DETERMINANTS OF DEMAND FOR LOCALLY PROCESSED FRUITS IN TANZANIA

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by The Open University of Tanzania a thesis titled: **"*Determinants Demand for Locally Processed Fruits in Tanzania*"** in fulfilment for the requirement for the award of Degree of Doctor of Philosophy (PhD) of The Open University of Tanzania.

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Prof. Damian M. Gabagambi

(Supervisor)

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DECLARATION

I, **Teikwa Angelo Nyonyi,** declare that, the work presented in this thesis is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in fulfillment of the requirement for the Degree of Doctor of Philosophy (PhD) of The Open University of Tanzania.

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DEDICATION

This thesis is dedicated to God, the creator and source of wisdom and inspiration, who gave protection during the whole time of study.

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ABSTRACT

This study aimed at investigating the determinants of demand for locally processed fruits product in Tanzania. The study areas included Dar Es Salaam, Iringa, Tanga, and Dodoma regions as representative of Tanzania. The study sample was 755 consumers of locally processed fruits from all the target areas of the study. Specifically, the study had four specific objectives, namely; to determine the demographic characteristics of consumers of locally processed fruits in Tanzania, to determine the social characteristics of consumers towards locally processed fruits demand in Tanzania, to examine the economic factors to determine consumer preferences on locally processed fruits in Tanzania, to assess the non-economic factors to determine the demand of locally produced fruits in Tanzania and to assess the influence of government policies in deriving demand of locally processed fruits in Tanzania. The study employed a quantitative approach with positivism philosophy using classical and neo-classical consumer theories. The study revealed the determinants of demand for processed fruit are individuals' income, price of product, and individual awareness on the product nutrients. The results also, show that, age, household size, influence on stimulating the consumption of locally processed fruits. The study recommends that, strategies be put in place to stimulate and promoting marketing and demand for locally processed fruits products in Tanzania. Other recommendation of the study, improvement of market information on the nutrients of processed fruits, and integration of all stakeholders in the fruits value chain. The stakeholders' integration improves the livelihood of fruit farmers and the employment status of fruit processors.

Keywords: *Classical consumer theory, neo-classical consumer theory*

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
ASTI	Agriculture Science and Technology
ATC	Air Tanzania Cooperation
B2B	Business to Business
BCC	Business to Consumer
BOG	Buy one get one free
BOT	Bank of Tanzania
CI	Confidence Interval
CR4	Concentration Ratio
DOJ	Department of Justice of United State of America
DTIS	Tanzania Diagnostic Trade Integration Study
EAC	East African Community
ECO	Economics
FAO	Food and Agriculture Organisation
FHH	Female Headed Household
FSFST	Food System Framework School of Thought
GDP	Gross Domestic Product
GMP	Gross Marginal Product
HSD	Turkey Honestly Significant Differences
IPEME	Internal Product Efficiency of Marketing Enterprise
NBS	National Bureau of Statistics
NMP	National Micro-Finance Policy
NTP	National Trade Policy

R&D	Research and Development
SCP	Structure Conduct Performance
SIDO	Small Industrial Development Organisation
SIDP	Sustainable Industrial Development Policy
SMEDP	Small and Medium Enterprises Development Policy
SMEs	Small and Medium Enterprises
SOLS	Standard Ordinary Least Square
SPSS	Statistical Packaging for Social Sciences
TAFOPA	Tanzania Food Processors Association
TBS	Tanzania Bureau of Standards
TCCIA	Tanzania Chamber of Commerce Industry and Agriculture
TFDA	Tanzania Food and Drugs Authority
TFNA	Tanzania Food and Nutrition Authority
TQC	Total Quality Control
TRA	Tanzania Revenue Authority
TZS	Tanzania shilling
UNIDO	United Nation Industries Development Organization
URT	United Republic of Tanzania

CHAPTER ONE

INTRODUCTION

1.1   Background Information

The agro-fruits processing industry in developing countries has been experiencing slow growth. Even the contributions of sub-sectors to respective countries' economies and GDP were not significant (Dietz, Matee, and Ssali, 2000). The locally processed fruit products have been facing demand challenge in the local and international markets (Colman and Young, 1989). Most processed fruits industries from developing countries were most disadvantaged due to lack of market share. Colman and Young (1989) said fruit processors in developing countries with small economies of scale lack competitive forces, hence facing challenges on positioning the products in the markets. Gabagambi (2016) noted the advantages of processed fruits on the high financed companies with large economies of scale they have been competing with small scale fruit processors on the same industries.

Historically, the selling of processed fruits is one of the oldest businesses in the world (Colman and Young, 1989). The importance of the fruit processing industry can be traced back to ancient times. During that time, people were processing fruits to add value to finished products, expand shelf life, and other purposes, especially when they wanted to trade for longer distances. Fruits for home use on post-harvest were crashed using local tools to make the products for future use. They were processed in special devices such as calabashes for food security for future use during the time of hunger or on off seasons and sometimes they used them as

commodities for exchange (Devega and Fisher, 1983; National Academy of Sciences, 2019). During the advancement, it has become the essence of processing fruits from local to advanced technology using automation machines as experienced today everywhere in the World (Devega and Fisher, 1983; National Academy of Sciences, 2019).

Processed fruits trade at the global market is a good deal as it is projected by the year 2020, the selling of processed fruits products alone will contribute to the US $1,094 billion to the total World's Gross Marginal Products (GMP). The expenditure of income from processed fruits expected to raise over 21 trillion USD from selling the processed fruits products and 15 trillion USD from other charges, which is becoming an exceptional and potential business on international trade (Han and Mittel, 2001). However, the competition between fresh fruits and processed fruits has been trending high in the market to influence the consumers' prices of processed fruits products to double in the market (Hicks, 2001; Fernandez *et al.,* 2011).

The study borrows some variables from the demand theory and the concept of Classical consumer theory, which forms the basis of consumers' behaviours in the specific markets. The principles of consumer's preference and demand for goods/ services in the market set the determinants of demand for the product in the market (Kejriwal, 1989). The demand for locally processed fruits depends on environmental factors such as the selling price of locally processed fruits, education level of consumers of locally processed fruits. Other factors include processors and marketers of processed fruits, household income, and consumer awareness about locally

processed fruits products, processors, and marketers' demographic distribution. The question by marketers is what determines the demand for processed local fruits? The question is interested and being answered by this study.

The study was based mainly on two theories used by Lancaster (1966) on a study new approach to consumer theory and the classical consumer's theory put forward by Colman and Young (1989). The theories have been extensively used to determine the demand for products and the consumers' behaviours in the specific markets. The theories assume that consumers are rational; they allocate their limited, scarce financial resources among various goods and services in a way that maximizes utility (Lancaster, 1966). However, the classical consumer theory is built on the premise that a consumer will choose goods and/ or services from a basket that will maximize utility. The utility is measured after a choice is made. However, the choice is constrained by some factors such as consumer's income and sometimes influenced by some factors like product availability (Mkwawa, 2006). To attain the objective, the consumer must compare the utility (satisfaction) of the various baskets of goods that can purchase with income.

Previous studies also used the demand theory, which was put forward by Lancaster (1966). The demand theory is among the basis of consumers' behaviours in specific markets. The theory assumes that the market demand is determined by the number of potential buyers and their respective tastes, incomes, other factors, and expectations (Kotler, McDougall, and Armstrong, 1988). Demand theory implies that all other things being equal, consumers or marketers will buy more products if the product's

price falls and less if the product's price increases (Thakur, 1992, 1994). When the demand curve shows a negative slope (downwards), it means that price and quantity move inversely proportional. When the demand curve shows a positive slope (upwards), it means that price and quantity move direct proportionally (Koutsoyiannis, 1979). As the product or service increases, the price for the product or service will decrease, and vice versa; the demand curve illustrates how the quantity demanded changes in response to a change in the price of that good when everything remains constant (ceteris paribus). When there is an increase in the market, such as costs and subsequently the production cost, it causes the supply curve to shift upwards or shift to the left.

The market demand is determined by the number of potential buyers and their respective tastes, incomes, other factors, and expectations (Nayga and Capps, 1992). The demand curve indicates the relationship between the quantities of goods and services that buyers are willing and able to buy at different price levels when everything remains constant (ceteris paribus) (Reeckle, 1995). This theory allows us to predict how preference will change when options or baskets are presented to consumers by studying how these vary according to the change in characteristics that make them up.

1.2   Status of Locally Processed Fruits in Africa

Sub-Saharan Africa's fruits processing industry is not performing well despite having good climatic conditions, which favours the production of different fruits almost the whole season (Goetz, 1995). In the study which the Dutch Embassy conducted

(2018) on the context of agro-processing in South Africa, it was discovered that the Sub Sahara Africa agro-food processing industry is extensive. The study also showed that the quality of processing for most primary agricultural products is determined by consumers' affordability and not consumers 'social preferences such as health effects. However, there is now a growing emerging middle class leaning towards including their social preferences when buying food. Additionally, according to the South Africa Department of Agriculture, Forestry and Fisheries (2016), the total food imports relative to the manufacturing sector totalled 15.5%, while the whole economy export of food was 10%. This indicates a relatively high dependence on imports in the manufacturing sector and fewer exports. Furthermore, some of the agriculture processed products imported from other countries are primary products produced in South Africa, driving up a dependence on import within the manufacturing sector.

The overview of the business of processing and selling the fruits products in Tanzania dates back to independence; this was the time when the government of Tanzania introduced the industrialization program whose main objectives were to focus on the industries which could produce goods for the basic needs of people and utilizing the local resources as much as possible. Special emphasis was devoted to promoting agro-based industries such as food processing, textile, closing, and leather. As a result, the Tanzania agro-processing industries were categorized into four main groups such as, import substitution agro-industries such as textile industries, import-dependent agro-industries that depend on import for processing technology, including the requirement for technical assistance, spare parts, packaging

materials, raw materials, and other important inputs. Export depended on agro-processing industries, which increase shelf life of agricultural produce, domestic market agro-processing industries.

During the economic liberalization policy, several government policies are put in place to facilitate economic growth, bearing on the development of the agro-processing sector. The Sustainable Industry Development Policy launched in the mid-1990s defined the framework for the country's industrial development process within short, medium, and long term perspective (URT, 1996). The policy recognized the private sector's role in agro-food processing as the main principal vehicle for carrying out direct investments of industry and putting more emphasis on promoting the SMEs in the Agricultural sector. National Micro-finance Policy, on the other hand, emphasizes the provision of financial services to Micro and Small Enterprises in rural areas as well as in the urban sector that is engaged in all types of legal, economic activities (Tiisekwa *et al.,* 2005).

Despite these seemingly impressive policies relating to the agro-processing sector, many fruits and vegetables processing plants have been operating under capacity. Some have concentrated on processing cheaper products to secure their dwindling market share, which turned down the agricultural food sector to the country's bad situation. The industry has seen not able to invest much in new technology and has been producing substandard products which could not face the challenges of competition from better organized and big financed companies which were importing processed foods (Tiisekwa *et al.,* 2005)

Micha et al. (2018), in a study of fruits in Africa, revealed several initiatives for most of the key activities in the fruits value chain, including processing, distribution, packaging, storage, and marketing; most of the fruits are left unprocessed. At the production level, fruits are primarily for the fresh market rather than for growth for processing. Sales of fresh fruits constitute the most profitable segment in the value chain 72 % of total fruits production is sold in export, and only 28% is sold locally (Gabagambi, 2016).

Despite having different fruits endowments with multiple varieties of fruits almost the whole country of Tanzania, the industry has not yet taken the advantages of fruits resources as opportunities or comparative advantages as suggested by Adam Smith's theory (1776) about the utilization of resources of the endowment of a country for competitive or comparative advantages (Hicks, 2001). Currently, few fruits processing industries are taking Tanzania processing (Kawa and Kaitira, 2007; Jaffe and Henson, 2004). Considering the country's size and the geographical and potential agro-ecological zones producing fruits, the demand theory is applied to address the situation of locally processed fruits in Tanzania. It is borne in mind that the successful implementation of policies and laws depends on establishing a well-established coordination and collaboration mechanism of various institutions.

1.3 Statement of the Problem

Although agriculture remains an important sector in Tanzania in employing over 80% of the population and contributing to Gross Domestic Product (World Bank, 2003; World Natural Academic Science, 2019), the Agricultural sector contributes

50% of Foreign Exchange. Tanzania's food processing industry is still not yet developed, and most food products are consumed or exported in unprocessed form (Hobbs, 2000; NBS, 2016). The fruit sector has tremendous potential resources that can contribute to the countries development. The country has uniquely endowed with different fruit resources almost worldwide, despite the fruit resources being a potential sector for economic development with the capacity to produce 2.7 million tons (Kavishe, 2016). The processed fruits are estimated to return 2.5 billion dollars per annum and have not reached the maximum production. Tanzania's fruit resources are not fully utilized to make the country gains from these opportunities (Kuzilwa, 1997; Muhikambile, 2004; Kavishe, 2016). As a result, the fruits sector's contribution to economic development and GDP is still very insignificant with many challenges. The challenges for fruit sector development in Tanzania include; low and fluctuating prices, huge losses of fresh fruits on post-harvest, substantial quantities of fresh fruits are wasted during the peak period of over 35% in Tanzania (Commonwealth Secretariat, 2017).

Besides Tanzania, the post-harvest losses of fruits in markets are quite high, which vary between 5% and 80% (NBS, 2016). Statistics indicate that only 1.5% fresh fruits are processed in Tanzania than 40 -50% in Thailand, 60-70% in the USA and Brazil. In the Philippines, 78% and 83% of Malaysia's farm fruits are processed (Commonwealth Secretariat, 2016). Most private enterprises dealing with the marketing of Agro- processed fruits in Tanzania have been directing most of their efforts to imported processed fruits rather than dealing with locally processed fruits (Aloyce, 2008). Marketing imported fruits' trend is to encountered challenges of low

demand on local fruit products over those imported. The locally processed fruits have been facing stiff competition with imported processed fruits products as consumers prefer imported products (NBS, 2016).

The market share of imported processed fruits products is becoming high compared to locally processed fruits in Tanzania, over 90% (NBS, 2016). It is noted that the consumption trend of locally processed fruits declined from 10% to 5% between 2015 and 2017, respectively, while the consumption trend of imported processed fruits products was ascending from 24% to 40% between 2015 and 2017 (NBS, 2016; Agarwal and Drinkwater, 1977). This is one of the signals that consuming local processed fruits is at a disadvantage in the market. Worse, some large-scale fruit processing plants have collapsed, and most of them have been operating under processing capacity, which varying between 25% and 40% of their capacity (Agarwal and Drinkwater, 1977). The closures of the fruit processing factories still have an impact on horticulture and national employment in Tanzania.

With the local fruit sector's challenge, many shops in urban areas were flooded with imported processed fruits and dominated the market. It is also learned that the imported juices, for example, have been served in hotels and passengers who are flying by airlines (Devega and Fisher, 1983; NBS, 2016). The higher consumption of the imported processed fruits is influenced by the assumption that the imported products are superior compared to locally processed fruit products in terms of qualities (Devega and Fisher, 1983; NBS, 2016). Despite the government's efforts to put in place the SME policy and other instruments to support the horticulture sector,

the trend of local fruit products in Tanzania is low. The current status agro-fruits processing sub-sector in Tanzania is still in its infant stage compared to other developing countries such as South Africa, India, and Kenya (Commonwealth Secretariat, 1997).

There is an information gap concerning the determinants of demand for locally processed fruits, constraints of marketing and promotion of locally processed fruits, and the influencing factors of preference for locally processed fruits in Tanzania. A comprehensive study for the challenges on the determinant of demand for locally processed fruits in Tanzania is needed based on the background. Considering the importance of the agricultural sector, specifically fruit farming, there is a need to establish what makes customers prefer a product and raise demand. This helps guide future policy initiatives in promoting and facilitating greater processing, marketing, and consumption of locally processed fruits. The main question here is, what determines demand of locally processed fruits? The study intended to establish the variables that determine the demand for locally processed fruits in Tanzania. The study answers the question of fruit wastage in Tanzania as when the demands of locally produced fruits are there, the establishment of fruits factory increases hence, employment. The development of the agro-processing industry contributes to getting rid of wastages of fruits and securing additional stable income for farmers.

1.4   Objectives

1.4.1 General Objective

This study's general objective was to investigate the determinants of demand for

locally processed fruit products in Tanzania.

1.4.2 Specific Objectives

The following specific objectives guided the study:

i) To determine the demographic characteristics of consumers for locally processed fruits in Tanzania

ii) To examine the social characteristics of consumers towards locally processed fruits demand in Tanzania

iii) To examine the economic factors to determine consumers' preference for locally processed fruits in Tanzania

iv) To assess the non-economic factors to determine the demand for locally processed fruits in Tanzania

v) To assess the influence of government policies in deriving demand for locally processed fruits in Tanzania.

1.5   Research Hypotheses

This study's hypotheses were relying on the assumption of classical consumer theory, which states that consumers are rational. They allocate their limited, scarce resources among various goods and services in a way that maximizes utility (Koutsoyiannis, 1979; Kotler, 1993). The theory is built on the premise that a consumer will choose goods and/or services from a basket that will maximize utility, and utility is measured after a choice is made. However, the choice is constrained by some factors such as consumer's income and sometimes influenced by some factors like product availability, social and even government policies. To attain the objective, the

consumer must compare the utility (satisfaction) of the various baskets of goods or services of which the available resources can purchase (Colman and Young, 1989). The hypothesis statements included:

H_1: Demographic characterizes of consumers positively significantly determine the demand for processed fruits.

H_2: Social characteristics of consumers' positive significantly determine the demand for local fruits in Tanzania

H_3: Economic factors of consumers' positively significantly affect the preferences of locally proceed fruits in Tanzania

H_4: Non-Economic factors positively significantly affect the demand for locally processed fruits in Tanzania

H_5: Government policies positively significantly influence the demand for locally processed fruits in Tanzania.

1.6 The Significance of the Study

This study's findings bridge the gap in the existing studies relating to product preference, marketing, and demand for locally processed fruits in Tanzania. The finding emanating from this empirical study and its recommendation will be important tools for different stakeholders, especially policymakers and development agencies/practitioners, to design better or fine-tune development policies and design specific interventions to stimulate and promote local consumption of processed fruits. Indeed, the findings will provide information on implementing the national strategy for growth and reducing poverty, especially to strengthen and promote

backward and forward linkages to agricultural production through agro-processing and value addition.

The study is invaluable to several stakeholders; the entrepreneurs in the Agricultural sectors find this study useful as a point of reference to assist them in decision-making regarding the determinants of demand for Agro processed fruits in Tanzania, hence developing strategies to capture the opportunities from fruits. This study support stakeholders to benefit a greater deal from and improved demand of locally processed fruits products in the markets as the demand determinants are well known. The study is used by researchers, students, scholars, policymakers for further studies as a guide for understanding the determinants of demand for processed fruits in Tanzania.

1.7   Organization of the Thesis

The thesis is organized into five chapters; chapter one is an introduction. Chapter two is a literature review. Chapter three describes the study's methodology, which covers sub-topics philosophy of study, area, population, and data sources collection. Also, the chapter has subtopics on sample size, sampling technique, research design, data collection, preliminary survey, data processing, data analysis, and research limitations. Chapter four is study findings from the field and discussion, then chapters five, giving the conclusions and recommendations based on the major findings.

CHAPTER TWO

LITERATURE REVIEW

2.1   Overview

This chapter reviews existing literatures on issues related to the study. Special attention is directed on reviewing the determinants of demand for locally processed fruits. The chapter is divided into six sections. Section one is introduction part where as section two provides the definitions of key concepts followed by the theories related to determining the demand for processed fruit products. Empirical studies are in section four followed by the research gap section five and six provides the conceptual framework of the study.

2.2   Definitions of Key Terminologies and Concepts

2.2.1 Market Competition Concept

Michael Porter's Competitive Model (Dininni, 2011) with five competitive forces on market competition asserts that, the central ring of the competitive arena is always dominated by the competitive manoeuvring of the rival firms. It is defined therefore that; market competition are organizations with similar products and services aimed at reaching the same customer group. The market competition is defined by a model mention four competitive forces which the company must have for competitiveness in the market as bargaining power of suppliers, bargaining power of buyers, threat on new entrants and threat of substitute product/services.

On this fact the customers of any company might shift and use the substitute products/services if they are not satisfied with services which offered by the

company. Therefore, the presence of strongly substitute products/services is the one which determines the strength of market competition.

2.2.2 Bargaining Power Concept

Zapf (2008) reviewing the Michael Porters five model on bargaining power asserts that, the firm which is in a position to minimize buyers' bargaining power always remains competitive in the market. Some of the factors that cause the bargaining power of the customer to be relatively greater are as follows. There are few customers who purchase in large quantities, customers' purchases represent sizable percentage of the selling industry on total sales, switching costs amongst suppliers is generally low and involves little risks. The item being purchased is significantly standardized among sellers that customers cannot only find alternative sellers but also switch suppliers at virtually zero costs.

2.2.3 Agricultural Marketing Concept

 Agricultural marketing can be defined as a process that involves finding out what food customers want and supplying it to them at a profit or direction production in accordance to clear signals from the market place as to what is needed by food customers (FAO, 1997c). And marketing may also be defined as the process of creating form, time and space utility (Kohls and Uhl, 1990). A more comprehensive definition of marketing is the process of planning and executing the conception, pricing promotion and distribution of ideas, goods and service to create and maintain exchange that satisfy individual, organizational and societal goals in systemic context of global environment (Zapf, 2008). Ashimogo (2005) has defined agriculture food

marketing as the activities involving the flow of goods and services from the point of production until reach the ultimate consumers. It is being noted that, at one extreme there is a producer and at the other extreme there is a consumer. Gabagambi (2016) on agriculture food marketing argued that, agricultural food marketing should recognize the interdependence between the three key actors in the Agriculture marketing system, e.g. the producer, middlemen and consumer.

