

**THE IMPACT OF LIBERALISATION ON MAIZE PRODUCTIVITY IN KENYA:  
THE CASE OF MAIZE SUBSECTOR: 1986-2017**

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**DECLARATION**

I declare that this is my own work submitted to the University of Nairobi and has not been presented for the award of any other degree

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## **ABSTRACT**

The purpose of the research was to investigate impact of liberalisation on maize productivity in Kenya by focusing on the case of maize subsector from 1986-2017. The research was guided by three research objectives: to investigate the factors which influenced liberalisation of maize sub-sector in Kenya; to evaluate how Kenya has liberalized its maize subsector; and to examine the impact liberalisation on maize productivity in Kenya. The research adopted mixed research design which allowed for collection of both quantitative data and qualitative data. Quantitative Primary data was obtained using questionnaire survey from 50 farmers from Njoro constituency in Nakuru County. Notably, the response rate for the questionnaire was 86%. On the other hand, qualitative primary data was collected from 10 senior managers at Unga Group Limited and Pembe Flour Mills Limited. Moreover, content analysis was used to analyse both the secondary and qualitative data. Besides, quantitative data was analysed using IBM *SPSS* Statistics 24 computer software. The analysis of the research showed that there are three main factors which influenced liberalisation of agricultural sector in Kenya; market reforms related to SAP, Uruguay Round Agreement on Agriculture (AoA), as well as, donor intervention and conditionality. With regards to extent of liberalisation in the maize subsector, the analysis of the findings gave a clear indication that there have been on-and-off government interventions in the maize subsector through NCPB with the aim of protecting local farmers and consumers. The analysis of the study confirms the hypothesis that changes in maize prices have a negative impact on cost of production and Per Capita Maize output. Besides, the analysis of the findings confirm the hypothesis that increased importation of maize in the Kenyan maize subsector has a negative impact on cost of production and Per Capita Maize output. Moreover, the findings of the study confirm the hypothesis that Minimal Government Interventions have a negative impact on cost of production and Per Capita Maize output.

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This project is dedicated to my aunt Sr Lucy Njeri of Queen of Angels Benedictine Nuns for never giving up on me.

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## **LIST OF ABBREVIATIONS**

AATF- African Agricultural Technology Foundation

AoA- Agreement on Agriculture

ASIP- Agricultural Sector Investment Program

CET -Common External Tariff

COMESA- Common Market for East and Southern Africa

CGON- County Government of Nakuru

CU- Customs Union

DFRD- District Focus for Rural Development

EAC- East African Community

FAO- Food and Agriculture Organization

GDP- Gross Domestic Product

IMF- International Monetary Fund

KNBS-Kenya National Bureau of Statistics

NCPB- National Cereals and Produce Board

SAPs- Structural Adjustment Programs

URAA- Uruguay Round Agreement on Agriculture

WB- World Bank

WTO- World Trade Organisation



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## 1.0 CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Since 18th century, liberalisation as a process in multilateral trading system has been an issue of discussion and debates among researchers and scholars. Liberalisation is defined, in the World Development Report, as actions undertaken by states to make trade regimes more neutral and closer to a trade system which is devoid of government intervention (World Bank, 1987). On the one hand, proponents of liberalisation have argued that opening up of markets leads to increased trade and competition; thus, making domestic firms to be more productive. On the other hand, opponents of liberalisation argue that openness of trade can be detrimental to poor countries as a result of loss of jobs and trade imbalances among other factors (Pennycooke, 2011).

With particular reference to liberalisation in the agricultural sector, researchers such as Pennycooke (2011) have argued that liberalisation has resulted in trade imbalance, whereby the developed countries are gaining more from the trade at the expense of the developing countries such as those in Latin America and Africa. Put differently, agricultural liberalisation has limited the ability of developing countries to reap gains from the export earnings as to cater for their food import bills. Critics of agricultural liberalisation, such as Murphy (2002), have argued that agricultural liberalisation is threat to food security mainly because it does not take into cognizance the realities of global market. Besides, liberalisation promotes industrial agriculture while its impact on sustainable agriculture remains negative. Additionally, liberalisation fails to take into consideration that different countries are at different stages of development (Murphy, 2002).

Zeza & Tasciotti (2010) write that the issue of productivity in agriculture and food security has been a developmental concern for all countries-especially the developing countries. The developmental aspect of food security is partly concerned with the effect of liberalisation on the livelihoods of the wider rural communities and small domestic producers as many of them rely on agriculture for survival, as well as their main source of income. According to World Food Summit of 1996, food security refers to a situation in which people, at all times, can gain economic and physical access to safe, sufficient, and nutritious food that satisfies that dietary need. Besides, food security also describes food preferences for healthy and active

life.

According to Kang'ethe (2006), Kenya, just like other countries in Sub-Saharan Africa is faced with poverty and hunger. It is approximated that more than 52.3% of Kenyans live below the poverty line (Kang'ethe, 2006). Notably 34.8% of Kenyans in the rural areas and 7.6% in the urban areas live in extreme poverty and for this reason they cannot meet their food needs (Kang'ethe, 2006). Mohajan (2014) observes that an average Kenyan consumes 2155 kilocalories of food per day which is below 2250 kilocalories of food per day. Notably 55% of the kilocalories consumed by Kenyans (1183 kilocalories) is from staple foods mainly; maize, potatoes, plantains, wheat, beans, and rice (Mohajan, 2014).

Mohajan (2014) further observes that there has been a notable decline in the production of staple foods-mainly maize- which has in turn contributed to the rise of food prices leading to severe food insecurity in the country. With particular reference to Kenya, a report by World Food Program (WFP) indicates that as of 2015, 39% of Kenyans were food insecure. Precisely, the report indicated that the most food insecure areas were North-Western pastoral areas of Kenya majorly; parts of West Pokot and Turkana whose rate of food insecurity stood at 64% (WFP, 2015). Equally, food insecurity is high at South-Eastern regions of Kenya where the level of food insecurity stands at 15% among the households (WFP, 2015). Various reasons have been fronted by researchers to be the main causes of food insecurity in Kenya; inflation (Mohajan, 2014); dependence on food imports and food aid (Kang'ethe, 2006); liberalisation of agricultural sector (Nyangito et al.2004); and drought (Huh&Mugalavai (2010), among other factors. Researchers such as Anowor, Ukwani& Martins (2013); Pennycooke (2011); and Lovendal& Knowles (2006) have investigated the impact of trade policies and liberalisation on agriculture. Other researchers such as Kapunda (1994) have analysed the influence of structural adjustment programs on food security. However, research on the impact of agricultural liberalisation on food security remains inconclusive. Informed by this observation, the research investigated the impact of agricultural liberalisation on food production in Kenya. Through this study, the researcher would be able to determine whether liberalisation is a panacea or placebo to maize productivity in Kenya.

