

**CONSUMER DEMAND FOR BRANDED AND PACKAGED PROCESSED FOODS:
COMPARISON OF SELECTED RURAL AND URBAN AREAS IN TANZANIA**

YUDATHADEI OLIVARY KWAY

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

This study intended to explore the demand for packaged and branded processed food products in selected urban and rural towns of Tanzania. Two urban cities (Morogoro and Dodoma) and four rural towns (Turiani, Matombo, Hombolo and Msaga) were chosen whereby the sample size of 630 respondents was randomly selected. Garrett's ranking technique, Logistic Regression Model, Multinomial Logistic Model and Kruskal Wallis Test were used to assess consumer's purchasing habits and drivers of consumer choices. Results showed that there were variations and some similarities in consumers' habits in rural and urban areas, in small and big towns on; nature of processed food bought, buying places, specific type of product preferred and the most influencing drivers for the preferred product. Furthermore, the study revealed that a majority of the consumers in urban areas were driven by "quantity" as they bought in large volumes of packaged maize flour while the rural consumers were influenced by "storage" when they bought large volumes of packaged maize flour. While "large volume" was the most important factor influencing urban consumers at the purchase of packaged edible oil, "safety" was the most important attribute for rural consumers. In addition, the study showed that consumers from both rural towns and urban cities prefer branded maize flour and branded cooking oils due to their preference for "good sensory test". Majorly, from the findings study draws two recommendations; (i) There is a need for governmental influence through its regulatory bodies to enforce selling of packaged and branded processed food as a measure of ensuring information symmetry between the manufacturer and consumer, (ii) Manufacturers of processed foods need to devise new and innovative marketing strategies on packaging and branding for further penetration to rural markets.

DECLARATION

I, **Yudathadei Olivary Kway**, do hereby declare to the Senate of the Sokoine University of Agriculture that this dissertation is my original work, done within the period of registration and that it has neither been submitted nor been concurrently submitted for a higher degree award in any other Institution.

Yudathadei Olivary Kway
(MSc. Candidate)

Date

The above declaration is confirmed by;

Dr. Roselyne Alphonse
(Supervisor)

Date

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DEDICATION

I dedicate this work to my Parents (Mr. and Mrs. Olivary Philip Kway), for their spiritual and moral support throughout my academic life.

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LIST OF ABBREVIATIONS

AMA	American Marketing Association
ANOVA	Analysis of Variance
BMW	Bavarian Motor Works
GDP	Gross Domestic Product
GNI	Gross National Income
LLIF	Limited Label Information Food
MNL	Multinomial Logistic Model
NBS	National Bureau of Statistics
PHC	Population Housing Census
SCR	Share of Category Requirement
TBS	Tanzania Bureau of Standards
TZS	Tanzania Shillings
URT	United Republic of Tanzania
USD	United States of America

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Changes in dietary patterns across Africa have been pointed by different scholars featuring more diversified and processed diets among urban and rural consumers (Tschirley *et al.*, 2015). Increase in the processed food products in the market demands consumer awareness of specific products before purchase. Lack of the product's information affects consumer's better choices at the market place leading to the issue of information asymmetry (McCullough and Best, 1980). However due to increased consumer awareness on health and nutritional concerns (Zekiri and Hasani, 2015), there is a need for the agribusiness sector to pay more attention on product information.

Branding and packaging of processed foods are the essential attributes that play a significant role in solving the problem of information asymmetry among consumers (Trijp and Steenkamp, 1998; Deliza and MacFie, 2001; Mmari *et al.*, 2015). The two attributes also play a significant role in the selection of the processed food products by being the major source of information for consumers, permitting them to make better choices at the market place (McCullough and Best, 1980; van Trijp and Steenkamp, 1998).

Branding and packaging may affect consumer perception on quality of a product, hence on their intention to purchase and choose a product (Shah *et al.*, 2013). Therefore, this study assesses the demand for branding and packaging among consumers in rural and urban towns in Tanzania, specifically the study compares rural and urban consumers buying habits (sizes/amount that they buy; packaged/loose, type of retail stores that they go to and type of brands that they buy (small Vs big brands, superior/high quality brand Vs

Generic/low quality brand). This study is important because:- 1) for a long time people in developing countries 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 increase purchase of foods, For example, The African Development Bank identified that in the region of developing East and Southern Africa, 37% of the non-vulnerable middle class purchase food, this was when the middle class rose to 35% of Africa's population up from 27 % in 1980 (Ncube *et al.*, 2011). Studies concentrating on both the urban and rural consumers have not been done in developing and poor countries like Tanzania; to the best of my knowledge studies that have been conducted include those on awareness, perception and penetration of packaged and branded products (Gwantwa, 2012; Mmari *et al.*, 2015; Reardon *et al.*, 2015). All these studies concentrated on the urban consumer's purchasing behavior of the packaged and branded processed food but did not focus on the rural consumers which compose a large segment of the population basing on the population and housing census of 2012.

1.2 Problem Statement

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 food. Packaging and branding are among the attributes that influence consumers at point of sale (Silayoi and Speece, 2007; Malik *et al.*, 2013) since they influence consumer's perceptions about product (Rundh, 2005). The study tried to assess the demand for packaged and branded processed food products and the drivers for purchasing.

Consumer's choice of packaged over loose product, branded over unbranded product is aligned with consumers awareness prior to purchase. Awareness and use of packaged food

labeling information was found to be low among consumers in Tanzania (Gwantwa, 2012). Food label is information source used to provide 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. Therefore, Loose or LLIF 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. Although product information plays a minor role in planning consumers’ daily diet (Marietta *et al.*, 1999), it is important in encouraging consumers to make healthier food choices (Hsieh, 2004).

Previous international research has mainly focused on consumers’ usage of nutritional labels (Drichoutis *et al.*, 2006; Mannell *et al.*, 2006), interpretation of nutritional labels (Shannon, 1994) and attitude towards nutrition labels (Shine *et al.*, 1997), willingness to pay for nutrition labels (Loureiro *et al.*, 2006) and to what extent label usage behavior influences the purchasing decision (Baltas, 2001). In Tanzania most of the studies on penetration of packaged and branded processed foods (Reardon *et al.*, 2003), consumer’s preferences, consumer’s awareness and the importance of packaging and branding of the processed foods have been conducted only in urban areas, (Mmari *et al.*, 2015; Gwantwa, 2012, Reardon *et al.*, 2015). Previous studies have not looked into comparison among rural and urban consumers basing on packaging and branding as attributes that resolve the problem of information asymmetry in Tanzania.

The findings from study will enable the entrepreneurs understand rural and urban consumers’ habitual variations basing on packaging and branding attributes and come up with strategic marketing tool (s) to enjoy larger market share and build long term profitable relations with consumers. Furthermore, the study will significantly join efforts

towards meeting the present Tanzania Industrialization Agenda, the African Agenda 2063 through the promotion of Economies by structurally transformation through industrialization and value addition, also the study will join efforts in contributing into Sustainable Development Goals by 2030 especially goal 9 on promoting industrialization and goal 2 on food security promotion.

1.3 Research Objectives

1.3.1 General Objective

The general objective of the present study was to assess the demand for packaged and branded processed food products in selected urban and rural towns of Tanzania.

1.3.2 Specific Objectives

To achieve the general objective, the study aimed to:

- i. Compare rural and urban consumer's purchasing habits of branded and packaged processed products.
- ii. Assess the drivers of purchasing packaged processed food among urban and rural consumers.
- iii. Assess the drivers of purchasing branded processed food among urban and rural consumers.

1.4 Research Questions

- i. Do rural and urban consumers purchase packaged and branded processed products?
- ii. What are the reasons considered by the consumers at the purchase of packaged processed food?
- iii. What are the reasons considered by the consumers at the purchase of branded processed food?

1.5 Hypotheses

- i. Socio-economic and behavioral factors have no significant influence on consumer brand choice.

CHAPTER TWO

2.0 THEORETICAL REVIEW

2.1 Operationalization of Key Terms

2.1.1 Purchasing decision

Consumer decision making may be defined as a mental orientation characterizing a consumer's approach to making choice (Lysonski *et al.*, 1996). This is the stage a consumer (buyer) passes through in making choices about which products and services to buy at that particular moment.

2.1.2 Consumer behavior

Consumer behavior is the focus on the processes a consumer uses to make purchase decisions, as well as to use and dispose of purchased goods or services; also includes factors that influence purchase decisions and the product use (Karanja and Munyoki, 2016).

2.1.3 Packaging

Package may be defined as the sum total of all the activities which relate to the wrapper or container or of a product for this particular case being the processed food products. Packaging encompassing the physical appearance of the container and includes the design, colour, shape, labeling and materials used (Rundh, 2009). According to Ares and Deliza (2010) food package is the container that holds, protects, preserves and identifies the product, and which also facilitates its handling, storage and commercialization. Packaging elements are those features of the product such as colour, graphics, size, shape, typography, photography and information that contained on the pack (Silayoi and Speece, 2004). Packaging elements are also known as package design (Rundh, 2009, Gofman *et al.*, 2010).

2.1.4 Role of packaging in influencing purchase decision

Various researchers identified diverse roles of packaging and most of them relate either to logistic or marketing functions (Prendergast and Pitt, 1996). 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).

The major purposes of food packaging were to provide a safe and convenient storage for the food, protect it from spoilage and pest's infestation and facilitate easy transportation. Product protection by package is considered in three aspects, which are biological aspects, chemical deterioration and physical deterioration (Meghji, 2013). It also plays a role in food quality and safety of the product (Pocas *et al.*, 2010). Rundh (2005) revealed that there is primary package, secondary and tertiary. Many authors relate primary package to sales packaging, or consumer packaging; secondary packaging to group packaging, or distribution packaging, and tertiary packaging to transport packaging (Vernucio *et al.*, 2010). The primary package is what the consumer comes in the eye contact with at the buying place. Therefore, marketers and producers should concentrate on the elements of packaging to catch the attention of the consumer.

It is difficult to separate other roles of food package from marketing role as the package sells the product by attracting attention and communicating, and also allows the product to be contained, apportioned, unitized, and protected. Package can be an important for the firm's marketing strategy and that an added advantage can be reached by using suitable

packaging solutions in relation to market requirements and competition (Rundh, 2005). Manufactures use food package to attract consumers' attention (Deliza and MacFie, 1996). The critical importance of packaging is therefore growing in such competitive market conditions, as package becomes a basic means for communication and brand positioning. (Rettie and Brewer, 2000; Silayoi and Speece, 2004). In marketing, packaging is not only a vital tool in the marketing mix (Burt and Davis, 1999) rather Nickels and Jolson (1976) have placed it in equal level with other elements of marketing mix by introducing packaging as a fifth P along with the four P's (price, place, product and promotion) showing the importance of packaging in marketing. (Wells *et al.*, 2007) state that packaging represents one of the most important vehicles for communicating the brand message directly to the target consumer.

In the marketing literature it is also obvious that packaging is playing an important role as a marketing tool in many market areas by protection, promotion and user convenience (Rundh, 2005). Therefore, the fact that packaging plays a big role in marketing function cannot be neglected even in circumstances where marketing aspects of packaging are not clearly understood (Silayoi and Speece, 2004).

2.1.5 Branding

“A brand is a consumer’s idea of a product”, (Ogilvy, 1951). Ogilvy acknowledges that brand is related to consumer’s identification of a product. However today, both the consumer and the producer perceive that brand encompasses variety of other definitions and roles, that a review on branding literature can find no agreed definition of a brand. This situation was highlighted by Doyle (1989) as he stated that: “if you asked ten different marketing directors for their (brand) definitions, you are likely to get ten different

answers”. Basing on that evidence, the review of branding literature revealed that most branding definitions fall roughly into four broad categories:

(i) A brand is a statement of the marketing mix

“The ingredients of a brand are the product itself, the packaging, the brand name, the promotion, the advertising and the overall presentation” (Murphy 1988). This definition shows that a brand is the accumulation of all aspects of the marketing mix: in effect, what managers do with their product. What it does not consider, however, is how consumers will interpret and assess that accumulated information. The marketing mix attributes projected by a marketer may be perceived entirely differently by different consumers. This difference in consumer perception can alter the effectiveness of a brand for various segments in the market place – despite a marketer’s best intentions.

(ii) A brand is a differentiation device

The American Marketing Association (AMA) in 1987 defined a brand as: “A name, term, sign, symbol or design, or a combination of them which is intended to identify the goods and services of one seller or group of sellers and differentiate them from those of competitors” (McCarthy and Perreault, 1987). Doyle (1990) suggests a slight difference: “A successful brand is a name, symbol, design, or some combination, which identifies the product of a particular organization as having a sustainable differential advantage”. Doyle’s (1990) definition differs from the AMA’s only by adding the impetus of ‘success’ and through its inclusion of the term ‘sustainable advantage’. A sustainable advantage is one not easily copied by competitors; for example, developing an outstanding reputation for quality or an image - come- icon like Nike, Coca - Cola or BMW. Kapferer (1994) supports Doyle’s (1990) definition, and suggests that brands gain credibility through endurance (read sustainability) and reputation (read success), which form a kind of

‘contract’ between the producer and the consumer. This ‘contract’ demonstrates a commitment by the producer to making a consistent, quality product.

It is significant to recognize that both of these definitions identify a brand as a term, name, symbol or the like. But what happens when a brand such as Nike becomes more than just a name for a pair of sneakers? Clearly, the above definitions of a brand fail to consider that a consumer may also associate Nike with status, fitness, self-image or any number of other qualities. This view is supported by De Chernatony and McWilliam (1989) who propose that the American Marketing Association definition of a brand: “fails to recognize the contribution of other marketing resources and is of limited strategic value since evidence shows (King, 1973) that a brand will fail to survive if the organization concentrated primarily on developing a symbol or a name as a differentiation device” (de Chernatony and McWilliam, 1989).

(iii) A brand is a layer of associations

Gardner and Levy (1955) highlights the differences in this area of brand definition. They state that a brand is: “more than a label employed to differentiate among manufacturers of a product. It is a complex symbol that represents a variety of ideas and attributes. It tells the consumer many things, not only by the way it sounds (and its literal meaning if it has one) but, more important, via the body of associations it has built up and acquired as a public object over a period of time. This definition recognizes a more complex relationship between consumers and their purchases. Rather than responding only to the marketing mix when they make a purchase decision, the suggestion is that a consumer’s impetus to purchase is predicated upon brand associations built up in the consumer’s mind over time.