2.2.4 Demand and Supply Concept

Lancaster (1966), defined demand and supply as, demand refers to the total quantity of a good or service that the people are willing and able to buy at alternative price in a given period of time. Demand is the ability or willingness to buy the specific quantities of a good at alternative prices in a given period of time, ceteris paribus.

Lancaster (1996) on demand and supply defined that, demand concept is fundamental to determine the demand for product in the market. Lancaster (ibid) argued that demand and supply are two forces which drive the market and other economic factors on the market. The demand side can be represented by a market demand curve which determine amount of commodity the buyers would buy at various prices.

Gabagambi (2017) defined demand and supply as the demands for quality-based foods and services have increased nowadays e.g., quality foods are of high demand. When the consumers anticipate that the price of product would increase in the near future, they inherently react by purchasing more products while the price is still

constant. This effect is most evident over the short-term as with time consumers adjust to the new levels of prices in order to stabilize demand.

2.3 Literature Review

2.3.1 Factors Influencing Consumers' Demand

The study of Pollack (2007) revealed that, the factors which influence consumer's preference on fruits and vegetables are availability of products, consumers taste and preference, habit of eating the products, age, education, income, gender and the factors which influencing the consumption choice of fruits and vegetables are non-economic factors such as sensory appeal, familiarity, habit on social disability, personal and food ideology, convenience, media and cultural beliefs. The factors of demand therefore, are grouped into economic, psychological, and sociological. Some of the factors explained by Pollack (2007) are mediating factors for demand of a product. The mediating factors includes age, education and gender.

2.3.2 Determinants of Demand for Locally Processed Fruits

The report of Global fruits and vegetables (2016) revealed that, there are many factors which influence the demand of processed fruits on the global market, such as demand of food for shortage of supply to individual countries, the hunger, demand due to trade liberalization. Demand which influenced by the business of free market zones, demand for supply of food products to countries with higher needs and humanitarian. The study which was conducted by Global fruits and vegetables (2016) revealed that, the consumption pattern of fruits in Sub-Saharan Africa is

insignificant if compared to developed countries such as United States of America, China, Union of Soviet, Germany, England and France.

The study which was conducted by Global fruits and vegetables (2012) has revealed that, the consumption pattern of fruits in Sub- Saharan Africa is insignificant if compared to developed countries such as United States of America, China, Union of Soviet, Germany, England and France. The consumption pattern of fruits in Africa is estimated at 100g per capita per day or less which is far away from acceptable standard levels of fruits requirement of 400 g per capita per day or 146 kg per capital per year. This is indications that in Sub Saharan African countries have lower consumption of fruits as compared to the consumption of fruits in developed countries for reason of economy, life style and culture. The factors for determining the demand of processed fruits can be summarized as economic setup, life style, psychological factors, per capita income and production or supply site of products.

The study conducted by Dutch Embassy (2018) on the context of agro processing in South Africa among other things, the study discovered that the Sub Sahara Africa agro-food processing industry is extensive. The large, quality of processing for most of the primary agricultural products is determined by consumer's affordability and not consumers 'social preference such as health effect, animal welfare and other ethical impressive. However, there is now a growing emerging middle class that are leaning towards including their social preferences when buying food. Additionally, according to the report of South Africa Department of Agriculture, Forestry and Fisheries (2016) revealed that, the total imports relative to the manufacturing sector

totalled 15.5%, while for the whole economy was 10% respectively. This indicates a relative high dependence on import in the manufacturing sector. Furthermore; it was also argued that some of the agriculture processed products imported from other countries are primary products produced in the South Africa, driving up dependence on import within the manufacturing sector.

The study conducted by Micha and Lin (2018) in Africa revealed and concluded that, despite of good initiatives for most of key activities in the fruits value chain including processing, distribution, packaging, storage and marketing, most of fruits are left unprocessed. At the production level fruits are primarily for the fresh market rather than for growth for processing. Sales of fresh fruits constitute the most profitable segment in the value chain 72% of total fruits production is sold for export as compared to 28% sold locally. Also, Tanzania Diagnostic Trade Integration (2016) noted that, the 17% of all produced fruits raw materials in Tanzania were processed in the fruits processing industries and only 7% of all processed fruits products were consumed locally. The information indicates that the locally processed fruit products in Tanzania faces the challenges of low demand on the local markets and international markets.

TCCIA (2016) conducted study to analyse the factors which influence the (SMEs) growth in fruits processing industries. The study come out with results on the factors noting the factors influencing SMEs growth in fruits processing among others as, access to markets; access to processing technology; access to finance; access to skills and information and access to inputs.

The study which was conducted by NBS (2017) in Dar Es Salaam in order to analyse the factors which influence the consumption patterns of processed food among consumers in Tanzania has revealed that, the consumption patterns of processed food products in the country were influenced by price of the products and consumer's income. The report of Tanzania Diagnostic Trade Integration (2016) has revealed that, the 17% of all produced fruits raw materials in Tanzania were processed in the fruits processing industries and only 7% of all processed fruits products in Tanzania were consumed, which indicates that the locally processed fruit products in Tanzania were facing the problem of low demand on the local markets.

2.3.3 Economic Factors as Determinants of Demand for Locally Processed Fruits

Kotler and Kotler (2016) noted that, the economic factors to determine the demand of product includes lower the price the grater the quantity demanded other factors remain constant (ceteris paribus). When considering the case where the price of product remains constant and the consumers have a greater disposable income then demand must be higher. In reality most of determinants such as supplies, quantities, prices, and demand have effect on the demand at a point in time. However, is very impractical to quantify the effect of each determinant at given point in time. All other factors are considered to be equal or constant and thus the law of demand qualified the phrase, other things being equal.

Mulambiti (2017) argues that, the competitive conditions in agricultural sector tend to keep farm prices close to the cost of production which boost the profit margin of

production and influencing the demand of production in agricultural sector but the falling of the farm prices are not usually accompanied by falling farm cost of production which reduce the profit margin of production and affect demand of production in agricultural sector. On the other hand, rising farm prices attract farmers to enterprise more and tend to bid up prices/cost of factors of production. The buyers of farm products often have superior bargaining powers which are promoting them to buy as compared to farmers who are in demotion.

2.3.4 Demographic Factors as Determinants of Demand for Locally Processed Fruits

The demographic factor predicts the demand of locally processed fruits in the study. This is in line from different empirical studies of different scholars which make the argument be critics and on this matter. Gabagambi (2016) argued that, the number of buyers in an area determines the demand of products. The most evidence can be seen during the holidays when the demand for goods and services at holiday increases. On this line Kavishe (2018) argued that demand for goods and services also arise during international conferences, for example if an international conference is being held in Dar Es Salaam, the demand for accommodation in Dar Es Salaam increases above normal levels. The author is saying about the population as demographic factor for demand of a product. The demand for locally processed fruits base on demographic factors as population increases the demand for product increases.

Gabagambi (2016) also, argued that the primary objective of the agricultural sector is to increase value added and efficient services in order to increase market

accessibility and market share demographically. Therefore, market information constitutes one of several requirements for an efficient of post-harvest sector. Appropriate technology supported by proper institutional arrangements and well distributed such as policies, incentives; infrastructure, adequate marketing towards demand. Also is learned that distribution, commercialization systems, socio-economic, cultural practices all of these have major impact on efficiency within the post-harvest sector and food demand. The demographic factors for demand of locally processed fruits are the location, age groups, climate, population and the population size of families.

2.3.5 Psychological Factors as Determinants of Demand Processed Fruits

Psychological factors predicted to influence the demand of locally processed fruits in the study and on this line the study has cited from empirical studies of different scholars to make the argument be critics and on this matter. Anderson (2008) argued that, the majority of buyers in the markets, however, differ enormously in terms of buying dynamics. The task which facing the marketing planners is to understand these various buying dynamics. These are consequently complex in terms of consumer markets, buyers do not only typically differ in terms of their psychological factors, motivation, perception, learning, beliefs and attitudes. The psychological factor is important in defining demand for a product for a certain group of people. First of all motivation in many way is the most important to understand and the most complex to analyse. The starting point involves recognizing the differences between biogenic needs, which are physiological, and psychogenic needs, which are essentially psychological states of tension. It is in these needs with which when they

become sufficiently intense, create a motivation to act in such a way that the tension of the need is reduced.

Mashenene *et al.,* (2014) noted that by understanding consumers' perceptions the strategist can then begin modifying the product offered. This can be done in many ways like changing the physical product through adding features, changing beliefs about the product by giving greater emphasis to particular attributes that is psychological repositioning. However, psychologically changing the buyers' expectations leads to demand of product. Therefore, marketing planning is ultimately driven by the marketing planner's perception of how and why customers behave as they do, and how they are likely to respond to the various elements of marketing on the same matter.

Riccarda *et al*., (2011) found that it is generally recognized that 80% of all new products that were launched failed later; this shows that there is lack of understanding of customers' expectations. It is for these reasons that a considerable amount of research has been conducted in the post-war period in order to provide a greater understanding of buying patterns and to enable managers to predict more readily products. However, sellers must have ability to treat the customers psychologically to demand for a product. The persuasion of customers here is important and it can change demand psychologically Riccarda, *et al.,* 2011). There are eight questions which underpinning the understanding of buyer behaviour; namely, who is in the market and what are the extent of their power with regard to the organization? What do they buy? Why do they buy? Who is involved in the

buying? How do they buy? When do they buy? Where do they buy? What are the customers?. The answers of the questions should provide the marketing planner with an understanding of the ways the buyers are most likely to respond to marketing stimuli. Then   from these questions the organization can make the best use of the information in order to gain a competitive advantage.

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│  ┌──────────────────┐                                                 │
│  │ Cultural         │                                                 │
│  │ Culture          │                                                 │
│  │ Sub-culture      │                                                 │
│  │ Social class     │                                                 │
│  └──────────────────┘                                                 │
│          │                                                            │
│          ▼                                                            │
│     ┌──────────────────┐                                             │
│     │ Social           │                                             │
│     │ Reference groups │                                             │
│     │ Family           │                                             │
│     │ Roles and status │                                             │
│     └──────────────────┘                                             │
│            │                                                          │
│            ▼                                                          │
│  ┌───────────────────────┐   ┌──────────────┐   ┌──────────────┐    │
│  │ Personal              │   │ Psychological │   │              │    │
│  │ Age and life cycle    │──▶│ Motivation    │──▶│  The buyer   │    │
│  │ stage                 │   │ Learning      │   │              │    │
│  │ Occupation            │   │ Perception    │   │              │    │
│  │ Economic circumstances│   │               │   │              │    │
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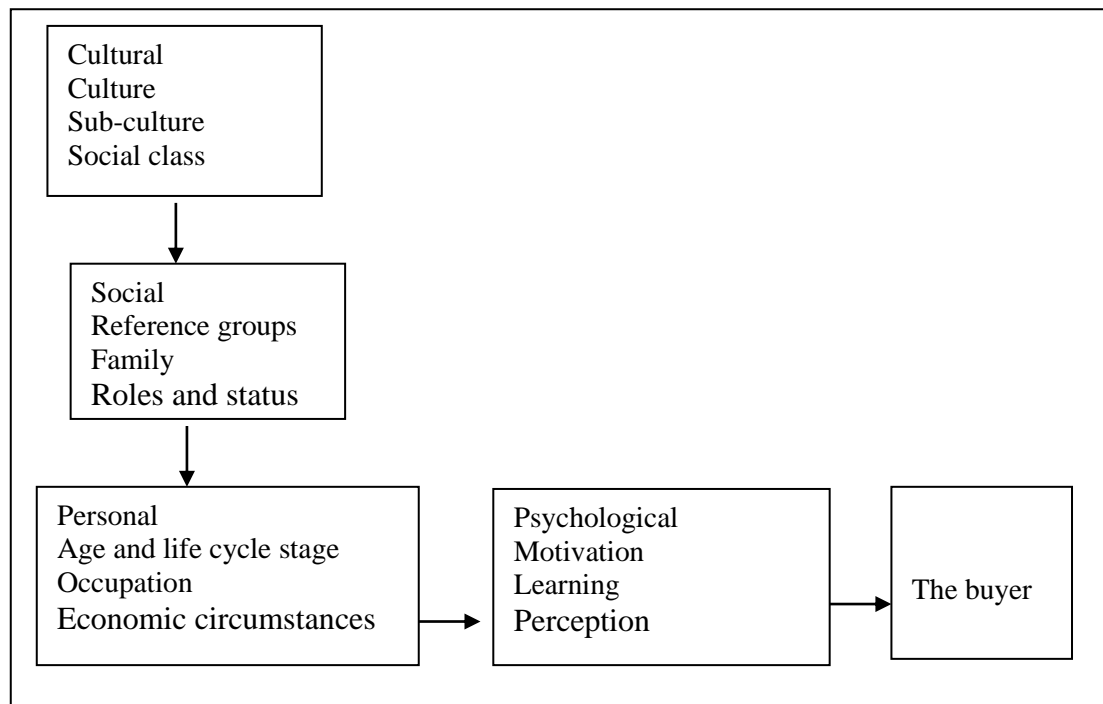
Figure 2.1: Factors determining products demand

(Source: Richard, 2005)

2.3.6 Sociological Factors as Determinants of Demand for Locally Processed Fruits

Social factor that typically influences purchase behaviour consists of the individual's actual and perceived roles and statuses (Jaffer and Henson, 2004). Sociologically, the significance symbols and messages they communicate have long been recognized as creates and increase demand for product. The obvious implication, however, for

the marketing strategist is to position products and brands in such a way that they reinforce the messages and design to attract social stance. The product needs to be suitable to particular individuals and group age, income, educational levels and geographical location, more fundamentally in terms of their personality, their lifestyles and their expectations. Another major category of influences upon social is made up of the buyer's set of personal characteristics, including age and life-cycle stage, occupation, economic circumstances, lifestyle and personality (Jaffer and Henson, 2004). The majority of these factors have been used extensively by marketing strategists in segmenting and can suit the demand for fruit processed products.

Anderson (2008) argues that, female-headed households spend a large share of their budgets on fruits and vegetables. This supports the idea that men and women may have different spending priorities while women give higher priority on diet. These results are consistent with the argument that different cultures and social environments have been identified as having influences on marketing behaviour. Social cultural environment also shapes people's values, attitudes, perceptions and patterns of consumer behaviour (Kashuliza 1998; Abiodum, Malia and Funke, 2018)). There are number of effects drawn from major religious ideologies in the World including Christianity, Islamic, Buddhism, Shinto and Animism. Religious values as social practice, influences consumption patterns and business practices but as well religious divisions can affect the potential stability of the markets (Anderson, 2008). Certain religions prohibit the use of certain goods, foods and services, for instance Muslims are prohibited from drinking alcohol which is a social practice.

One prohibition is the market potential place for selling of non-alcohol beverages and processed fruits products.

Anderson (2008) also argued that, religious holidays affect working patterns; example in the Muslim World during the holy month of Ramadan virtually all types of works slowdown, particularly the business. In these countries, religion is a way of life for people. It would not be desirable to conduct business in the holy month of Ramadan in these countries. In the Christianity World, religion is the aspect of life and business interruptions are expected for the days of Sunday and over the Christmas period. All of these are social aspects which can be thought of for increasing demand of fruit products. Mashenene et al, (2014) argued that, religion also influences gender roles, customs such as dress and marriage, and social institutions. For instance, women in Muslim societies have to practice monogamy, whereas men are allowed to be polygamous, and the role of women is restricted to the household, therefore these moral codes and taboos can have an impact on firms' operation in these countries by having the sales teams of only women as salespersons. It is known now that, religious is an important area for determining demand of a product, processed fruits being among of the products.

2.3.7 Policy Factors as Determinants of Demand for Locally Processed Fruits

Gabagambi (2016) argued that consumers are becoming involved in farm policies, such as import-export policy, price and income supports, and rural development is appropriate philosophy for the food industry today. But what is the appropriate role for consumers in the food industry are the decision-making processes but must be

supported by theory. Consumer sovereignty and efficiency-utility are at the heart of consumer concerns with the modern food industry. Rufumbi (2018) noted that different types of activities must exist in the marketing policy in order to achieve the objective of marketing of firm's product. The policies including advertising, motivation, product research, new product acceptance. For organisation to have better performance needs to have policies for better sales. Mbura (2017) argued that, marketing research must undertake to understand marketing challenges and opportunities. Managers who are requesting marketing research and developments must have enough knowledge about potentialities and limitations as well policies must be in place to support the initiative of increasing demand.

Global fruit and vegetables (2017) revealed that, changes in agricultural policy and shifts in the balance of international trade have radically altered the outlook of food industry and agro-business. Furthermore, global competition for agricultural products which intensifying trade barriers is dismantled, as result many food industries and agribusiness are being forced to broaden their horizons and become international or even global players. Mwikambele, (2016) argued that, the implication of marketing Policy Company must promote product in order to create widespread and awareness of existence and benefits. The products and physical distribution must be linked to patterns of adoption and repeat purchase.

2.3.8 Models for Evaluating Market Performance

The need to analyze the performance of marketing system for processed food products stems from its fundamental role in the development process (Scarborough

and Kydd (1992) reported that markets can potentially contribute to the development process in two ways. The ways to allocate resources to ensure maximum consumer satisfaction is of higher demand. Basically; there are three models or schools of thought for evaluating the performance of agricultural marketing systems as indicated below.

2.3.8.1 The Internal Product Efficiency of Marketing Enterprises Model

Scarborough and Kydd (1992) reported that markets can potentially contribute to the development process in marketing economies by looking on internal technical and operational efficiency of marketing firms. In this intra-firm organization, management structures, motivation and incentives arrangement and decision- making rules and process were seen as important influences in the efficiency of operations. Technical efficiency is used in marketing in terms of physical inputs and outputs ratios. Thus, a technically efficient market produces the maximum possible out from the inputs for any given environmental constraints, and it minimizes resource inputs for any given level of out puts. While operational efficiency, on other hand is defined as the provision of goods or services, at least cost and at a level of outputs or combination of inputs, which ensures that the value of marginal products equals marginal factor costs.

2.3.8.2 The Structure-Conduct–Performance Model

Scarborough and Kydd (1992) reported that, analytical core of this model is the assessment of markers on the assumptions of a two causal and feedback relationship between its three major components of markets. The components of the model are

structure, conduct and performance. The model explains the relationships between functionality similar firms, and their market behaviour as group of a market. Specifically, the model assumes that given certain basic conditions, which in turn are strongly influenced by the structure of the market (Kulindwa, 2018).

According to Bain (1968), quoted by Ashimogo (1995) the structure of a market entails the organizational characteristics of a market that appears to exercise a strategic influence on the nature of competition and pricing within the market. The most important measures of market structure are the degree of sellers and buyer's concentration, the degree of product differentiation and entry barriers. Likewise, market conduct refers to firm behaviour in adopting or adjusting to the markets in which they buy or sell these includes things like pricing and selling policies and tactics (Kulindwa, 2018). Other issues in market includes obvious and tact inter-firm co-operation, or rivalry, and research and development activities. Performance is the end result of a firm's objectives while the focus is usually only upon to productive and allocate efficiency, progressiveness, equity and employment (Scarborough and Kydd (1992).

2.3.8.3 The Food Systems Framework School of Thought Model

The food system models this model was emerged in the late 1960s and developed by Shaffer (Shaffer, 1973). The model was an outcome of dissatisfaction with the Internal product efficiency of market enterprise (IPEME models) and Structural conduct performance (SCP) that jointly failed to examined the nature of the vertical as well as horizontal relationships between firms in assessing market performance. In

additional, IPEME and SCP model's failure to identify the binding constraints, the food system emerged and opportunities for enhancing its productivity and performance. The food system frame works combines elements from both the tow models and goes beyond industry boundaries on assessing the structure and conduct vertically and horizontally over the entire commodity flow from input supplier to the ultimate consumer. Scarborough and Kydd (1992) argued that the rationally behind this extension is that structure and behaviour at one level in the system influences similar aspects in others. Further advantage of this approach is that it recognizes the importance of the complementary nature of farm resources in both production and consumption. It also a broad approach that considers such aspects as the economic, infrastructural and institutional environments in which markets operate as given, but are studied in terms of their impact on market performance, constraints and opportunities for markets to contributes to improve economic performance.

2.4   Theoretical Framework

Theoretical frameworks of this study follow the line as proposed by both Classical and Neo-classical consumer theory. From this concept this study assumed that, the demand is like utility and preference is like making a choice which means that as classical consumer theory assumes that utility is measured after a choice is made. This study assumed that demand for locally processed fruits is made after the consumer has perceived good mind set about locally processed fruits and then make the purchase.

2.4.1 Classical Consumer Theory

Classical consumer theory assumes that consumers are rational in that they allocate their limited scarce financial resources among the variety of goods and services in a way that maximize utility. The theory is built on the premise that a consumer will choose goods and/ or service from a basket that maximizes utility and utility is measured after a choice is made. The choice, however, is constrained by consumer's purchasing power or income, and is influenced by the prices of goods available. In order to attain this objective, the consumer must be able to compare the utility of the various "baskets of goods "which can be purchased with available income (Colman and Young, 1989).

Classical consumers' theory acknowledges the significant contribution of making the preferential rationally on allocating the limited scarce financial resources among a variety of goods and services in a way that maximizes utility. The theory is built on the premise that a consumer will choose goods and/or service from a basket that will maximize utility and utility is measured after a choice is made.