## **1.2 Problem statement**

Different scholars, researchers, and policy makers hold the general perception that developing countries could gain much through liberalisation of agriculture and agricultural markets

mainly because their economies are dependent on agriculture (Koning & Pinstруп-Andersen, 2007). However, according to Kang'ethe (2006), the problem with liberalisation of agricultural sector and importation of maize is that it leads to over taxation of rural farmer and subsidizing maize and maize flour for the urban consumers, as well as underinvesting in rural areas (Kang'ethe, 2006). For this reason, the rural population which constitute the highest population in Kenya do not have the capacity to pay for the imported food products in the market because they cannot make significant income from their farming. In addition, they do not have the incentive to produce more maize because of the cheaper imported maize in the market. Despite the fact that different studies have been conducted in relation to liberalisation and agriculture in general, the question of the impact of liberalisation on maize productivity has not been sufficiently investigated. Therefore, the study aimed at investigating the impact of liberalisation on maize productivity in Kenya.

### **1.3 Research questions**

What is the impact of liberalisation on maize productivity in Kenya?

#### **1.3.1 Specific Questions**

- i. What are factors which influenced liberalisation of the maize sub-sector in Kenya?
- ii. How has Kenya liberalised its maize subsector?
- iii. What is the impact of maize liberalisation on maize productivity in Kenya?

### **1.4 General objective**

To analyse the impact of liberalisation on maize productivity in Kenya

#### **1.4.1 Specific Objectives**

- i. To investigate the factors which influenced liberalisation of maize sub-sector in Kenya
- ii. To evaluate the extent of liberalisation in the maize subsector in Kenya;
- iii. To examine the impact liberalisation on maize productivity in Kenya;

### **1.5 Justification of the study**

Certainly, there is a large body of theory regarding the influence of liberalisation on agriculture on food security. This research is of relevance to the existing body of research not

only because it addressed the existing gap of knowledge such as the correlation between liberalisation and maize productivity, but also added more knowledge to the already existing one. Notably, the core reason why the current research mainly focused on maize subsector is that Maize is the main staple food in the country and for this reason, changes in maize production in Kenya is likely to affect the state of food security in the country (Mohajan, 2014). Further, the reason why the research focused on the period 1986-2017 is because the researcher aimed at investigating the extent to which Kenya has implemented liberalisation since it was adopted in Kenya in 1986 and its influence on food security. Moreover, the current research contributes to the existing body of theory related to liberalisation by conducting an empirical investigation of the influence of liberalisation on maize productivity. Besides, study is expected to be informative to researchers and scholars in the fields of political economy, economy and agricultural studies, among other fields by identifying and filling the existing gaps related to liberalisation and maize productivity in Kenya.

In addition, it is expected that the research would be of relevance to the Government of Kenya in the process of policy making. More precisely, the research will be of importance in informing government agencies concerned with agriculture and trade on how they can improve food security in the country through better trade and agricultural policies. Arguably, by following the recommendations offered at the end of the research, various government agencies and stakeholders involved in trade in agriculture can formulate better policies that will ensure sustainable maize production and food security in the country.

### **1.6 Scope and Limitations of the research**

The scope of the current research was limited within the agricultural industry. Precisely, the research concentrated on the Maize sub-sector in the Kenyan agricultural industry. This means that the study did not focus on other subsectors in the Kenyan agricultural industry. Besides, the fact that the research focused on Kenya meant that it was not a comparative research. Additionally, the research applied non-probabilistic sampling methods which are normally subjective because they depend on the judgment of the researcher. To overcome this challenge, the researcher ensured that there is no discrimination in the selection of the respondents by making sure that only those who possessed important information were selected to take part in the research.

## 1.7 Definition of key concepts

The following concepts formed the basis of the current research. The terms and concepts were defined as follows.

**Liberalisation:** Refers to trends adopted by governments-through regulated trade- to stimulate free movement of goods and services. In the current research, liberalisation points to process of removing or reducing restrictions on international trade. These restrictions include reduced government intervention, control of prices by the market, as well as abolition or enlargement of import quotas.

**Food security:** defined as a situation where all people at all times have economic, social and physical access to safe, sufficient and nutritious food so as to meet their dietary needs, as well as their food preferences in order to live healthy and active lives. In the current research, food security refers to the adequate supply of basic foodstuffs at all times with aim of sustaining a steady expansion of consumption of food, as well as to prevent fluctuations in production and prices

**Government intervention:** defined as the regulations undertaken by the government with the aim of affecting or interfering with the decisions, groups, organisations or individuals on matters related to social and economic aspects. In the current research, government intervention refers to regulation of the economy by the government including price controls, subsidy and research and extension.

**Market Price:** refers to the economic price for which a product or service is bought or sold in the market place based on the forces of supply and demand. In the current research, market price refers to the unique price at which traders agree to trade their commodities in the market.



## **2.0 CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this section of the research, a review of literature was conducted based on the theoretical and empirical studies underpinning the influence of liberalisation on agricultural productivity. Firstly, the profile of Nakuru County is presented. Besides, the research offers a review of literature regarding related to maize productivity in Kenya, followed by the factors which influenced agricultural liberalisation in Kenya. Additionally, the influence of liberalisation on agricultural production is analysed. Subsequently, an evaluation of the key theories underpinning liberalisation is presented in this chapter.

#### **2.2 Profile of Nakuru County**

Nakuru County is one of the 47 counties in Kenya. Notably, the capital of Nakuru County is Nakuru town. Nakuru County is made up of 11 constituencies which include Naivasha, Molo, Njoro, Kuresoi South, Kuresoi North, Rongai, Subukia and Bahati. Others include Gilgil, Nakuru Town East and Nakuru Town East (County Government of Nakuru, 2017). Besides, Nakuru has a population of 1, 606,325 people making it the county with the fourth largest population after Nairobi, Kiambu and Kakamega counties. Even more, Nakuru County has a square are of 2,325.8km<sup>2</sup> (County Government of Nakuru, 2017). The main economic activity in Nakuru is farming. Important to note is the observation that maize farming in Nakuru County has been one of the main agricultural activities in the county due to the moderate acidity levels of the soil which range from 5.0 to 6.8 (Obiria, 2014). Notably, Nakuru County has over 11,000 small scale maize farmers. Notably, in 2014, the maize production by farmers in Nakuru County stood at 330,000 bags (Obiria, 2014).

