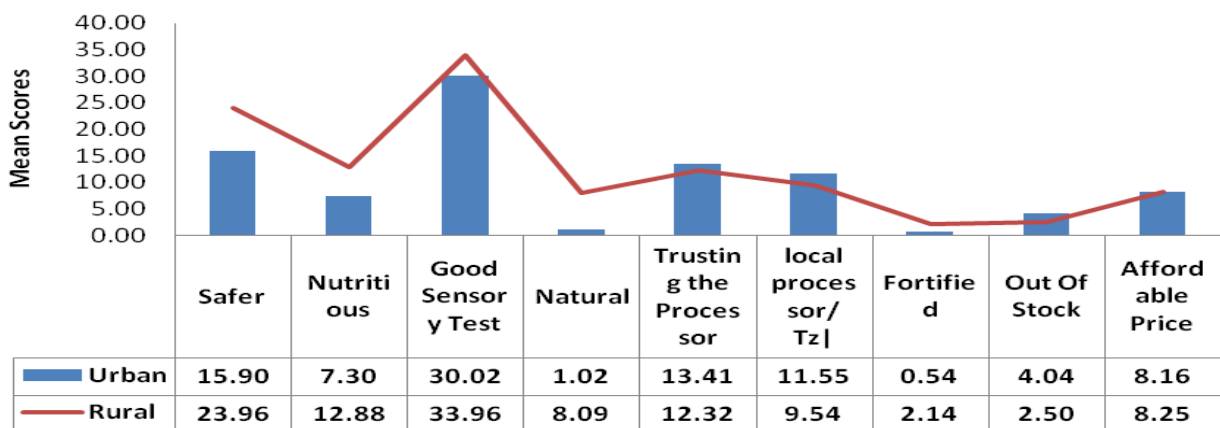


Figure 8: Factors influencing the purchase of branded maize flour

Comparing factors influencing preference for branded cooking oil among rural and urban consumers. The study finds similarities and differences between urban and rural consumers, for example, on preference for cooking oil brands, both rural and urban consumers

are mostly influenced by sensory attributes (22.88 urban and 15.92 rural). On the other hand, urban consumers are secondly and thirdly influenced by healthiness (8.43) and price (7.95), while rural consumers are influenced by price (10.4) and naturalness (5.83), see fig 9. These results are more or less similar to a study done in India among urban and rural consumers (Divya, 2015), where quality and price were important when choosing a brand.