(iv) A brand is a short cut device for consumers

Literature on consumer behavior generally agrees that consumers use only a small amount of the available information to make a purchase decision (Olshavshy and Granbois, 1979). Krugman (1975) believes this is due to consumers having a limited cognitive capacity and unwillingness to expend mental effort in what is deemed a relatively trivial decision. To overcome this limited capacity, consumers concentrate their attention on those attributes they consider important. Various literatures (Jacoby *et al.*, 1971, 1977; Kendal and Fenwick, 1979) cite brand name as the most important attribute because it acts as a surrogate for a number of other attributes or qualities. In effect, for many product categories brand name acts as a short cut for consumers when determining which product to purchase.

2.1.6 Brand categories

The first categorization of brand is in terms of geographical coverage of the consumers targeted by the manufacturer. In this categorization there is Global brand, National Brand and Local brand.

Global brand is the brand which reflects the same values around the world. The manufacturer targets consumers in different cultures across the countries in the world. For example, of the global brands are Sony, Coca Cola, KFC and McDonald's. National brand is a brand that circulates throughout the country. The product is being marketed and distributed nationally. The manufacturer owns and advertises the brand nationally. For example, a product manufactured in Dar Es Salaam Region but being advertised and distributed throughout Tanzania. Local Brand is the brand that sells their product in a small and restricted geographical area. The manufacturer targets the surrounding market in small scope as compared to national brand. For Example, branded maize flour processed at

Kilombero District in Morogoro Region and the product is distributed and purchased within Turiani.

The second categorization is in terms of price. Price has been used to distinguish low- and high-quality brands as argued by Yang *et al.* (2019). Product sold at high price is being termed by many consumers as of high-quality brand while the same product with different or same brand sold at low price is termed as low-quality brand.

The third categorization is on small brand and big brand. Big brand is defined as the one that has higher brand purchase frequency than the small competitors; big brand displays higher customer penetration than smaller brand (Ehrenberg *et al.*, 1990; Uncles *et al.*, 1994). Basing on the SCR (Share of Category Requirements) which is defined as the average number category purchases among buyers of a certain brand (Farris *et al.*, 2016), big brand has higher SCR than the small brand (Fader and Schmittlein, 1993).

2.1.7 Role of branding in influencing purchase decision

Gensch (1987) documented that customers form brand preferences to reduce the complexity of the purchase decision process. Rossiter and Percy (1987) describe brand awareness is essential for the communications process to occur as it precedes all other steps in the process and without brand awareness occurring, no other communication effects can occur. 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. Kumar *et al.* (1987) examined the factors influencing the buying decision for various food products. Country of origin and brand of the products were cross-tabulated against age, gender, and income and study revealed that the considered

factors were independent of age, education and income. The brand image seemed to be more important than the origin of the product, since the consumers were attracted by the brands.

Nielsen *et al.* (1998) conducted a study on consumers purchase motives and perceptions on vegetable oil in three countries and found that consumers in France purchase vegetable oil because of its health benefits (attribute). Mc Enally and Chernatony (1999) documented that consumers brand preferences over time mainly shift due to changes in brand identity consisting of brand awareness, purpose, differentiation, and offerings and brand image pertaining to brand credibility, brand character, consumers' overall attitude towards the brand, and consumers' feelings for the brand. Li and Houston (2001) documented that price level, product variety and marketing communications are the important factors acting as promoters of brand preference. Rundle-Thiele and Mackay (2001) noted that brand preference is important for business as a component of brand loyalty and it is also a way to enhance sales.

2.1.8 Food labeling regulations in Tanzania

The regulations are cited as the Tanzania Food, Drugs and Cosmetics (Food Labeling) Regulations, 2006. The regulations apply to all areas in which the Act applies and affect all types of food whether locally manufactured or imported in Tanzania Mainland.

The regulations require the label applied to a food to carry: the brand or trade name of that food; the common name of the food; the net contents in terms of weight; volume or number in accordance with the usual practices, in describing the food; in the case of imitated or substituted food items, explicitly written immediately adjacent and before the common name, words “imitated” or “substituted”; batch or lot number of that food; date of

manufacture and the expiry date or end of shelf life; declaration by name of the permitted food color added to the food; a declaration by name of any preservative used in the food; a declaration by name of any artificial or imitation flavoring preparation added to the food; in the case of a food consisting of more than one ingredient, a complete list of their acceptable names in the descending order of their proportions unless the quantity of each ingredient is stated in terms of percentages or proportionate composition; any statement required under the provisions of the Regulations to be declared on the label; declaration for addition or abstraction of any food constituent and the name and address of the manufacturer or manufacturer and distributor of the food.

In this study, the packaged processed food that carries all the requirements as highlighted above will be considered as “standard packaged food label”.

2.2 Empirical Literature

2.2.1 Consumer purchasing habit of packaged and branded foods

A study by Karanja and Munyoki (2016) on the factors influencing the choice of maize flour brands by consumers in Nairobi city involved a population of 80 retail customers from a supermarket in Nairobi and found that various factors such as price, perceived quality, the level of income, and the social cultural aspects influence the choice of maize flour brands in Nairobi.

Another study by Estiri *et al.* (2010) on examining the relationship between packaging and food products used as descriptive analysis and found that all packaging elements are highly important for food products buyers and these elements can highly influence their purchasing decision. In addition, results found that the informational element of food packaging in all stages of consumer decision making are considered the most important product choice criteria.

In this study a descriptive analysis will be used to compare the purchasing habits between the rural and urban consumers in Tanzania.

2.2.2 Factors influencing preference for packaged processed foods

A study conducted by Mmari *et al.* (2015) on Consumers' Perceptions on Packaging of Processed Food Products in Dodoma Municipality used the a four-point Likert scale to rate food packaging attributes and the factors influencing purchase decision. Results showed that consumers acknowledge the benefits of packaging particularly in terms of product protection (mean score 3.4), hygiene (3.3), product information (3.1) and branding (3.1). These functions are considered important along with specific characteristics of packaging materials which include durability (3.0), good shape for grip (3.0), attractiveness (2.8), easy to open and close after use (2.6) and recyclability and degradability (1.8).

Another study conducted by Texeira and Badrie (2005) investigated consumers' perception of food packaging and its impact on food choices in Trinidad, West Indies. The results found that packaging feature that influenced most of the respondents' choice of products was information on the label (41.5%); it was followed by quality and type of packaging (24.4%) and brand name/popularity (22.0%). However, most respondents (92.7%) believed that packaging material could adversely affect the quality of performance of a food product.

2.2.3 Factors influencing preference of branded processed food

A study was conducted by Jun and Ross (2018) on the examination of the consumer preference for branded maize flour in urban Uganda, Kampala being the targeted area. The study employed survey data and a binary logit model in examining how the purchase of

branded maize flour was influenced by consumer characteristics. Results showed that almost half of the respondents purchased branded maize flour whereby education and purchased quantity were positively and significantly related to the probability of purchasing branded maize flour. In addition, study showed that respondents with a college education or higher purchasing branded maize flour is 16% higher than respondents with less than a college education, holding other independent variables constant.

Solayappan and Jayakrishnan (2010) did an exploratory study using postgraduate students to find out customers' preference for branded computers in Chennai. Factor analysis and ANOVA were employed to establish the important influencing factors on the purchase of branded computers. The research studies reported that, Quality, Specification / Configuration, Reasonable price, Credit, Service, Experience person, Offers, Style, Guarantee, Warrantee and Product availability were the inducing factors for the purchase of branded computers.

Another study was conducted by Gnanamkonda, 2014 on rural consumers' perception towards branded packaged food in India. Two stage sampling was used for the survey and well-structured questionnaire was attempted by respondents. Results indicated that there was a huge potential for branded packaged food companies to tap the rural market. With about 70% of total population and increase in disposable income, rural markets were being liked on as the future avenues for business growth.

2.3 Theoretical Framework

The theoretical framework of this study is rooted in the consumer theory based on the Lancasterian approach. Traditional view on utility is derived from a good but Lancaster view bases on good per se does not give utility to the consumer, a good possesses characteristics and these characteristics give rise to utility. Lancaster generalized that, “good can possess multiple characteristics which can be shared by multiple goods and those goods in aggregate can possess characteristics different from those pertaining to the goods separately”, (Lancaster, 1966). In this study, maize flour and edible oil are the goods of interest falling in the category of processed food, can be viewed as the collection of their food quality informational attributes such as the packaging and country of origin. Following Lancaster, a consumer with preferences over each of the aforementioned attributes will choose the product that maximizes his/her utility subject to a budget constraint.

2.4 Theoretical Model

The study employs the new demand theory which asserts that goods as such, are not the immediate objects of preference or utility, but have associated characteristics which are directly relevant to consumers (Lancaster, 1966). If the consumer is required to make independent choices among various processed food products (maize flour and edible oils), the choice to be made will reflect the level of satisfaction or utility which is unobservable. This utility is derived from the attributes’ embedded in the chosen processed food products which vary across individuals depending on their socio-economic factors of the consumers and quality factors of the processed food based on their branding and packaging.

$$U_{ij} = F(Att_j, S_i) + \epsilon_i \dots\dots\dots (1)$$

Where, U_{ij} is the utility of the i^{th} individual derived from j^{th} type of maize flour or cooking oils basing on packaging and branding attributes, Att_j is the j^{th} specific attributes embedded

in, S_i represents individual specific characteristics and ε_i is the stochastic error for the i^{th} individual. However, the random utility model (equation 1) is appropriate when individuals are able to rank the choices based on perceived satisfaction derived from each type of processed food (Louviere *et al.*, 2010). If an individual is not required to rank the possible choices, the random utility model (equation 1) is replaced by the latent model specified in equation 2. The attributes component in equation 1 is left out in equation 2 because individuals are exposed to specific type of processed food at a time.

$$Y_i^* = F(S_i) + V_i \dots\dots\dots (2)$$

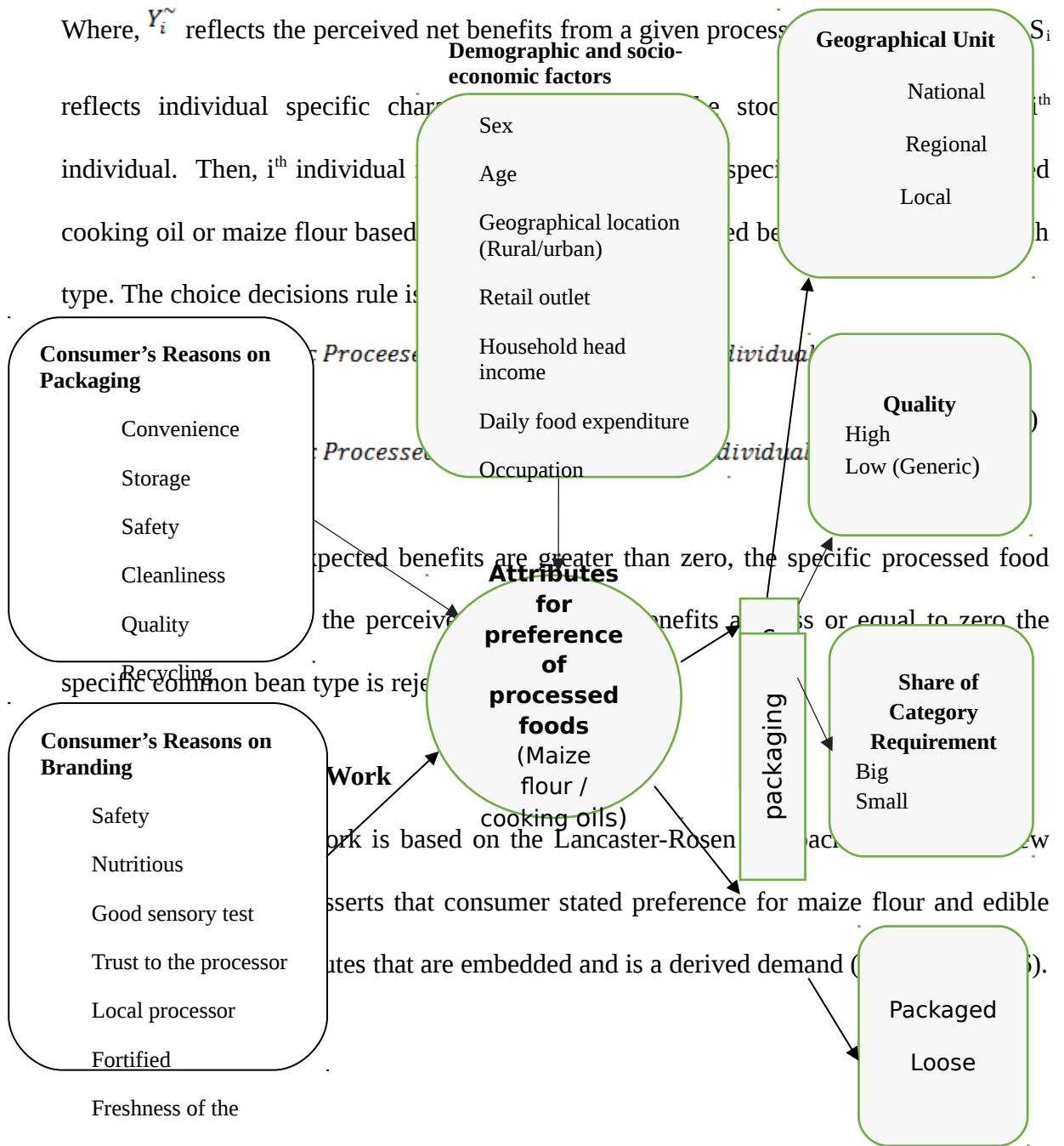


Figure 1: Conceptual framework for consumers' preference for branded and packaged processed food products

Source: Adapted and modified from Swait (1994)

A choice decision can be viewed as a decision-making process. Measurable inputs to the decision process are for example product attributes, socioeconomic characteristics or market constraints, while the direct measurable output of the process is market behavior, or rather choice behavior, e.g. product purchases. The figure represents the choice process for processed food attributes.

The consumer's perceptions of product attributes also determine preferences, since processed foods can be viewed as discrete choice goods with several varying attributes. Preferences finally lead to the outcome of interest, the observed choice behavior. There will always be a number of constraints (e.g., budget constraint) influencing choice behavior, and as such denying the full achievement of the most preferred processed food.