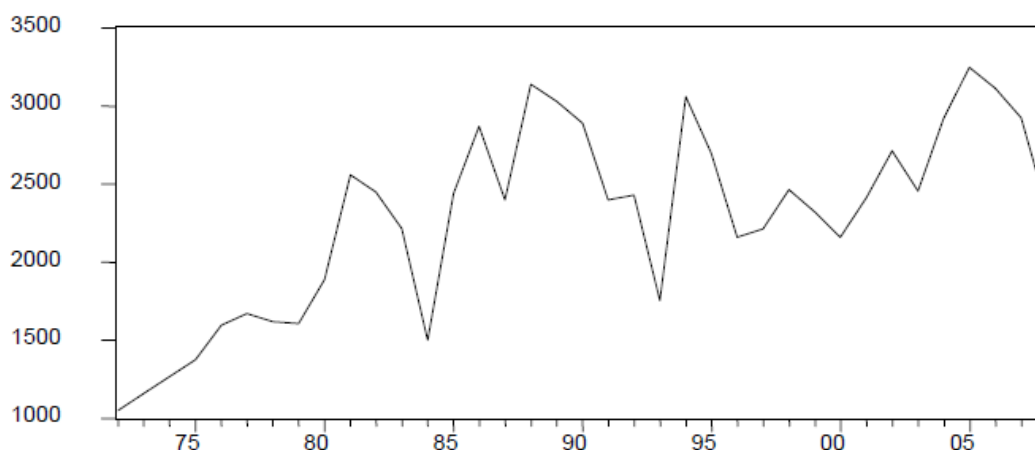
#### **2.3 Maize production in Kenya**

According to Nyoro (2002), Maize is the main staple food in Kenya, as well as the main source of carbohydrate for the larger part of the Kenyan population. Notably, as the main food commodity, maize provides consumers, both in the urban and rural areas with a large proportion of calories. Pingali and Shah (2001) observe that the average consumption of maize, per capita, in Kenya is estimated to be 103kg, per individual. Besides, maize accounts for 3% of Gross Domestic Product (GDP) in Kenya; 12% of the total GDP in agriculture; and

21% in the total production of agricultural commodities. According to an economic survey by the Kenya National Bureau of Statistics (2014), maize in Kenya is produced for both subsistence and commercial purposes. Notably, large scale maize farmers constitute about 25% of the maize farmers while small scale producers constitute 75% (KNBS, 2014). Besides, Mbithi (2000) observes that small scale maize producers in Kenya mainly produce maize for subsistence retaining about 58% for consumption with their families.

Nyoro (2002) observes that Kenya has endeavoured to achieve its goal of attaining self-sufficiency in food commodities such as rice, wheat and maize. Notably, this self-sufficiency was attained in the 1970s when maize production in was high to the extent that the country has surplus maize for exports. Instructively, policy of self-sufficiency of food in Kenya implied that food security in country would be achieved mainly through domestic production without focusing much on maize prices. Equally, attainment of food self-sufficiency in Kenya did not necessarily imply that food security in the household could be achieved. Overtime, the issue of maize prices and household income played a critical role in determining the level of food security for the households in Kenya. Nyoro (2002) continues to observe that rather than attaining its self-sufficient goals in maize production, Kenya has experienced a decline in its maize production while the demand for food has been on the rise. As a result, decline in maize production while the demand for food has been on the rise has resulted to deficits in maize. In order to bridge the gap between maize production and demand, Kenya has resulted to importation of maize. The increase in the deficit between maize production and consumption and the high costs of marketing in maize resulted in to demands related to reforms in food marketing in Kenya.

According to a report by African Agricultural Technology Foundation, cited in WAME (2015), maize production in Kenya has been low with an average production of 1.8 tonnes per hectare which is equivalent of 20 kilograms bags of maize (each bag 90 kilogrammes). This production is low compared to the global maize production which stands at 5.0 tonnes per hectare. To put the foregoing observations into perspective, figure 2-0 below gives an indication of maize fluctuations in Kenya in the period 1972-2008.



**Figure 2-0: Production of maize in Kenya (in Metric Tonnes) 1972-2008.**

*Source: Republic of Kenya Economic Surveys (2009).*

Based on an average consumption of 2700 metric tonnes per year, the above trend in maize production in Kenya shows that there has been notable maize deficit throughout the years. The foregoing observations are supported by a report by KNBS (2014) which indicates that the total maize production in Kenya stood at 38.9 million bags. This was 2% deficit in production compared to 39.7 million bags that were produced in 2012. The low maize production in Kenya, according to KNBS, is attributable to use of unimproved maize varieties, erratic climatic conditions, use of outdate agronomic technologies, and use of unimproved varieties of maize. Other factors which can be attributed to low maize production in Kenya, according to Gitu (2004), include insufficient budgetary allocations towards agricultural development poor rural infrastructure, and weakness of the private sector which is attributable to the liberalized maize market.

## **2.4 Factors influencing agricultural liberalisation in Kenya**

According to Nyairo (2011), liberalisation in agricultural sector, for most developing countries, can be traced back in the 1980s when agricultural reforms were introduced. The researcher observes that agricultural reforms of the 1980s were aimed at eliminating or reducing existing bias against the agricultural sector while at the same time opening the sector to market forces. Instructively, it was postulated that adoption of agricultural reforms and opening up of the agricultural sector to market forces would lead to increased participation of the private sector, as well as increased agricultural production which are

stimulated by competitive market forces. Notably, implementation of the agricultural reforms required reduction of government intervention in the agricultural sector, as well as elimination of price disincentives for the farmers (Nyairo, 2011). According to Havnevik et al.(2007), introduction of agricultural reforms in most African countries required governments to reduce their interventions through removal of subsidies and to reduce their intervention in the export markets. Important to note, it was presumed that unfettered market competition and deregulation would stimulate higher producer prices for farmers, as well as 'right' prices of inputs thus leading to increased efficiency and production in the agricultural sector.

Closely related to the foregoing observations are the views of Mosley (1986) who argue that agricultural liberalisation is as a result of structural adjustment programs (SAPs) which were aimed at providing economic remedies to the struggling developing countries. Re-engineering of the agricultural sector was one of the important steps towards dealing with the rising poverty and slow economic growth of developing countries. Mosley (1986) further observes that overall economic stagnation and economic crises were common factors which resulted to economic distress among developing countries. For example, in the late 1970s and early 1980s, Kenya experienced a serious economic crises-the worst since independence; mainly because the balance of payment deficits. In the same period, there was a decline in the value of raw commodities which constituted a large portion of exports for most of developing countries. Besides, the world experienced oil crises due to the rise of oil crises in the late 1970s and early 1980s (Mosley, 1986). These two factors worsened the economic situations in most developing countries. For this reason, most of the developing economies had to rush to the arms of WB and IMF for loans. Notably, most of the loans and credits offered by the WB and IMF came with conditions attached to them and one of such conditions involved liberalisation of agriculture through deregulation and removal of subsidies.