The classical consumer theory is built on the premise that the household will choose goods or services from a basket that maximizes utility. In order to attain objective, the households compare the utility (satisfaction) of the various baskets of goods which they can purchase with their income (Colman and Young, 1989). Janssen (2009) supported that, the objective of the household consumption theory is to maximize utility of households or level of satisfaction by consuming the optimal combination of goods and leisure. Therefore, consumption pattern and satisfaction

increase demand of a product. The theory suggests that, the amount of food that the household can consume is constrained by its income level and the other substitute products. The optimal combination of goods and leisure occurs where the contributions to household satisfaction (marginal utility) of each additional consumption item or leisure time are the same.

Janssen (2009) also commended that, all economic models of household and intra household decision making and the concept of household or individual utility have the assumptions that the decision-making objective is to maximize utility. The decision-making procedures or demand is based on subjective prices and alternative opportunities that may differ among households based on availability of resources, access to markets, institutional arrangements and household objectives. The theory acknowledges the significant contribution of household's characteristics on consumption of agricultural products. The classical theory used in this study as it has been developed by different scholars to make the argument and critics on the factors which influence the consumption of food stuff. In line with classical theory Gislason (2009) argued in a study on food consumption patterns that, food consumption patterns in a given country are affected by prices of food products. Other factors for food consumption included the markets, consumer's income, education, age of consumers, and awareness about product in question, preference and culture and psychological. In discussing the consumption of processed fruits in Africa, FAO (2016) reported that, there is a correlation between consumer's incomes. The consumption of processed fruits in the market for low-income groups tend to be conservative in their food choices and resist changes, while high income people tend

to show increased demand for convenient foods. Therefore, income level of individual is important element factor for demand of processed fruits.

The assumption of classical consumer theory, related to the demand theory. The demand theory states that, all other things being equal, consumers buy more products when the price of the product falls, and less if the price of the product increased. This means that price and quantity move direct proportionally to determine demand of a product. As the product or service increases, the price for the product or service decreases. In the support of classical consumer's theory, demand theory acknowledges the significant contribution of market environmental factors for a consumer to make a choice. The theory states that, "all other things being equal, consumers buy more products when the price of the product falls and less when the price of the product increased (Lancaster, 1966).

2.4.2 Neo-Classical Consumer Theory

Neo-classical consumer's theory assumes that, typically consumers purchase attributes which embodied in goods, rather than purchasing goods for their own sake (Lancaster, 1966). This argument suggests that, goods are not direct objects of utility, but it is from their attributes that consumer derive utility. For example, the characteristics of food product would include the nutrients, calories, protein, vitamins, minerals and so forth, therefore a desire is to obtain a healthy diet which is reflected in the purchase of foods that contains relatively low fat levels. In line with this argument a consumer might purchase a low fat to satisfy this desire, rather than yogurt for itself (Kuperis *et al.,* 1999). This argument is supported by Colman and

Young (1989) who argued that Lancaster theory of consumer behaviour can be useful in a number of areas in which the traditional theory is barren. The theory suggests that goods which provide the same characteristics are closely related in consumption and in particular have large cross-price elasticises. The theory help us to understand two pervasive phenomena of everyday life, that is the significant role that product differentiation and advertising can play to stimulating and promoting consumption of the product in question. Neo- classical consumer theory acknowledges the significant contribution of two factors of product's attributes and consumer's habit on products on the product purchase (Lancaster, 1966; Kuperis et al., 1999).

Makokha (2005) in a study of analysis of factors influencing the adaption of dairy technologies advance the theory saying, both traditional and new consumer theories are complementary. Traditional consumer theory determines the key characteristics of consumption of a certain bundle of goods and services, while the new consumer theory determines the salient attributes of the condition and the observed choice behaviour. In line with the theories of consumer behaviour, the present study assume that consumers make decision to purchase particular processed fruits after careful considerations, the best from a set of alternative available to them. Consequently, some consumers may make decisions to consume processed fruits while others may not. The assumption of rational behaviour which leads to discrete choice behaviour has been supported by Kupreris et *al.,* (1999) and Senkondo *et al.,* (2005) and has been confirmed by several econometric tests.

2.5   Empirical Studies

Several studies have been done in the area of determinant and of demand of goods and services. Particularly this study is trying critically review studies in the area of determinant of demand and demand for locally processed fruits. Several studies in the area of food sector concentrated on consumption patterns and demand of food products. The current study concentrates on the determinants of factors affecting demand of processed fruits in Tanzania. It is therefore this empirical study dwell on the two demand and factors affecting demand of processed fruits.

Pollack (2007) in a study of determinants of processed fruits and vegetables revealed that, consumer's preference on processed fruits and vegetables is influenced by consumer's taste and preference, and habit of consumption. Also, other determinants are type of food product, age, education level, income status and gender. The study come out with other factors as the consumption choices of fruits and vegetable are influenced by the non-economic factors such as sensory appeal, familiarity, habit of social desirability, personal, food ideology, convenience, media and cultural beliefs.

The study is also supported by a study by Price and Gislason (2008) on a study of consumption habits of processed foods. The study revealed that, consumption habit was among the most important factor explaining the consumption of food among households in Japan. While study of buying habits in America and Enland by Evans (1992) suggested that, people in the same social status have similar buying habits, and these habits varied from class to class.

In addition, on this argument Mdoe and Wiggins (1996) found that, the demands for food in rural and urban areas are influenced by household income. Nyange (2000) did a study on factors influencing demand of fruits and vegetables in Tanzania. The study noted that, the demand for fruits and vegetables is influenced by socio-cultural, economic, demographic and intuitional factors in Tanzania. The study of Nyange (2000) on the influence of demand between male and female, found that, the food demand in both rural and urban households in African countries is mostly influenced by male than female and such difference are attributed by African culture where males have an upper hand in control of resources. The study showed the mediating variable like gender is important for determining demand of products.

A study done by Ruel *et al.,* (2005) on consumption and demand of fruit and vegetable in Uganda, revealed that, increases in income are associated with greater increases in the demand for fruit and vegetable in poorer countries as compared to wealthier countries; and the income increases are generally associated with large increases in the demand of fruit than vegetables. The study also found that, low-income households are more sensitive to prices than higher income households. The study more found that, the price elasticity of demand for fruit and vegetable ranges from 0.35 to 0.50 for most of African and South Asian countries; the price elasticity of demand for fruit and vegetable ranges from 0.35 to 0.45 in most Latin American countries; and the price elasticity of demand for fruit and vegetable ranges from between 0.10 and 0.30 in the industrialized world. The study finding signifies that, there are several determinants of demand for processed fruits which needs a critical consideration in the theoretical gap.

Han and Mittel (2011) did study on what determine the consumption decisions at household level. The study come out with finding that, the consumption decisions of households to purchase fruits and vegetables are influenced more heavily by implicit income than by implicit price and apart from income. The findings also found that, non- economic factors such as gender, age, education, preferences, consumption habit, household size influences the demand of fruits and also associated with greater fruits and vegetables intake amongst households. In support of the study, Ruel *et al.,* (2005) found that, female-headed households allocated budget for fruit and vegetable products than male-headed households in many Sub-Sahara African countries. This difference is statistically significant in Ethiopia, Malawi, Tanzania, Rwanda, Kenya, Uganda, and Ghana. However, the pattern was stronger and more consistent for the case of demand for vegetables than the case of demand for fruits. In addition, Ruel *et al., (*2005) has found that, urban residences are significantly associated with a greater share of budget allocation to fruits and vegetables in Ethiopia, Tanzania, Kenya and Guinea, but become different to the share of budget which allocated in Malawi, Mozambique and Ghana which is very small. The study also found that the households with a member with middle level of education tend to consume smaller quantities of fruit and vegetable products than those with lower education in Sub Saharan countries.

Pollack et al., (2007) did a study assessing the budget allocation on fruit and vegetables at household level. The study found that, households with many members allocated smaller share of their budget to fruit and vegetables. The study concluded that, the household with fewer members allocate higher budget for fruits and

vegetables. The decision was found that depends on habit, social desirability, personal and food ideology, factors which influences the consumption choices of fruit and vegetable products amongst customers. In addition, Pollack *et al.,* (2008) found that, taboos and cultural beliefs plays significant role for fruits demand in many populations, especially for selected physiologically affected people or age groups such as pregnant and breast-feeding women or young infants.

Nganyangwa (2008) did a study on the demand of processed fruit products in Tanzania. The study found that, the demand of locally processed fruits products was generally low as compared to imported processed fruits products. The study due to come up with reasons for low demand as the tendency of people to assume imported processed fruits products have better quality as compared with the domestically processed fruits products. The study concluded that the locally processed fruits and vegetables in Tanzania were facing the low market demand because of availability of more unprocessed fruits to satisfy the whole market. The study was supported by a report by Global Fruits and Vegetables (2012) which revealed that, health consideration and consumer awareness have an influence on consumers to switch from processed fruits to fresh fruits. Also, a study by Golan *et al.,* (2009) on the determinants of preferences of demand for processed fruits found that, there is a preference of processed food to natural food basing on healthy reasons to avoid the pathogenic diseases that found on unprocessed fruits and vegetables. These findings were also supported by other studies of Birthal *et al.,* (2008); Forder *et al.,* (2010); Nganyangwa (2008) with the content that people prefer processed foods due to healthy reasons and to avoid the pathogens that are found in unprocessed fruits and

vegetables. It is noted here therefore that, health issues have influence on demand of processed fruits.

Tiisekwa *et al.,* (2005) did a study on the demand of processed fruits and vegetables revealed that the demand for processed fruits and vegetables depend on product quality, availability of products in the market at right time and place. The study also found that, domestic processed fruits products are facing the low demand due to lack of advertisement and promotion, low purchasing power among the consumers, lack of quality. Other factors for low demand revealed to be stiff competition with similar imported fruit products, tendency of people to believe that imported food products are better than domestically processed food products. In support of Tiisekwa results, Frank (2006) in a study of determinants of demand for processed food revealed that, the demand of processed food is affecting by poor processing habit of food processors, poor product quality. Also, Frank noted the demand of processed food is affected by inconsistency in supply, inefficient on distribution channels and lack of confidence among food processors and food dealers. Price and Gislason (2008) in a study of low demand of processed fruits found that, the processed fruits products have lower demand in the market's due inconsistency of availability in the market at right time and right place. The studies Tiisekwa, 2005; Frank 2006 and Price and Gislason, 2008 recommended another study to be done to assess the determinants of processed fruits in Tanzania.

The studies of Ruel *et al., (*2009*)*; and Han and Mittel (2009) on explaining the causes of low demand of local processed food, found that, the lower demand of

locally processed food was affected by inconsistency in supply, inefficient on distribution channels and lack of confidence among food processors and the food dealers. Golan *et al.,* (2009) in a study on the factors affecting household on food consumption revealed that, the factors which affect household food consumption are household size, household composition. Other factors noted were household location, education level, age, household head, consumer awareness about the food products, consumer preference, cultural believes, social culture, personal interest, psychological and consumption habits. The results are in line with those of a study done by Ruel *et al.,* (2009) and study by Gilson (2009) argued that, food consumption patterns in a given country are determined by prices of food products in the markets, consumer's income, education, age of consumers, and awareness about product in question, preference and culture and psychological factors.

Janssen (2009) in a study of economic model decision on food consumption reported that, all economic models of household and intra household decision making and the concept of household or individual utility have the assumptions that the decision-making objective is to maximize utility. The decision-making model is subjective to prices and alternative opportunities that may differ among households based on availability of resources, access to markets, institutional arrangements and household objectives. The same assumption was made on this study that, household might purchase the locally processed fruits products it consumes and paying a given price for each good but it may constrain by household income level, demographic characteristics, economic and other social factors.

Janssen (2009) on a study only what determines household consumption reported that, the objective of the household consumption theory is to maximize utility of households or level of satisfaction by consuming the optimal combination of goods and leisure. The empirical study so discussed suggests that, the amount of food that the household consumes depends on constrained by its income level. The optimal combination of goods and leisure occurs where the contributions to household satisfaction (marginal utility) of each additional consumption item or leisure time are the same. The same assumption was made on this study that, household might purchase processed fruits products it consumes and paying a given price for each good but it may constrain by its income level.

NBS (2017) conducted a study to compare the market demand between locally processed fruits and vegetables and imported processed fruits and vegetables in Tanzania. The study used a mixed method to reach the finding. The findings revealed that the market demand for locally processed food products was relatively low compared to imported processed products. The gap which has been revealed from the findings did not disclose the reasons of the low demand for locally processed food products as compared to imported processed food product in Tanzania. Also, a study conducted by TCCIA (2016) to investigate the factors which affecting the market demands of processed food products in Tanzania. The study used qualitative and quantitative. The study finding revealed that, the market demand for locally processed food products was affected by inconsistency of supply for products, inefficient of distribution channels system to reach the market on time, lack of

confidence for food processors and food marketers, poor market management system and resources.

The study conducted by TCCIA (2016) to analyse the factors influencing Small and Medium Enterprises (SMEs) growth in fruits and vegetables processing industries. The study used quantitative method. The findings revealed that, the factors which influence (SMEs) growth in fruits and vegetables processing includes access to markets; access to processing technology; access to finance; access to skills and information and access to inputs. The noted factors are likely to lower supply of processed food in the market.

Mmasa (2016) did a study to assess the factors affecting market value chain of food products the case of Sweet Potatoes in Tanzania case of Mwanza. The study used a mixed method. The findings revealed five factors which determined the marketing value of food products along the food chain included ability of the suppliers to offer the quality product that meets the needs and wants end users. Others are the nutrition value which offered from that food, shelf life, taste, the convenience of storability and the product price. With the exception of Nyange (2000) study on assessment of attributing factors which influence the consumer to be attracted on processed food products, most studies on processed food products along food value chain focused on factors demand for food products. Others are value chain challenges, supply chain, quality and competition of local food against imported food products. The reviewed studies confirmed the factors for demand of fruit products bases on three elements, economical, psychological, and sociological in nature. This current study

assessed determining factors for demand locally processed fruit product in Tanzania from selected regions of Dar Es Salaam, Tanga and Iringa.

2.6 The Researches Gaps

The study identified three potential gaps which need to be addressed. The gap includes theoretical gap, methodological gap, and practical gap. These identified gaps designed to be addressed for the purpose of contribution to the academic knowledge.

2.6.1 Theoretical Gap

Most reviewed studies used economic and some used demand theory to determine the factors for demand of food products. The current study saw the gap of using economic and demand theory and assumes to determine the demand of food products. In the other hand, some studies used consumer behaviour theories. The current study now used classical consumer theory and neo-classical consumer theory. The study filled the theoretical gap using classical consumer theory as the main theory and non-classical consumer theory as subsidiary. Empirically, there are little literature on determinants of demand for processed fruits in Tanzania using the classical consumer theory in combination of neo-classical theory and the conducted studies in the Tanzanian context suggested other studies to be done to assess the determinant of demand for processed fruits as compared to demand of imported fruits (NBS, 2017 and Tiisekwa, 2009). However, the conducted studies revealed the determinants of demand for food products range from psychological, sociological, cultural and religious believes. These study currents used the classical consumer

theory and neo-classical theories to contribute filling the falling demand of locally processed fruits in Tanzania.

2.6.2 Methodological Gap

Methodologically, reviewed literature used snowball sampling (TCCIA, 2016; Janssen, 2009, Ruel *et al.,* 2009 and Tiisekwa, 2009), used mixed methods approaches. Other studies analyzed data by descriptive statistics where according to Ndekwa (2014) and Mng'ong'os (2017), descriptive analysis lacks the power of generalizing findings to the population hence limit generalization at the sample level. To fill this gap this study used a quantitative technique, the data underwent descriptive analysis and multiple linear regression analysis that provides power to generalize findings from to the population and hence provide room for comparing the results.

Apart from literature in Tanzania, some works of literature reviewed were focusing on food products (NBS, 2017; Gilson, 2009; Golan *et al.,* 2009 and Frank, 2006). The study was conducted in Tanzania in selected regions of Dar es Salaam, Tanga, Dodoma and Iringa, while other studies were done all over Tanzania. This study therefore filled gap of focusing direct on processed fruits which area has not been extensively researched.

2.6.3 Policy Gap

Development issues need clear policies in place to guide the performance of a sector. The food sector has no known and direct policy to guide its operation. Practically it

is a gap which need to be filled to make sure the food processing sector has its own guiding policy rather than basing on SME and industrial sector. The study is now ready to guide the development of food processing policy.

2.7 The conceptual framework

After critical review of literature, a conceptual framework is developed. The conceptual framework of this based on literature review; in summary the demand of locally processed fruits is mediated by consumer's preference for locally processed fruits products. However, the preference is influenced by many interrelated factors which found on the market environment namely: economic factors, sociological factors, psychological factors, demographical factors and government policies, legal and institutional frameworks related to agro-food processing sub sector as presented on the diagram on Figure 2.1.
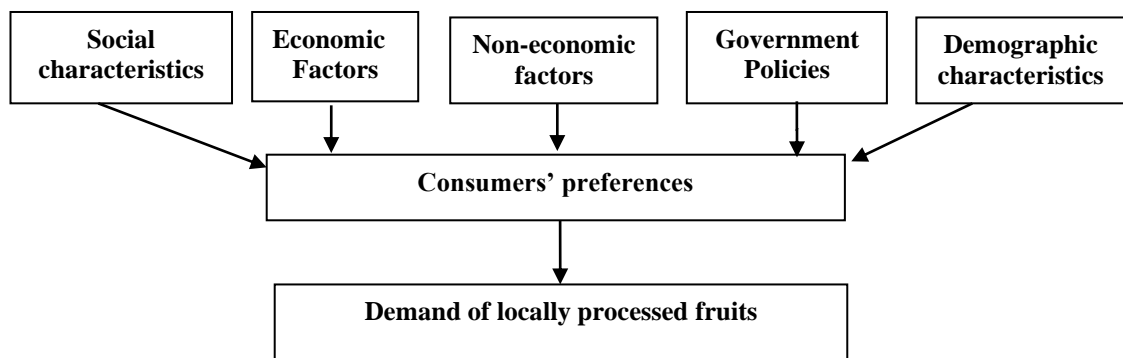

Figure 2.2: Conceptual framework

Specifically, the conceptual frame work indicates that, the demand variables are used as a mediating variable while preference variable is used as a modulating variable on the concept that, the demand of locally processed fruits in the study area is determined by consumers' preference on the markets when other factors remaining

constant (ceteris paribus). On Figure 2.1 the consumer's preference is positioned as mediator variable partly because the decision-making process of consumer consumption of locally processed fruits is influenced by attitude of a consumer the product which determine the demand of product which positioned as moderator.

However, most researchers have found difficult to include all the stated variables or factors in the empirical models, either due to non-availability of data or problems of not having enough observations (Agarwal and Drinkwer, 1977; Saxauer, 1979). However, Mrema (1984) suggested that economic theories of consumer behaviour are generally used to guide the researcher in developing appropriate variables for specification. The variables of the study have been generated from classical consumer theory and neo-classical theory. The variables have been used by other studies; however, the study opted to use all variables of classical consumer and neo-classical consumer theories. The use of all variables as compared to selected variables by other studies has come up with clear determinants of demand for processed fruits in Tanzania.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Overview

This chapter describes the methodological aspects of the study. The chapter is divided into the sections of research design of surveyed population, data sources, data collection method, data analysis, sampling procedure, and design, variables and measurement procedures, preliminary survey, recruitment and training of numerators, the operation of the fieldwork, data processing and analysis, validity and reliability of the data, and the limitations in the study.

3.2   Research Philosophy

Research philosophy is a faith about how data for a phenomenon should be gathered, analyzed, and used. The term epistemology (what is known to be true), as opposed to doxology (what is believed to be true), encompasses the various philosophies of the research approach. In this case, scientific research's primary aim is always to be the process of transforming things believed into things known (Bains, 2011). Generally, there are two major types of research philosophies used in the tradition of science, namely positivism (sometimes called scientific) and interpretive, also known as ant positivist (Saunders *et al.,* 2011).

This study follows the positivism research paradigm to generate hypotheses that are empirically tested where findings that reflect reality will be generalized. According to Saunders, 2012,) positivism philosophy states that only phenomena that can be

known through our senses can really produce knowledge, which is usually associated with empirical testing. Therefore, the study aims at theory testing or following the positivism approach underpinned the researcher to adopt a quantitative research approach to the study. Therefore, this approach associates research theory, hypothesis, and scientific model to generalize the result (Deepak and Neena, 2011).

In this study, the Quantitative research method was employed to address the study objectives. The quantitative research method's adoption in this study was because determinants of demand for processed fruits variables are well known to respondents to provide information. The procedures data collected and codified for data analysis and generalization reporting is another reason for the positivism philosophy. Also, the philosophy allows a large sample size for the study; conceptualize reality in terms of variable relationships (Punch, 1998).

3.3   Research Design

A research design is a procedural plan adopted by the researcher to answer questions validly, objectively, accurately, and economically (Chawla and Sondith 2011). In line with this, the study opted for an explanatory cross-sectional approach. The research influenced to pick this design because it gives researchers more control over the research process (Saunders and Lewis, 2012).

This study, as per positivism, used a quantitative approach. Quantitatively, the study inquired to identify problems determining the demand for processed fruits in Tanzania. Kothari (2009) noted that quantitative techniques could measure specific

characteristics through structured data collection procedures from a large representative sample to project the results to the entire population.