Basing on Lancaster-Rosen approach, a consumer has preferences for different combinations of processed food attributes; since these attributes generate utility (or disutility) hence the attributes are the sources of utility. A consumer will choose the processed food with the highest positive utility value obeying the assumption of utility maximizing behavior. Socioeconomic characteristics as well as the quality factors of the processed food products (maize flour and edible oils) influence preferences and choice behavior, they are also included even though the sources of utility are strictly linked to the attributes. Interactions between attributes and socioeconomic variables are one possibility to reveal the presence or absence of preference heterogeneity among consumers.

Generally, the presence of preferred attributes in a choice set consisting of maize flour and edible oil types with varying attributes (brand and packaging) is expected to influence the ultimate choices of that type of processed food that consumers may choose.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

To ensure representation, data was collected in small, medium and large towns. The large towns included Morogoro town which was chosen as a secondary city closer to the primary metropolis city (Dar es Salaam) and Dodoma, which was chosen as a tertiary town away from the primary mega city Dar es Salaam. The medium sized towns included Turiani which was chosen as a big rural town close to the primary metropolis city Dar es Salaam, and Hombolo which was randomly selected as a big rural town away from the primary mega city Dar es Salaam. The small towns included Matombo, which was chosen as a small rural town close to the primary metropolis city and Msanga which was chosen as a small rural town away from the primary metropolis city.

3.2 Data Collection

Data was collected in 2017 whereby a total of 630 respondents coming out of a supermarket, mini-supermarket or normal retail store were randomly selected in a disproportionate sampling. Because the majority of the food decision makers are women, more than half of the sample was women. 2/3 of the sample size were female basing on the fact that women are food decision makers in the household. In addition, the choice of the sample size is realistic and fulfills the requirements of the study for meaningful analysis.

3.3 Analytical Framework

3.3.1 Comparing the purchasing habits of processed foods among rural and urban consumers

3.3.1.1 Descriptive analysis

The first specific objective was analyzed descriptively to compare the purchasing habits (Table 1) of the processed foods for rural and urban Tanzania. Descriptive statistical tools (means, variances, percentages and frequencies) were used to summarize and present the results on the purchasing habits of processed foods among rural and urban consumers.

Table 1: Variables used for the comparison of the consumers purchasing habit

Variable
<ul style="list-style-type: none"> • Preference of packaged processed foods (packaged/loose). • Preference of branded processed foods (branded/unbranded; national brand/local (processor brand) brand; low quality brand (Generic brand)/high quality brand (superior brand)). • The amount / volume bought. • Place of buying (Retail outlets).

3.3.1.2 Packaging categorization

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.

3.3.1.3 Brand categorization

In this study brand has been categorized based on geographic indicator and in terms of quality for cooking oils. Geographically, brand is in form of national brand, regional brand, and local brand for both cooking oils and maize flour. Regional brand is the one that is produced and targets consumers in a specific region, for example a branded maize flour that is produced and consumed in the central zone of Tanzania comprising Dodoma

and Singida regions. Local brand are the ones that producers target the local market in a specific geographical area smaller than the targeted market of regional brand, for example a branded cooking oil that targets consumers in a certain District in one of the regions in Tanzania. In cases where consumers were unaware of the brands they purchased (did not notice the brand or bought loose) or bought unknown brands (ie packaged processed food but unbranded) the brand was categorized as unbranded.

Basing on the definition of big brand and small brand by Ehrenberg *et al.* (1990) and Uncles *et al.* (1994). National brand being the brand that is distributed and consumed in the whole country it qualifies to be termed as a big brand while regional and local brands fall into the category of the small brands. The later categorization of brands of cooking oil is in terms of market price as argued by Shugan (1984) and Yang *et al.* (2019) whereby consumers perceive that high-quality brand of the product is being determined by higher price while the low-quality brand being charged relatively lower price in the same market.

3.3.2 Factors influencing preference for branded and packaged processed foods

For the second and third specific objectives, the Garrett’s ranking technique was used to analyze the factors influencing the preference for a packaged processed food product (Table 2) and branded processed food product (Table 3). The consumers were asked to rank factors considered in preferring the packaged products over the loose ones, branded over the unbranded. These orders of merit were transformed into units of scores by using the following formula.

$$\% \textit{ position} = \frac{100(R_{ij} - 0.50)}{N_j} \dots\dots\dots(4)$$

Where,

R_{ij} - Rank given for the i th factor by the j th individual

N_j - Number of factors ranked by the j th 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 were added together and divided by the total number of respondents for whom scores were added. The mean scores for all the factors were arranged in descending order and the most influencing factors were identified through the ranks assigned. The prime advantage of this technique over 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 rank (Zalkuwi *et al.*, 2015).

Table 2: Factors influencing preference for packaged processed food products

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

For the third specific objective, the analysis of consumer preference for brand type (National, Regional, Local, low quality, high quality and unknown brands) was also conducted by using Garrett's ranking technique. A descriptive analysis basing on frequency distribution was also used to analyze consumer perception on different types of brands for both cooking oils and maize flour. Table 2 defines the factors that derive consumers at the purchase of packaged processed foods while table 3 defines the factors that influence consumers at the purchase of branded processed foods.

Table 3: Factors influencing preference for branded processed food products

Independent Variable	Description	Measurement
Safer	Being safer than other brands	Categorical
Nutritious	Being nutritious than other brands	Categorical
Good Sensory Test	Aroma, texture, test, color attributes	Categorical
Processor	Trusting the processor	Categorical
Local processor	The product if fresher than far produced products	Categorical
Fortified	Improved quality of food	Categorical
Out of stock	Just buying what is available	Categorical
Price	Affordable price that can be met by consumer	Categorical
Natural	No artificial chemicals used during processing /production	Categorical
Double Refined	No purities / it is clear	Categorical
Allergic	It does not cause allergies	Categorical
Cholesterol Free	Contains less of saturated fat	Categorical
Natural	No artificial chemicals used during processing /production	Categorical

3.3.2.1 Comparison of reasons for rural and urban consumers to buy packaged and branded products

Non parametric test (Kruskal Wallis Test) was used to check if there was significant difference on the reasons driving the consumers to purchase packaged / branded maize flour and packaged / branded cooking oils between urban consumers, rural consumers and consumers in general. The Kruskal Wallis Test was used since the original data used for analysis were ranked and categorical therefore could not be used to test the normality of the distribution (Chan, 2003).

3.3.2.2 Socio-economic and demographic factors that Influence consumer's choice of packaged and branded processed foods

Binary Logistic Model

Consumer's choice for purchasing packaged and branded processed foods are both dichotomous variables. 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). Logistic regression model was preferred from the multiple regression due to three reasons; firstly, as the dependent variable is dichotomous and discontinued. Secondly, 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. Thirdly, the model was preferred from a discriminant analysis since the latter 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 5 below

$$L(Y, \theta) = [\prod_{i=1}^{n_1} \theta_i][\prod_{i=n_1+1}^n (1 - \theta_i)] \dots\dots\dots (5)$$

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 (6):

$$\text{Logit } P_r(Y = 1 | X) = \beta_0 + \sum_{K=1}^K \beta_K X_K \dots\dots\dots (6)$$

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:

$$\text{Odds}(E | X_1, X_2, \dots, X_n) = \frac{P_r(E)}{1-P_r(E)} \dots\dots\dots (7)$$

Four models are formulated. Specifically, the first and second formulation concerns the influence of socio-economic and demographic variables on packaging of maize flour and packaging of cooking oil respectively. The independent variables for all the four formulated models are common whereby X_1 -geographical location, X_2 -age, X_3 -sex, X_4 -education, X_5 - income spent on food and X_6 -outlet. In the equations one and two, Y denotes

the dependent variable as 1 for significant influence of socio-economic factors on packaged maize flour in equation (8) while packaged cooking oils for equation (9) and 0 for insignificant effect.

$$\text{Logit} [\text{Pr} (Y = 1)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_{1t} \dots\dots\dots (8)$$

$$\text{Logit} [\text{Pr} (Y = 1)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_{2t} \dots\dots\dots (9)$$

However, the third and fourth logistic regression models concern the influence of socio-economic variables on branding of maize flour and branding of cooking oil respectively. Whereby Y denotes the dependent variable as 1 for significant influence of socio-economic factors on branded maize flour in equation (10) while branded cooking oils for equation (11) and 0 for insignificant effect.

$$\text{Logit} [\text{Pr} (Y = 1)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_{3t} \dots\dots\dots (10)$$

$$\text{Logit} [\text{Pr} (Y = 1)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_{4t} \dots\dots\dots (11)$$

Table 4 illustrates the independent variables (factors) that influence consumers at the purchase of the branded processed foods, the measurement and the expected signs.

Table 4: Factors influencing preference for branded processed food products and the expected signs

Independent Variable	Data Type	Measurement	Expected Sign
Geographical Location	Binary (0–1)	1 if urban, 0 if rural	+
Age	Numerical (year)	Years	-
Sex	Binary (0–1)	1 if a HH is Male, 0 otherwise	-
Education	Binary (0–1)	1 if primary education and more, 0 non-educated	+
Expenditure on food	Continuous	TShs	+
Outlet	Binary (0–1)	1 if close to home 0 far from home	+

3.3.2.3 Factors influencing preference for brand type

Multinomial Logistic Regression (MNL)

In addition to Garrett's ranking technique that was used to analyze the factors influencing the preference for branded processed product, a Multinomial Logistic Regression (MNL) model was used to test the null hypothesis that socio-economic and behavioral factors have no significant influence on consumer brand choice (National Brand, Regional Brand or Local). Multinomial Logistic Regression (MNL) was used to test the null hypothesis that there is no significant relationship between demographic, socio-economic and behavioral factors of the consumers and choice of types of processed foods' brands (National Brand, Local Brand and Regional Brand).

Table 5 illustrates the independent variables (factors) that influence consumers at the purchase of the branded processed foods, the measurement and the expected signs.

Table 5: Factors influencing preference for branded processed food products and the expected signs

Independent Variable	Measurement	Expected Sign for MNL
Sex	1 if a HH is Male, 0 otherwise	-
Age	Years	-
Education	1 if primary education and more, 0 non-educated	+
Location	1 if urban, 0 if rural	+
HH_Number	Count	+
Monthly Income	Tshs	+
Food Expnd. _Daily	TShs	+
Safer	1 if the factor is highly ranked by consumer 0 if otherwise	+
Nutritious	1 if the factor is highly ranked by consumer 0 if otherwise	+
Good Sensory Test	1 if the factor is highly ranked by consumer 0 if otherwise	+
Processor	1 if the factor is highly ranked by consumer 0 if otherwise	+
Local processor	1 if the factor is highly ranked by consumer 0 if otherwise	+
Fortified	1 if the factor is highly ranked by consumer 0 if otherwise	+
Out of stock	1 if the factor is highly ranked by consumer, 0 if otherwise	+
Price	1 if the factor is highly ranked by consumer, 0 otherwise	+
Natural	1 if the factor is highly ranked by consumer, 0 otherwise	+
Double Refined	1 if the factor is highly ranked by consumer, 0 otherwise	+
Allergic	1 if the factor is highly ranked by consumer, 0 otherwise	+
Cholesterol Free	1 if the factor is highly ranked by consumer, 0 otherwise	+
Natural	1 if the factor is highly ranked by consumer, 0 Otherwise	+

Choices of alternative brand types of maize flour and brand types of cooking oils available to consumers are naturally unordered. In such a condition, unordered choice models such as the multinomial logistic and probit models can be used (Hu and Palta, 2006). The power of multinomial logistic model has been identified by Fentie and Rao (2016), stating that the multinomial probit model is less restrictive than multinomial logistic model however; a multinomial probit model has many computational expenses. The present study adopted the MNL to analyze factors for the choice of brand types of maize flour and cooking oils. 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 12;

$$P_{ij} = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + e \dots\dots\dots (12)$$

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 13

$$Prob(Y_i = j) = \frac{e^{z_j}}{\sum_{k=0}^j e^{z_k}} \dots\dots\dots (13)$$

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 14.

$$\ln \frac{P_{ij}}{P_{ik}} = \alpha + \beta_1 X_1 + \dots + \beta_k X_k + e_k \dots\dots\dots (14)$$

Where, P_{ij} and P_{ik} are probabilities that a consumer will choose a given brand type and alternative technique respectively. $\ln \left(\frac{P_{ij}}{P_{ik}} \right)$ 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 logistic model is as given in equation 15 below

$$P_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i \dots \dots \dots (15)$$

The choice of brand types of maize flour is then given as shown in equation 16 and the choice of brand types of Cooking oils is then given as shown in equation 17 (All the independent variables are defined in table 5);

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

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

Whereby:

ϵ_i is the disturbance terms and β_i are the parameter estimates.

P_{ij} represent the probability of choice of any given brand type of processed food by consumers

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Respondents' Characteristics

Out of the 630 sampled consumers, 266 were from in rural towns and 364 from urban towns. About a half of the respondents were the household heads both in rural and urban areas.