Contributing to the discussion, Hossain (2011) attributes liberalisation of the agricultural sector to the Uruguay Round Agreement on Agriculture (AoA). The researcher observes that the AoA was introduced with the aim of establishing a fair and market-oriented agricultural trading system. Notably, Hossain (2011) observes that AoA was mainly anchored on three main pillars; export subsidies, domestic support and market support which have in turn influenced agricultural liberalisation. With regards to market access, the AoA prohibited application of non-tariff border measures. Some of the notable measures that were prohibited

included minimum import prices, quantitative import restrictions, discretionary import licensing and variable import levies. Equally, AoA made specifications regarding the bound or maximum rate that each country can apply to exports. Notably, the developed countries committed to minimise tariffs by 36% on all agricultural products while the developing countries committed to reduce tariffs by 24% (Pennycooke, 2011). With regards to domestic support, the AoA advocated for reduced domestic support in the agricultural sector by the government, while at the same time leaving space for governments to develop agricultural policies, in response to, and in the face of particular circumstances facing individual agricultural sectors in individual countries. Reduced domestic support was aimed at promoting market access and export competition. With regards to export competition, Hossain (2011) observes that the aim of AoA was to limit the use of export subsidies while at the same time reducing subsidy on export expenditure. Notably, the export subsidy dimension of AoA required developed countries to lessen the volume of their export subsidies by 36% in a period of 6 years while developing countries were required to cut their export subsidies by 14% and 24% in a period of 10 years (Pennycooke, 2011).

## **2.5 Influence of liberalisation on agricultural productivity**

Several studies have shown that there is a correlation between trade liberalisation and food security, especially in third world countries. Gonzalez (2004) examines the influence of liberalisation on food security and the environment. The researcher observes, on the one hand that liberalisation is a misnomer because of the double standards applied by trade regimes which on the one hand allows protectionism in the developed countries. On the other hand, developing countries are required to open up their markets to highly subsidised food products from the developed countries. Liberalisation reinforces trade patterns and production that degrades natural resources that is important for food production while at the same time limiting economic diversification that is necessary for food security. Moreover, Gonzalez (2004) argues that hunger is attributable to poverty not food scarcity. This means that hunger emanates from the lack of resources to grow or purchase food. The implication of this is that increased poverty leads to food insecurity. What's more, Gonzalez (2004) argues that small scale farmers constitute a majority of the malnourished people majorly because of trade policies which weaken agricultural prices and increase hunger by making small farmers to be destitute. Subsequently, small farmers are denied the wherewithal to purchase consumer goods which are not produced in the farm.

Nyangito et al. (2004) conducted a research that investigated the influence of agricultural trade and policy reforms on food security in Kenya from late 1980s to early 1990s. The researchers relied on secondary data from Central Bureau of Statistics, as well as Ministry of agriculture. Besides, the researchers used Welfare Monitoring Surveys of 1982, 1992 and 1997 as the main source of cross-sectional household data. From the analysis of the data, it emerged that there was a decline in agricultural sector whereby the annual agricultural GDP was averaging 2% in the 1990s compared with 4% in the 80s. Similarly, the analysis of the research indicated that market access for imports of agricultural products had increased after the reforms while exports had declined significantly due to market restrictions which limited exportation of agricultural products to the developed countries. The researchers suggest that due to liberalisation, the balance of trade between Kenya and the rest of the world has deteriorated. This is evidenced by the decline of Kenya from a self-sufficiency food producer to a net importer of staple food (Nyangito et al., 2004).

McCorrison et al.(2013) carried out a research that investigated how agricultural liberalisation impacts on food security in developing economies. More precisely, the research focused on the trade reforms of Doha Round of talks on agriculture. An in-depth appraisal of 34 studies related to liberalisation and agriculture was conducted. The outcomes of the research gave inconsistent findings. Notably, 13 studies gave the indication that agricultural trade reforms had resulted to improved food security while 10 studies suggested that there was a decline. On the other hand, 11 studies offered mixed outcomes.

Asche et al. (2015) conducted a research which investigated the relationship between trade of seafood and food security. Specifically, the researchers analysed trade flows in prices, values and quantities- between the developed and the developing countries. The findings of the research gave the indication that quantity of seafood exported by developed countries to developing countries was equal to the amount of seafood imported by the developed countries from the developing countries. However, the researchers observed that the quality of seafood exported by the developing countries was of higher quality compared to that exported by the developed countries. In the final analysis, the researchers observed that although the total value of seafood exported by the developing countries to developed countries has increased, this has a negative influence on food security in the developing countries. The main argument here is that, exportation of high quality sea food to developed countries, and importation of low quality seafood from the developed countries is indicative

of the manner in which the market works whereby, valuable resources are reallocated to those with the highest ability to buy. This also means that although the developing countries are compensated for exports in their seafood, this does not mean that consumers in developing countries are better off (Asche et al., 2015).

According to Nyoro (2002), SAPs advocated for market reforms through which governments were to free market channels and reforms. At the same time, it was expected that private traders would automatically upgrade the previously depressed agricultural prices. Through price elasticity of supply, it was expected that higher prices would stimulate demand for purchased inputs. In addition, it was expected that the larger agricultural incomes would lead to significant multiplier effects which is attributable to high marginal propensity to consume for the low income farmers. Put differently, liberalisation of the agricultural sector was expected to stimulate prosperity in different sectors of the Kenyan economy in a progressive manner (Nyoro, 2002).

With particular reference to maize production, Nyoro, Kirimi & Jayne (2004) observe that maize production in Kenya peaked in the mid and late 1980s (when SAPs were introduced) and stagnated thereafter. Notably, during the last five years of 1980s, the average maize production in Kenya was 2.7-2.8 million tons (Nyoro, Kirimi & Jayne, 2004). Between 1990/91 and 2002/03, maize production ranged between 2.1 to 3.0 million tons (24 to 33 million bags) per year and it was averaged to be 2.4 million tons in the same period of years (Nyoro, Kirimi & Jayne, 2004). Nyoro (2002) observes that agricultural sector in Kenya has continued to perform poorly since SAPs were introduced. For example, production and exportation of maize has declined since mid-1980s thus reducing employment opportunities, increasing poverty in rural areas and affecting food security. Besides, Kenya has resulted to importation of Maize in order to bridge gap between production and consumption. Notably, imported maize has been cheaper than locally produced maize thereby creating a dilemma in pricing of Maize (Nyoro, 2002). For instance, in 2011, Kenya imported genetically modified maize from South Africa because it was more than 30% cheaper compared to non-genetically modified maize grown by local farmers (BBC, 2011). In 2012, Kenya paid over Sh50 billion in importations of Maize and other cereal products from countries such Uganda and Tanzania (Wafula, 2013). In 2014, Kenya imported over 10 million bags of maize from Uganda and Tanzania following a deficit of maize in its stores (Andae, 2016). Still in 2014, Kenya experienced an increase in the importation of un-milled maize from 93,473 tonnes in 2013 to

458,940 tonnes in 2014 (KNBS, 2015). Important to note, unmilled maize constituted 35.9% of total imports from Tanzania (KNBS, 2015). Equally, in 2016, Kenya imported over \$ 6.6 million worth of maize from Uganda and Tanzania-again due to maize shortage in the country (Olingo, 2016). In addition, as of the first quarter of 2017, Kenya was planning to import 450,000 metric tonnes (5 million bags) of yellow maize from Ukraine in order to meet its local consumption of maize (Ngugi, 2017).