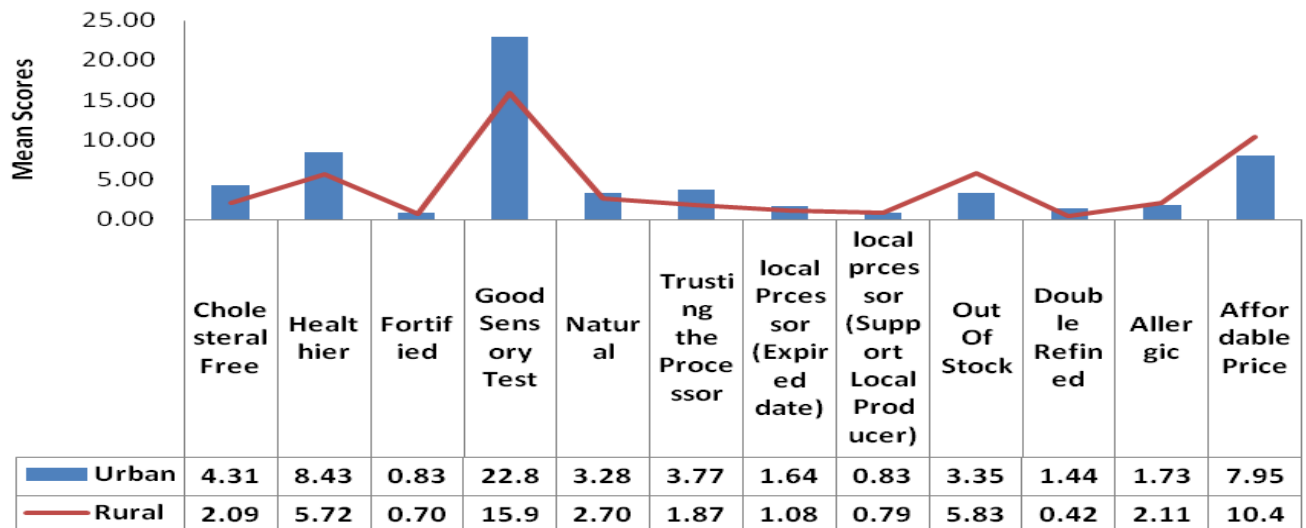


Figure 9: Factors influencing the purchase of branded cooking oil

3.4.1 Factors influencing the purchase of brand type

Testing the hypothesis that no relationship exist between demographic, socio-economic, behavioral factors and choice of brand (brand type); we fail to accept the hypothesis and conclude that demographic, socio-economic and behavioral factors do influence consumer choice of a brand (brand types). This implies that the model can be used to explain the variation in preferences for different brand types.

Table 12 and 13 summarizes variables influencing consumer choices for brand type (Table 12 maize flour and Table 13 cooking oil). For maize flour; the model found gender, location of the consumer, number people in a household, preference for safety, preference for a nutritious diet, preference for good sensory attributes, importance of trusting the processor and preference for a local processor to significantly influence the choice of a brand type. Column two in Table 12 report choices for a national brand is positively and significantly influenced by gender (male consumers choose national brands), number of people in the household, preference for safety, preference for sensory attributes, and the importance of trusting a processor; column three in Table 12 report choices for a regional brand is positively and significantly influenced by location (urban consumers choose regional brands), preference for safety, preference for sensory attributes, preference for a local processor and the importance of trusting a processor; column four in Table 12 report choices for a local brand is positively and significantly influenced by location (urban consumers choose local brands), preference for safety, preference for sensory attributes, preference for a local processor and the importance of trusting a processor. Education and household size also positively influence choices for a local brand, meaning the educated prefer local brands, the results are however significant at a 10% level.

Different from the other variables, the importance of nutrition in selecting a local brand was also significant but negative, meaning that consumers who preferred local brands did not place any value on nutrition, this is also true for the choice of regional brands (even though

the results were not significant). These results are a bit contradictory, because, as informed by the rapid reconnaissance, consumers usually link local products to freshness, therefore we expected the link of freshness to local should imply good sensory attributes, safety and a more nutritious product.

Table 12: Preference for maize flour brand type

Brand Type of Maize flour Variables	National Brand		Regional Brand		Local Brand	
	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Intercept	5.949	.000	5.437	.000	3.691	.000
Location (Urban=1)	.243	.565	1.451	.007***	.572	.029**
Age	.002	.939	.024	.239	.018	.127
Sex (Male=1)	.872	.034**	-.264	.598	.332	.199
Edu (Educated=1)	1.197	.112	.148	.828	.692	.094*
Monthly Income	.000	.984	.000	.959	.000	.984
Food Expnd. _Daily	.000	.947	.000	.188	.000	.147
HH _Size	.232	.016**	.052	.645	.118	.052*
Safer (1=Highly Ranked)	2.886	.000***	2.670	.000***	1.889	.001***
Nutrition 1=Highly Ranked)	.574	.396	-.351	.682	-1.430	.048**
Sensory Test (1=Highly Ranked)	2.707	.000***	3.088	.000***	1.734	.000***
Natural (1=Highly Ranked)	9.937	.614	9.057	.646	8.355	.671
Trusting processor(1=Highly Ranked)	4.018	.000***	4.764	.000***	3.578	.001***
Local processor (1=Highly Ranked)	1.625	.124	3.123	.000***	2.717	.001***
Fortified (1=Highly Ranked)	-4.527		14.573	.998	13.125	.998
Out of stock (1=Highly Ranked)	6.918	.371	7.874	.306	6.977	.363
Price (1=Highly Ranked)	.401	.597	-.484	.602	-.098	.867

Note: ***, ** and * Significant at 0.01, 0.05 and 0.1 levels respectively. Chi-Square=314.97, Prob >chi2=0.001

*Results obtained from the analysis identified MNL fits well the data as measured by Pseudo – R² (McFadden = 27.4 %, Cox and Snell = 45.3 % and Nagelkerke = 50.9%)

*Probability of the model (Chi square =314.97) was 0.001

*Estimated results of the Multinomial Logistic Regression model

Further, Table 13 summarizes explanatory variables influencing consumer choices for cooking oil brands. Where, location, education, expenditure on food, preference for healthness, preference for sensory attributes, preference for naturalness, the importance of trusting a processor, the importance of constant availability, preference for refinement and price sensitivity influence consumer choices for cooking oil brands. The results in column two Table 13 report that choices for a cooking oil national brand is significantly influenced by the amount that a household spends on food and on the importance that a consumer places on trusting a processor. Amount spent on food positively influences the choice for a national brand, meaning that the more a household spends on food, the more likely they are to buy a national brand, however trust on the processor negatively influence the choice for a national brand, implying that those who place trust on a processor as an important attribute are likely not to choose a national brand.