This study employed a case study as research strategies. The design involved the sampling of the population of interest and using the findings obtained from the study sample to generalize the information of the total population. The valid general information was achieved as the samples drawn from the population were objectively selected by probabilistic selection techniques of random sampling.

3.4 Study area

The study was conducted in Dar Es Salaam, Tanga, Dodoma, and Iringa regions. The factors considered in deciding to choose Dar Es Salaam was the population and the consumption of food products. Other factors include the existence of many and diverse agro-processing firms as opposed to other regions in the country. The regions have different categories of consumers in terms of economic status, ethnicity, culture, and high consumption of fruits. Apart from Dar Es Salaam other two regions have higher production of horticulture products, including fruits. Also, the regions have facilities for the production of different fruits and the importation of processed fruits. Data indicate that the average expenditures of fruits between May 2009 and May 2010 in Dar Es Salaam city were 21311.00 TShs compared to 11211.00 Tshs in other urban areas and 5720.00 Tshs in rural areas respectively (NBS, 2011). Iringa and Tanga regions are included in the study due to their high potential for producing and processing varieties of fruits. In contrast, the Dodoma region was chosen in the study due to its potential for producing and processing grapevines.

3.5   The Study Population

The population (N) of locally processed fruits consumers in the average households with respect to region were as follows; Dar es Salaam region with 70,966, Dodoma region with 51,007, Tanga region with 46,563 and Iringa region with 45,731. The total population (N) of locally processed fruits consumers in the four regions was 214,269 households (NBS, 2017). The population of local processed fruits consumers is estimated to be 857,076 for an average of four persons in a household (NBS, 2017). The estimation of the population of household is based on the number of people in a household noted from NBS (2017) report on consumption of food pattern in Tanzania per household.

3.6   Sample Size of the Study

Kazuzuri (2017) said estimating the sample size is one of crucial issue in research. The sample size and the reliability are achieved by using the proper mathematically to calculate the sample size. Kazuzuri (2017) noted that inadequate estimated sample size results into questionable findings. Normally, the sample size based on population and is representative of real population when well established. In addition, Kessy (2018) said, when the study is using the error term ($\mathcal{E}$), confidence interval, standard normal variety ($Z_{\alpha 2}$), standard deviation (δ), and mean of population (μ), there must be a value that is added or deducted from the sample mean which is known as margin of error in order to determine the minimum required sample size (the error term ($\mathcal{E}$) and can be equated to the margin of error).

The general equation for estimation the sample size for each population of respondents was used as $n \geq Z_{\alpha 2}\partial^2/ (\epsilon)^2$, standard normal variety$= (Z_{\alpha 2})$, error term(ϵ) $= \partial/ Z_{\alpha 2} = 0.00022, \partial = \sqrt{(X_1- \mu)^2} + \sqrt{(X_2- \mu)^2} + \sqrt{(X_3- \mu)^2} + \sqrt{(X_4- \mu)^2} / \sum N$, mean of the population (μ), level of significance $(\alpha) = 0.05\%$, standard deviation (δ) which was unknown and required to be calculated, Xs were sub population variables of groups of respondents from each regions, Dar Es Salaam, Dodoma, and Iringa. Basing on the formula a total of 385 sample size was generated. The respondents from each region were generated by the use of proportion sampling n_1 for Dar Es Salaam, n_2 for Dodoma $n3$, for Iringa and n_4 for Tanga regions.

The sample size was 755 where the planned respondents by the use of proportion formula from n_1 = 34.6 % (260); n_2 = 21.8% (165);n_3= 21.8% (165) and n_4= 21.8% (165) for Dar Es Salaam, Dodoma, Tanga and Iringa respectively.

3.7   Sampling Design and Procedures

A multi-stage sampling technique was used on sampling design and procedure; the first stage involved selecting districts, wards, and streets using a purposeful technique. The sample consumers for possible users of processed fruits by random sampling based on official data made available by the leaders of wards involved. The respondents were done randomly from the database given at ward level until the planned sample arrived.

Distribution of the sampled districts of Dar es Salaam was three purposely selected Kinondoni, Ilala and Temeke. In Iringa region, three districts of Iringa Municipal,

Kilolo and Mufindi. In Dodoma region three districts of Dodoma Municipal, Mpwawa, and Kondoa and Tanga region, three districts of Tanga Municipal, Muheza and Lushoto.

3.8 Data Sources

3.8.1 Primary Data Collection Methods

Primary data were collected through a structured questionnaire. The questionnaire was prepared in English and then translated into the Swahili language, which many Tanzanians understand. However, the respondent had a choice to decide the type of questionnaire to be used. The researcher first did the translation, and to ensure the correct translation, a language expert also translated the questionnaire into Swahili. A consensus on the few aspects that differed in the two versions was done. The author did pre-test the questionnaire on 32 heads of households based at Kinondoni to test each question's reliability and validity in capturing the information needed. After the pre-test, a few questions were modified.

Questionnaires were used to capture information such as income levels, degree of customer satisfaction, numbers of products served, promotion expenditure of processing companies, age, economic status, education level of respondents, and factors that influence the demand for locally processed fruit products. The respondents were free to be interviewed by enumerators to fill in the questionnaire on their own.

3.8.2 Secondary Data Collection Methods

The secondary data was collected using published and unpublished materials such as books, modules, magazines, periodicals, thesis, dissertations, monographs, speeches, articles, journals, case studies, reports of the meetings' minutes other sources such as internets and newspapers. Secondary data collected information from previous scholars who did similar studies and were included in the report.

3.8.3 Recruitment and Training of Enumerators

The recruitment of the enumerators was guided by the following attributes, academic qualifications, and willingness to work for a long time in different environments, ability to interact with people of different ethnic groups and religions, familiarity with places where the fieldwork was being conducted. The recruitment and training were done after the preliminary survey. The objective of the preliminary was to get experiences on difficulties in getting respondents and handling reluctance respondents.

3.9 Data Processing and Analysis

The data analysis involved three main phases, namely: data preparation, descriptive analysis, and inferential statistics were used to analyze the data collected from the field. The sections below detail how these approaches were employed in this study.

3.9.1 Data Preparation

Preliminary data analysis was preceded by the coding of data to classify the collected data. The researcher coded data to enable the researcher to enter the data quickly and with fewer errors (Saunders *et al.,* 2012). The data were entered in SPSS version 21

software as a string for the next data analysis stages. The data cleaning and screening were to identify inconsistencies in filling the questionnaire and any errors while entering the data. Furthermore, the process was done to detect whether there are some missing of the entered data. The process was done to identify and replace, modify or delete the incorrect data from the created template ready for descriptive analysis.

3.10 Descriptive Statistics

Descriptive statistics involved computation of mean scores, standard deviation, percentages, cross-tabulation, and frequency distribution, which described the respondents' demographic characteristics. Measures of dispersion (SD) were to test the normality of the data. Furthermore, the descriptive analysis produced an overview of the data, tested whether there are significant relationships between variables used in the study) about specific variables. On the other hand, the coefficient of determination (R^2) was also used to determine the goodness of fit of different models by indicating whether the proportion of consumers of processed fruits explained by all the combined predictor variables was equal, greater than, or less than the population of each predictor variable. The closer R^2 is to 1, the better the fit of the regression line to data.

3.11 Inferential Statistics

The inferential statistical analysis helped conclude the relationship between independent and dependent variables by using econometric models. If the study consists of the data with only one variable is called univariate population, the data

with two variables is known as bivariate population, and the data with more than two variables is known as multivariate population (Kothari, 2009). This study employed multivariate data analysis techniques because it had four independent variables determining the demand of locally processed fruits, namely social factors, economic factors, non-economic factors, and influence of government policies. Hair et al. (2010) defines multivariate analysis as all statistical techniques which simultaneously analyze the multiple measurements on individual objects under the study.

The data in this study contained both independent and dependent variables. The correct data analysis techniques for a study with independent and dependent data include multiple regression analysis and multiple discriminate analyses (Kothari, 2009). However, if there is a single metric dependent (criterion) variable that is explained by several independent (predictor) variables, then multiple regression analysis is the best option technique for data analysis (Kothari, 2009). Since the study investigated the causal model's relationship among many independent variables against one dependent variable using numerically generated data, multiple linear regression analysis was suitable for analyzing, testing hypotheses, and making a conclusion. However, before conducting multiple linear regression analysis, correlation was done to assess the relationship among variables without inferring cause and effect of those variables and testing multicollinearity problem among independent variables.

3.11.1 Correlation Analysis

Correlation analysis does not assess the cause and effect between the two variables.

Correlation analysis determines the strength of the linear relationship between the two numerical or ranked variables (Hair *et al.,* 2010). The coefficient of correlation value (rho) lies between +1 and -1, whereby a value of +1 means a perfect positive correlation and -1 indicates a perfect negative correlation. The data interpretation debased on the correlation coefficients and judged whether the correlation between the variables was significant (calculated Pearson correlation value, $p<.01$ or $p<.05$) or insignificant (Pearson correlation value, $p>.01$ or $p<.05$). Besides, correlation analysis was important in testing multicollinearity among the independent variables. In the case the degree of correlation between independent variables in multiple regression analysis is 0.90 or above, a serious multicollinearity problem exists, requiring using of only one set of the independent variable to make the estimation (Hair *et al.,* 2010). Besides, it is logically assumed that there are no pairs of predictors correlated with destabilizing the estimation of model parameters.

3.11.2 Regression Analysis

Regression analysis is a technique used to analyze the relationship between a single dependent variable and one or several independent variables. The general assumption is that there is a linear correlation between the dependent and independent variable(s) (Hair *et al.,* 2010). Accordingly, linear regression analysis is an appropriate statistical technique for examining such relationships.

3.12 Multiple Regression Models

Multiple Linear Regression (MLR) analysis was statistical technique used to analyze the influence among variables (i.e., Single dependent variable and several

independent variables). The main reason for using the multiple linear regression techniques is to predict the variability of the criterion variable based on its covariance with all the explanatory variables (Deepak and Neena, 2011; Ansare, 2012). The data interpretation is through observing the coefficients and judge whether the relationship between the independent variable and dependent variable is significant (calculated t value, $p<.05$) or insignificant (calculated t value, $p>.05$) (Kothari, 2009).

Multiple Regression Model equation was specified as follows:

$$T = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots + \beta_K X_K$$

Where **T** is the demand or preference of locally processed fruits on markets, the variable X_1, X_2 and X_3 are vectors of explanatory variables postulated to explain the determinants of demand for locally processed fruits products on the market, β_0 is constant of the question, β_1, β_2, and β_3 are coefficients or vectors of parameters to be estimated, and $\mathbf{€}$ is random error term assumed to be normal with zero mean and constant variance. The analysis of the data was based on the limited dependent variable of regression model.

The independent variables used on multiple regression models to estimate the coefficients of determinations were education level attained by household heads, the age of the household heads, the household size, the availability of locally processed fruits, the sex of household heads, awareness of the vital nutritional role that processed fruits play in the human diet, frequency promotion, price of locally processed fruits, price of fresh fruits, the household income, the quality of processed

fruits products and preference of consumer about processed fruits. The dependent variable used on multiple regression models to estimate the coefficients of determinations the demand for locally processed fruit products was the demand or preference of locally processed fruit products.

The variables on Multiple Regression Models and their letters were education level attained by household heads (EDUC), the age of the household heads (AGE), the household size (HSIZE), the availability of locally processed fruits (AVALPF), the sex of household heads (SEXR), awareness of the vital nutritional role that processed fruits play in the human diet (NTAWS), frequency promotion (PRMM), price of locally processed fruits (PCLPF), price of fresh fruits(PCFF), the household income (INCOME), the quality of locally processed fruits products(QTYLPF), preference of locally processed fruits (PrLPF).

ANOVA was used along with linear regression model for convenient analysis data. Convenient means of showing the regression output is to use an ANOVA table. The dependent variable variation is separated into two components: the explained variation and unexplained variation (Hysa, 2012). According to Chawla & Sonddhi (2011), the multiple regression equation takes the form:

Y = demand locally processed fruits

X_{i-n} = Independent's variable (according to specific objective variables of the study)

B_0 = y-intercept (Level of locally demanded processed fruits when all independent variables were 0)

B_i, B_2 B_3..= is called the regression coefficients. They indicate the change in the dependent variable's estimated value for a unit change in one of the independent variables when the other independent variables are held constant. e_i = error term

3.12.1 Assumptions of Multiple Linear Regressions

Statistical tests mostly rely on assumptions about the variables utilized in data analysis. If these assumptions are smartly met, the results are trustworthy since type I error, Type II error, and over-or under-estimation are significantly avoided. Osborne and Waters (2002) emphasize that the crucial fundamental assumptions of multiple linear regressions analysis are the presence of normality, linearity, homoscedasticity, reliability of measurement, and absence of outliers. However, the other commonly tested assumption of multiple linear regressions analysis is the multicollinearity concept (Hair *et al.,* 2010). These assumptions are addressed in the following sub-sections.

3.12.2 Normality Assumption

The first assumption of multiple linear regressions is that variables are normally distributed. Regression assumes that variables have normal distributions. Non-normally distributed variables such as highly skewed, kurtotic variables or variables with substantial outliers can distort the relationships and significance tests. Normality was checked under SPSS using the Kolmogorov-Smirnov test (Saunders et al., 2012). The Kolmogorov-Smirnov test is appropriate if the sample size is at least 200 observations and works best if the sample size exceeds 1000 observations (Mashenene, 2016; Hair et al., 2010). If the Kolmogorov-Smirnov test is

insignificant (p>.05), the distribution of data meets the assumption for conducting any parametric test since data are normally distributed (Saunders et al., 2012). The null hypothesis states that data are normally distributed. In contrast, the alternative hypothesis states that data are not normally distributed conversely; if the Kolmogorov-Smirnov test is significant (p<.05), the data distribution does not meet the assumption for conducting any parametric test since they are not normally distributed.

However, if the Kolmogorov-Smirnov test is significant (p>.05), the data's distribution meets the assumption for conducting any parametric test since they are normally distributed. Likewise, Hair et al. (2010) argues that if the sample size is less than 1000 researchers should also use graphical plots such as histograms to assess the actual degree of departure from a normal distribution. The normalized histograms use standard deviation to measure the normality of data. The standard deviation, which is the square root of the variance, is mostly applied to measure data values' dispersion from the average or mean (Saunders et al., 2012). As a rule of thumb, a standard normal distribution has a mean of 0 and a standard deviation of 1 (Kothari, 2009). The low standard deviation shows that data points are very close to the meanwhile, the high standard deviation shows that data points spread out over a big range of values.

3.12.3 Extreme Values Assumption

The second assumption of multiple linear regressions is the absence of substantial extreme values in the data which means no outliers. Multiple regression analysis is

sensitive to outliers which are extreme values characterized by unusual or unrepresentative cases. The presence of outlier's bias regression coefficients and are likely to lead in getting invalid results. Outliers are removed before data analysis (Tabachnik & Fidell, 2007, cited in Taruwinga, 2011). Statistical analysis is also carried out to test the status of outliers. Anderson (2008) suggests that the data free from outliers have standardized residuals within the limits of ± 3 which are expected for normal data distribution. Residuals are assessed on whether are normally distributed by producing a normal probability plot called normal P-P plot and box plots.

3.12.4 Linearity Assumption

The third assumption of multiple linear regressions is that the relationship between the independent and dependent variable(s); if the relationships are linear in nature. Linearity shows how the change in a dependent variable is related to a change in the independent variables (Hair et al., 2010). If the relationship between independent variables and the dependent variable is not linear, the regression analysis results will under-estimate the true relationship. Linearity assumption is tested using correlation coefficients and scatter plots. Linearity assumes that the correlation between the variables is linear and this is true if the bivariate correlations for each pair of independent variables are significant showed by the asterisk mark (*p< 0.05, **p< 0.01 or ***p< 0.001).

3.12.5 Homoscedasticity Assumption

The fourth assumption of multiple linear regressions in homoscedasticity means that

the variance of errors is the same across all levels of the independent variables; otherwise, it is heteroscedasticity. The implication is that residuals have approximately the constant variance regardless of the dependent variable value. For every value of X, Y scores' distribution should essentially have approximately equal variability (homoscedasticity). SPSS Levene's-test for homogeneity is commonly applied to check the equality of variance for a pair of variables (Hair et al., 2010).

3.13 Validity and Reliability of Data

The validity and reliability of collected data can be affected by participants' error, participant bias, observer error, and observer bias (Greener and Martelli, 2015). Reducing the possibility of getting the wrong data and, consequently, wrong inferences, paid attention to ensure both reliability and validity as explained in the proceeding sections:

3.13.1 Validity of Data

Data Validity is defined as data collection methods and tools to measure the construct accurately (Bryman, 2008). validity is intended to enhance validity in this study. Two main approaches were deployed, including first developing the questionnaire and pre-test for further refinement to suit the study (Alshboul, 2016). A pilot testing study was carried out before the main research work undertaken to test the clarity, effectiveness, adequacy, and relevance of the research instruments, which is the questionnaire. It also tested whether the hypotheses, variables, and measures were appropriate. A total of 35 respondents were selected conveniently

from the Kinondoni council to participate in the pre-testing of the data collection tools. This sample size is perceived adequate for pilot testing (Saunders, 2009).

This is supported by scholars such as Kothari (2009) who pointed out that before data collection, the designed instruments such as questionnaires and interview guides should be subjected to pilot-testing to ensure the findings' quality. The area used for pilot test was excluded from the actual data collection for the study. The noted errors and suggestions given by the respondents during this exercise helped improve the tools and, hence, achieve the data's validity and reliability. Furthermore, before the data collection, the questionnaire was translated from English to the Kiswahili language.

3.13.2 Reliability of Data

Reliability refers to the findings' consistency and stability that enable the findings to be replicated (Hair, et al., 2010). In this study a reliability test was done using Cronbach's alpha α test. The Cronbach's alpha was computed to examine the internal consistency or reliability of our instrument. It measures how well a set of variables or items measures a single, one-dimensional latent aspect of individuals.

The Cronbach's alpha values range from 0 to 1, and the values above 0.7 represent an acceptable level of internal reliability (Cortina, 1993). Table 3.1 presents Cronbach's alpha values, and the number of items joined for each factor. The Cronbach's alpha values for the five factors range between 0.768 and 0.877. This indicates that a high level of internal consistency for our scale.

The reliability of the tools for data collection is important to ensure that when the tools are used to collect data on similar settings they can consistently yield similar results. It refers to how data collection techniques or analysis procedures yield consistent findings (Saunders et al., 2009 and Marczyk et al., 2005). This study ensured the reliability of data through some practices.

3.14 Ethical Issues

Ethical behaviour conforms to the agreed moral values or standards given by various professional bodies (Fraenkel & Wallen, 2008). Similarly, as noted by Minja (2009), Ethics are norms governing human conduct, which have a significant impact on human welfare. To start with the researcher sought permission from many authorities responsible for issuing permits for this research to be accomplished, as appended in appendixes. The authorities include the Open University of Tanzania (OUT), given the clearance letter for data collection.

Other ethical issues put in check included; Honesty: The researcher strived to maintain truthfulness in reporting data results by ensuring that there is no fabrication, falsehood, or any misrepresentation of data. Objectivity: The researcher avoided bias in research design, data analysis, and data interpretation. Respect for Intellectual Property: The researcher honored patents, copyrights, and other intellectual property forms by accrediting and acknowledging contributions from various parties. The researcher observed the voluntary of respondents in joining or withdraws from the study without restrictions.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Chapter Overview

This chapter presents the results and discussion, giving information to determine the demand for processed fruits in Tanzania. The respondents were fruit consumers in the households representing the consumers. The chapter is divided into five main sections according to study objectives which discussing the demographic characteristics of fruit consumers in the households, identifying the influencing social factors to consumers preference about locally processed fruits; economic and non-economic factors influencing demand, and the influence of government policies deriving demand of locally processed fruits products in Tanzania.

4.2 Preliminary Survey Result

Before the fieldwork, a preliminary survey was conducted to solicit background information about the study areas, familiarize with the study area, and establish the sampling framework. The preliminary study took place in the Kinondoni district. The preliminary pre-testing of the questionnaires was intended to validate the questions' relevance to the intended respondents. The questionnaires were pre-tested by using nine households for processed fruit consumers. The pre-testing resulted in getting information that necessitated gaining experience to simplify data collection for the main study. The preliminary study noted that the interviews lasted between 30 and 45 minutes per respondent, which was quite satisfactory because a period longer than this time could lead to impatience on the respondent's part. Also, the preliminary

study noted that some of the questions needed slight improvements to capture some missing information intended from the respondents. The respondents advised that the question income-related data were sensitive hence better asked to overcome distorting respondents' mood. The pilot study revealed that the most efficient way of carrying out the main survey was to allow respondents with higher understanding to fill the questionnaires at their own convenient time. The study successfully reached 29 respondents out of the target of 35, which was 82% above the standard estimated response rate of 60% +-20% for social sciences (Baruch, 1999; Fincham, 2008).

4.3   Demographic Characteristics of Local Fruits Dealers

4.3.1 Locally Processed Fruits Dealers Characteristics

Table 4.1 shows that most of the fruit firms' processing is located in urban areas. At the same time, Dar Es Salaam region leads with 76.7 %, followed by Dodoma region with 72.7%, Iringa region with 66.7%, and Tanga region with 50.0%. The overall average of fruits processing firms is 66.5%. The study suggests that fruit processors in Tanzania are located in urban areas than rural areas. This is caused by the availability of facilities such as road networks, markets, communication networks, and power supply. The findings concur with a study conducted by Mungai et al. (2008) in Kenya; the study reported that most fruits and vegetable processing factories in developing countries are located in towns. The study noted the reasons peri-urban having few factories including, lack of important services such as transports, accessible roads, markets, raw materials supply, power supply, and water supply.