Contributing to the discussions, Paulino and Thirwall (2004) used cross section analysis to investigate the influence of liberalisation on import growth, export growth balance of payment and balance of trade in the agricultural sector using a sample of 22 developing countries. Notably, the researchers focused on the countries that had adopted liberalisation policies since mid-1970s. The findings of the research indicated that export growth increased by 2% while import growth went up by 6% leading to decline of trade balance by at least 2% of the GDP (Paulino and Thirwall, 2004). The findings further indicated that although trade liberalisation may result in improved growth performance, developing countries have been forced to adjust their payment deficits to a sustainable level that has minimal growth.

Patel (2006) observes that agricultural liberalisation has been to the advantage of the developed countries but at the expense of the developing countries. More precisely, the researcher observes that as of 2006, OECD countries dominated international trade in agriculture, with over 75% of imports and 70% of exports. On the contrary, developing countries accounted for 1% of the world exports and imports (Patel, 2006). These views are contradicted by De Silva, Malaga & Johnson (2013) who argue that liberalisation results to the lowered prices of import substitutes and imported thus increasing the welfare of the consumers. The researchers observe that international trade-stimulated by liberalised policies-contribute to international openness to the rest of the world through mobilisation of factor products such as good and services, labour, and capital across borders. What's more, increased trade have a significant influence on employment, wages and investment which in turn influence higher output in the agricultural sector (Silva, Malaga & Johnson, 2013).

Kazungu (2009) researched on the role of liberalisation policies on the Tanzanian economy by focusing on the agricultural sector. The researchers applied non-parametric and parametric measures to examine the effect of liberalisation policies on growth rates of the county's exports. The findings of the research indicated that contribution of liberalisation in fostering growth in exports was weak. On the flip side, the researchers established that there was an



increase in the importation of agricultural products. This was mainly attributable to the unfavourable trade policies which resulted to overvaluation of exchange rate that made domestic prices of imported agricultural products to be less expensive compared to similar products that are produced locally.

Anowor, Ukwani, & Martins (2013) conducted a research on the influence of liberalisation on agricultural sector in Nigeria with a special focus on the export-subsector. The researchers applied time-series analysis. The findings of the research indicated that exports in Nigerian agricultural sector were a function of liberalisation. The findings of the research further indicated that as a result of liberalisation exports in Nigeria exceeded importation in the country. However, the researchers observed that Nigerian agricultural exports were more compared to prices in imports-implying that Nigeria's agricultural importation was likely to exceed its exports if the local market was not well protected.

Kassim (2015) carried out a research that investigated the influence of liberalisation on the growth of exports and imports in Sub-Saharan Africa. The researcher applied panel data methodologies to evaluate the effect of liberalisation on the import growth and export growth across 28 countries in Sub-Saharan African region from 1981 to 2010. On the one hand, the findings of the research gave the indication that liberalisation resulted to increased growth in export of agricultural products. The findings showed that there was a 2% increase in importation of both industrial and agricultural products. Kassim (2015) concluded that liberalisation had resulted to trade imbalance which favoured developed countries-mainly Western Countries. In similar token, the researcher observed that liberalisation had influence on price elasticity of demand for exports and imports. On the contrary, liberalisation did not have significant influence on the income of elasticity of demand.

## **2.4 Theoretical framework and conceptual framework**

### **2.4.1 Liberal economic theory**

Wallerstein (2011) suggests that liberal economic theory can be traced back to the 18<sup>th</sup> century economists such as Adam Smith, David Ricardo and John Stuart Mills. The theory is anchored on the premise that trade is based on comparative advantage. Referring to the liberal economic theory, Harrison (1991) observes that liberalisation is an engine for economic growth. More precisely, the researcher observes that trade openness results to positive GDP growth. That is, the higher the openness of an economy, the higher the GDP growth. On the flip side, Harrison observes that limitation of liberalisation and increase in trade restrictions has a reverse outcome; whereby, countries that adopt high level of protectionist policies experience minimal output and growth.

According to Art, Robert & Jervis (2005) one of the major assumption of liberal economic theory is that for countries to achieve wealth, they should not necessarily focus on production of manufactured goods, rather, they should focus on primary commodities they can produce at low costs. As such, countries can reap more benefits by producing goods they are capable of producing at low cost and trading them for goods that they could have otherwise produced at high cost at home. In other words, the liberal economic theory suggests that trade is conducted between countries that produce services based on their factor endowment whereby; countries which are labour intensive specialise on agriculture while countries which are capital intensive focus on industry. Furthermore, as countries focus on specialisation, their participation in the international trade enables them to meet the demands of their domestic markets. In other words, it is better for a country to import a commodity which is costly for it to produce from a country which can produce the same product cheaply. Notably, this commodity is purchased using part of the produce which is applied in a manner which has some advantages for the country purchasing the product (Kaufman, 2007).

Contributing to the discussion, Mattoo, Rathindran & Subramanian (2006) write that liberalisation contributes to reallocation of resources which are scarce to areas of greatest efficiency thus increasing accessibility of a country to various patterns of consumptions of goods, as well as services. By the same token, champions of liberalisation suggest that as trade increases and markets open, there is an increase in competition which stimulates local industries to experience higher levels of productivity. As a result, domestic markets gain from

increase in purchasing power of consumers and availability of cheaper inputs. Even more, liberalisation results to the creation of sustainable environment for firms to invest. Besides, firms are able to take advantage of reduced operation and production costs (Mattoo, Rathindran & Subramanian, 2006).

Another major assumption of liberal economic theory is found in Gilpin (1987) who argues that markets exist to satisfy society requirements in an unprompted manner. In other words, once in operation, liberal markets use their own logic to improve social economy and facilitate exchange. In similar vein, liberal economic theory assumes that liberal markets grow naturally without any external intervention and minimal government interventions are only necessarily for a limited period of time in the primitive market systems (Gilpin, 1987).

Moreover, Gilpin (1987) argues that liberal economic theory is based on the assumption that in situations of harmonious interests, competition exists in markets of consumers and producers which in turn influences economic growth and maximisation of efficiency. Besides, liberal economic theory assumes that markets operate in societies in which individuals have sufficient information which influence their consumption behaviours. This means that the value of goods and services are individually determined by the consumers based on the dynamic in the market. Subsequently, this creates change in the market where any changes in the production patterns influence changes in patterns of consumptions.