The education of a consumer (although at a 10% level of significance) and the importance of affordable pricing positively influence preference for a national brand. Meaning that the

educated for some reason prefer the national brand, and that consumers' associate the national brands with affordable pricing, probably because of the economies of scale that the national brands are likely to have. Column four in Table 13 report that choices for a regional brand, is positively influenced by price sensitivity and preference for naturalness. Furthermore, preference for refinement, negatively influenced the choice for a regional brand while living in urban towns positively influenced the choice for a regional brand ($P>0.10$). These results are supported by findings from the rapid reconnaissance, which report that local and regional brands from small processors are linked to naturalness (no additives added). Hence regional brands are perceived as more natural. Also, in line with results in table 13 column two (though insignificant), there is a negative relationship between location and choice of a national brand, implying that consumers living in urban towns are likely not to choose a national brand.

For the choice of a local brand, column three in Table 13 report that education, preference for healthiness, preference for sensory attributes, preference for naturalness, the importance of trusting the processor and the importance of the product being constantly available are significant factors influencing the choices for a local brand. However, preference for healthiness, the importance in trusting a processor and the importance of a product being constantly available negatively influence the choice for a local brand, implying that those with high preference for healthiness, who place high importance on trusting the processor and availability would not choose a local brand. On the other hand, the educated and preference for sensory attributes positively influence consumer choices for a local brand, hence the educated and those placing value on hedonism are likely to choose a local brand. From the rapid reconnaissance, local brands were linked to naturalness, freshness and good sensory attributes, hence the educated are likely more aware on the benefits of natural products.

Table13: Preference for cooking oil brand type (with a Geographical Indication)

Brand Type of cooking oils Variables	National Brand		Local Brand		Regional Brand	
	B	Sig.	B	Sig.	B	Sig.
Intercept	2.689	.055	2.164	.143	2.1144	0.035
Location (Urban=1)	-1.06	.143	-1.15	.123	0.8027	0.08*
Age	-.011	.691	-.004	.900	0.0024	0.891
Sex (Male=1)	.393	.554	.595	.386	0.6005	0.883
Education (Educated=1)	1.445	.072*	2.324	.009***	-0.2843	0.654
Monthly Income	.000	.730	.000	.858	-4.9	0.762
Daily Food expenditure	.000	.047**	.000	.334	0	0.266
HH_Size	-.002	.987	.085	.595	0.0803	0.376
Cholesterol free (1=Highly Ranked)	1.487	.248	.076	.958	-0.167	0.808
Health (1=Highly Ranked)	-.494	.502	-2.74	.002***	-16.15	0.995
Fortified (1=Highly Ranked)	6.977	.363	-6.04	.072	-0.448	0.222
Sensory taste (1=Highly Ranked)	.696	.267	2.504	.000***	0.0142	0.983
Natural products (1=Highly Ranked)	.247	.824	-.856	.467	2.2275	0.001***
Trust_processor (1=Highly Ranked)	-6.55	.000***	-5.72	.000***	0.81658	0.484
Local_processor_expire date (1=Highly Ranked)	-1.91	.111	-1.39	.250	0.464	0.721
Local_processor (1=Highly Ranked)	-1.21	.495	-.202	.896	-0.8596	0.288
Access/availability (1=Highly Ranked)	.151	.890	-3.20	.010***	-16.092	0.995
Refinement(1=Highly Ranked)	14.20	.103	11.18	.207	-1.29	0.05*
Allergic (1=Highly Ranked)	1.32	.622	-.832	.771	-0.54	0.625
Affordable price (1=Highly Ranked)	2.60	.094*	-.005	.997	2.26	0.002***

Note: ***, ** and * Significant at 0.01, 0.05 and 0.1 levels respectively. Chi-Square=191.71, Prob >chi2=0.000

*Results obtained from the analysis identified MNL fits well the data as measured by Pseudo - R² (McFadden = 29.5 %, Cox and Snell = 34.5 % and Nagelkerke = 45.3%)

*Probability of the model (Chi square =191.72) was 0.000, less than the level of significance of 0.01 ($P<0.01$).