Table 6: Consumer's socio-economic characteristics

Variable	Categories	General		Urban		Rural	
		n	%	n	%	n	%
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
Household Size	1 to 3	192	30.47	117	32.14	75	28.2
	4 to 8	412	65.4	228	62.63	184	69.17
	8+	26	4.13	19	5.22	7	2.63
Education	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
	High Education	75	11.9	69	18.96	6	2.26
Income (Per Month)	Less than 200 000	144	22.87	55	15.09	89	33.47
	200 000+	486	77.19	309	84.75	177	66.63

i) Marital Status

The highest proportion of the respondents were the household heads in total and in both clusters (Rural and urban) followed by spouse, relative and children being the last (Table 6). In total, household heads composed of 53.65%, in urban areas the household heads were 198 (54.4%) and in rural centers they were 140 (52.63%). The spouse composed of 45.4% for the total respondents of which in urban centers they were 163 (44.78%) and for the rural centers they were 123 (46.24%). Relatives and children were the minorities of which relatives were 5 (0.79%) in total 2 of them in the urban centers and 3 of them in the rural centers while only 1(0.16%) from urban area was a respondent in this study. The

married population found in the study falls close to the results of population and housing census (PHC) of 2012 on marital status of Tanzania whereby 51% of the population found to be married (URT, 2013).

ii) Age

Table 4 gives the summary of different age groups. Majority of the respondents ranged 15 years to 64 years which is the working age, in total they were 621 (98.58%) out of them, youths aged from 15 years to 35 years comprised of 309 (49.05%) respondents. The minority group was the elderly, aged 60+ years who were 23(3.67%) in total. In urban centers the working age was 99.13% whereby the youths were 185(50.8%) and elderly age was 10 (2.74%). In rural areas the working age proportion was 260 (97.76%) followed by youths 124(46.62%) and elderly age was 13 (4.91%). The age groups were categorized based on the age group distribution of Tanzania PHC of 2012, (URT, 2013). Basing on PHC of 2012, the working age group in this study is found to be significantly higher than the working age population of Tanzania in 2012 which was 52% of the entire population.

iii) Household Size

Table 5 also summarizes the household sizes in rural centers, urban centers and in total. In total, most of the households had 4 to 8 members which was 412 (65.4%) whereby 1 to 3 members followed as they were 192 (30.47%) and more than 8 they were 26 (4.13%). In urban areas, 4-8 members of the household were 228 (62.63%) followed by households with 1-3 members who were 117 (32.14%) and lastly in the cluster were the households who were more than 8 and they were 19 (5.22%). In rural centers where study has been conducted, the majority of the households were those who had 4 to 8 members and they were 184 (69.17%) followed by those with 1 to 3 members 75 (28.2%) and the lastly was the households with more than 8 members who were 7 (2.63%). On average, majority of

the households had members 4 to 8, composing more than 50% of the households hence not varying but in line with the 2012 population and housing census, showing representation which estimated the average size of the households in Tanzania to be 4.8 (URT, 2013).

iv) Education

From randomly selected sample of the respondents it was revealed that majority of them had primary and non-formal education who were 372 (59.05%) in total, followed by those with secondary and high school education 137 (21.75%), high education 75 (11.9%) and the minority in total were those with Certificate education 47 (7.46%). In urban centers, majority of the respondents had primary and non-formal levels of education 168 (46.15%), followed by secondary and high school levels 92 (25.27%), high education 69 (18.96%) and lastly certificate education who comprised of 36 (9.89%). Whereas in rural centers, the respondents with primary and non-formal education were 204 (76.69%), followed by secondary and high school levels 45 (16.92%), Certificate 11 (4.14%) and the minority in the cluster of rural centers were those with high education who were 6 (2.26%).

Having the larger proportion of the primary and non-formal education in rural centers 204 (76.69%) than urban centers 168 (46.15%) also having the larger proportion of the high education among urban respondents 69 (18.96%) than among rural respondents 6 (2.26%) implies that literacy rate is higher in urban areas than in rural areas. This finding is in line with the Basic Demographic and Socio-Economic Profile of Tanzania whereby it was estimated that, “Literacy rate was higher among the urban population (89 %) than the rural population (64 %)", (URT, 2014). Hence, is a representative sample of Tanzania.

v) Income

Table 4 summarizes the income (Per Month in TZS) earned by the respondents randomly selected from rural and urban centers. It was revealed that in total, majority of the respondents 486 (77.19%) were earning more than 200 000 TZS per month and 144 (22.87%) of the total number of the respondents were earning less than 200 000 TZS. In urban centers, 309 (84.75%) were earning more than 200 000 TZS while respondents 55 (15.09%) from the same cluster were earning less than 200 000 TZS. However, for respondents from rural areas also, majority 177 (66.33%) were earning more than 200 000 TZS while the rest 89 (33.47%) were earning less than 200 000 TZS. Based on the Annual Gross National Income (GNI), it is estimated that majority of the respondents in both clusters (rural and urban) were earning above USD 1025 annually implying that they had improved welfare (WB, 2016). The monthly earning found among the consumers of processed foods were similar to the general status of the Tanzania whereby it was estimated that per capital GDP in 2017 was 2,458.5 thousand (URT, 2018).

4.2 Consumer's Purchasing Habits of Processed Foods

The first specific objective addressed the comparison of consumers' habits in rural and urban areas. Packaging attribute was categorized into packaged and loose also branding was categorized into branded and unbranded.

4.2.1 Purchasing habits of packaged processed foods

Consumers in urban and rural areas purchased either packaged or loose processed foods (maize flour or cooking oils). Table 7 summarizes the results. In urban cities, the study found that majority of the consumers purchased packaged maize flour 55.21% and packaged cooking oils 59.1% as compared to rural consumers, the reverse results were found in rural areas of which 146 (70.87%) and 198(75.86%) of loose maize flour and cooking oils were respectively purchased and consumed. The implication behind is that problem of information asymmetry on processed foods purchased and consumed is more

intensive among rural consumers than among urban consumers. Non-Parametric test (Kruskal Wallis Test) was used to analyze the categorical data; consumers from the three groups had significant statistical differences in all the categories on the maize flour and cooking oils bought ($p < 0.01$).

Table 7: Status of packaged and loose maize flour and cooking oil

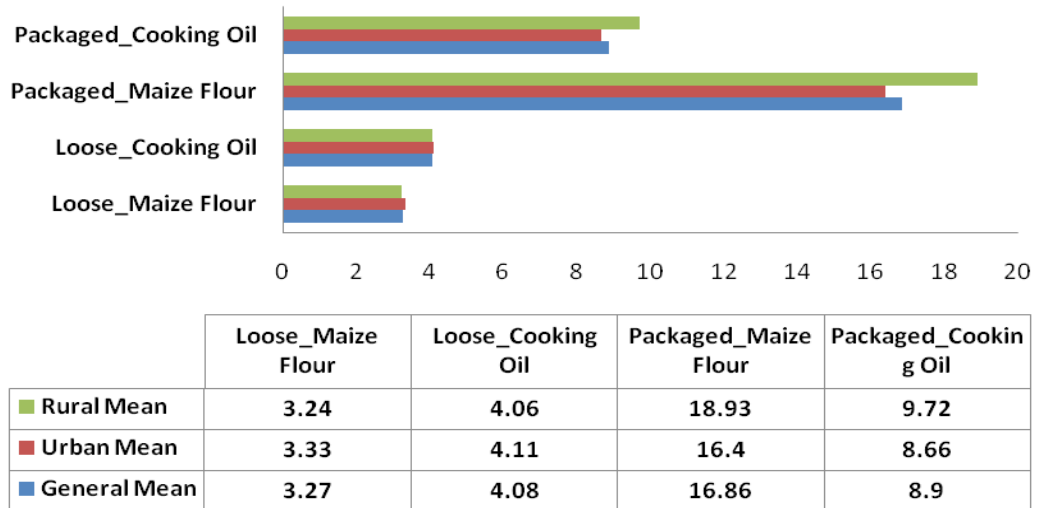
Category	General	Urban	Rural	Asymp. Sig.
	n (%)	n (%)	n (%)	
	Yes	Yes	Yes	
Loose Maize Flour	288(55.0)	142(44.79)	146(70.87)	.002***
Packaged Maize Flour	235(44.93)	175(55.21)	60(29.13)	.002***
Loose Cooking Oil	344(55.66)	146(40.9)	198(75.86)	.000***
Packaged Cooking Oil	274(44.34)	211(59.1)	63(24.14)	.000***

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

4.2.2 Average amount of purchased processed foods: packaged versus loose

The average amount of cooking oils in Liters and maize flour in Kg are summarized in Fig. 2. The amount of loose maize flour was generally bought in 3.27 whereas the urban consumers and rural consumers bought at approximately the same average amount of 3. Loose cooking oils were bought approximately at equal average amount of 4 by the consumers in rural and urban areas. The findings from this study was against the findings from the cooking oils market in India whereby the average of 3.484 litres was bought from supermarkets and 3.871 litres from other market places (Narayana *et al.*, 2014) .The average amount was revealed to be higher for the packaged processed foods than the loose one implying that quantity bought is among the driving factors for the purchase of the packaged processed food. Rural and urban consumers bought packaged maize flour at the average levels of 18.93 and 16.4 respectively. Ugandan customers of packaged maize flour of which majority were women and educated preferred to buy an average of 13.5 kgs of packaged maize flour (Jun and Ross, 2018). The packaged cooking oils were also bought

by urban consumers at the average amount of 8.66 in contrast the rural consumers bought the packaged cooking oils at the average of 9.7.



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

Figure 2: Purchasing habits among rural and urban consumers: Packaged Vs Loose

4.2.3 Purchasing habits of branded processed foods

Fig. 3 illustrates that more than three quarter of the consumers from both urban cities (77.78%) and rural towns (76.47%) consume branded maize flour while the counterparts who were the minority consumed the unbranded maize flour. Maize flour was produced in the country where by producers focused on the national, regional or local market. However, (Fig. 4) the study also found that larger portion of consumers from both urban cities (82.99%) and rural towns (73.86%) purchased branded cooking oils than unbranded. Hence from the findings, rural consumers purchased unbranded maize flour and unbranded cooking oils more than urban consumers. Similar results were found among Indian consumers of branded packaged foods although the study shows in addition that an increase in disposable income, rural markets were being liked on as the future avenues for business growth (Gnanamkonda, 2014).

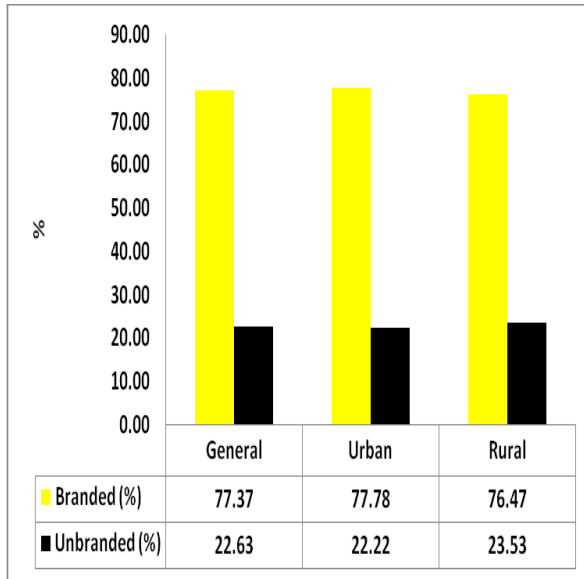


Figure 3: Branding of maize flour

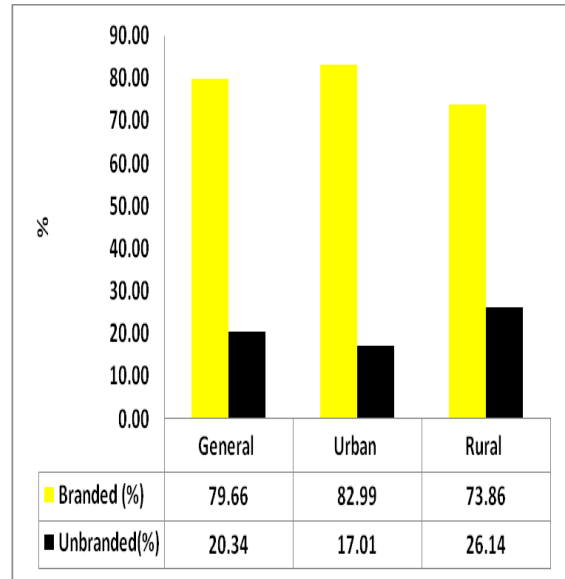


Figure 4: Branding of cooking oil

4.2.3.1 Brand types and geographical location of consumers

Furthermore, the study also analyzed the brand types of the maize flour (Figure 5) and cooking oils (Figure 6) purchased and consumed in general, in urban cities and in rural towns. It was found that majority of consumers in general (91.4%), urban (92.12%) and in rural (90.29%) of branded maize flour preferred local brands to national brands. For the case of cooking oils, larger portion of consumers from urban (55.27%) consumed national brands of cooking oils while consumers in rural towns (56.32%) mostly consumed local brands. Nevertheless, it was also found that low quality in terms of price was bought by majority of the consumers both in urban cities (50.64%) and rural towns (76.86%) whereas higher proportion of consumers who bought low quality cooking oils were in rural towns.

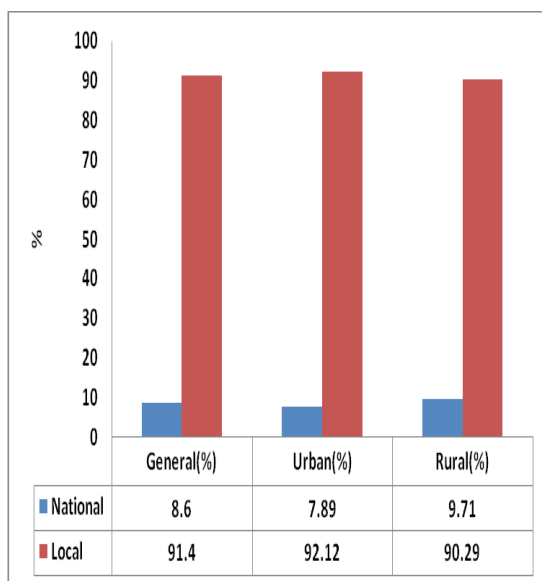


Figure 5: Brand types of maize flour

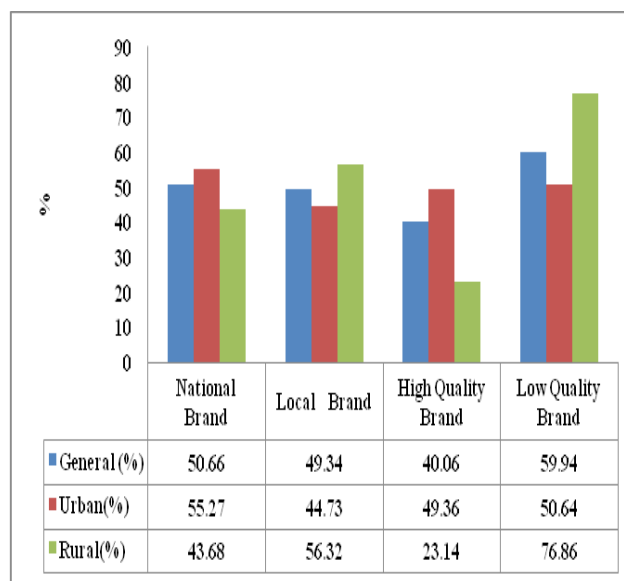


Figure 6: Brand types of cooking oils

Note:

- National brand is the one that is produced for and consumed in the whole country.
- Local brand in the figure 4 included Local brand, regional brand and unknown brands produced in Tanzania
- Both geographical and quality categories were treated independently in percentage wise

4.2.3.2 Brand categories versus outlets

Crosstabulation was conducted in assessing the relationship between brand categories of maize flour (branded/unbranded and big brand/small brand) and outlets, the comparison of rural and urban consumers were determined. Figure 7 illustrates the relationship between the categorization of maize flour brands and outlets used by consumers to purchase maize flour. Generally, it was found that branded maize flour was mostly bought at the processor (25.5%) than other outlets while minority of the consumers (3.3%) bought at the supermarkets. For the case of unbranded maize flour retail outskirts was mostly (51.6%) used over other outlets whereas none of the consumers purchased unbranded maize flour at the supermarket. Big brands of maize flour were mostly bought at the wholesalers (26.7%) whereas retail outskirts were mostly (42.6%) used in purchasing small brands of maize flour. Further analysis was on comparing brand categorization of maize flour and

outlets in rural and urban places. For urban consumers, branded maize flour was mostly (32%) bought at the processors while the rural consumers majorly used to buy branded maize flour at the retail outskirts at 45.2%. For unbranded maize flour, both urban consumers (43.8%) and rural consumers (66.2%) highly used retail outskirts to purchase the unbranded maize flour although the rate was higher at rural than urban areas. Moreover, big brands of maize flour were mostly bought at retail towns (25.9%) among urban consumers whereas the situation was different for rural consumers who mostly bought at the wholesalers at 33.3%. Retail outskirts were mostly used by both urban (32.2%) and rural (58.6%) consumers to purchase small branded maize flour. The results are in contrast with the findings from Kenya whereby the government promotes the use of supermarkets especially as a solution to urban food insecurity nevertheless promotion of super-marketization in Kenya is still facing limitation of poor people who rely on informal market (Bergera and Helvoirt, 2018), similar finding from our study in Tanzania environment.