Opponents of liberal economic theory, such as Shaikh (2007), suggest that openness to trade harms poor countries. More precisely, the opponents of liberal economic theory suggest that liberalisation results to trade imbalances, loss of jobs and distortion of economics. Besides, empirical evidence from researchers such as Agosin and Tussie (1993); and Rodrik (2001) have refuted the claims that liberalisation leads to faster growth. Their findings gave the indication that almost all growth that is export oriented has come with selective industrialisation policies and selective trade. Both studies by Agosin and Tussie (1993); and Rodrik (2001) showed that there are no examples of countries that have realised strong growth in exports and rates of output by strictly following wholesale liberalisation policies. With particular reference to agricultural liberalisation, Healy Pearce & Stockbridge (1998) write that there is trade imbalance where by developed countries benefit more from liberalisation compared to the developing countries. In other words, this means that the ability of the developing economies to accrue significant earnings from exports is limited. Bouët et al. (2003) write that the problem with agricultural liberalisation is that it strengthens

industrial agriculture at the expense of the sustainable agriculture. In addition, agricultural liberalisation fails to take into account the differing needs of countries in different level of development.

Besides, Gilpin (1987) argues that a major weakness of liberal economic theory is the assumption that economic liberalism focuses on the liberty and equality of the individual and that exchange in the market is voluntary. Gilpin (1987) observes that reality in the liberal market is seldom free or equal; rather it is based in coercion which is influenced by political factors which include monopsony and monopoly. Besides, liberal economic theory overlooks the influence of noneconomic factors on the exchanges that occur between producers and consumers. Additionally, liberal economic theory overlooks the influence of the exchanges on politics (Gilpin, 1987).

With regards to the current research, the liberal economic theory played a critical role in answering the question of how liberalisation has affected exportation of maize from the country while at the same time influencing importation of maize to the country. Besides, through application of liberal economic theory, the study was able to explain how liberalisation has influenced pricing of commodities in the maize subsector. Even more, utility of liberal economic theory is found in the explanation of the extent of government interventions with regards to maize production in Kenya.

#### **2.4.2 Conceptual framework**

The independent variable of the current research was liberalisation. Notably, the dimensions that were used to measure liberalisation included reduced government intervention, reduction increased importations as a result of reduced tariff and non-tariff barriers, and market pricing. On the other hand, the key dimensions that were used to measure maize production include cost of production and per capita maize output. Figure 2-2 is an illustration of the conceptual framework of the study.

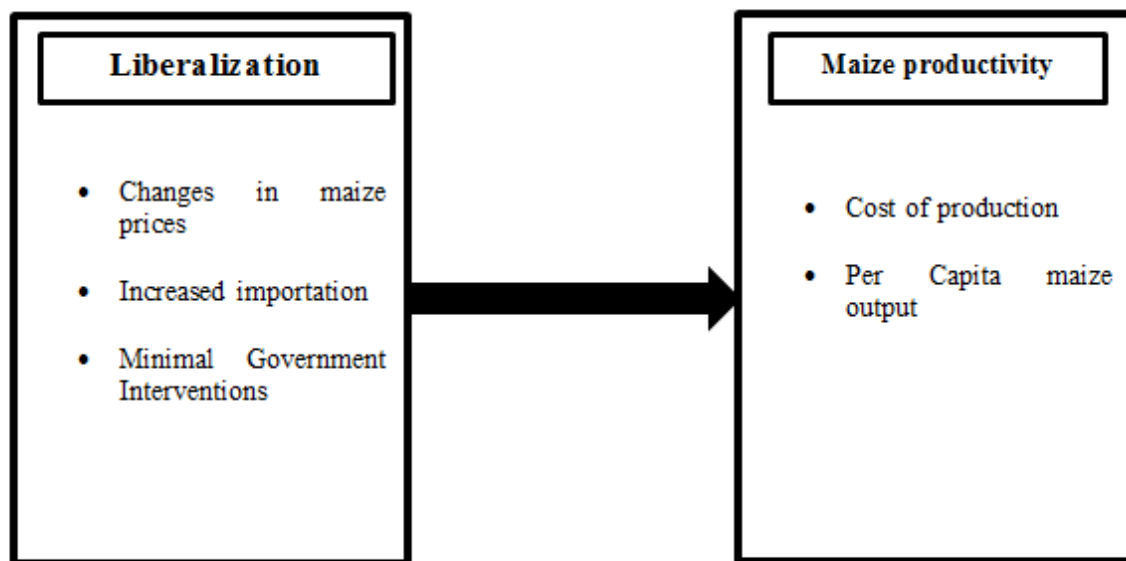


Figure 2-1: Conceptual framework

Source: Author

## 2.7 Research Hypothesis

Based on the above review of literature, the following are the hypotheses of the study;

*H<sub>1</sub>: Changes in maize prices have a negative impact on cost of production and Per Capita Maize output.*

*H<sub>2</sub>: Increased importation of maize in the Kenyan maize subsector has a negative impact on cost of production and Per Capita Maize output.*

*H<sub>3</sub>: Minimal Government Interventions have a negative impact on cost of production and Per Capita Maize output.*

## **3.0 CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

This section of the dissertation delves on the research design that was applied in the process of conducting the study. Besides, the chapter presents the procedures and techniques that were followed in the collection of data. Equally, methods that were used to analyse data for the research are presented in the current chapter of the research.

#### **3.2 Research Design**

The research adopted a mixed research design. Rationale for adopting mixed research design was anchored on the fact that the researcher intended to collect both quantitative data and qualitative data from the respondents. Notably, quantitative data was obtained using structured questionnaires while qualitative data was obtained using interviews. Instructively, use of mixed research design enriched the findings of the study by offering in-depth responses from the interviews while enhancing generalizability and representativeness of data from the significantly large number of farmers who took part in the research.

#### **3.3 Sources of data**

The study obtained data from both the primary sources and secondary sources. Primary sources of data in this research included maize farmers and maize millers in Kenya. In the case of Maize millers, the research mainly focused on Unga Group Limited and Pembe Flour Mills Limited in Nairobi-Kenya. The rationale for using these two maize milling companies is that they have a significant market share in the Kenyan maize milling sector. Precisely, Unga Limited through its Jogoo maize flour has a market share of 21% while Pembe Flour Mills Limited through its Pembe maize flour has a market share of 11% (Situma, 2013). Collection of data from Maize millers offered the research with information regarding the sources of their maize for milling. In other words, maize millers enabled the researcher to establish whether the companies rely on imported maize or on domestic maize from local farmers. With regards to farmers, the research mainly focused on Njoro constituency in Nakuru County. The reason for selecting Njoro constituency in Nakuru County was based on the fact that Nakuru is one of the high maize yielding areas in Kenya. Besides, there has been

a significant shift of farmers from maize farming to farming of drought and disease resistant crops in Njoro constituency (Thuku, 2015). For this reason, the researcher would be able to determine if liberalisation has influenced the shift from maize farming to drought and disease resistant crops in Njoro constituency.

On the other hand, secondary sources of data for the current research included websites of Kenya National Bureau of Statistics (KNBS), National Cereals and Produce Board (NCPB), as well as Food and Agricultural Organisation (FAO). Equally, the researcher relied on online libraries to get journals, reports and books that contained relevant information regarding factors influencing liberalisation in the agricultural sector and the extent of liberalisation in the maize subsector.