*Estimated results of the Multinomial Logistic Regression model

Table 14 report results on the preference of brand quality, where, preference for high quality brands is positively influenced by geographical location, monthly income, and preference for naturalness and fortification; implying that consumers from urban towns are more likely to purchase high quality cooking oil brands than consumers from rural towns; and that consumers with higher income are more likely to choose high quality brands (Table 14). Consumers placing high importance on fortification and naturalness are also more likely to purchase high quality oil brands. On the other hand, the value placed on trusting the processor, product availability and price negatively influence consumer likelihood of choosing a high quality oil brand, implying that consumer placing high value on trusting the processor, on availability and who are sensitive to price are more likely to choose the generic cooking oil brands.

Table14: Preference for cooking oil brand type-categorized in terms of quality

Variables	Coeff.	S.E.	Sig.	Exp(B)
Demographic and Socio-economic Factors				
Location (Urban=1)	1.276	0.332	0.001**	3.583
Age	0.035	0.016	0.26	1.035
Sex (Male=1)	0.036	0.324	0.911	1.037
Education (Educated=1)	-0.241	0.522	0.644	0.786
Monthly Income	0.000	0.000	0.002**	1.000
Household Size	-0.283	0.085	0.101	0.754
Other Consumer's Influencing Factors				
Cholesterol free (1=Highly Ranked)	-0.416	0.505	0.411	0.66
Health (1=Highly Ranked)	0.269	0.4	0.500	1.309
Fortified (1=Highly Ranked)	3.195	1.329	0.016**	24.418
Sensory taste (1=Highly Ranked)	0.062	0.33	0.85	1.064
Natural products (1=Highly Ranked)	1.997	0.611	0.001**	7.364
Trust_ processor (1=Highly Ranked)	-2.665	0.762	0.000**	0.07
Local_ processor_ expired date (1=Highly Ranked)	-1.372	0.846	0.105	0.254
Local_ processor (1=Highly Ranked)	-0.06	1.008	0.953	0.942
Availability (1=Highly Ranked)	-2.168	0.694	0.002**	0.114
Refinement(1=Highly Ranked)	0.438	0.954	0.646	1.55
Allergic (1=Highly Ranked)	-1.058	0.772	0.17	0.347
Affordable price (1=Highly Ranked)	-1.735	0.463	0.000**	0.176
Intercept	1.871	0.854	0.028	0.154
Hosmer-Lemeshow	0.234			
Nagelkerke R ²	0.532			
Likelihood ratio (-2 respectively log \hat{L})	302.07			

Note: *Significant at the 0.01 level

*** Estimated results of the Binary Logistic Model**

*The Nagelkerke R square is a measure of predictability of the proposed model. To assess the fitness of model we compared the log likelihood statistic ($-2 \log \hat{L}$) for the fitted model with the explanatory variables with this value that corresponds to the reduced model (the one only with intercept). The likelihood ratio statistic is quite high in all cases rejecting H_0 and concluding that at least one of the **B** coefficients is different from zero. Nevertheless, the insignificant value of Hosmer-Lemeshow's goodness of fit guides us to accept the null hypothesis, i.e., no difference between observed and model-predicted values.

4 Conclusion and Recommendation

4.1 Conclusion

Habitual heterogeneity of the consumers in relation to rural and urban consumers on branding and packaging attributes was found in five folds:- First, on packaging, urban consumers preferred packaged processed foods than products which were sold in loose form; while the rural consumers mostly preferred/bought processed products in loose than packaged form.

Second, consumers on average purchased 19kgs maize flour and 10litres cooking oil, where, urban consumers purchased significantly more than rural consumers, however both rural and urban consumers purchased more when they were buying packaged than when they were buying processed products in loose form. In addition, urban consumers bought in larger quantities when buying at the wholesale market and lowest quantities when buying at retail outlets close to their homes (outskirt); on the other hand rural consumers bought the largest quantities when they bought from processors and like urban consumers lowest quantities when they bought processed foods at retail outlets close to their homes. Most of the processed products bought by both the urban and rural consumers at the outskirts retail outlets where bought in loose form.