For the case of cooking oils (Figure 8), brand categorization was in three folds branded/unbranded, big brands/small brands and high-quality brand/generic brand. Generally, majority of the consumers who purchased branded cooking oils used to buy at the outskirts (46%) similar situation with urban consumers at the rate of 34.7%. Situation was different rural consumers who mostly purchased branded cooking oils at retail towns (42.6%). Unbranded cooking oils were uniformly bought by majority of the consumers at the processors in general (61.8%) as well as in urban (47.5%) and rural areas (69.4%), higher rate being found to be at the rural areas. Indian consumers in Chennai were found to have the same preference whereby small percentage of consumers of cooking oils who purchased at retails preferred unbranded cooking oils (Rajaveni and Ramasamy, 2011).

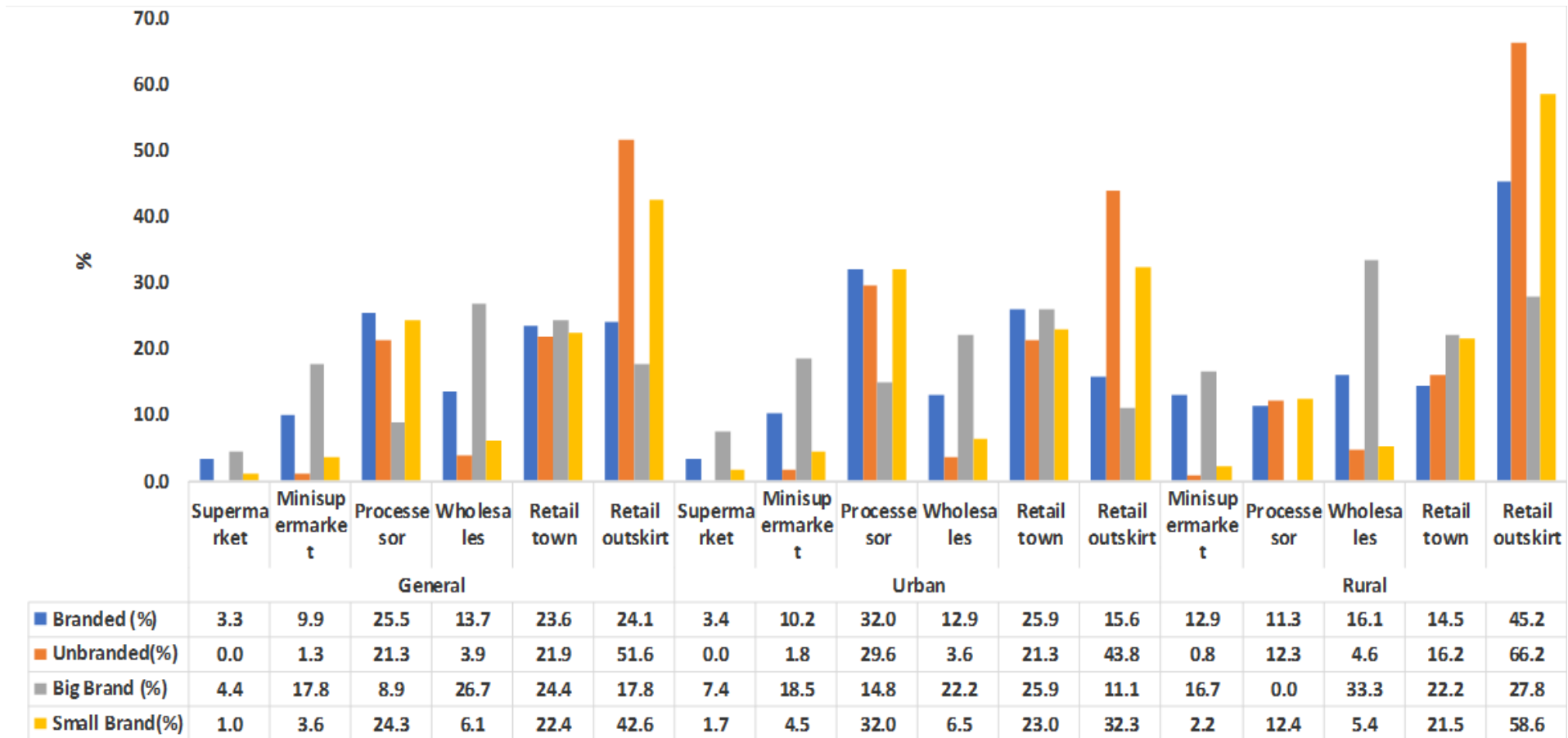
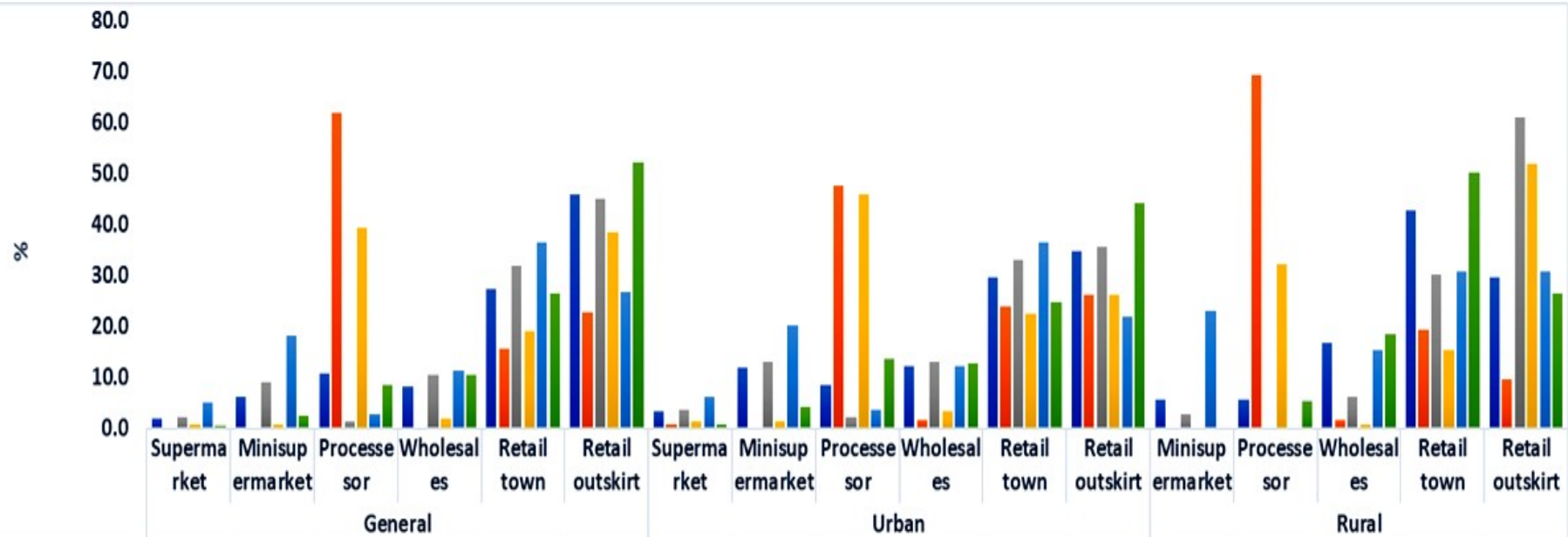


Figure 7: Relationship of Brand categorization of maize flour and outlets

However, retail outskirts appeared to be used by majority of consumers who bought big brands of cooking oils at general level (45%) as well as among urban (35.6%) and rural consumers (61.1%). With small brands of cooking oils, rural consumers mostly bought at the retail outskirts (51.8%) while the urban consumers mostly bought small branded cooking oils from the processors. The high-quality brand of cooking oils in relation to outlets was furtherly analyzed and it was found that generally (36.4%) as well as among urban consumers (36.5%), retail towns was highly used by consumers. Results found were in contrast to the findings from urban areas in Kenya (Bergera and Helvoirt, 2018), Zambia and South Africa (Ziba and Phiri, 2017) whereby supermarkets are majorly used especially by high income earners in purchasing food products including high quality branded cooking oils. Rural consumers of high-quality branded cooking oils found to be equally using retail town (30.8%) and retail outskirts (30.8%) for the purchase. Lastly, generic brands of cooking oils were generally bought at the retail outskirts in higher rate (52.1%) similar finding found among urban consumers. However, retail town found to be mostly used by rural consumers (50%) to purchase generic branded cooking oils. Generally, the findings obtained are similar to most of African countries whereby processed foods are bought not only from the supermarkets but also from modern and traditional retailers (Lu and Readon, 2018; Zhong *et al.*, 2018; Vetter *et al.*, 2019).



	General						Urban						Rural					
	Supermarket	Minisupermarket	Processor	Wholesaler	Retail town	Retail outskirts	Supermarket	Minisupermarket	Processor	Wholesaler	Retail town	Retail outskirts	Minisupermarket	Processor	Wholesaler	Retail town	Retail outskirts	
■ Branded(%)	1.8	6.1	10.7	8.1	27.4	46.0	3.3	11.7	8.4	12.1	29.7	34.7	5.6	5.6	16.7	42.6	29.6	
■ Unbranded(%)	0.0	0.0	61.8	0.0	15.5	22.7	0.8	0.0	47.5	1.7	23.7	26.3	0.0	69.4	1.6	19.4	9.7	
■ Big Brand(%)	2.3	9.1	1.3	10.4	31.9	45.0	3.6	12.9	2.1	12.9	33.0	35.6	2.7	0.0	6.2	30.1	61.1	
■ Small Brand(%)	0.7	0.7	39.3	2.0	19.0	38.3	1.3	1.3	45.9	3.2	22.3	26.1	0.0	32.2	0.7	15.4	51.7	
■ High Quality Brand (%)	4.9	18.2	2.8	11.2	36.4	26.6	6.1	20.0	3.5	12.2	36.5	21.7	23.1	0.0	15.4	30.8	30.8	
■ Generic Brand(%)	0.5	2.3	8.5	10.3	26.3	52.1	0.8	4.2	13.6	12.7	24.6	44.1	0.0	5.3	18.4	50.0	26.3	

Figure 8: Relationship of Brand categorization of cooking oils and outlets

4.2.4 Consumer purchasing habit for packaged foods from different outlets

The results from Table 8 and Table 9 respectively indicate the various places where consumers bought packaged and loose processed foods (maize flour and cooking oils) also the respective package sizes bought by majority. The buying places have been categorized into supermarkets, mini-supermarkets, processor, wholesale shops, retails in town (Core places) and retails outskirts.

Table 8: Buying places of urban and rural consumers of maize flour

Buying Places	Urban		Rural			
	Packaged n(%)	Loose n(%)	Package Size (Kg)	Packaged n(%)	Loose n(%)	Package Size (Kg)
Mini-supermarket	10(13.16)	0(0)	5	7 (12.07)	0(0)	5
Processor	31(21.99)	17(22.37)	25	6(10.34)	17(11.64)	10
Wholesalers	0(0)	22(28.95)	25	15(25.86)	1(0.68)	5
Retail Town	32(22.7)	15(19.74)	25	17(29.31)	27(18.49)	5
Retail outskirts	77(54.61)	12(15.79)	5	13(22.41)	101(69.18)	5

Note:

*Average Amount and package size are in Kg

*Packaged and loose are in frequencies

*Retail Outskirt: Are the buying places close to residential area

Majority of the consumers in urban areas bought the packaged maize flour from the outskirts 77(54.61%) while situation looked different for the loose maize flour which was mostly bought at the wholesalers 22(28.95%). At the retail outskirts where the largest portion of the consumers bought packaged maize flour, 5Kg package size was bought by the majority. In rural towns, packaged maize flour was mostly bought at the retails in town 17(29.31%) whereas the loose maize flour was mostly bought at the outskirts 101(69.18%), 5Kg package being the most preferred package size. The driven implication is that, given that producers aim at positively increase the revenue by increasing sales; they (producers) have to abide to the majority of the consumers' interested attributes in order to meet their preferences by packaging in 5 Kgs. However, loose maize flour was bought from whole

sellers and distributors (22) by majority of the consumers in urban cities while in rural towns loose maize flour was mostly bought from outskirts (101).

Table 9: Buying places of urban and rural consumers of cooking oils

Places	Urban			Rural		
	Packaged n(%)	Loose n(%)	Package Size (Liter)	Packaged n(%)	Loose n(%)	Package Size (Liter)
Supermarkets	5(2.86)	0 (0)	5	0 (0)	0(0)	0
Mini-supermarket	17(9.71)	0(0)	5	3(4.84)	0(0)	5
Processor	66(37.71)	31(21.99)	5	10(16.13)	36(18.18)	5
Wholesale shops	26(14.86)	0(0)	5	10(16.13)	1(0.51)	20
Retail Town	41(23.43)	32(22.7)	5	22(35.48)	34(17.17)	5
Retail Outskirt	20(11.43)	77(54.61)	5	17(27.42)	127(64.14)	5

In the urban areas, cooking oil is bought either in package or loose. Packaged cooking oil was mostly bought at the processors 66 (37.71%) whereas the loose cooking oils were mostly bought at the outskirt 77 (54.61%). Consumers bought in package size of 5 liters at all the buying places of the cooking oils. In Rural towns, packaged cooking oil was mostly bought at the retails in town 22(35.48%) while larger portion of the consumers bought loose cooking oil at the outskirt 127 (64.14%). Similar attitude of rural consumers of loose cooking oils in Tanzania was revealed among consumers of edible oils in India whereby edible oils were mostly bought at the retail outskirts (Ali and Begum, 2019). Majority of the consumers preferred to buy packaged cooking oils in 5 Kg. The study has similar findings as the ones obtained in Maharashtra State, India of which majority of consumers of edible oils preferred 1litre and 5 liters package size (Sarwade, 2011).