### **3.4 Sampling Technique and Sample Size**

Kothari (2004) argues that for practical reasons, it is important for the researcher to conduct a sampling of the target population rather than focus on the entire population. Cohen, Manion & Morrison (2013) writes that sampling points to the process of selecting units from the statistical population with the aim of gaining information that is characteristic of the whole population. The current research applied purposive sampling method to obtain the sample of the research. Bryman (2015) argues that purposive sampling method is a non-probability sampling technique in which the researcher relies on his/her own judgement to select units from the target population. Using purposive sampling the researcher selected key informants (mainly senior and middle level managers) from Unga Group Limited and 5 Pembe Flour Mills Limited. Besides, the researcher applied purposive sampling method to obtain a sample of 50 maize farmers in Nakuru County. Table 1-0 offers an illustration of the total number of respondents that took place in the study.

**Table 3-0: Total number of respondents**

<b>Target population</b>	<b>Sample size</b>	<b>Percentage</b>
Maize farmers	50	83.3%
Unga Group Limited	5	8.3%
Pembe Flour Mills Limited	5	8.3%
<b>Total</b>	<b>60</b>	<b>100%</b>

### **3.5 Techniques of data collection**

Neuman (2002) writes that there are different techniques that are used to gather data for the research. However, the two commonly used methods of data collection in social sciences are interviews and questionnaires. With regards to the interviews, they are used by the researcher to collect in-depth views of the respondents regarding the subject matter of the study. With this in mind, the study used interviews to collect data from the maize millers. More precisely, the researcher used semi-structured interview protocol to obtain in-depth understanding of the views of the respondents towards the impact of trade liberalisation on imports and exports in the country. Moreover, the study used structured questionnaire to obtain data from the farmers. Notably, the questionnaires were structured using the five point Likert scale. This played a critical role in the statistical analysis of data from the farmers.

### **3.6 Techniques of data analysis**

Extending the discussion, the study applied statistical techniques of analysing data in the analysis of quantitative data gathered from the farmers. Specifically the study used IBM *SPSS Statistics 24* computer software to analyse the statistical data. Notably, the study applied descriptive statistics to analyse data related to demographic information of the respondents, as well as level of liberalisation and productivity in the maize subsector. Equally, the research applied Pearson Correlation to analyse level of correlation between liberalisation and maize productivity. Besides, the study applied regression and correlation analysis to analyse the impact of liberalisation on maize productivity. Moreover, the study applied trend analysis to



analyse secondary data related to the impact of liberalisation on maize production in Kenya.

## **4.0 CHAPTER FOUR**

### **FINDINGS AND ANALYSIS**

#### **4.1 Introduction**

This chapter of the research addressed itself to the analysis of the findings. The chapter was made of three important sections based on the objectives of the research. The first section entailed analysis of the factors which influence liberalisation of the agricultural sector in Kenya. The second addressed the question of the extent of liberalisation in the maize subsector in the Kenya. Moreover, the question of the impact of liberalisation on maize productivity in Kenya was addressed in the third section.

#### **4.2 Analysis of the factors which influenced liberalisation of agricultural sector in Kenya**

##### **4.2.1 Market Reforms Related to SAPS**

According to Nyangito (2003), liberalisation in the Kenyan maize subsector started in early 1980s during the implementation of policy reforms under SAPS. Notably, the policy reforms mainly focused on the liberalisation of the market operations which were previously dominated by government control. With regards to the maize subsector, liberalisation entailed removal of government monopoly in relation to the control of the agricultural commodities; price controls by parastatal; as well as removal of government control in the importation and distribution of farm inputs. Contributing to the discussion, Gitau et al. (2009) observe that SAPs led market reforms in the Kenyan maize subsector were as a result of external influence from the Bretton Wood Institutions (IMF and World Bank). These institutions advocated for reduction in government intervention in the control of the agricultural sector by dismantling trade restrictions, reduction of price controls by the government, as well as, reduction in provision of credit facilities to farmers.

Nyangito & Okello (1998) observe that initially, market reforms in the maize subsector in Kenya focused on the removal of price controls on agricultural commodities, as well as liberalisation of the grain market. The foregoing reforms were followed by proposals for relaxation of import licensing systems related to fertilisers, removal of obstacles related to the distribution and marketing systems, as well as price decontrol (Nyangito & Okello, 1998). The findings of the research resonate with the views of Nyairo (2011) that agricultural

reforms of the 1980s were aimed at reducing government interventions in the agricultural sectors, as well as increased efficiency and production in the agricultural sector.

#### **4.2.2 Uruguay Round Agreement on Agriculture (AoA)**

Nyangito (2003) argues that one of the core factors which led to the liberalisation of the agricultural sector in Kenya is the Uruguay Round Agreement on Agriculture (AoA). Notably, Kenya became party to the AoA in 1995 while it was still implementing SAPs. Through the SAPs, the market reforms in Kenya were including towards reduced government expenditure and liberalised marketing of maize. As such, at the time of signing AoA, Kenya was in the process of eliminating subsidies in the production of agricultural commodities, as well as liberalisation of its market. Omolo (2012) observes that the main reason that Kenya joined AoA was to achieve market oriented policies that would ensure security and predictability in the importation and exportation of agricultural commodities. These findings support the views of Hossain (2011) who attributes liberalisation of the agricultural sector to the Uruguay Round Agreement on Agriculture (AoA). The researcher observes that the AoA was introduced with the aim of establishing a fair and market-oriented agricultural trading system. With regards to the Kenyan maize subsector, the rules of AoA applied on market access based on the understanding that there were different trade restrictions on imports and domestic support which included subsidies and other programmes that raised the farmers' incomes and subsidies on exports that make exports to be artificially competitive. Furthermore, AoA influenced differential and special treatment of developing countries including Kenya, whereby the developing countries were required to reduce their tariffs by 24% in a period of 10 years while the developed countries were required to cut their tariffs by 36% within a period of 6 years (Omolo, 2012). Nyangito (2003) observes that commitment of the Government of Kenya to AoA resulted to a tariff ceiling binding of 100% for agricultural commodities between 1996 and 1999. In the same period, the import tariffs were lower than 35%. Notably, adherence of Kenya with the terms of AoA did not result to the protection of the domestic market; as such, the government often had to raise import tariffs in order to protect local farmers (Nyangito, 2003).