The findings have shown that few local fruit processing firms are located in rural areas with 22.1%. This evidence suggests that most of the processing of the fruit industries are not located in rural. The respondents pointed the reasons for the trend being, lack of important services such as transports, accessible roads, low market demand, power supply, and water supply. The findings concur with Nyange's (2005) results in a study done in Dar Es Salaam determining the demand for food. The study reported that urban food demand is more responsive to demographic changes than rural food demand, partly due to low incomes and limited food choices in rural areas. The findings concur with the study conducted by NBS (2012), which reported that private food businesses are mostly conducted in towns and the Dar Es Salaam region, leading at 60%, other regions with less than 40%. Although the production of fruits is taking place in rural areas, processing local products are done in urban areas due to the facilitating environment's availability.

The study wanted to know the processor's registration status, and the finding reveals that only 31% and non-registered were 69%. The information here is that many processors are not registered, which might cause consumers to be not comfortable with quality and health issues. The study learned that most fruit processors are not registered, which is a serious issue in people's health and can affect processed fruits' demand. Despite processors' non-registration, the majority, 92%, perform the fruit processing in the home. The impact of the processing in homes is the health concerns, where it might be using the residential area which is unsafe from quality.

The study wanted to know the processors' ownership of the fruit processing firms. The findings showed that 82% of the processing factories were either owned by

individuals or partnerships, while only 12% were cooperatives or Non-governmental organizations. The findings relate with the study by Nyange (2005) and NBS 2017 that most processors are individuals. Individuals establish the processing factories partly awareness of a community of processing fruits and or employment opportunities. On the other hand, the study wanted to establish to what extend the processors stated business. The results show that 69% had a capita equal of above one million Tshs. When asked how they got the capital majority said they generated either from savings or family support. The SME in processing industries in Tanzania seems to start with a minimal investment, which might hinder processors from initiating the registration process.

The study also, as depicted in table 4.1, wanted to know the employment status as per SME policy. The policy determines the standard categories of business status. The policy determines the category depending on either capital employed or the number of employees (URT, 2003). The study revealed that 85% employed less than 5 employees, 12% had less than 20, and 3% employed more than 20 employees. These results deduced that most processors are in small business enterprises (URT, 2003). The study results are in line with a study by Nyange (2005), who noted that food processors' contribution to employment could not be ignored. The results show that individuals support the government initiatives in the employment of Tanzania citizens.

Table 4.1: Demographic distribution of local fruits processing firms by region (%)

	Dar-es-Salaam	Tanga	Iringa	Dodoma	Sample
Urban area	76.7(27)	50.0(9)	66.7(5)	72.7(11)	64.4(49)
Peri-urban area	27.3(6)	08.3(1)	0.0(0)	27.3(4)	22.0(17)
Rural area	5.0(6)	41.7(8)	41.7(8)	0.0(0)	13.6(10)
Sub total	**100.0(35)**	**100.0(18)**	**100.0(8**	**100.0(15)**	**100.0(76)**
Registration					
Registered	47.3(17)	53.3(10)	66.7(5)	27.3(4)	30.5(23)
Not registered	52.7(18)	46.7(8)	33.3(3)	72.7(11)	69. (53)
Subtotal	**100.0(35)**	**100.0(18)**	**100.0(8**	**100.0(15)**	**100.0(76)**
Ownership					
Rented	15.2(5)	0.0(0)	0.0 (0)	0.0(0)	08.5(70)
Owned	84.8(30)	100.0(18)	100.0(8)**100.0(**	100.0(15)	91.5(6)
Subtotal	**100.0(35)**	**100.0(18)**		**100.(15)**	**100.0(76)**
Ownership of the firm					
Individual	81.8(29)	33.3(6)	66.7(5)	45.5(7)	64.4(49)
Partnership	12.1(4)	25.0(5)	33.3(3)	09.1(1)	15.3(12)
Cooperative	06.1(2)	16.7(3)	0. 0(0)	09.1(1)	08.5(6)
NGOs	0 .0(0)	25.0(4)	0. 0(0)	36.4(6)	11.9(9)
Subtotal	**100.00(35)**	**100.0(18)**	**100.0(8**	**100.0(15)**	**100.0(76)**
Start-up capital in Tzu	21.0(7)	4.0(8)	33.3(3)	45.0(7)	31. (24)
Below 1.0 million	79(28)	5.0(10)	66.7(5)	55.0(8)	69.0(52)
Above 1.0 million	**100.0(35)**	**100.0(18)**	**100.0(8**	**100.0(15)**	**100.0(76)**
Subtotal					
Labour/employees	90.5(32)	83.3(15)	33.3(2)	81.8(12)	84.7(64)
Below 5	06.1(2)	16.7(3)	33.3(2)	18.2(3)	11.9(9)
Below and 19	03.0)3)	0.0 (0)	33.3(2)	0.0(0)	03.4(3)
Between 20 and 99	**100.0(35)**	**100.0**	**100.0(8**	**100.0(15)**	**100.0(76)**
Subtotal					

Source Research finding, 2019

4.4 Proportionality of Locally Processed Fruit Products by Regions in (%)

The study wanted to know the status of processed fruits in the four regions of the study. Table 4.2 shows that the Dar Es Salaam region was processing different varieties of (13) fruit products; Tanga region fruit processing the study revealed

11varieties and Iringa and Dodoma regions. The results suggest that the Dar Es Salaam region is potential for the Agro-fruits processing industry in Tanzania. The reason is that Dar Es Salaam is potential for food products as a large consumer of food products depending on the population size. The current results concur with the results of a study by Nganyangwa (2001) in a study of food processors in the Dar Es Salaam region. They noted some fruits are processed, and its consumption trend is shown as promising. The findings concur with a study by Frank (2008), done study on processing factories in Dar Es Salaam. The study results revealed that most fruit processors in the Dar Es Salaam region were processing more than one fruit product. Table 4.2; show that Dodoma region is the higher producer of wines. Dodoma region produces 38.9% of all the wine production. It is deduced that Dodoma is known for its endowment for the production of grapes of Tanzania. The finding agrees with Nganyangwa (2001) that the Dodoma region is a potential for the production of wine than any part of Tanzania. Table 4.2; show that the Tanga region is prominent for processing oranges accounting for 18.6%, and apple juice at 18.6%. The result suggests the region's potentiality in producing orange and apple fruits and its processing opportunities. The findings agreed with the results of a study by Nganyangwa (2001), who revealed that Dodoma, Tanga, and Iringa could produce fruits in Tanzania. The study finding indicates that can put efforts into the producing regions to supply the raw materials to Dar Es Salaam, where the production environment is conducive for fruits.

Table 4.2: Proportions of fruits product processor by regions (%)

Product type	Regions				Total
	DSM	Tanga	Iringa	Dodoma	Sample
Pineapple juice	09.33(7)	18.6(8)	06.25(1)	11.1(2)	11.84(18)
Mango juice	01.33(1)	09.3(4)	06.25(1)	05.56(1)	04.6(7)
Garlic paste	06.67(5)	0.0(0)	06.25(1)	05.56(1)	04.6(7)
Chilli sauce	05.33(4)	07.0(3)	06.25(1)	0.0(0)	05.26(8)
Mango pickles	29.34(22)	14.0(6)	06.25(1)	11.1(2)	20.3(31)
Lemon pickles	02.67(2)	07.0(3)	06.25(1)	0.0(0)	04.0(6)
Mbilimbi	05.33(4)	02.3(1)	0. 0(0)	11.1(2)	04.6(7)
Pawpaw juice	02.67(2)	04.65(2)	06.25(1)	05.56(1)	04.0(6)
Apple juice	12.0(9)	18.6(8)	18.75(3)	11.1(2)	14.47(22)
Wines	08.0(6)	04.65(2)	0.0(0)	38.88(7)	09.87(15)
Orange juice	05.33(4)	11.6(5)	18.75(3)	0 .0(0)	07.9(12)
Passion juice	05.33(4)	02.3(1)	06.25(1)	0. 0(0)	04.0(6)
Mixedfruits juices	06.67(5)	0.0 (0)	12.5(2)	0 .0(0)	04.6(7)

Figures in brackets represent the number of fruit processing firms.

4.5 Correlation Coefficients Locally Processed Fruits Preference

Table 4.3 shows positive correlation coefficients between respondents' education levels against the consumption of processed fruits in Dar Es Salaam, Tanga Iringa, and Dodoma regions. The results show there is a positive relationship between education and consumption of processed fruits. In Dar Es Salaam, the score was 0.121, which is weak. Tanga was 0.300, moderate, Iringa was a negative relationship between education and processed fruits' consumption. However, in Dodoma, the score was 0.397, which is a strong relationship. This result implies that the consumption of processed fruits increased as the education level increases. Education level enables processed fruits consumers to be aware of product quality and understanding the role that the processed fruits products play on human health and nutrition. The current findings concur with Pollack et al. (2007) in America, who found that households with highly educated people tend to spend a higher percentage

of their income purchasing fruits. The findings concur with the study done by Ruel et al. (2005); the study found that households with highly educated members tend to be smart on spending money on product purchases.

The correlation coefficients for consumers and processed fruits' consumption were positive at a 5% probability level of significance. The results suggest that the consumption trend of fruits is influenced by the perception and attitude of the household's heads for locally processed fruits products in Tanzania. The finding concurs with the study results by Price and Gilason (2009) in a study on consumption patterns of processed food products. The study noted that processed food consumption is an important factor when explaining the consumption pattern of food in households. Therefore, the study findings confirm that demand for processed fruits consumption/demand is influenced by the head of the household in Tanzania.

Table 4.3: Correlation coefficients of education and Preference processed of fruits

Characteristics	Regions			
	Dar-es-Salaam	**Tanga**	**Iringa**	**Dodoma**
Education level	0.121*	0.300*	-0.369*	0.397**
Income level	0.099	0.156	0.489**	0.273
Households' preference and Consumption habits	0.788**	0.775*	0.616**	

*Significant at probability=0.05 level

4.6   Characteristics of Social Class in the Households

The study revealed that the average age of households' heads was 38 years, and the average age for family members was 17 years. The majority of respondents' age ranged between 18 and 39 years for Dar Es Salaam, while most respondents in other regions were established to range from 40 and 55 years. The study also established that the majority of respondents had younger ages. The study suggests that this is due to the young generation influx movement from villages to large cities such as Dar Es Salaam with an expectation of getting essential services such as jobs and good life.

The study shows that population density shows that most households had an average of six members in selected households in the study area. The study suggests that household members' size is slightly above the average standard household size of 4.9 (NBS, 2017). The information here is that the household family members are above the average size. This can be deduced from the influx of young people from villages to cities in search of opportunities. The findings relate with the study by URT (2003), which found an average of 5.9 persons in each household in Tanzania. The study when further to establish the living standard of respondents' families and established that, majority 67%, have the ability to acquire the three meals per day and include fruits in their meals. The study found respondents' social status was very high in urban cities with 79% minimum of primary education; 46% employed and can have pay for living. The finding concurs with a study by Kuppuswamy (1981), quoted by Patro, Jeyashree, and Gupta (2012), which found that urban India has a good education, better income, and has employment. The finding tells that; majority living

in cities can afford to buy local fruits as their social status allows them. The people living in towns have a better standard of living than people living in rural villages.

4.7   Economic Status of Respondents

Table 4.3 shows found on the income level of the respondents in the study area regional wise. As per results, respondents in Dar Es Salaam regions show higher income hence dictate high purchasing power. The other regions in the study area have lower disposable incomes. This dictates lower purchasing power. The study went on establishing the sources of income for households. The study results show different income sources in the study area, major income sources, formal employment, business, farming, and remittances.

Table 4.3 depicts respondents' economic status is divided into three categories of income status: low, medium, and high income based on the average monthly income. Respondents in the lower category earned an average of 500,000.00Tshs per month; the higher category earning was 8,000,000.00 Tshs per month. The findings show that the consumption of processed fruits was higher for respondents with lower and middle income. The findings concurred with the study of Minot (2008) and cited by Ruel *et al.* (2011). The study revealed that the average number of distinct fruits and vegetables is higher with the lower and middle-income earners. The study was done by FAO (2015) on the consumption of fruits and vegetables reported a positive correlation between the increase of income of peoples and consumption of fruits in developed countries. This study's finding deviates from the study by FAO, 2015 as the higher income earners in the study, the consumption level was low. The findings

of a study by Ruel *et al.* (2009) revealed that consumers' income influenced the demand for fruits and vegetables. The findings of a study by Gislason (2009) found that prices and consumer income influence food consumption patterns in a given country. Also, findings of a study by Han and Mittel (2010) revealed that high income increases the volume of fruits and vegetable intake in many families. However, the finding of this study shows that respondents with higher income consume fewer fruits. The study implies that people with higher income in Tanzania do not emphasize the budget for local processed fruits and vegetables. Families with higher-level incomes likely consume imported food.

The findings support the Classical consumer theory, which states that "consumers are rational in allocating their limited, scarce financial resources for a variety of goods and services in a way that maximizes utility. The theory is built on the premise that a consumer will choose goods and/ or services from a basket that will maximize utility, and utility is measured after a choice is made**.** The choice is constrained by the consumer's purchasing power or income and will be influenced by the prices of goods available. To attain this objective, the consumer must compare the utility of the various "baskets of goods which can purchase with the income" (Colman and Young, 1989). It is known that people having income for purchasing power is not the only determinant of demand for processed food. Those people with higher income are sensitive to the health of food products regarding quality.

Table 4.4: Economic status of respondents by region

Variables	Regions			
	DSM	Tanga	Iringa	Dodoma
Average respondent income	850 000	600 000	850 000	650 000
Major income Sources (%)				
Formal Employment	45.3(166)	35.4(29)	34.7(25)	34.6(28)
Business	32.5(119)	29.3(24)	31.9(23)	28.4(23)
Farming	12.5(046)	20.7(17)	16.7(12)	23.5(19)
Remittances	09.7(035)	14.6(12)	16.7(12)	13.6(11)
Income categories				
Low-income earners	27.9(060)	20.0(07)	34.2(12)	22.9(08)
Medium income earners	62.8(135)	74.3(26)	62.9(22)	74.2(26)
High-income earners	09.3(020)	05.7(02)	02.9(01)	02.9(01)

Figures in brackets represent the number of respondents

4.8   Determinants of Demand for Locally Processed Fruit Products

4.8.1 Attributes of Locally Processed Fruit Products

The study wanted to know the attributes of locally processed fruit products in Tanzania. Results the study has revealed that quality of products was one of the reasons for consumers' preferences to purchase locally processed fruit products and Dar Es Salaam showed leading rank with 43.2%, followed by Iringa region with 37%, Dodoma region with 27.8% and Tanga region with 28% of the respondents.

The results showed that 53.4% of respondents believed that locally processed fruits had low prices than imported processed fruits. However, 56% of respondents preferred raw fruits rather than processed fruits. Tanga region preference of raw fruits as the respondents showed processed fruits' preference by 3.5% of all the respondents. The study wanted to know the status of the availability of processed fruits in the area of study. Results showed that locally processed fruit products are available to all areas of the study. The study revealed that 33% of respondents had

knowledge of fruits' availability, and 33% had no knowledge of processed fruits. The results suggest that the availability of processed fruits products at the right time and the right place has a big role in influencing the consumers to buy the locally processed fruits products in the study area. Therefore, the findings concur with the study of Pollack (2007) on factors for a preference of processed fruits. The study revealed that the consumer's preference for processed fruits and vegetables is influenced by the products' availability, taste, and preference, a habit of eating, education level, and income.

The study wanted to know if packaging style and material impacted the demand for processed fruits. The study results show that fruit and vegetable products' packaging has an important attribute on locally processed fruit for consumers. The study results suggested by 43% response that packaging of fruit products impacts the preference and demand of products. The study showed by 29% that the packaging materials of processed fruits are not interesting to consumers. The study suggested, therefore that, packaging and the packaging materials influence the demand for processed fruits. The findings concur with the results of a study by Ndunguru (2008) on the importance of packaging for fruits and vegetables. The study revealed that the packaging of products determines the value of products in the food chain is offering the product which meets the market demand of different consumers. Also, the findings concur with the study by Pollack (2007) on preferences of packaging attributes. The study suggested that consumers' preference for processed fruits and vegetables is influenced by product attributes such as packaging and labeling products. The finding is in line with Neo-classical consumer utility theory, which

asserts that "Consumers are rational on purchase decision that, they buy the attributes which embodied on products."

The study results on demand for processed fruits and the packaging attributes align with Classical consumer theories. The classical theory states that "the rate of demand for a food product is directly proportional to consumer rate perception." The results suggest that consumers determine products' preference with a positive mindset on factors that influence food products' demand for the learned experience. Those factors with negative mind experiences can affect the demand for food products. The main factors with negative influence include poor product quality, production facilities, packaging style, and product health nutrition.

4.8.2 Consumers' Affordability on Locally Processed Fruits

The study wanted to know the affordability of respondents on buying local processed fruits. The study analyzed the correlation coefficient between the income level of households and consumption of locally processed fruits. The results showed positive significance at a probability level of 0.05 suggests that the consumption of locally processed fruits increased with increasing respondents 'income. The findings concur with Ruel *et al.* (2005) 's study in studying the relationship between consumers' income and fruit consumption. The study reported that higher income is associated with an increase in processed fruits and vegetables. As shown in Table 4.4, the results suggest that the family's income influences 92% of processed fruits.

Table 4.5: **Relationship of income and consumption of locally processed fruits**

Characteristics	Regions				Total
	Dar-es-Salaam	Tanga	Iringa	Dodoma	
Households education level	0.121*	0.300*	0.369*	0.397**	0.030
Households income level	0.099	0.156	0.489**	0.273	0.079

**Significant at probability=0.05 level

4.8.3 Sources of Supply of Raw Materials on Fruits Processing Industries

The study wanted to understand the sources of raw materials for processed fruits in Tanzania. The study respondents identified the main sources of raw materials for processed fruits. The results show that the raw materials for fruit products include processor owner's farms, farms of fruits producers, nearby markets. There are sources of fruit process raw materials, and the respondents showed that supply by nearby markets was rated the major source of fruit raw materials for fruits processing industries. The results show that 50% of respondents suggested that nearby markets were raw material sources for processors of fruits, followed by 38% from farmers and 12% were from producers' own farms. The finding shows that majority of fruits are sent to public markets in Tanzania. The study shows that farmers know the availability of markets for raw fruit products. The study contradicts a study by Tiisekwa *et al.* (2005) studying the supply of raw materials for fruit processing industries. The study noted that the low demand for locally processed fruits and vegetables was affected by the inconsistency of supply of raw materials, inefficient distribution channels of materials, and lack of confidence among food processors and marketing dealers in Tanzania.
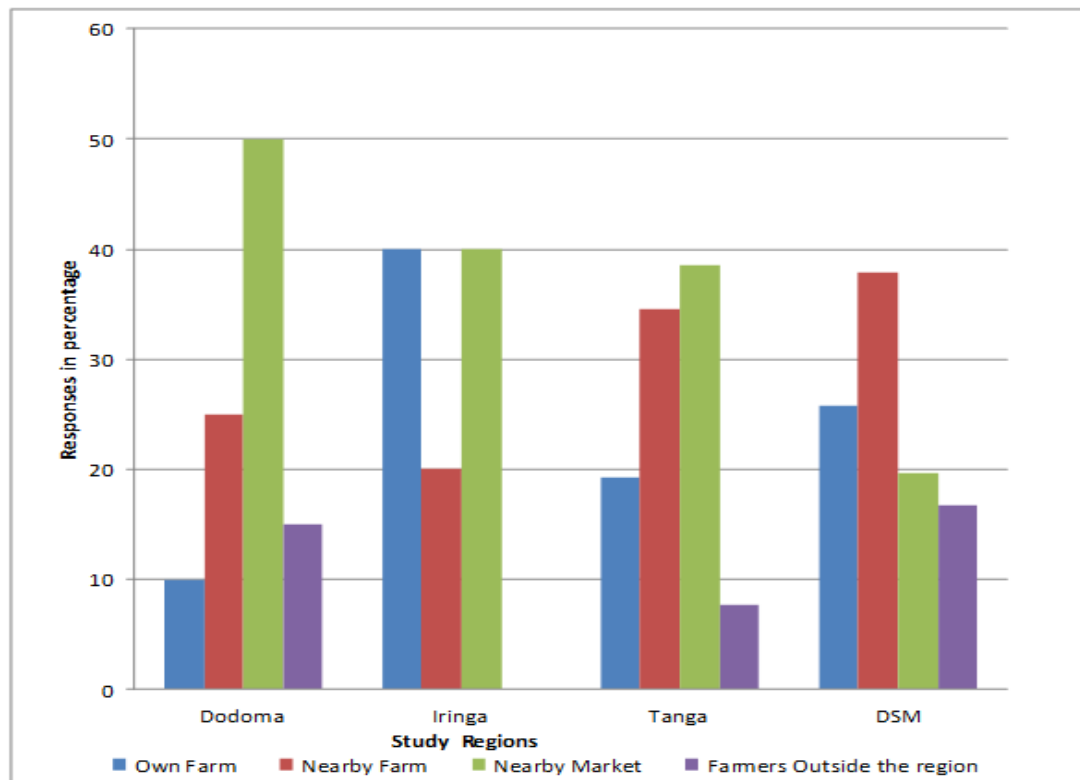
Figure 4.1: **Main sources of fruits raw materials**

4.8.4 Selling Price for Locally Processed Fruit Products

The study wanted to establish that processed fruits' selling prices influence demand for processed fruit. The study revealed that selling prices for locally processed fruit products across the study area vary. The study results show that the price of processed fruits varies according to supply in the value chain. The processed fruits are sold at high prices compared to import processed fruits to meet the processing costs as demand is low. The price of processed locally fruits is supposed to cover production costs as imported processed fruits dominate the market, and the market is full of imported processed fruits. The results show that the price of processed locally fruits is high as compared with imported fruits. The results showed that 67% of respondents believed that local processed fruits have higher prices due to seasonal

outputs from the farms. Also, 78% of the respondents believed that they could reduce the price of locally processed fruits by storing fruits during the harvesting period. The storage encourages the supply of raw materials throughout the year and has steady production of processed fruits.