4.2.5 Association between brand type and packaging status

Table 10 summarizes the relationship between branding status and packaging of maize flour. Branding was categorized into branded maize flour, unbranded maize flour and the unknown maize brands. Unknown brands of maize flour were consumed by majority of the consumers in general (76%), in urban (74.7%) and in rural (77%) of which they were

all purchased in loose form from various outlets. However, branded maize flour was mostly purchased in packaged form both in urban (64%) and rural (61.67%) areas, the opposite results were found among urban and rural consumers as they preferred unbranded maize flour in loose form than in packaged form. Moreover, in Table 11 branding status was narrowed down to branded and unbranded in relation to packaging of maize flour. Branded maize flour was still mostly preferred in packaged form among urban (85.5%) and rural (94.87%) consumers. The reverse results were found among consumers of unbranded maize flour who mostly purchased in loose form; General (59.42%), Urban (63.89%) and rural (54.55%).

Table 10: Branding Status in relation to packaging of maize flour

Brand Status	General		Urban		Rural	
	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)
Branded	28(9.72)	149(63.4)	13(9.15)	112(64)	15(10.27)	37(61.67)
Unbranded	41(14.24)	21(8.94)	23(16.2)	19(10.86)	18(12.33)	2(3.33)
Unknown brand	219(76.04)	65(27.66)	106(74.65)	44(25.14)	113(77.4)	21(35)

Table 11: Branding Status in relation to packaging of maize flour

Brand Status	General		Urban		Rural	
	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)
Branded	28(40.58)	149(87.65)	13(36.11)	112(85.5)	15(45.45)	37(94.87)
Unbranded	41(59.42)	21(12.35)	23(63.89)	19(14.5)	18(54.55)	2(5.12)

Further analysis was conducted as brands of maize flour were categorized basing on SCR (Share of Category Requirements), Table 12 results showed that processor brands were consumed more than the big brands both in loose form (General (97.57%), urban (83.83%) and rural (97.26%)) and in packaged form (General (83.83%), urban (87.43%) and rural (73.33%).

Table 12: Branding categorization (Based on SCR) In relation to packaging of maize flour

Brand Types	General		Urban		Rural	
	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)
Big brands	7(2.43)	38(16.17)	3(2.11)	22(12.57)	4(2.74)	16(26.67)
Processor brands	281(97.57)	197(83.83)	139(97.89)	153(87.43)	142(97.26)	44(73.33)

Branding of cooking oils was also categorized into branded, unbranded and unknown brands as illustrated in Table 13. It was found that more than 75% of the consumers preferred branded cooking oils in packaged form in general, in urban and in rural areas. Opposite findings were found among consumers of unbranded and unknown brands of cooking oils whereby cooking oils in loose form was mostly consumed than the packaged. Furthermore, the branding category of unknown brand was ignored and branding attribute was narrowed to branded and unbranded cooking oils (Table 14).

Results showed that branded cooking oils was mostly consumed than the unbranded. Rural and urban consumers were found to purchase more of branded-packaged cooking oils than the branded-loose cooking oils. However, urban consumers more of branded-packaged cooking oils (86.56%) than the rural consumers (84.21%). In addition, unbranded cooking oils were mostly preferred in loose form in general, urban and rural areas although the rural consumers purchased more of unbranded-loose cooking oils (32.74%) than the urban consumers (25%).

Table 13: Branding status in relation to packaging of cooking oils

Branding Status	General		Urban		Rural	
	Loose n(%)	Packaged n(%)	Loose n(%)	Packaged n(%)	Loose n(%)	Packaged n(%)
Branded	148(43.02)	209(76.28)	72(49.32)	161(76.30)	76(38.38)	48(76.19)
Unbranded	61(17.73)	34(12.41)	24(16.44)	25(11.85)	37(18.69)	9(14.29)
Unknown Brand	135(39.24)	31(11.31)	50(34.25)	25(11.85)	85(42.93)	6(9.52)

Table 14: Branding status in relation to packaging of cooking oils

Branding Status	General		Urban		Rural	
	Loose n(%)	Packaged n(%)	Loose n(%)	Packaged n(%)	Loose n(%)	Packaged n(%)

Branded	148(70.81)	209(86.01)	72(75.00)	161(86.56)	76(67.26)	48(84.21)
Unbranded	61(29.19)	34(13.99)	24(25.00)	25(13.44)	37(32.74)	9(15.79)

Brands of cooking oils in categorization basing on brand penetration were analyzed in Table 15 in relation to packaging. In general (63.14%) and urban areas (48.08), big brands were found to be mostly preferred to big brands in loose form, with exception of rural consumers who were found to prefer big brands in packaged form (55.71%) than in loose. Furthermore, processor brands were found to be preferred in packaged form both in general (60.76%) and in urban areas (66.09%) whereas opposite finding was found among rural consumers who mostly preferred processor brand of cooking oils in loose form (66.22) than the packaged form.

Table 15: Packaging status in relation to brand categorization (based on brand penetration) of cooking oils

Type of Brand	General		Urban		Rural	
	Packaged n(%)	Loose n(%)	Packaged n(%)	Loose n(%)	Packaged n(%)	Loose n(%)
Big brands	135(39.24)	173(63.14)	39(33.91)	75(48.08)	39(55.71)	75(33.78)
Processor Brand	209(60.76)	101(36.86)	76(66.09)	81(51.92)	31(44.29)	147(66.22)

Brand categorization was further analyzed into superior and generic brands in relation to packaging status of cooking oils (Table 16). Superior brands were purchased by majority of consumers packaged cooking oils in general (90.21%), in urban (91.3%) and in rural (75.7%). Moreover, Generic brands were uniformly preferred in loose form by majority of consumers both in urban (51.5) and rural areas (75.7%). Findings showed rural consumers prefer generic-loose cooking oils more than urban consumers. Similar results were found by Singh and Sutradhar (2012), showing that low quality cooking oils mostly being sold in loose form whereas superior brands are mostly in packaged and are produced in small quantity compared to generic.

Table 16: Packaging status in relation to brand categorization (Quality-based) of cooking oils

Type of Brand	General		Urban		Rural	
	Packaged n (%)	Loose n (%)	Packaged n (%)	Loose n (%)	Packaged n (%)	Loose n (%)
High Quality (Superior)	129(90.21)	14(9.79)	105(91.30)	10(8.7)	21(95.45)	1(4.55)
Low Quality (Generic)	114(36.89)	195(63.11)	81(48.50)	86(51.5)	36(24.32)	112(75.68)

4.3 Factors Influencing the Purchase of Packaged Processed Food

The second objective was addressed at this juncture whereby the factors were categorized into social economic and demographic factors which were analyzed using logistic regression model and the other factors were analyzed by using Garretts ranking technique.

4.3.1 Social Economic and Demographic Factors

Packaging attribute as a dependent variable which derives consumer to choose either packaged or loose processed foods (maize flour/ cooking oil) at the point of purchase was assessed based on the consumer's social economic and demographic factors as independent variables (Table 19). Out of six social economic and demographic factors considered in the logistic regression model, four factors for maize flour and three factors for cooking oils have significant association with odds of packaging. Outlet is negatively associated with the odds of packaging, i.e., buying at the outskirts is 0.113 (P-Value < 0.01) and 0.211 (P-Value < 0.01) times less likely for a consumer to purchase packaged maize flour and packaged cooking oil respectively. Therefore, we can say that the probability of consumer choosing to purchase packaged maize flour and packaged cooking oils decreases significantly considering the nearby place the consumer buys. For the case of positive association between the socio-economic factors and odds of packaging, three factors for maize flour and two factors for cooking oils have positive association. Starting with Maize

flour; the coefficient of geographical location is 0.658, which implies that the relative risk of this variable is $e^{\beta_1} = 1.930$ and the corresponding percentage change is $e^{\beta_1} - 1 = 0.93$. This means that in relation to consumer's choice of processed maize flour when the consumer is from urban area, the odds of person's ability to increase selection of packaged maize flour increases by almost 93% ceteris peribus. The coefficients of sex (0.459) and education (0.489) imply that the relative risk of these variables $e^{\beta_3} = 1.582$ and $e^{\beta_4} = 1.630$ with the corresponding percentage changes of $e^{\beta_3} - 1 = 0.582$ and $e^{\beta_4} - 1 = 0.630$ respectively. This means that in relation to consumer's choice of processed maize flour, the odds of person's ability to increase selection of packaged maize flour increases by 58.2% for a male consumer and 63% for an educated consumer, ceteris peribus.

The educated Ugandan consumers mostly preferred packaged maize flour to loose maize flour (Jun and Ross, 2018). In case we run the model on the consumer's selection at the purchase of cooking oils (packaged/loose) against the social economic variables considered, then the positive coefficients are found to be at geographical location of the consumer (1.088) and education of the consumer (0.98). Implying that, the relative risks for particular variables are $e^{\beta_1} = 1.930$ and $e^{\beta_4} = 2.665$ respectively with their corresponding percentage changes of $e^{\beta_1} - 1 = 1.968$ and $e^{\beta_4} - 1 = 1.665$. This means, in relation to consumer's choice of cooking oils, the odds of consumer's ability to purchase packaged cooking oils increases by 196.8% and 166.5% for urban consumer and educated consumer respectively.

Table 17: Socio economic and Demographic factors that influence packaging

Variable	Packaged Maize flour			Packaged Cooking Oils		
	B	Sig.	Exp(B)	B	Sig.	Exp(B)
Geographical location	0.658	.004***	1.93	1.088	.000***	2.968
Age	0.011	0.283	1.011	0.003	0.75	1.003
Sex	0.459	.047**	1.582	0.11	0.603	1.116
Education	0.489	.031**	1.63	0.98	.000***	2.665
Income spent on food	0	0.118	1	0	0.294	1
Outlet	-2.178	.000***	0.113	-1.558	.000***	0.211
Constant	0.787	0.08	0.455	0.046	0.011	0.351
Hosmer-Lemeshow	0.21			0.149		
Nagelkerke R ²	0.362			0.363		
Likelihood ratio (-2 log \hat{L})	551.02			649.77		

Note: ***, ** and * Significant at 0.01, 0.05 and 0.1 levels respectively

Furthermore, the Nagelkerke R square is a measure of predictability of the proposed model. To assess the fitness of model we compare 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. Finally, the Hosmer and Lemeshow values with significance equal to 0.210 and 0.149 for the two model formulations respectively. The non-significant X^2 value indicates a good model fit in the correspondence of the actual and predicted values of the dependent variable.

4.3.2 Others factors

Basing on the ranks analyzed by Garrett's ranking technique, factors for purchasing packaged maize flour and packaged cooking oils were determined. The study revealed that, the top three major factors considered by the packaged maize flour consumers in urban centers (Table 18 and Fig. 9) were "quantity" as they buy in large volumes (10.80), convenience (10.36) and storage (10.20) while the least factors were expired date (0.50) and TBS (0.35). This study was in contrast with the study conducted in Dodoma Municipality whereby it was revealed that product protection and safety was the most

ranked influencing factors (Mmari *et al.*, 2015). Furthermore, the study conducted in India found similar results with this study, that urban consumers were mostly influenced by ease carriage (Convenience) at the purchase of processed foods, (Sehrawet and Kundu, 2007).

For rural towns in Tanzania (Table 19 and Fig. 9), the top three major reasons considered by the maize flour consumers in rural centers were storage (7.01), convenience (5.93) and Quantity (5.07) while the least factors being expired date (0.42) and TBS and recycling shared the same score (0.29). Study conducted India revealed the similar result whereby rural consumers ranked storage as the most influencing factor in the purchase of packaged processed food (Sehrawet and Kundu, 2007).

Table 18: Reasons for purchasing packaged maize flour in urban centers

Reason	Rank given by Respondents			Total Scores (Ti)	Mean Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Convenience	2520	900	93	3513	10.36	2
Storage	2660	550	248	3458	10.20	3
Safety	1820	550	93	2463	7.27	4
Cleanliness	420	350	124	894	2.64	6
Quality	770	550	31	1351	3.99	5
Recycling	140	100	0	240	0.71	8
Quantity	3150	450	62	3662	10.80	1
Just Preference	350	0	0	350	1.03	7
I don't Care	210	0	0	210	0.62	9
Expired Date	140	0	31	171	0.50	10
TBS	70	50	0	120	0.35	11

Table 19: Reasons for purchasing packaged maize flour in rural centers

Reason	Rank given by Respondents			Total Scores (Ti)	Average Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Convenience	980	400	62	1442	5.93	2
Storage	980	600	124	1704	7.01	1
Safety	630	250	93	973	4.00	4
Cleanliness	350	200	93	643	2.65	5
Quality	210	150	186	546	2.25	6
Recycling	70	0	0	70	0.29	10
Quantity	1050	150	31	1231	5.07	3
Just Preference	70	50	62	182	0.75	8
I don't Care	140	50	0	190	0.78	7
Expired Date	70	0	31	101	0.42	9
TBS	70	0	0	70	0.29	10

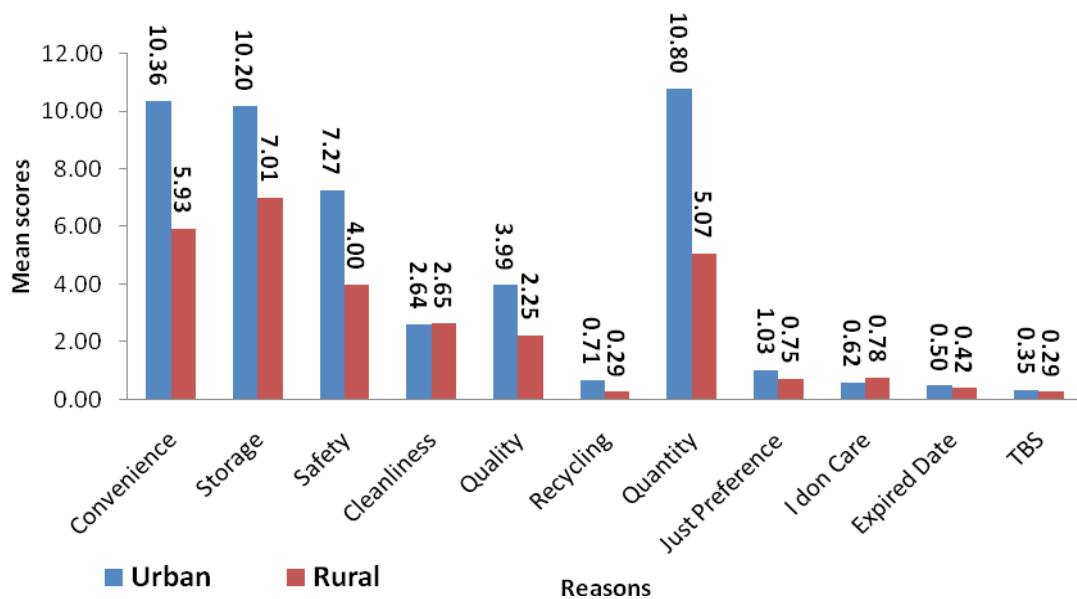


Figure 9: Packaged maize flour

From Figure 10 and Table 20, Cooking oils’ consumers in rural towns Tanzania identified safety as the highly ranked reason with the mean score 13.63. The followed reasons based on the Garret’s Ranking technique were quantity (13.28) and storage (10.33) while not caring about packaging (1.8) and recycling (1.15) being the last factors in ranking. In contrast, rural consumers in India at Ahmedabad District, Gujarat identified health and convenience being the most important factors at the purchase of packaged processed food, ([Shahir](#) and [Amola](#), 2015).