Thirdly, consumers purchasing products in loose form, mostly shopped at the retail outlets close to their homes (retail at the outskirts), while those buying in packaged form did so at retail outlets at the town centre, at the processor, and wholesale shops. The purchasing habits for packaged products was however a bit different among urban and rural consumers, while urban consumers mostly bought packaged maize flour at the processor and retail outlets in town, they bought packaged cooking oil at the processor. Rural consumers on the other hand, bought both packaged maize flour and cooking oil at retail shops in the town centres.

Fourthly, storage, convenience and quantity was important for both urban and rural consumers; with greater emphasis placed on quantity among urban consumers and storage among rural consumers when buying packaged maize flour. On the other hand, when buying packaged cooking oil, safety was more important among both urban and rural consumers, followed by quantity and storage. For branded products, sensory attributes followed by safety was the driving factor for buying both branded maize flour and cooking oil among both urban and rural consumers.

Lastly, consumers preferred branded to unbranded products, and most of the branded products were bought packaged, while unbranded in loose form. Consumers preferred regional and local brands when buying maize flour but national brands when buying cooking oil. The preference for national and local brands was consistent among both urban and rural consumers. Furthermore, rural consumers placed more importance on the generic brand when buying cooking oil; while urban consumers were indifferent when choosing between the generic and high quality cooking oil brand. The probability of a consumer to purchase a high quality brand increases when a consumer has more income, when a consumer is an urbanite, and when a consumer places high value on fortification and naturalness. The probability however decreases when a consumer is price sensitive, considers constant product availability and trusting of the processor as important.

5 Recommendation

This study has well illustrated that packaging and branding affect preferences and purchase decision of processed food products both in rural and urban Tanzania. Despite of the proven importance of the role of packaging and branding in influencing purchase decision of processed food products, it is recommended that manufacturers especially SMEs to incorporate

“standard branding and packaging” attributes into their marketing strategies. If the local manufacturers improve branding and packaging by adhering to the heterogeneous habits and reasons considered by their customers, producers will not only win the market of their products but also increase their market share and the revenues at large.

Also, regulatory bodies need to increase enforcement of branding and packaging (labeling), this will ensure that the manufacturers adhere to the set standards and being trustworthy on the information they provide through labeling ultimately solving the problem of information asymmetry. However, The Regulatory Authority responsible for “Tanzania Food, Drugs and Cosmetics (Food Labelling) Regulations of 2006” has to enforce manufacturers to obey the regulations’ standards and update the regulations upon requirements. That has to go together with increasing the awareness among consumers on the importance of purchasing and using packaged and branded processed foods, especially in rural areas where majority of the consumers have been found purchasing and using loose processed food products.

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APPENDIX

Appendix 1: Garret's Ranking Table

GARRETT'S RANKING TABLE

Percentage	Score	Percentage	Score	Percentage	Score
0.09	99	20.93	66	80.61	33
0.2	98	22.32	65	81.99	32
0.32	97	23.88	64	83.31	31
0.45	96	25.48	63	84.56	30
0.61	95	27.15	62	85.75	29
0.78	94	28.86	61	86.89	28
0.97	93	30.61	60	87.96	27
1.18	92	32.42	59	88.97	26
1.42	91	34.25	58	89.94	25
1.68	90	36.15	57	90.83	24
1.96	89	38.06	56	91.67	23
2.28	88	40.01	55	92.45	22
2.63	87	41.97	54	93.19	21
3.01	86	43.97	53	93.86	20
3.43	85	45.97	52	94.49	19
3.89	84	47.98	51	95.08	18
4.38	83	50	50	95.62	17
4.92	82	52.02	49	96.11	16
5.51	81	54.03	48	96.57	15
6.14	80	56.03	47	96.99	14
6.81	79	58.03	46	97.37	13
7.55	78	59.99	45	98.72	12
8.33	77	61.94	44	98.04	11
9.17	76	63.85	43	98.32	10
10.16	75	65.75	42	98.58	9
11.03	74	67.48	41	99.82	8
12.04	73	69.39	40	99.30	7
13.11	72	71.14	39	99.22	6
14.25	71	72.85	38	99.39	5
15.44	70	74.52	37	99.55	4
18.69	69	76.12	36	99.68	3
18.01	68	77.68	35	99.80	2
19.39	67	79.12	34	99.91	1
				100	0

E.Garrett's statistics in Psychology and Education, Feffer and Simans Private Limited, 21969, p.329.