The study has revealed that the consumers for locally processed fruits are influenced by price change because the slit change in prices affected consumers' buying behaviour of locally processed fruits. The respondents also noted that price products enable demand of local processed fruits by 74%. The study suggested that the product's price influences local processed fruits' consumers to measure the product's quality. The current study findings concur with a study by Frank (2008); the study noted that locally processed fruits and vegetable products were facing low demand because of high prices in the markets compared to imported processed food products. The finding also is in line with the budget line concept, which asserts that the percentage change in quantity demanded results from the percentage change in price in the market. The results suggest that the price of the processed fruits influences the price of the local processed fruits.

4.8.5 The Sources of Marketing Information for Locally Processed Fruits

The study wanted to know the marketing information status for processed fruits in Tanzania. The respondents were asked to indicate the major sources of marketing information for processed fruits. The respondents noted the common sources of market information the markets and got information from friends and neighbours' markets. The results show that direct visiting to the markets and shops is the most

fruit consumers' major source. It is noted that 75 % of consumers get marketing information by visiting markets, and 23% get information from neighbours or supplies. This result on information suggests that processed fruits' marketing information in Tanzania is affected by local processed demand.

The results shown in Figure 4.2 indicate that the source of market information for processed fruits was from friends or neighbours by 61% in Dar Es Salaam, 27 % in Dodoma, 25% in Tanga, and 25% Iringa. The information suggests that respondents' demand is affected by market information as market information from friends or neighbours is not realizable means of market information. The findings concur with the study by Katinila *et al.* (1997) in a study of disseminating information and the influence of demand for food products. The study revealed that the absence of elaborative information and networking on agricultural food products' marketing affects the demand for processed food products in developing countries. Also, findings related to the finding of a study by Pollack *et al.* (2012) studied the influence of demand for non-economic factors. The study suggested that non - economic factors such as sensory appeal, familiarity and habit, social desirability, personal and food ideology, convenience, media, and advertising influence fruit and vegetable consumption choices. The findings relate with the results of a study by Mungai et al. (2008); the study reported that lack of information system on domestic markets was the major barrier of entry to processing food. The results show the importance of marketing information for the demand for processed food products. It is now known that marketing information is one of the influencing factors for the demand for locally processed fruits in Tanzania.

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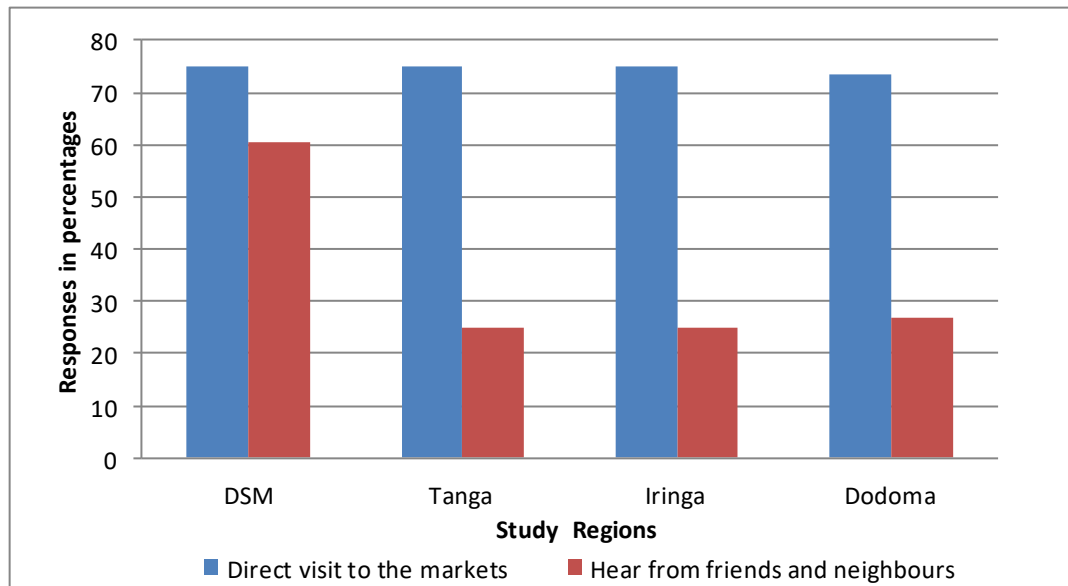
Figure 4.2: Major sources of marketing information of locally processed fruits

4.8.6 Consumption of Locally Processed Fruits

The study wanted to establish the trend of consumption of local processed fruits in Tanzania. Figure 4.3 shows that the Iringa region led to locally processed fruits with 80%, followed by the Tanga region with 79%, Dar Es Salaam with 29%, and Dodoma with 21%. The findings also indicated that households with less than five people frequently consumed locally processed fruit products compared to more than five households. The study findings suggest that small-sized households allocate the amount in their budget for locally processed fruit products than large family households. The findings deviate from a study by Ruel et al. (2009) in a study on the consumption pattern of processed fruits compared to family size. The study reported that large-sized families allocate more budget on fruit and vegetable products than small-sized families. However, Pollack et al. (2007) found that households with

many members allocated a smaller budget for fruit and vegetable products than households with fewer members.

Despite the study finding of influencing factors on processed fruits' consumption, Pollack *et al.* (2010) found that another scenario of non-economic factors influences processed fruits consumption. The non-economic factors influencing consumption include sensory appeal, familiarity and habit, social desirability; personal and food ideology, convenience, media, and advertising influence the consumption choices of fruit and vegetable products. The findings concur with the study by Nyange (2009) in studying determinants of food away from home consumption found that non-economic factor affecting consumption of food products factors. The study also found other non-economic factors include family composition, education level of family members, preferences, and psychological characteristics. The current study suggests that consumption habits are important factors in explaining the variation in food consumption choices.
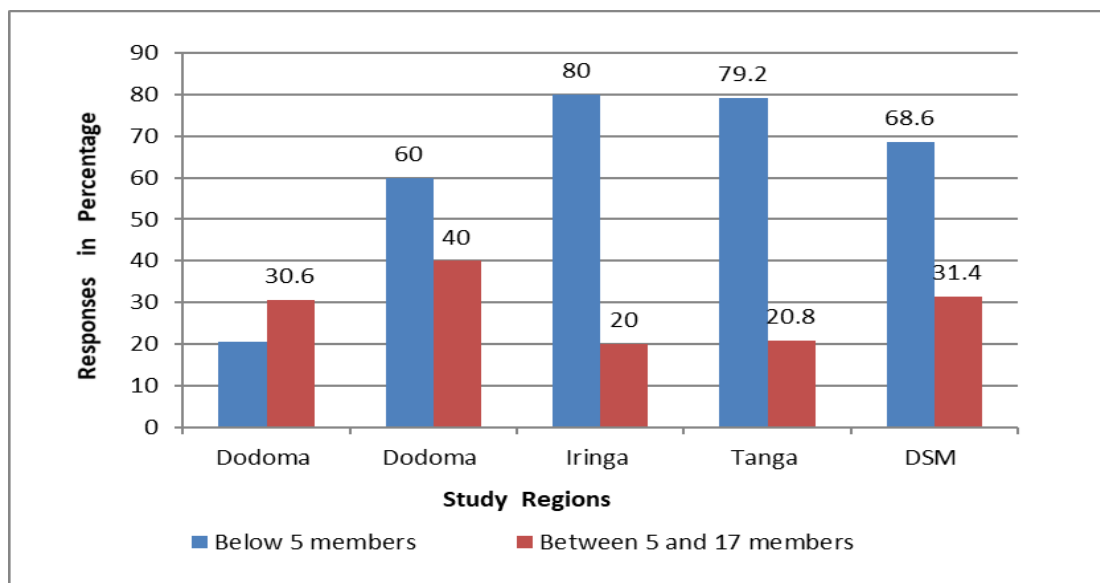
Figure 4.3: Households' size on locally processed fruits consumption

4.8.7 Government Policies and Locally Processing Fruits

The study wanted to know the influence of policies on demand for processed fruits in Tanzania. The study noted that government is the main actor in the fruit processing industry and plays a role in creating a good environment for fruit processors and fruit marketers. The study found that the majority of respondents do not have an understanding of the policy underlying food processing. 87% of respondents, when asked about the policy related to the SME policy as underlying food processing, 12% had no response and meant they are not aware and the rest related to agriculture and food security policy. The study finding suggests that, no policy in supporting food processing in Tanzania. Semboja (2000), in a study on challenges facing food processing Medium and Small Enterprises (MSE) in Tanzania, found that among the challenges of MSE is the policy of food processing. The findings concur with the study of Scarborough and Kiddy (1992) in an analysis of agricultural markets, suggesting that the marketing systems' performance is always embodied from the fundamental role in the development process and marketing determined by government policies. The study findings show the Government policies are important for food processors to prosper and the supply into the market for access by consumers. The availability of processed fruit products encourages demand for the consumers. As the supply of products increases, the product's price becomes lower, which is among the influencing factors for locally processed fruits demand.

4.8.8 Households' Income on Purchasing The Locally Processed Fruits

The study tested ANOVA to see the impact of household income towards purchases and consumption of processed fruits produced locally. The ANOVA output of the

One-Way statistical tool ANOVA established whether the households' monthly expenditures on locally processed fruits were significantly different between income groups. Except for the other three regions, the F-values of average monthly expenditure for all locally processed fruits in the Dar Es Salaam region were statistically significant at a 0.05 probability level. The Turkey HSD results from Table 4.5 confirmed a significant difference in average households' monthly expenditures on locally processed fruits between income groups at a 0.05 probability level between low-income and high-income households.

The observed test for high-income group against the medium-income group; the study suggests a significant difference in monthly expenditures about locally processed fruit products on household income. The findings relate to a study by FAO (2009), which reported a correlation between increased consumption of food and consumer income in developing countries. The findings relate to a study by Minot (2007) cited by Ruel et al. (2009) found that the average number of fruits and vegetables consumed rises from 4.5 out of 10 in the lowest income quintile and 6.9 out of 10 in the highest income quintile. The findings relate to a study by Ruel et al. (2009) on a study on the influence of income on processed food products' consumption. The study concluded that as consumers' income increases, they increase the demand for fruit and vegetables in poorer countries compared to developed countries. The current study confirms that households' consumption decisions to purchase fruits and vegetables are influenced by disposable income than the products' price.

Table 4.6: **ANOVA and Tukey HSD on the expenditure of locally processed fruits**

Variables		(I) Income Group	(J) Income Group	Mean Differences	Significance Level
		Multiple comparisons			
Locally processed Apple (on)	11.31*	Low	High	-63 266.71*	0.01
		High	Medium	63 769.88*	0.00
Locally processed Apple (off-)	13.503*	Low	High	-65.556.49*	0.00
		High	Medium	68 19.43*	0.00
Imported processed Pineapple (on)	9.645*	Low	High	-45 228.03*	0.03
		High	Medium	46 34.96*	0.00
Imported Processed Pineapple (off)	21.327*	Low	High	-54 982.32*	0.00
		High	Medium	54 14.87*	0.00
Locally Processed Orange	10.392*	Low	High	-460 714.96*	0.01
		High	Medium	466 4.42*	0.00
	43.811*	Low	High	-278 522.81*	0.00
		High	Medium	278 877.04*	0.00
Locally processed Oranges (Off)	13.364*	Low	High	140 046.22*	0.00
		High	Medium	143 334.60*	0.00
Imported Processed Oranges (Harvest)	15.276*	Low	High	-134 938.51*	0.00
		High	Medium	138 069.38*	0.00
	6.058*	Low	High	- 563 058.70*	0.04
		High	Medium	579 926.46*	0.01
Locally Processed Oranges (Off)	36.165*	Low	High	- 441 423. 99*	0.00
		High	Medium	452 002.92*	0.00
Locally processed Mangoes (on)	11.464*	Low	High	- 228 550.00*	0.01
		High	Medium	241 992.67*	0.00
	13.873*	Low	High	- 212 647.22* 229 956.32*	0.00
		High	Medium		0.00

*Significant at probability ≤ 0.05

4.8.9 Different Perception of Consumers About Locally Processed Fruits Products

From the beginning, the researcher has an assumption that; consumers of different ages and gender can purchase locally processed fruits with a different perception.

Besides was assumed that the consumers should have a preference for locally processed fruits to make the purchase. About fifty (50) respondents were assessed on the perception of locally processed fruit consumers using different ages. Randomly selected from study respondents showed 59% of younger and middle age preferred processed food products. The trend followed by old age with 21% and the rest was indifferent.

Mann -Whitney (U) test analysis was carried out to verify whether there was a significant difference between consumers' perceptions at a 0.05% probability level of significance. They compared the calculated values to the critical value (U) of Mann -Whitney at a 0.05% level of significance as indicated. The standardized normal distribution approximated the sample size of consumers (25) ($n_1 = n_2$) and the U* value. The output performance of the Mann -Whitney (U) analysis test about the difference between means indicated that the calculated value (U) was I.96 and the critical value was 3.2 at a 0.05 probability level of significance. Since Mann-Whitney calculated value (U) 1.96 fells within the rejected region, the null hypothesis (H_o) cannot be accepted at 0.05 probability level of significance. Therefore, the study has enough evidence to suggest significant differences in perception between consumers' age on locally processed fruits products in the study area.

The findings concur with a study by Han and Mittel (2006) and Pollack (2007) found that apart from income and prices, several non-economic factors influence the demand for fruits and vegetables to demand among households. The factors found were gender, age, education, preferences, consumption habits, household sizes. The

finding concurs with the classical and Neo-classical consumer's theory, which states that "all factors that set mind set positively to consumers can influence the demand of food products but all factors that set mind set negatively to consumer can affect the demand of food products." The study summarizes those non-economic factors like age and preference influence demand for food products.

4.8.10 Educational Level and Consumption of Locally Processed Fruits Products

The study tested the relationship between education level and the consumption of processed fruit products. Table 4.5 shows that locally processed fruit products' consumption was a positive correlation at a 1% probability level of significance. From the information, it is deduced that the consumption trend of locally processed fruits increased with the advancement in consumers' educational level. However, the study knew that sometimes consumption of processed fruits is influenced by taboos, cultural, psychological factors of the households on decision making for purchase and consumption of locally processed fruits. The findings concur with Ruel *et al.* (2005) 's study on the relationship between education level and processed food consumption. The study found that households with highly educated members spend a higher percentage of income on processed food products than households with a medium education level. Global fruits and vegetables (2012) reported that health consideration and consumer awareness have caused the consumers to switch from processed fruits to fresh fruits or the opposite to some consumers. This study concludes here that education level influences the consumption level of processed fruits.

Table 4.7:   Correlation between education and locally processed fruits consumption

Characteristics	Regions				Total
	Dar-es-Salaam	Tanga	Iringa	Dodoma	
Education level	0.121*	0.300*	-	0.397**	0.030

*Significant at probability =0.01 and **Significant at probability =0.05 level

4.8.11 Estimated Demand for Locally Processed Fruits Using Multinomial Logic Model

The study tested a multinomial logistic model to determine the estimated demand for local processed fruits. Table 4.6 shows the Multinomial logic model's output, which performed the test at a 1% probability level of significance followed by chi-square distribution with 13 degrees of freedom. The goodness fit performance of the Multinomial logistic model was relatively high as it was measured by Mc Fadden's $(R^{2)}$ ratio of performance value at 75%. The results suggested that the good predictive ability of the Multinomial model. Besides, it suggests that the Multinomial model variables explain about 75% of the variation in probability. Specifically, the chi-square statistic shows that the model was highly significant at a 1% confidence level. Likewise, using 5 % as the cut-off probability of consumers, the model predicted 98.5% of households were willing to consume locally processed fruits. After excluding ancillary variables, eight out of twelve variables included in the empirical model were statistically significant at specified confidence levels.

The only variables whose coefficients were statically insignificant were four (4) the education level attained by household heads (EDUC), age of the household heads

(AGE), household size (HSIZE), and availability of locally processed fruits (AVALPF). The variables with coefficients that were statically significant were eight (8) the household heads (SEXR), awareness of the vital nutritional role the processed fruits play in the human diet (NTAWS), frequency promotion (PRMM), price of locally processed fruits (PCLPF), price of imported processed fruits (PCIPF), the household income (HSIZE), the price of fresh fruits (PCFF) and the preference of consumers about locally processed fruits (PrLPF). All the variables were tested at a 5% confidence level and predicted the probability of determining the demand for locally processed fruit products.

The price coefficient for locally processed fruit products was positive at (0.11501*) and statistically significant at a 5% probability level. The p values were 0.007, which is less to the level of significance. For this matter, the factor shows the significance of the demand for locally processed fruits. The information here is that a unit decrease in locally processed fruits products' selling price was more likely to increase locally processed fruits products. The findings concur with the demand law, which states that all other things being equal, consumers will buy more products when the price of the product falls and less when the price of the product increased. The study findings suggest that price and quantity are directly proportional to the demand for particular products.

The coefficient for product quality of processed fruits products was negative (-0.50017) at 1% probability level, and p values were 0.0024, which is less level of significance. The study informs that the quality factor is significant for the demand

for locally processed fruit products. The study is deduced that locally processed fruits products have good quality likely to increase the consumption of locally processed fruits products.

The coefficient for household income products was positive at (0.00901*) at 5% probability level and p values being 0.0163, which is less than the significance level. The study deduces that the income factor influences the demand for locally processed fruit products. The study informs that household income influences the demand for locally processed fruits. This is supported by the principle of consumption that expenditure increases with an individual's income. The findings concur with the preference principal rule, which can reveal consumer preferences by purchasing power given consumers' different incomes. The principle entails that a consumer purchases a specific bundle of goods when the bundle is revealed preferred given constant income and prices to other related or substitute products the consumer could afford.

The coefficient for awareness of the vital nutritional role that processed fruits play in the human diet was positive (0.06229*) at a 5% probability level, and p values were 0.0001, which is less to the level of significance. The information denotes that, nutritional role influences the demand for locally processed fruit products. The study suggests that the increase of awareness of people on nutrition value offered by processed fruits is likely to increase the consumption of locally processed fruits. The findings complement Global Fruits and Vegetables' (2012) findings, which reported

that health consideration and consumer awareness influence the consumers to switch from fresh fruits to processed fruits or the opposite**.**

The coefficient for a promotion campaign on locally processed fruits was positive (0.12023*) at a 5% probability level and p values were 0.0057, which is less to the level of significance. The study informs that promotion campaigns for local processed fruit influence demand for locally processed fruits. The findings show that frequencies of promotion are likely to increase locally processed fruits' consumption, hence increasing demand. The findings relate to a study by Frank (2006) on promoting the demand for fruits and vegetables in Tanzania. The study reported that the demand for locally processed food products is influenced much by advertisement and promotion. The study informs that promotion and advertisements are influencers of demand for food processed products.

The coefficient of education level attended by households was a negative sign (-0.36986*) at a 5% probability level, and p values were 0.6932, which is more to the accepted significance level. The information shows the variable is insignificance on demand for locally processed fruit products. Using the correlation coefficient, the study informs that education level has nothing to do with processed fruits' demand. This is a contradictory finding, as most scholars show that family members' education level influences the demand for processed products.

Table 4.8: Demand for locally processed fruits Multinomial logistic Model

SEXR	0.49706*	0.198933	0.159	0.02288	p= 0.022 3
EDUC	0.36986	0.08036	0.481	0.00914	p= 0.6932
AGE	- 0.12006	0.31966	- 0.503	- 0.03624	p= 0.7170
HSIZE	0.03571	0.03423	0.791	0.00777	p= 0.3948
NTAWS	0.06229	0.225449	3.132		p= 0.0001
AVALLPF	0.22154	0.21608	0.562	0.02792	p= 0.5738
QTYLPF	-0.50017*	0.25941	-2.707	-0.00923	p=0.0024
PCLPF	0.11501*	0.23382	2.842	002669	p= 0.0007
PCFF	0.00794*	0.00106	- 4.054	-0.00187	p=0.0000
HINCOME	0.00901*	0.00075	0.02714		p= 0.0163
PrFLPF	0.11235*	0.22324	2.76	0.02667	p=0.0006
D$_2$RG	- 0.1356*	-0.23293	-3.3401	-0.0331	p= 0.0000
PRMM	0.12023	0.23476	2.563	0.0093	p=0.0057

* =Significant at p<0.1

4.8.12 Estimation Demand for Locally Processed Fruits with OLS Regression Model

The study calculated the estimated demand for processed fruits using (Ordinary Least Square) OLS regression model. Table 4.7 presents the outputs of the analysis of the factors hypothesized to influence the probability of consuming locally processed fruits by using the Ordinary Least Square (OLS) regression model. The analysis was intended to determine whether there are effects on the quantity of locally processed fruits consumed by households. The presented table shows the coefficients of demand for locally processed fruits as estimated using ordinary least square linear regression methods. The results show that the model's good fit is relatively high as the measured, adjusted coefficient of determination (R^2). The high value of adjusted (R^2) suggested that the model's variables explain about 69% of the variation in the dependent variable was realized.