However, consumers of packaged cooling oils in urban centers Tanzania (Table 21, Fig. 10) ranked “safety” as the main reason with an average score of 11.06 followed by quantity (buying in large volumes) (10.67) and storage (8.63) last factors in ranking being not caring about the packaging (1.47) and recycling (0.82). Similar results were found by *Mmari et al.* (2015) whereby consumers of Dodoma Municipality identified safety as most important reason in the purchase of the packaged processed food.

Table 20: Reasons for purchasing packaged cooking oils in urban centers in Tanzania

Reason	Rank given by Respondents			Total Scores (Ti)	Mean Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*50			
Convenience	2590	1150	434	4174	7.47	4
Storage	3220	1450	155	4825	8.63	3
Safety	4410	1400	372	6182	11.06	1
Quality	1960	1050	372	3382	6.05	5
Recycling	280	150	31	461	0.82	7
Quantity	5110	700	155	5965	10.67	2
I don't Care	770	50	0	820	1.47	6

Table 21: Reasons for purchasing packaged cooking oils in rural towns

Reason	Rank given by Respondents			Total Scores (Ti)	Mean Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Convenience	2240	750	310	3300	9.73	4
Storage	2310	1100	93	3503	10.33	3
Safety	3080	1200	341	4621	13.63	1
Quality	1890	650	217	2757	8.13	5
Recycling	210	150	31	391	1.15	7
Quantity	3780	600	124	4504	13.29	2
I don't Care	560	50	0	610	1.80	6

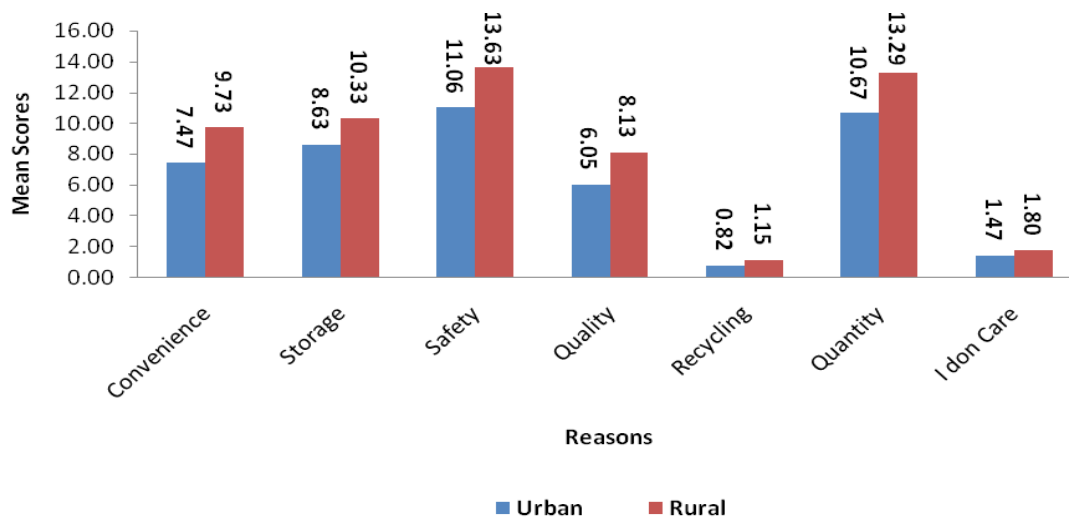


Figure 10: Packaged cooking oil

4.4 Factors Influencing the Purchase of Branded Processed Foods

The third specific objective of the study was addressed here. Brand as an attribute of maize flour and cooking oil was analyzed and discussed as it influences consumers in rural and urban areas at the purchase of the aforementioned processed foods.

4.4.1 Social economic factors

For branding attribute at the purchase of maize flour (Table 22), age of the consumer was significant (P-value<0.1) and positively associated with odds of choice of maize flour i.e. for each unit increase in age of the consumer the probability of selection of branded maize flour increases by 1.02 times. Moreover, outlet as a categorical variable was found to be significant (P-value<0.01) and negatively associated with selection of purchased maize flour i.e the consumers who purchased branded maize flour at the nearby home places (outskirts) are 0.25 times less likely to purchase branded maize flour. In contrast to Ugandan consumers of packaged maize flour, sex and education played significant influence whereby women who were educated preferred mostly branded maize flour (Jun and Ross, 2018).

However, geographical location and education of the consumer was significant (P-value<0.01) and positively associated with odds of choice of cooking oils i.e. the consumers who purchased cooking oils from urban areas and those who are educated are 1.778 times and 1.934 times respectively more likely to purchase branded cooking oils. For the case of age of consumers at the purchase of cooking oils, results show that for each unit increase in the age of the consumers, the probability of consumer's choice of branded cooking oils decreases by 0.985 times (P-value<0.1). Study conducted in India had different results since in India, income was the factor that had positive significant influence at the purchase of branded cooking oils (Ali and Begum, 2019).

Furthermore, the Nagelkerke R square (Table 22) is a measure of predictability of the proposed model. To assess the fitness of model we compare 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 β coefficients is different from zero.

Table 22: Socio economic and demographic factors that influence branding

Variable	Branded Maize flour			Branded Cooking oils		
	β	Sig.	Exp(β)	β	Sig.	Exp(β)
Geographical location	0.308	0.164	1.361	0.576	0.004***	1.778
Age	0.016	0.096*	1.016	-0.015	0.092*	0.985
Sex	0.069	0.750	1.071	0.236	0.261	1.266
Education	0.351	0.107	1.421	0.659	0.002***	1.934
Income spent on food	0.000	0.154	1.000	0.000	0.821	1.000
Outlet	-1.389	0.000***	0.249	-0.088	0.658	0.916
Constant	-1.222	0.005	0.295	0.294	0.472	1.342
Hosmer-Lemeshow	0.234			0.240		
Nagelkerke R ²	0.171			0.920		
Likelihood ratio ($-2 \log \hat{L}$)	596.770			649.980		

Note: ***, ** and * Significant at 0.01, 0.05 and 0.1 levels respectively

Finally, the Hosmer and Lemeshow values with significance equal to 0.234 and 0.240) for the four model formulations respectively. The non-significant X^2 value indicates a good model fit in the correspondence of the actual and predicted values of the dependent variable.

4.4.2 Other factors influencing purchase of branded processed foods

For the urban consumers (Fig. 12 and Table 23), the top three priorities were sensory test (30.02), safety (15.90) and trusting the processor (13.41) last factors ranked affordable price (8.16) and nutritious (7.30). The study contrasted with the findings of Groote and Chege, 2012; Kimenju Karanja and Munyoki, 2016; whereby Kenyan consumers

considered affordable price, perceived quality, the level of income, and the social cultural aspects and fortification as important factors before purchasing the branded maize flour.

Rural and urban consumers of branded maize flour do have their priorities which may be similar or different. Table 23, Table 24 and Fig. 12 illustrate the revealed findings on the influencing factors of the consumers between the two geographical areas in terms of ranks. The rural consumers (Fig. 12 and Table 24) considered the following factors as the most influencing ones before purchasing the specific brand of maize flour; Good sensory taste (33.96), safety (23.96) and nutritious (12.88), and the least factors being trust to the processor (12.32) and trust to the local processor from Tanzania (9.54). In Kenya the consumers of branded maize flour had different preference on the reasons considered at the purchase, affordable price was the highly ranked factor identified, (Karanja, 2015).

Table 23: Reasons for purchasing branded maize flour in urban centers

Reasons	Rank given by Respondents			Total Scores(Ti)	Mean Scores(Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Safer	1470	550	31	2051	15.90	2
Nutritious	630	250	62	942	7.30	6
Good Sensory Test	3360	450	62	3872	30.02	1
Natural	70	0	62	132	1.02	8
Trusting the Processor	1330	400	0	1730	13.41	3
Local processor	840	650	0	1490	11.55	4
Fortified	70	0	0	70	0.54	9
Out Of Stock	490	0	31	521	4.04	7
Affordable Price	840	150	62	1052	8.16	5

Table 24: Reasons for purchasing branded maize flour in rural centers

Reason	Rank Given By Respondents			Total Scores (Ti)	Mean Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Safer	630	650	62	1342	23.96	2
Nutritious	490	200	31	721	12.88	4
Good Sensory Test	1540	300	62	1902	33.96	1
Natural	210	150	93	453	8.09	7
Trusting The Processor	490	200	0	690	12.32	3
Local Processor/ Tz	210	200	124	534	9.54	5
Fortified	70	50	0	120	2.14	9
Out Of Stock	140	0	0	140	2.50	8

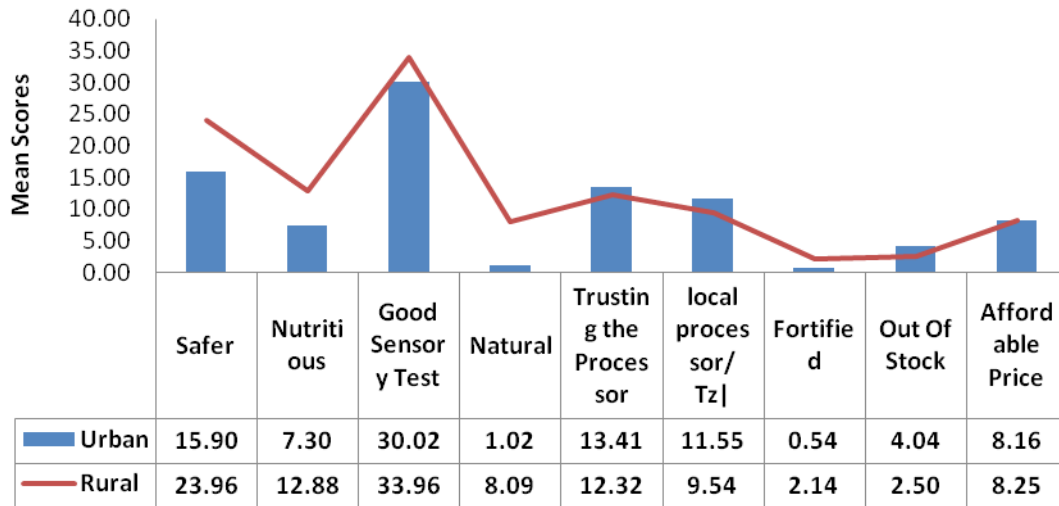


Figure 11: Branded maize flour

Comparing the rural and urban consumers of branded edible oils; identification of the differences and similarities between the rural and urban consumers is revealed. The urban consumers (Table 25 and Fig. 13) considered the top three factors being good sensory test (22.88), health (8.43) and affordable price (7.95) whereby the rural consumers (Fig. 13 and Table 26) considered the top three most influencing factors being good sensory test (15.92), affordable price (10.43) and out of stock (5.83). Different findings have been revealed by Divya (2015) in India where the urban consumers considered quality, cholesterol content and affordable price being the most influencing factors before purchasing a specific brand of edible oil while the rural consumers considered affordable price and quality being the most influencing factors.