The F-value was observed to be highly significant at the 1% probability level, which indicated that the explanatory variables were statistically significant in explaining

variation in the dependent variable. Variance Inflation Factor (VIF) confirmed the absence of serious co-linearity problems to each variable included in the empirical model. Likewise, the Durbin-Watson test confirmed the absence of autocorrelation. Even after excluding ancillary variables, eight out of twelve variables included in the model were statistically significant at specified convention levels.

The only variables whose coefficients were statically insignificant were the sex of respondent's household heads (SEXR), frequency promotion (PRMM), price of locally processed fruits (PCLPF), and awareness of the vital nutritional role that processed fruits play in the human diet (NTAWS). The variables whose coefficients were statically significant were eight (8), the price of imported processed fruits (PCIPF), the household income (INCOME), the price of fresh fruits (PCFF), education level attained by household heads (EDUC), age of the household heads (AGE), household size (HSIZE) and availability of locally processed fruits (AVALPM).

The results in Table 4.7 show that the coefficient of promotion campaign on locally processed fruits was positive and statistically significant at a 1% probability level, which suggests that the increasing promotion campaign on locally processed fruits products increases the demand quantity of locally processed fruits products. Likewise, the coefficients for households' income had positive signs and statistically significant at a 1% probability level, implying that a unit increase in household income increases the quantity demand of processed fruits by 0.01%. Table 4.7 indicates that the coefficient of household size as the determinant of demand for

processed fruits was positive and statistically significant at a 1% probability level, indicating that increasing one person in the households increases the demand of quantity of processed fruits.

The result on Table 4.7 indicates that the coefficient of quality of processed fruits products as the determinant of demand for processed fruits was negative -0.29097** and statistically significant at 5% probability level and p, values is 0.0244, which is less to the level of significance which indicating that the increase of quality of products. An additional result on Table 4.7 indicates that the coefficient of household's income as the determinant of demand for processed fruits was positive 0.01163* and statistically significant at 5% probability level of significant and the p, values was 0.0310, which is less to the level of significance which indicating that the increase of one unit of income in the household, increases the demand of quantity of processed fruits by 0.01%. The results suggest that consumers' income is an important factor for determining the demand for processed fruits.

The result from OLS indicates that the coefficient of availability of locally processed fruits as the determinant of demand for processed fruits was negative statistically significant -1.23221** at 5% of probability level p values was 0.0380, which is less to the level of significance, which indicates that the increase of availability of locally processed fruits products, decreases in demand of quantity of locally processed fruits. The results show that the availability of processed fruits is not a determinant of processed fruit consumption.

Table 4.9: Estimated coefficients of demand for locally processed fruits using OLS

SEXR 0.29899	0.60790	1.559	p= 0.1230	1.453
EDUC -0.29517 **	0.19338	-2.132	p= 0.0360	1.187
AGE -0.16832*	0.58621	-2.708	p= 0.0019	1.181
HSIZE 0.53665*	0.10901	4.923	p= 0.0000	1.676
NTAWS	0.36831	0.59601	p= 0.5377	1.152
AVALPF-1.23221**	0.58169	-2.118	p= 0.0380	1.184
QTYPF-0.29097**	0.60354	-2.482	p= 0.00244	1.195
PRMM 0.37782	1.50102	0.252	p= 0.8014	1.157
PCFF0.11200	0.00200	1.090	p=0.2790	1.290
INCOME	0.01163**	0.73566	p= 0.0242	1.426
PCLPF	-0.04600	0.00233	P= 0000	1.671
D$_2$RG-1.09332 **	0.73333	-2.3281	p= 0.0233	1.511
D$_1$PFNP	0.536336	0.10601	p= 0.6956	1.676
PCIPF	0.17200	0.00323	P= 0.0332	1.57 6
PrFLPF	0.11235*	0.22324	p=0.0006	1.523

* =Significant at 1% probability level
** = Significant at 5% probability level

$$T = 5.8820 + 0.53665X_1 - 0.29097X_2 - 1.23221X_3 + 0.01163X_4 + 0.29599X_5 + 0.11200X6 - 0.16832X_7 + 0.36831X_8 + 0.37782X_9 - 0.29517X_{10} + 0.04800X_{11} + 0.17200X_{12} + 0.11235X_{13}$$

Figure 4.4: The model for estimated demand of fruits products

Where T is the demand of processed fruits products, 5.8820 is the constant of the equation, 0.53665 is the coefficient of household's size (HSIZE), - 0.29097 is the coefficient of quality of processed fruits products (QTYPF), -1.23221 is the coefficient of availability of processed fruits (AVALPF), 0.01163 is the coefficient of household's income (INCOME), 0.29599 is the coefficient of processed fruits consumers' sex (SEXR),0.11200 is the coefficient of price of locally processed fruits products (PCLPF), - 0.16832* is the coefficient of the age of households' head (AGE), 0.36831 is the coefficient of awareness of the vital nutritional role that processed fruits play on a human diet (NTAWS), 0.37782 is the coefficient effect of

promotion (PRMM), 0.17200 ** is the coefficient of imported processed fruits price (PCIPF), - 0.04800* is the coefficient of the price of fresh fruits (PCFF), 0.11235* is the coefficient of preference of consumers on locally processed fruits (PrLPF).

The study finding and discussion are summarized against the main objective that processed fruits' demand is determined by psychological, economic, and non-economic factors. The study has shown the psychological factors included the perception of product, quality, and preference. The economic factors include income level, supply of products, pricing, promotion and awareness, and packaging. On the other hand, the study results show the non-economic factors of processed products. The non-economic factors identified included age, location of consumers, household size, and food products policies.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1   Overview

The chapter provides the conclusions and the recommendations regarding the determinants of demand for locally processed fruits in Tanzania. The summary and conclusion are drawn from presenting the findings and discussion made in chapter four in a specific objective wise. The discussions focus on the four objectives of the study, namely, to determine the demographic characteristics of consumers of locally processed fruits, to examine the social characteristics of consumers towards locally processed fruits, to examine the economic factors and non-economic factors for preference of locally processed fruits in Tanzania, and to assess the influence of government policies in deriving demand of locally processed fruits in Tanzania. Finally, the chapter provides recommendations and suggestions for further research on the determinants affecting the demand for locally processed fruits in Tanzania.

The study conclusion is based on 590 respondents of processed fruits in four regions, Dar Es Salaam, Tanga, Iringa, and Dodoma. The study was quantitative in nature, and a multi-stage sampling procedure was used to determine the demand for processed fruits from selected regions. Both descriptive statistics and econometric models were employed to analyze the data.

5.2   Demographic Characteristics of Consumers of Processed Fruits

The study found the consumers of processed fruits based in urban as main consumers; however, some consumers are rural. Tanzania is uniquely endowed with

land, which is the potential for the production of multiple fruit resources; hence the production of fruits is possible. The study concludes that Tanzania has well-resourced firms that can process fruits into fruit juices for local consumption and the international market to export processed fruits than raw fruits. The study determined the demographic characteristics of consumers, which influences preference for locally processed fruit products. The demand for processed fruits is characterized by two factors for locally processed fruits the economic and non-economic factors.

5.3 Social and Psychological Factors for Determining the Demand for Processed Fruits

The study also established that the majority of respondents had younger ages. The study suggests that age, culture set up, location, and lifestyle are the social factors affecting the demand for processed fruits. The young generation's influx movement from villages to large cities such as Dar Es Salaam to get essential services such as jobs and good life impacts local processed fruits' demand. The study also shows that other social factors include population density and peers' lifestyle in the households. The education level has been seen as a social factor to determine the demand for processed fruits. Culture, beliefs, religions, and the setup of families are also other factors in the social factors that can affect processed fruits' demand. Cultural beliefs, norms, religious beliefs, values, social classes, social composition, and gender were social characteristics that determined the demand for locally processed fruit products. Also, the consumers' preferences and consumers 'awareness of nutritional value impact demand for locally processed fruits.

5.4   Economic Factors for Determining the Demand for Processed Fruits

The study now has an understanding of the economic factors for determining the demand for local processed fruits. The economic factors included real disposable income, income, prices of products. The other factors for determining the demand for processed fruits in Tanzania are the demand and supply of the product. The factors are defined and explained under the classical consumer theory and neo-classical theory of consumption. Product quality, product availability, promotion, pricing policies, market management, market information, research, and development determined the demand for locally processed fruits products. Also, the number of processing firms and distribution of processing firms, households' distribution, and location of selling markets, population, location of processing firms, and location of fruits selling premises are economic factors for processed fruits demand.

5.5   Non-Economic Factors in Determining the Demand for Processed Fruits

The study has concluded that non-economic factors include the household head's age, education level attended by processed fruits dealers, availability of locally processed fruits products, the nutritional value offered by locally processed fruits products, and gender. The study is defining the variables of factors for determining the demand for processed fruits in Tanzania. The factors have not been well established in previous studies. Other studies did not consider gender as important factor for determining the demand for processed fruits.

5.6   Government Policies Influencing Demand for Processed Fruits

The policy area study concludes that for the fruits, the food sector to flourish needs a

strong policy for regulation. The study findings show the Government policies are important for food processors to prosper and the supply into the market for access by consumers. The availability of processed fruit products encourages demand for the consumers. The processors of fruits do not have an independent food industry policy rather than using the SME policy. The study shows the need to develop and implement for the betterment of the processing sector. The policy development will impact the production of fruits which can impact the consumers and the farming class of fruits.

5.7 Determinants of Demand for Locally Processed Fruits

The Pearson coefficient of correlation (RR) indicated that there was a correlation between affordability and consumption. This suggests selling price is a determinant to demand processed fruits products. Analysis performed by Spearman's Coefficient of Rank Correlation (rs) indicated the high coefficient correlation between the selling price and frequency of consumption of fruits. The analysis supports that affordability of price for processed fruits influenced the demand for processed fruits. The ANOVA analysis to verify whether there was a difference in monthly expenditure between low income and high income has indicated that the level between low income and high income was statistically significant. The study agrees that income of consumers is an important element in determining the demand for the product.

Based on the multinomial logistic model's result, it is concluded that the age of the household head determines the preference for the particular type of processed fruits,

hence the demand for the product. The study showed that, quality of processed fruits an important determinant of demand for processed fruit. Besides, the multinomial logistic model results indicated that family members' education level influences the determining of demand for processed products. The study showed the household heads' age, household size, and availability of locally processed fruits negatively influenced the probability of consuming the locally processed fruits. The determinants that had a positive influence on the probability of consuming the locally processed fruits were the sex of household heads, awareness of the vital nutritional role that processed fruits play in the human diet, frequency promotion, price of locally processed fruits, price of imported processed fruits, the household income and the price of fresh fruits.

The study summarized that the factors that influence the probability of consuming the locally processed fruits are the quality and price of locally processed fruits, the household income, the price of fresh fruits, education level attained by household heads, age of the household heads, household size and availability of locally processed fruits.

5.8   Study Contribution

5.8.1 Theoretical Contribution

The study managed to integrate constructs from classical consumer theory and non-classical consumer theory to assess the factors determining the demand for local processed fruits in Tanzania. The two theories work together and are relevant to this study as it provided that demand is either classical or neo-classical consumption in

nature. Then the influence has shown its direction to consumers' demand for food products. The theories have agreed with other scholars who said the demand for products follows factors like consumers' income, education level, substitute products in the market, awareness of the product, and other social and psychological factors.

The study's findings can be used as a benchmark for developing policies using classical and non-classical theories. Another finding from previous scholars used the economic and psychological theories to determine consumers' demand for food products (Aloyce, 2008; Damardjati, 1995; Fahari, 2018). It is known now that classical and neo-classical theories can determine the demand for food and fruit products, specifically the locally processed fruits in Tanzania.

5.8.2 Methodological Contribution

This study employed a quantitative research method that has provided some unique results to address the demanding challenge in Tanzania concerning consuming locally processed fruits. Therefore, the study findings are different from the previous studies such as Makokha (2005), Han and Mittel (2001), and Kavishe (2016), which used mixed methods and descriptive in assessing the demand for processed fruits. This study contributes to the knowledge both in the data collection process and analysis; an analytic cross-sectional survey was used. Furthermore, previous studies in determinants of demand for local processed fruits and vegetable target populations were based on the household as the unity of inquiry, limiting the understanding of other family members who might have critical issues in determining the demand for local processed fruits. This study targeted all family members who used local processed fruits and those potentials to use processed fruits.

5.8.3 Practical Contribution and Implication

Previous studies on demand for locally processed fruits in Tanzania paid close attention to assessing the demand for processed fruits and vegetables (Lynch, 1993; Frank, 2006; Mungai, Ouko, and Heiden, 2009); others whose attention was on food processing include Safari et al., 2015; Mahato, 2013 and Mitekaro, 2016). This study provided general useful insight into the general determinants of demand for locally processed fruits in Tanzania.

This study makes the following key contributions to demand and consumption knowledge and determines the demand for processed fruits. First, it contributes to enriching literature in the area of locally processed fruit demand in Tanzania using classical and no-classical theories; this comes in as a base for a review of industrialization and development of fruit processors. Second, the study voiced the determinants of demand for local processed fruits and their implication to fruit producers. Some of the areas like Handeni, Njombe/Iringa, and part of the Coast region depend largely on the production of fruits as their business; the sector needs to be strengthened to support the livelihood of the farmers. The other potential area is the factories for processing fruits with the farmers, which takes many people as employees.

5.9   Study Recommendations

5.9.1 Improvement of Product Quality for Locally Processed Fruits

Given the study's major findings and the conclusions, the following recommendations are made to stimulate the demand for locally processed fruits

products and promote the processing, preference, and consumption of locally processed fruits products in Tanzania.

It is observed that product quality was one of the most important factors influencing the consumers to purchase the products in the markets. The study recommends that policy for product quality control and improved quality standards of locally processed fruits products be a strategy for promoting consumption for locally processed fruits in Tanzania. The use of regulatory agencies such as TBS, TMDA, ATOMIC can be used to set the standard for locally processed products and enforce legislation and laws related to quality control and maintenance for food products.

5.9.2 Establishment of Promotion Campaign on Locally Processed Fruits

The study recommends promotional campaigns for locally processed fruits. This promotion saves several stakeholders, the producers of fruits, the processors, and processed fruits' consumers. Advertising is seen as awareness of the important factors of products and consumption of processed locally processed fruits. To promote consumption and expand the market for locally processed fruits products, the government and all actors within the processing fruits chain need to make deliberate efforts to advertise and promote their products frequently. The government can establish a low-cost, effective system as an incentive for local fruit processors and traders to advertise and promote their products on destination attractions at relatively affordable costs on TV, radio, news magazines, bronchus, web pages, websites, and the internets.

5.9.3 Reviewing and Enforcement of Available Government Policies

The study revealed that policy there is no direct policy on fruits and processing. The used policy by the producers is the SME policy and its guideline. The policies such as the sustainable industrial development policy (SIDP) need to be strengthened to feature the food and fruits sub-sector. More emphasis should be on promoting, and implementing policy on small and medium enterprises (SMEs) but by emphasizing processing the product of high quality.

5.9.4 Improvement of Researches and Development

Research and development on Ago- food processing industries is an important factor in the Agro-food processing industry. Research and development support the sector development in line with development goals. To increase the production of quality raw fruits, there is a need to improve fruits' production on a large scale. To become the large-scale producer of fruits to feed the processors need to do with research and development. To improve research and development, the government to establish programmed research and development processing food sector strategically for the processing food industry in Tanzania to be coordinated by research institutions and universities; Encouraging different actors within the fruits commodity chain to exploit full potential the modern information of food technology; Research and development on fruits processing and understanding priorities from producers and consumers of products.

5.9.5 Imposing Restriction on the Importation of Processed Fruits

Stiff competition from imported processed fruits found to be one of the important

factors affecting the performance of processing firms. This constraint can be reduced by regulating imports through tax harmonization and rationalization to encourage further investment in the fruits processing industries and ensure that all imported fruits should be well- monitored and accordingly taxed to reduce unfair competition from them.

5.9.6 Reduction of Certification Costs on Locally Processed Fruits Products

High costs for certifying the new locally processed fruit products are important constraints that influence local quality processing without certification. The processor of local factories might compromise the quality and health nutrients of processed products. To address this situation, there is a need for the government to harmonize and decentralize activities undertaken by many agencies to avoid unnecessary costs attributed by duplication of activities. The harmonization should be done while focusing on the promotion of the local fruit processing industries.

5.9.7 The improvement of Market Information Accessibility and Availability

Lack of market information affects the accessibility of market information for locally processed fruit by processors and local fruit dealers for such information. The market information is important for different stakeholders; the government uses the information, farmers, producers, and the products' consumers. To improve the situation, there is a need to establish a market information network and encourage different actors within the fruits commodity chain to fully exploit the potential of modern information technology available in Tanzania. One of achieving this is to

ensure that both processors and traders have access to the internet, cell phone, Television and radio, and magazines.

5.9.8 Improving Capacity Building of Firms on Fruits Resources Utilization

The study has revealed that processing firms could not utilize their capacities almost throughout the year, but more seriously during the off-season. To offset the situation, deliberate effort should be made by policymakers and other stakeholders to ensure the full potential of processing of fruits is exploited. Fruits from farms are not well utilized for the processing, which discourages the farmers from producing more; the producers should use all potentials to exhaust the available fruits. The measures to improve capacity utilization include encouraging investment in the fruit industry. Capacity improvement can achieve this by facilitating fruits processors accessibility to credit to overcome their financial needs as stipulated by SMEs Policy, Development Policy, National trade Policy, and National Microfinance Policy. Strengthening links between processors and suppliers of fresh raw materials to overcome constraints relating to fresh raw materials' unavailability and weak linkages with suppliers of fresh raw materials. Capacity building, can achieve by facilitating the establishment of a contract between different actors along fruits value chains.

5.9.9 Addressing Marketing Dominance for Processed Fruits Retailers

Marketing should address retailers' market dominance to ensure preferential procurements for SMEs; established supply. The SME development program and funding are needed. These actions have to be included in national or local policies

indicative with a coherent implementation that can help really could marketing of fruits address effects SMES of food processing firms on the ground. The study recommends a regional approach where a specific supply chain and geographic region the all-relevant key stakeholders form a co-creation of capacity that readdress the gaps identified and translate them into actionable plans.

5.10 Limitations of the Study

There is no research study without limitations because one of the characteristics of a quantitative study is its ability to generalisability, which draws attention to limitations. Within this context, although the findings of this study are encouraging and useful, this study has some limitations like most field surveys:

First, the data collected for this study were cross-sectional; it would be difficult to contend that these findings' accuracy will not vary over time because of the nature of a cross-sectional design. Second, in almost all research on performance heterogeneity, objective measures should be used where possible and available because subjective performance evaluations may not be the perfect alternatives for objective measures. Despite these limitations, however, followed to mitigate them, as evidenced by the results confirming that all the statements successfully passed the benchmark reliability and validity values.

Fourth, the findings of the analyzed data relied on the perceptual judgment of the fruit consumers. Using such a research technique raises common method bias issues, which can be particularly dangerous when a single informant fills out the survey

questionnaire that taps into independent and dependent variables within the same survey instrument (Galbreath, 2004). Fifth, although the personal interview-based survey was used with a drop and collect approach, some issues concerning the reliability of data may arise because it is impossible to ensure whether the questionnaires were filled in by someone else.

Another limitation is that the study was conducted in four Tanzania regions, and its results may not apply to other cultures and regions. The cultural and contextual differences may cause differences in the interpretation of the results. Nevertheless, the above-mentioned limitations do not invalidate the results that of the determinants of locally processed fruits. The identification of these limitations will serve as a starting point for future investigations.

5.11 Future Research

Future research should aim to find out whether the current Ago fruits processing industry and the infrastructure developed in Tanzania are also suitable for foreign investors. More studies, therefore, are called for to support domestic agro-food processed product marketing, especially in the developed world. This study expects future studies on the following areas:

Another study is done on areas that do not produce fruits to see the demand determinants for consumption.

  i)   Study on sources of capital investment for SMEs in fruit processing.

ii)   A comprehensive study on ways to process all the fruit produced by farmers in Tanzania.

iii)   Contribution of fruit processing factories into Gross Domestic Product.

iv)   Impact of Fruit production on the livelihood of farmers.

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APPENDICES

APPENDIX 1: THE OPEN UNIVERSITY OF TANZANIA

IN BUSINESS PROGRAMME (MARKETING)

Research Topic: Determinants of demand for locally processed fruit products in Tanzania

Dear respondent,

I Teikwa Angelo Nyonyi, am taking a Ph.D. study with the Open University of Tanzania. The study is about Determinants of demand for locally processed fruit products in Tanzania. I am taking this rare opportunity to request you to take your valuable time to fill in the questionnaire. I promise that collected data, only be used for scientific purposes in the framework of this study. The findings emanating from this study will be an important tool for policymakers, government institutions, and other development agencies such as NGO's CBO's and international organizations to design better or fine-tune their development policies, design specific planning interventional strategies.

DEALERS OF PROCESSED FRUITS (LOCAL/IMPORTED)

PART I: BACK ROUND INFORMATION

QN1.

    i)   Date of interview...........

   ii)   Name of Respondent/Organization/Company…

  iii)   Ethnicity …

  iv)   Nationality…

   v)   Gender/Sex 1=Male 2 = Female

  vi)   Highest education level attained

 vii)   1= Primary level, 2=Secondary level, 3= Secondary level 4=Diploma level, 5=Degree level,

viii)   Age of Respondent (years) …

  ix)   Marital Status

   x)   1= Married 2 = Single 3 = Separated 4=Widow 5 = Not applicable

  xi)   Location:

xii)   1=Village/Street, 2=Ward, 3=Division, 4=District, 5= Region

PART II: BUSINESS DESCRIPTION

QN 2

i)   How long have you been working as a trader? Years/months

ii)   Form of ownership of the business

iii)   1= Individual 2. = Partnership, 3= State/cooperative, 4= other (Specify)

iv)   Year established the business…

v)   Location of the business 1= Urban, 2= Peri-urban, 3=Rural

vi)   Reasons for establishing the business…

vii)   How much capital did you use to start the business?

       1 =Below 1,000,000.00 T.shs,

       2= Between 1, 000000.00-5,000,000.00 T.shs

       3 = Between 5,000,000.00 – 10,000,000.00 T.shs,

       4= Above 10,000,000.00 T.shs

viii)   How did you get the starting capital?

       1= own saving, 2= family, 3 =friends, 4= lender, 5 = Bank loans

QN 3

i)   How was fairness to get the capital in question (vii)

       1=easily, 2=hardship

ii)   Type of business owned

       1 = retailer, 2 =wholesaler, 3 = both 1 and 2, 4

iii)   What is the status of business?

       1 = full time 2 = part time 3 = seasonal 4 = none

iv)   (a) Do you have technical knowledge relating to your business?

       1 = Yes 2= No

       (b) How did you get your business knowledge?

       1=Formal training, 2 = Informal training 3 =Experience, 4= none of the above

v)   (a) Have you registered your business?

       1 = Yes   2=No

       (b) If no, give the reason/reason

       (c) Did you obtain your license easily?

1 = Yes, 2=No

(d) If the answer is no, why? Give reason----

vi)   (a) Do you hire or owned this business premise?

1 =hired, 2 = owned

(b) If hired business premises what the rent per month or year is

Comment on the rent price ---

vii)   Do your products checked by the controller Authorities

1 = Yes 2 = No.

viii)   How frequently they come to check your products?

1=many times, 2=few times,

ix)   How fair are they?

1= Are good, 2=Are very ash, 3=Are not cooperate

x)   Do you have a food technologist who checks the product quality?

1= Yes, 2=No

xi)   Do you have a marketing technologist?

1= Yes, 2=No

III: PROCESSED FRUITS PRODUCTS

QN 4

i)   The following questions concerned the activities of handling the processed Fruits products (Imported and local) you have been dealing with in the period of five years since 2009,

ii)   Select only two food products (processed fruits) and give your views on their market demand.

Year	S/No	Product type	Average quantity tons/litre/bottle			Price/tons/kg/litre/bottle		
			Harvest seasons	Off seasons	Annual average quantity	Harvest seasons	Off seasons	Annual average price
2013	1							
	2							
2012	1							
	2							
2011	1							
	2							
2010	1							
	2							
2009	1							
	2							

iii) (a) Give the reasons for preferring dealing with the marketing of processed fruits you have mentioned in the question (4i) above

1= highly advertised, 2 = lack of promotion/advertising 3 = expensive, 4 = less expensive5 = consumer awareness, 6 = consumers not aware, 7 = good quality, 8= low quantity,

(b) What kind of efforts have you made to ensure that customers know your products?

iv) (a) Between the imported and the locally made products, which processed fruit products do you prefer to handle?

1= locally processed fruit products, 2 = Imported processed   products

(b) Why? Give the reasons

1= readily available at the right time, 2 = readily available at right place,

3= both 1 and 2, 4 =frequently consumed by customers,

5 = the quality of products 6 = purchased on a credit basis,

7 = affordability, 8 =personal interest, others specify

CATEGORY TWO

QUESTIONNAIRE FOR LOCAL FRUITS PROCESSORS

PART I: BACKGROUND INFORMATION OF FOOD PROCESSOR

Date of interview…

QN 1

i) Name of the respondent/processor…

ii) Ethnicity …

iii) Nationality

iv) Gender/Sex

1=Male 2 = Female …

v) Highest education level attained……

1= Primary level (standard 1-7), 2=Secondary '0' level (1-4),

3= Secondary A level (5-6), 4=Diploma Level, 5=Degree level, other

vi) Age of respondent (years) …

vii) Marital status

1= Married, 2 = Single, 3 = Separated, 4=Widow,

viii)   Residence or Location: -

    (a)village/street, (b) ward, (c) division (d)district (e) region…

PART II: DESCRIPTION OF THE FIRM

QN 2

i)   how long have you involved in the processing of fruit products? ----(Years)

ii)   What form of ownership of this business?

    1= Individual, 2 = Partnership, 3=State/cooperative, 4= other

iii)   Years since established the firm (number of years)……

iv)   Reasons for establishing the firm…

v)   How much capital did you use to start the firm…?

    1 = Below 1000000 T.shs 2= Between 1000000-5000000 T.shs,

    3 = Between 5000000 – 10000,000 T.shs, 4= Above 10000000 T.shs,

vi)   How did you get the capital to establish the business……..

    1= Own saving, 2= family support,

    3=Friends support, 4=Moneylender, 5=Bank loan, others (specify)

vii)   How was it to access the source of capital in question (2vi) above?

    1=easily, 2=hard,

viii)   (a) Have you registered the business? 1= Yes, 2= No,

    (b) If the answer is no, why? Give reason/reasons……….

ix)   (a) Did you obtain your license easily ……1= Yes, 2=No,

    (b) If the answer is no, why? Give reason/reasons.

x)   The location of your firm 1= urban, 2 = urban, 3 = rural,

xi)   (a) Do you receive technical advice? 1 =Yes, 2= No,

    (b) If the answer is yes, where?

    (c) Comments on the use of technical advice obtained

    1= very useful,

    2=useful,

    3 = I don't know.

xii)   What is the employment status of a food technologist or processing food?

    Engineer1= full time, 2 = part-time, 3 = infrequent, others (specify),

xiii)   (a) Do you hire or own your premise for business? 1= hire, 2 = Own

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(b) If hired premise for business, what is the rent per month or year? Tish

xiv) Comment on the role of government policy and legal on food processing industries in Tanzania:

1=Are very effective, 2= Not effective, 3=N

PART: III FIRM PRODUCTION POTENTIAL

QN3

i) what are the main fruits products you are processing at your firm…

ii) Indicate the production capacity of your firm for each of the products listed in Question (3i) above, quantities of products in metric tons /Kg or liter…

iii) Are you able to reach your production capacity for each of the products?

Listed above? Option: 1 = Yes 2= No, If No, Give reasons

Type of product	During harvest seasons (Bottle, Kgs, Tons, Litre)			During the off-season (Bottle, Kg, Tons, Litre)			Annual, average total, capacity (Bottle, Kgs, Tons, Litre)
	Daily	Weekly	Monthly	Daily	Weekly	Monthly	

Reason chooses as many responses as you can:

1 = Lack of law material, 2 = Lack of working capital, 3 = Lack of markets, 4 =Shortage of spare parts, 5 = Shortage of labour, 6 = No profit, 7 = Shortage of power (Electricity, 8 = Lack of packaging materials, other (specify), Indicate the average/actual quantity of products processed for the last five years from 2009 – 20 (Select only two Products (1 and 2)

Year	S/N	Product type	Average quantity tons/liter/bottle			Price/tons/kg/liter/bottle		
			Harvest season	Off-season	Annual average quantity	Harvest season	Off-season	Annual average price
2013	1							
	2							
2012	1							
	2							
2011	1							
	2							
2010	1							
	2							
2009	1							
	2							

iv) (a) Do you plan to expand the production capacity in the future? ……

1 = Yes, 2 = No,

(b) Do you plan to diversify your business 1 =Yes, 2= No…

(c) If yes, indicate specific product, quantity, and reasons for diversification.

Specific product	Quantity/ Month/Year	Reasons for diversification

v) (a) Which are the most serious problems affecting the performance of your firm?

Rank them in the order of importance

Ranking	The problem relating to government policy at the national level	The problem relating to marketing management systems at the firm level	Firm's problems
1			
2			
3			

1=Problem related to government policy:

2= marketing management:

3= lack of working capital,

4 = Problems related to government's legal:

(b) Please indicate the main cause and possible solution for the most critical problem as listed above

Problem	Code	Route cause	Possible solution
Government policy			
Marketing systems			
Personal			

PART IV: MARKETING OF PROCESSED FRUITS PRODUCTS
QN 4

i) (a) Do you have any contracts with your salesmen? 1= Yes, 2 =No,

(b) How long have you been with your product buyers? 5yrs, 10yrs, 20yrs

ii) (a) Do you have any contact with your product customers? 1 = Yes, 2 =No,

(b) How furs are your products distribute (market share) 1=large, 2= small

(c) Who are your major customers: 1= the domestic market, 2 = and foreign market?

Domestic market		Foreign market	
Name of customer	Region/Place	Name of customer	Country

(b) What has been the trend in the number of customers during the past five years?

1=customers Increased, 2=customers decreased, 3=customers remained the same

(c) Give reasons for answers in item "b" above

(d) What efforts have you taken to ensure that your products were well-positioned?

1= Advertisement and sales promotion effort,

2 = improving product quality,

3= Increasing Publicity, 4=gaining low-profit margin,

5=using different distribution channels,

6 = Getting Customer loyal, other (specify)

QN 5

i) How do you know about the prevailing price of products in the market?

1 = From News Papers/Radio,

2 =From Central Market

3 = From Internet,

4=From Government Market Program on TV and Radio

ii) How do you get the information regarding the markets of products?

1= Direct visit to the Central Market,

2= Visiting the Ministry of Trade and Tourism,

3 = From Sales Men,

4 = From TV, Radio, Newspapers, Cell Phones.

iii) What major factors do you consider when you decide to sell your products?

1= price offered,

2 = market demand,

3= Profit margin,

4 = others

iv)   What are the average selling quantity and revenue of your products per year?

Type of product	Quantity sold (Tons)			Selling T.shs		
	Harvest season	Off-season	Annual average	Harvest season	Off-season	Annual average

QN 6

i)   What are the average selling quantity and price of your products in a foreign market per season? (Applicable for those who export the products)

Type of product	Quantity sold (Tons)			Selling T.shs		
	Harvest season	Off-season	Annual average	Harvest season	Off-season	Annual average

ii)   Are the sales increasing, decreasing, or remaining the same for each of the following Market?

Type of market	Type of product	Seasons	
		Harvest season	Off-season
Domestic market			
Foreign market			

Options: 1 = increasing, 2 = decreasing, 3 = remaining the same 4= fluctuating, Others Specify),

iii)   Give reasons for answers in item (ii) above

iv)   How do you supply your products on the market?
        1= own transport, 2 = hired transport, 3 = agents

v)   State the effectiveness and/ or efficient of the delivery mode mentioned in part

vi)   above 1 = very effective/efficient, 2 = moderate, 3 = not effective/efficient, if not effective/efficient, what alternative ways/way do you put in place in order to overcome the problems?

QN 7

i)   Do you face the market competition on a product line with imported processed fruit products? 1 = Yes, 2 = No,

ii) If yes, specify the extent of competition

1 = Serious, 2 = Average, 3 = below average,

iii) How do you face the challenges of competition? …....

iv) Is it the fair competition? 1=yes, 2= no, (e) If not, why? –

QN 8

i) Do you advertise and/or promote your food products? 1 = Yes, 2 = No,

ii) What frequency of advertisement and /or sales promotion per season and why

1 = one time, 2 = two times, 3 = three times, 4 = more than three times

iii) Comment about the impact of advertisements and/or sales promotions in marketing your food products……..

Seasons	Response	Reasons
Harvest season		
Off-season		
Total		

QN 9

Comments on the contribution of trade liberalization, which has been adopted by the Government on the marketing of food

1= has increased market competition,

2= has removed the barriers of business,

3 = has increased business awareness,

4 = has reduced monopolistic system in business

5 = has increased competition for market shares,

6 = has increased the chances of opportunities

QN10.

What specific roles have you played in promoting the demand for locally processed fruits in Tanzania?

1= Buying raw materials from the farmer and processing food products,

2= processing and selling food products to traders,

3 = processing and distributing the products to the markets

4 = all of the above, 5 = others (specify),

QN11.

What are the most serious marketing problems you are facing in marketing your products?

QN12.

In your opinions, suggest the kind of short term and long-term plan that should be taken to improve the demand for locally processed fruits in Tanzania

      (a) Immediate improvement

      (b) Long term improvements

QN 13

What empowerments required by the food processors to strengthen the industries of processing, fruit products14 Put a mark" X "in the appropriate boxes by indicating the degree of agrees or disagrees

	Strong agreed	Agree	Neither Agree nor Disagree	Disagree	Strong disagree
I prefer imported processed fruits					
I prefer locally processed fruits.					
I think the imported processed fruit product is of good quality.					
I think the local processed fruits products are of good quality.					

APPENDIX 2:   Questionnaires for Processed Fruits Consumers (Local/ Imported)

PART I: BACKGROUND INFORMATION

QN 1

    i)   Date of …

    ii)   Name of respondent…

    iii)   Role in the household

          1= head of household, 2 = house wife,

          3= son/daughter of the household, 4= others specify,

    iv)   Ethnicity …

    v)   Nationality …

    vi)   Gender/ sex, 1 = male, 2 = female,

    vii)   The highest level of education of the respondent (year)

          1 = primary level (standard 1-7), 2 =Secondary 0' level 1-4,

          3= secondary level A level 5-6, 4 = diploma level, 5 =degree level,

    viii)   Age of respondent (years)

    ix)   Marital status

          1 = married, 2 = single, 3 = separated, 4 = wi

    x)   Occupation:

          1= civil servant, 2 = a business man/woman,

          3 = retired officer with a pension, 4 = retired officer without pension,

          5 = farmer, 6 = others (specify)

    xi)   Please indicate your job status

          1 = full time, 2 = part time, 3 =Infrequent,

          4 = none of the above (specify)

    xii)   Number and sex of family members in the following age groups

    xiii)   Residence

          (1) Village/street, (2) Ward, (3) Division (4) District (5) Region

    xiv)   Location of the buyer1= 0.5 km, 2 =0.5-5 km, 3 = over 5 km (from city/town centre).

    xv)   How long have been in this region?

1= below 5-year, 2= between 5 – 9 years, 3 = between 10 to 15, 4= more than 20

Food items	Average quantity during harvest season			Average price/litre/ kg/tin/heap/ tin/bottle	Average quantity during offseason			Average price/ litre/kg/bo ttle
	Daily	Weekly	Monthly		Daily	Weekly	monthly	
Locally processed oranges								
Imported processed oranges								
Locally processed mangoes								
Imported processed mangoes								

xvi) Indicate the quantity purchased and price for each of the following processed Fruits

xvii) What factors do you consider when you decide to purchases each of the above-mentioned food Items

1= price offered

2 = quality of the product

3 = availability of product at the right time,

4 = Availability of product at the right place,

5 = personal relationship with traders/processors,

6 = Availability of cash,

7 = honesty of traders/processor

xviii) In your own opinion, what specific age groups among household members often consume each of the following food items preferably and why?

1 = 0-6 years old, 2 = 7-17 years old

3 = 18-35 years old, 4 = above 35-70 years old

5 = all of the above 70 age

PART II CONSUMPTION PATTERN OF PROCESSED FRUITS PRODUCTS

QN 2

i) Indicate how you preference on taking kind of processed fruits between two.

Seasons (on and off seasons) Fill the answers in the table given below,

Food items	During harvest season	Reasons	During offseason	Reasons
Locally processed oranges				
Imported processed oranges				
Locally processed mangoes				
Imported processed mangoes				

ii) (ii) In your opinions, how can you rank the following food items as far as the

preference of your household is concerned? (Tick on the appropriate column)

Food item	Ranking			
	1	2	3	4
Locally processed oranges				
Locally processed mangoes				
Locally-processed pineapples				
Locally processed pension				
Imported-processed oranges				
Imported-processed mangoes				
Imported-processed pineapples				
Imported-processed pension				

Ranking: 1 = Most preferred, 2 = preferred, 3 = less preferred 4 = not preferred at all

In your own opinions, can you tell what the likely consumption pattern of each of the

following food items in the past of 5 years was, and can you also predict the trend for

the next 5 years consecutively choose the correct answer on the below table)

Food item	The consumption 5 years	Reasons for change	Expected	Reason changes
Locally processed oranges				
Imported processed oranges				
Locally processed mangoes				
Imported processed mangoes				

QN 3 (a)

i) The consumption pattern for the past five years was,

1= decreasing, 2= increasing, 3= was the same

(ii) Reasons for the change/ not change

ii) The expected consumption pattern over time,

1 = will decrease, 2 = will remain the same

3 = will increase, 4 = others (specify)

iii) Reasons for the expected changes or / change.

1= Less expensive, 2 =Very expensive, 3 = increase availability,

4 = Not available, 5 = Good quality product 6 = Poor quality of product,

iv) Comment on the consumption habit with regard to each of the following food items then give reason.

1=commonly used as part of human diet 2 = Not commonly used as part of human diet, 3 = others (specify).

Food item	Consumption habit	Reason/s
Processed oranges		
Processed mangoes		

v) Do you generally believe that consumption of locally processed fruits such as oranges and tomatoes in Tanzania is affected by strong competition caused by the Illegal importation of all kinds of processed fruits? 1 = Yes, 2 =No

vi) If yes, assesses the illegal importation procedures to each of the following food items. (Fill the table below, what are they)

Food item	Illegal	Reason/s	Illegal	Reason/s
Locally processed oranges				
Locally processed mangoes				
Imported processed oranges				
Imported-processed mangoes				

vii) (a)The consumption pattern

1 = increased, 2 = remain the same, 3=decreased 4 = other (specify)

(b) Reason: 1= strong competition lead to low (demand)

2= competition accelerated/promoted demand amongst people

QN 4

How government policies such as importation and taxation can be improved to stimulate and promote the consumption of locally processed fruits

QN 5

i)   which are the most serious problems affecting the consumption of the locally and imported processed (oranges and tomatoes) in your area

ii)   In your own opinion, please specify the main causes and possible solution of problems highlighted in item (5)

QN6.

How can consumption of locally processed fruits and such as orange can be stimulated from your own assessment?

QN7.

Are you aware of the vital role that processed fruits play in the human body and nutrition? 1 = Yes, 2 =No

PART III: THE DEMAND OF PROCESSED FRUITS PRODUCTS

QN 8

i)   which kind of processed fruit is easily available in the market?

ii)   If not available, give reason/reasons (select the correct answer to the Table below)

Food items	During harvest season		During offseason	
	Option	Reason if not easily available)	Option	Reason if not easily available)
Locally-processed oranges				
Locally processed mangoes				
Imported-processed oranges				
Imported-processed mangoes				

Option: 1= easily available 2 = not easily available, 3 = I don't know

Reasons: 1=lack of preference, 2= poor marketing management system3 = high competition of processed fruits products4= illegal importations of processed fruit products 5 = lack of awareness on processed fruit products, 6 = others (specify)

iii)   (a) Please indicate the frequency and the source of your purchase of each of the frequency of purchasing:

1= daily basis, 2 = weekly basis, 3 = monthly basis, 4 = other (Specify)

(b) Sources: 1= from retailers; 2 = from whole sellers; 3 =from processors; 4 =from Supermarkets; 5= others (specify) …

iv) (a)Which sources you mentioned above are the most efficient?

v) Sources: 1 = retailers, 2 = whole sellers 3, = processors, 4 = supermarkets, 5= others specify

vi) (a) Comment on the markets of the processed fruits products for the last 5year and the coming 5 years (choose the correct choice from the below table)

Food items	5 yrs to come	Past 5 yrs
Locally processed tomatoes		
Locally processed oranges		
Locally processed mangoes		
Imported processed tomatoes		
Imported processed oranges		
Imported processed mangoes		

(b) The trend 1= efficiently conducted, 2 = improved tremendously, 3= not efficiently conducted, 4 = No improvement, 5 = others (specify)

(c) The trend of marketing will be 1= efficiently conducted, 2= will be improved, 3 = not efficiently conducted,4= no improvement

(d) Concerning question in item "a" above, do you think the following food items' marketing system could be improved? 1=Yes, 2=No

QN 9

i) Indicate which of the following processed food items are known by the majority of people in this

ii) Give reasons. (Choose the right choice from being table)

iii) Level of awareness of food products amongst the consumers

1= much known, 2 = not known, 3 = others (specify) ……..

iv) Reasons: 1= often advertised/promoted, 2 = product quality 3= customer care, 4= others (specify)

Food items	Level of awareness	Reasons
Locally processed oranges		
Imported processed oranges		
Locally processed mangoes		
Imported processed mangoes		

QN 10

In your opinion, indicate the best product in term of product quality (attributes) of each of the following food items (choose the correct choice from the Table)

Ranking: 1= Good quality 2 = Moderate quality 3 = Poor quality 4= others

Food item	Quality in terms of nutrition value
Locally processed oranges	
Imported processed oranges	
Locally processed mangoes	
Imported processed mangoes	

QN 11

i) In your opinion, how are the following factors playing a big role in purchasing processed fruits among the two types of products (imported and locally made products).

Factors	Locally processed fruits	Imported processed fruits
Frequent advertisement		
Quality of products		
Price offered		
Availability of products at the right time		
Availability of products at right place		
The consumption habits		
Norms and beliefs		
People's purchasing power (per capita)		
Gender influence		
Household's Head		
The location of Supermarkets/Shops		
The vital nutrition values on products		
Psychological effects		

ii) Options:

1= very important, 2 = important,

2= not important, 4 = not important at all