Table 25: Reasons for purchasing branded cooking oil in urban centers in Tanzania

Reason	Rank Given By Respondents			Total Scores (Ti)	Mean Scores (Ti/n)	Ranks
	1st*70	2nd*50	3rd*31			
Cholesterol Free	1400	100	62	1562	4.31	5
Healthier	2240	500	310	3050	8.43	2
Fortified	140	100	62	302	0.83	6
Good Sensory Test	6580	1050	651	8281	22.88	1
Natural	700	300	186	1186	3.28	8
Trusting the Processor	1120	150	93	1363	3.77	4
Local Processor						
(Expired date)	350	150	93	593	1.64	10
Local processor						
(Support Local Producer)	140	100	62	302	0.83	12
Out Of Stock	1050	100	62	1212	3.35	7
Double Refined	280	150	93	523	1.44	11
Allergic	140	300	186	626	1.73	9
Affordable Price	2310	350	217	2877	7.95	3

Table 26: Reasons for purchasing branded cooking oil in rural centers in Tanzania

Reason	Rank Given By Respondents			Total Scores(Ti)	Mean Scores(Ti/n)	Ran k
	1st*70	2nd*50	3rd*31			
Cholesterol Free	375	180	0	555	2.09	7
Healthier	1275	240	0	1515	5.72	3
Fortified	75	60	50	185	0.70	5
Good Sensory Test	3000	1020	200	4220	15.92	1
Natural	375	240	100	715	2.70	6
Trusting The Processor	375	120	0	495	1.87	8
Local Processor						
(Expired Date)	225	60	0	285	1.08	11
Local Processor						
(Support Local Producer)	150	60	0	210	0.79	10
Out Of Stock	1425	120	0	1545	5.83	4
Double Refined	0	60	50	110	0.42	12
Allergic	150	60	350	560	2.11	9
Affordable Price	2025	540	200	2765	10.43	2

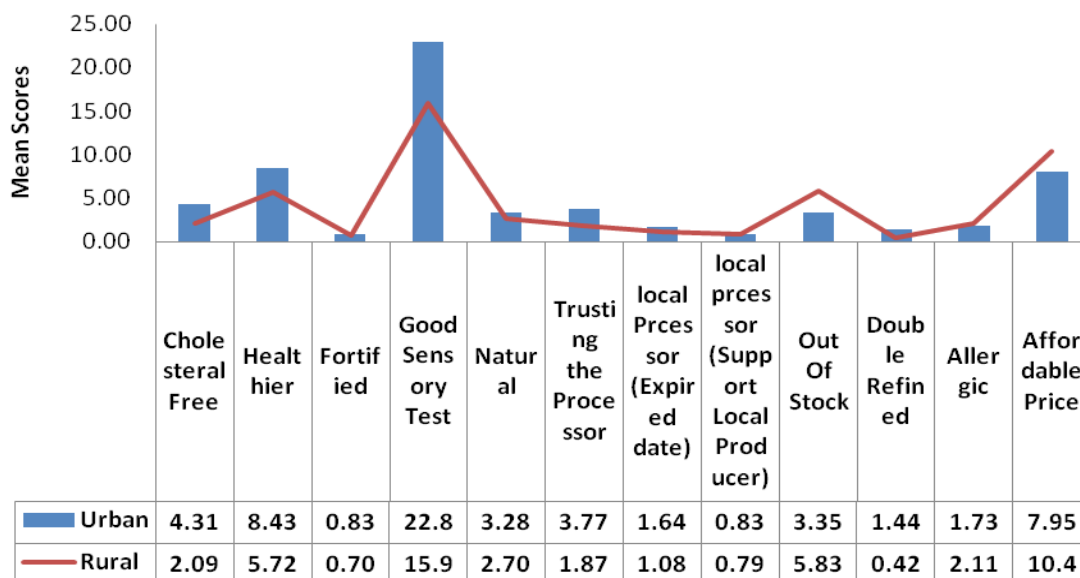


Figure 12: Branded cooking oils

4.5 Comparison of Reasons for Rural and Urban Consumers to Buy Packaged and Branded Products Using Non Parametric Tests

Further analysis was conducted to compare the non-parametric test (Kruskal-Wallis Test). Non parametric test (Kruskal Wallis Test) was used to compare if there was statistical significant difference in factors considered at the purchase of the packaged and branded processed food products (Maize flour and cooking oils) by consumers in general, rural and urban areas. The assumptions for the use of Kruskal Wallis Test were satisfied by the collected data as ; samples drawn from the population were random, observations were independent of each other and dependent variable was ordinal (Location, i.e. Rural and urban areas).

Table 27 illustrate the statistically significant difference for all the reasons identified among the rural and urban consumers at the purchase of the packaged maize flour and packaged cooking oils ($\alpha < 0.05$) respectively. The null hypotheses were rejected hence plausibly concluding that rural and urban consumers were different on the factors considered at the purchase of packaged processed maize flour and packaged cooking oils.

Table 27: Comparison of reasons for rural and urban consumers on packaged maize flour and cooking oils

Sample 1 - Sample 2	Maize Flour		Cooking oils	
	Std. Error	P-Value	Std. Error	P-Value
Urban-Rural	0.198	0.000***	1.207	0.000***
Urban-General	1.04	0.004	0.001	0.004
General-Rural	0.376	0	1.276	0

Note: * represents significance at 5%.**

However, at the significance level of 0.05 (Table 28), the heterogeneity was identified among the rural and urban consumers as the null hypotheses were rejected ($\alpha < 0.05$) hence, rural and urban consumers were different on the factors considered at the purchase of branded maize flour and branded cooking oils. Similar finding on the heterogeneity among consumers in rural and urban areas was identified by Sehrawet and Kundu, 2007 on “Buying behavior of packaged products of rural and urban consumers in India”.

Table 28: Comparison of reasons for rural and urban consumers on branded maize flour and branded cooking oils

Sample 1 - Sample 2	Maize Flour		Cooking oils	
	Std. Error	P-Value	Std. Error	P-Value
Urban-Rural	0.383	0.01***	0.732	0.020***
Urban-General	0.705	0.165	0.55	0
General-Rural	0.277	0.078	1.018	0.012

Note: * represents significance at 5%.**

4.6 Factors Influencing the Choice of a Specific Brand Type

The Multinomial Logistic Model (MNL) results summarize the demographic, socio-economic and consumer’s behavioral factors hypothesized to influence consumers’ choices of branded processed foods. The model shows the likelihood of choosing a certain brand of maize flour or cooking oil in the given brand types of selected processed foods in the study area. Results obtained from the analysis identified MNL fits well the data as measured by Pseudo – R^2 (For branded maize flour: McFadden = 27.4 %, Cox and Snell = 45.3 % and Nagelkerke = 50.9%, and for branded Cooking oils: McFadden = 29.5 %, Cox and Snell = 34.5 % and Nagelkerke = 45.3%). These values suggest a good predictive

ability of the MNL implying that the independent variables included in the model explain well the variation in the dependent variable and goodness of fit.

According to Louviere *et al.* (2000) it was suggested that presented Pseudo – R² are still considered to have a good fit. The log-likelihood ratio tests are used to indicate how best the model fits the information. Probability of the model (Chi square =314.97) was 0.001 for branded maize flour and for branded cooking oils the Probability of the model (Chi square =191.72) was 0.000, less than the level of significance of 0.01 (P<0.01). The results fail to accept the null hypothesis, hence concludes that demographic, socio-economic and behavioral factors do influence consumers' choices of brand types. This also implies that the model can be used to explain the variation in preferences for consumers of different brands of processed foods.

Table 29 and Table 30 summarize variables influencing consumers' choices of brands of maize flour and cooking oils respectively. Out of the 17 explanatory variables used, 9 independent variables were significant, at least five in each brand category. Significant variables were sex of the household head, location of the consumer, Number of Household, safety, nutritious, sensory test, processor (Trusting the processor) and Local processor. Coefficients of the MNL are used to show the direction of effect of the explanatory variables on the response variables (Luoga, 2019; Hu *et al.*, 2006).

Results in Table 29 show that the aforementioned significant independent variables' coefficients of with negative signs and significant imply that specific independent variable is sensitive with less influence hence they are less likely to choose specific brand type of maize flour (either national brand, regional brand or local brand) the opposite implication tends to be used for explanatory variables with positive significant coefficients in MNL.

The results show that the significant independent variable (significant variables were sex of the household head, location of the consumer, number of households, safety, nutritious, sensory test, processor (trusting the processor) and local processor (fresher product) in this model are positive hence do have more influence on the specific types of brands.

Table 29: Factors influencing consumer choice for a specific brand type of maize flour

Brand Type of Maize flour Variables	National Brand		Regional Brand		Local Brand	
	B	Sig.	B	Sig.	B	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 (Non Educated=0)	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
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**

Table 30 summarizes explanatory variables influencing consumers' choices of brands of cooking oils. Out of the 17 explanatory variables used, 10 variables were significant, at least five in each brand category. Significant variables were location of the consumer, Education of the consumer, daily consumer's income spent on food, health, sensory test, natural, Trust of the consumers on the processor, out of stock of the cooking oil, double refined and affordable price. Results show that with exception of three explanatory variables with negative signs (Trust of the processor, out of stock and health) implying less influence on the choice of brand types, the rest of the aforementioned significant independent variables' coefficients are of positive signs implying that they have more

influence on the choice of specific types of cooking oil brands (National brands, local brands and Regional imported brands).

Table 30: Factors influencing consumer choice for a specific brand type of cooking oils

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)	-1.055	.143	-1.150	.123	0.8027	0.077*
Age	-.011	.691	-.004	.900	0.0024	0.891
Sex (Male=1)	.393	.554	.595	.386	0.6005	0.883
EDU(Non Educated=0)	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	-0.1666	0.808
Health (1=Highly Ranked)	-.494	.502	-2.741	.002***	-16.149	0.995
Fortified (1=Highly Ranked)	6.977	.363	-6.044	.072	-0.4488	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)	-6.554	.000***	-5.726	.000***	0.81658	0.484
Local_processor_expire date (1=Highly Ranked)	-1.918	.111	-1.396	.250	0.464	0.721
Local_processor (1=Highly Ranked)	-1.213	.495	-.202	.896	-0.8596	0.288
Out of stock (1=Highly Ranked)	.151	.890	-3.207	.010***	-16.092	0.995
Double refined (1=Highly Ranked)	14.201	.103	11.182	.207	-1.2897	0.05*
Allergic (1=Highly Ranked)	1.323	.622	-.832	.771	-0.5420	0.625
Affordable price (1=Highly Ranked)	2.601	.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

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

Summary

The dynamics of dietary patterns is observed among both rural and urban consumers in Tanzania, majorly due to growth of both population and per capita income leading to the increase in the consumption of processed food. Packaging and branding are among the attributes that influence consumers at point of purchase and plays a significant role in solving the problem of information asymmetry. However, previous studies have not looked into comparison among rural and urban consumers basing on packaging and branding as attributes that resolve the problem of information asymmetry in Tanzania. The study assessed the demand for packaged and branded processed food products in selected urban and rural towns of Tanzania. Specifically, study aimed to compare rural and urban consumer's purchasing habits of branded and packaged processed products; to assess the drivers of purchasing packaged processed food among urban and rural consumers; and to assess the drivers of purchasing branded processed food among urban and rural consumers. The chapter comprises the following parts, conclusion; recommendations and areas for further research.

5.1 Conclusion

This study was designed to make a comparison of the response of rural and urban markets on packaging and branding in Morogoro and Dodoma, Tanzania. The study reveals that rural and urban consumers vary significantly on the purchasing habits of packaged and branded processed food products (Maize flour and cooking oils).

In the first objective, habitual heterogeneity of the consumers was found in five folds in relation to rural versus urban consumers on branding and packaging attributes. On

packaging, urban consumers preferred packaged processed foods than the loose products while the rural consumers mostly preferred the loose processed foods to packaged processed products. On average amount purchased, Consumers of maize flour mostly purchased an average of 18.93 Kgs while urban consumers purchased 16.4 kgs whereas an average of 9.7 litres for rural consumers and 8.66 litres for urban consumers purchased packaged cooking oils. Amount of loose cooking oils and loose maize flour was also found to be 4 litres and 3 kgs respectively for urban and rural consumers. Thirdly on branding; branded cooking oils and branded maize flour were mostly preferred to unbranded ones although rural consumers purchased more of generic brands, locally processed brands and more of unbranded than urban consumers. In fourth fold on brand types; it was found that in urban areas local brands were mostly consumed for packaged maize flour whereas unknown brands of maize flour for loose maize flour were majorly consumed. Both consumers of packaged and loose maize flour in rural areas mostly consumed unknown brands. In addition, national brands of cooking oils were majorly consumed in urban areas for both loose and packaged forms while in rural areas unknown brands of loose cooking oils were mostly preferred whereas national brands of packaged cooking oils were majorly consumed among rural consumers. Lastly on outlets; packaged maize flour was found to be largely bought from retail outskirts in urban areas while rural consumers mostly bought at retails in towns. Larger portion of consumers purchased packaged cooking oils from the processors while most of the consumers bought packaged cooking oils from retails in town.

In the second objective, the socio-economic and demographic factors that had positive influence for the consumer to packaged maize flour over loose maize flour were; consumer who resides in urban area, male consumer, educated consumer and the consumer who buys from the outlets away from the home places. Moreover, the social economic

factors that contributed into selection of packaged cooking oils were: consumer who resides in urban area, educated consumer and the consumer who buys from the outlets away from the home places. For the case of other factors apart from socio-economic it was found that “storage” was the highly ranked factor in the choice of maize flour among rural consumers while “quantity” being found among urban consumers. “Quantity” for urban consumers and “safety” for rural consumers were the highly ranked factors for the preference of packaged cooking oils.

However, the third specific objective on the reasons for preference of branded processed foods among rural and urban consumers, socio economic and demographic factors that significantly influenced the purchase of branded maize flour were consumers who bought from the outlets away from home places and an increase in age of the consumer as unit increase in age of the consumer keeping other factors constant led to increase in the odds of selecting branded maize flour as well as branded cooking oils. Other socio-economic factors that influenced purchase of branded cooking oils were consumers who live at urban places and the educated consumers. Moreover, other factors apart from socio economic factors were ranked whereby “good sensory taste” was found to be the highly ranked factor for both cooking oils and maize flour for both rural and urban areas.

5.2 Recommendations

Based on the findings of this study three recommendations are made.

1. Consumers in rural areas purchase more of loose maize flour and loose cooking oils than the packaged ones as compared to urban consumers. Furthermore, on branding attribute, rural consumers purchased unbranded cooking oils and unbranded maize flour than the branded processed foods. It implies that majority of consumers especially in rural areas lack enough information on the processed

foods they consume which may result into severe repercussions especially on health aspect. There is a need for governmental influence through its regulatory bodies to enforce selling of packaged and branded processed food as a measure of ensuring information symmetry between the manufacturer and consumer.

2. For various brands of maize flour and cooking oils, each brand is different from their competitors. Consumers from rural and urban areas have various attitude regarding price, taste, quality, packing, quantity, etc., so the manufacturers have to provide better product to the consumer which makes them to retain in the market for a long period. However, manufacturers of processed foods need to devise new and innovative marketing strategies on packaging and branding for further penetration to rural markets.

5.3 Areas for Further Research

Considering this study being preliminary attempt to study the behavior of rural and urban consumers regarding branding and packaging, further research is needed on each sub-element of these broad aspects of tomorrow's market covering the local and international scope. This study tries to show the challenge open to marketers and researchers to better understand this potential market of the processed food products. In addition, the study is conducted in the two regions in Tanzania (Morogoro and Dodoma), more comprehensive studies should be conducted at national or international levels by employing probability sampling techniques and increasing the sample size aiming at increasing precision of the results and for inference purpose.

Since the study is among a few on consumer behavior conducted in rural areas in Tanzania, it is essential that scholars and professionals in the fast-changing business sector (Increase in the consumption of processed food products) take on the topic with much

depth both in rural and urban areas. Research in this area (consumer's behavior) is complex and uncertain although it is promising in extreme levels. Complexity comes by as it is a multidisciplinary related involving economics, marketing, psychology, public health and sociology, hence further researches should incorporate all the fields in determining consumer behavior in the aspects of branded and packaged 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.