#### **4.2.3 Donor Intervention and Conditionality**

Smith and Karuga (2004) observe that in the mid-1980s, agricultural sector, including maize subsector, in Kenya experienced a significant level of donor driven policies which influenced

agricultural reforms. For instance, the District Focus for Rural Development (DFRD) relied on donor funds. Besides, donors made significant investments in the rural infrastructural development which included establishment of storage facilities, access roads, as well as marketing and production facilities. On its part, the Kenyan government had to conduct major reforms in its agricultural reforms which included price decontrols and market liberalisation for its agricultural commodities (Smith and Karuga 2004). Put differently, release of donor aid in Kenya was dependent on the extent of implementation of reforms in the Kenyan agricultural sector. For instance, in 1994, the Kenyan government in collaboration with a joint donor group embarked on a reform in the agricultural sector with the aim of developing agricultural sector investment program (ASIP) which focused on operational sector and holistic support sector (Alila & Atieno, 2006). Notably, ASIP was conducted with the aim of enhancing the effectiveness of donor aid in the agricultural sector by focusing more on public expenditure support rather than focusing solely on the project based approaches (Alila & Atieno, 2006).

### **4.3 Analysis of the extent of liberalisation in the maize subsector in Kenya**

#### **4.3.1 Extent of liberalisation in the maize subsector in Kenya, 1986-1996**

Nzuma & Sarker (2010) observe that prior to the market reforms of the 1980s; the maize subsector in Kenya was strictly controlled by the government which determined pan-territorial and pan-territorial prices. At the same time, the Kenyan government through the National Cereals and Produce Board (NCPB) monopolised maize marketing. In other words, the monopoly of the NCPB in the maize subsector made maize-once harvested- to be the property of the state. Equally, NCPB had control over the movement of maize using movement permits that accompanied maize upon shipment (Nzuma & Sarker, 2010).

Nyoro, Kiiru & Jayne (1999) observe that market reforms in the Kenyan maize subsector in the 1987/88 when other countries in the region were embarking on Cereal Sector Reform Programs. Notably, Kenya received support from the European Union as the country implemented structural adjustment policies. As a result of the market reforms, the Kenyan government eliminated controls on the movement and pricing of maize, deregulated maize prices, as well as elimination of the subsidies of maize to registered maize millers (Jayne & Argwings-Kodhek, 1997). In similar vein, Kirimi (2012) observes that market reforms in the maize subsector intensified in 1993 through elimination of price controls and maize trading.

Equally, NCPB became the buyer and the seller of last resort. At the same time, maize and maize meal prices which were previously based on the pan-territorial and pan-seasonal levels were also deregulated.

Nyangito (1997) observes that the prices of maize in Kenya were fully decontrolled in 1995. This resulted to significant fluctuations and increase in the prices of maize in the liberalisation and post-liberalisation era. Notably, there was significant difference between surplus areas prices and open market prices. For instance in 1995, the prices of maize (outside NCPB) were lower (400 to 550KES) compared to the KES 600 per 90kg bag set by the NCPB. Figure 4-0 gives an illustration of the prices of maize paid to maize producers by NCPB prior to and post decontrol era, 1976-1996

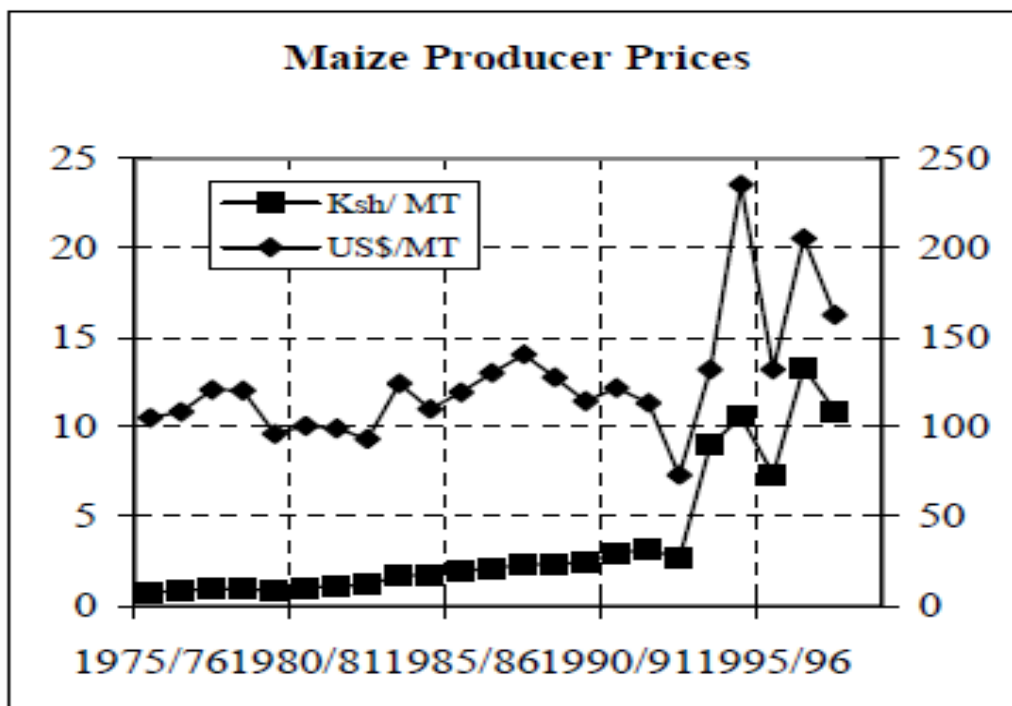


Figure 4-0 : Prices of maize paid to maize producers by NCPB, 1976-1996

Source: Government of Kenya (1998).

Moreover, Jayne & Argwings-Kodhek, (1997) observe that as a result of the market reforms in the maize subsector private lenders were given the opportunity to transport maize to different regions without the requirement of a movement permit. As a result, there was improved distribution and availability of maize in different parts of the country. For instance, Argwings-Kodhek (1998) observed that 59% of the households in Kenya indicated that they

had better availability of maize in the liberalisation era; 31% had better availability in the period before liberalisation; while 10% experienced no change in the availability of maize as a result of liberalisation.

Nyoro, Kiiru & Jayne (1999) observe that although there were significant strides towards liberalisation of the maize sector, the reform process was slow as a result of government interference. Notably, this era experienced advances and reversals with regards to the freedom that the private sector was allowed to market their maize. This period also experienced serious government interventions with regards to trade controls on the importation and exportation of maize using tariffs and bans. For instance, in 1994, the Kenyan government introduced import duty as a result of increased importation by the private sector which resulted to the slumping of the locally produced maize. Notably, the import ban was based on the view that liberalisation would expose consumers and producers of maize in the country to predatory activities of traders in the private sector. Equally, the Kenyan government was afraid that if the prices of maize meals were not controlled, they would hurt the local households especially in the times of drought thus leading to food insecurity (Pinckney, 1993). Nzuma (2008) makes the observation that liberalisation of the maize subsector in 1995 made it possible for the private sector to play a significant part in the marketing of maize, while at the same time influencing reforms in the NCPB. As a result, two marketing systems emerged which comprised of alternative private trading systems and official marketing systems-controlled by NCPB.

#### **4.3.2 Extent of liberalisation in the maize subsector in Kenya, 1996-2008**

Nzuma & Sarker (2010) observe that liberalisation in the maize subsector (between 1996 and 2008) was dependent on trade liberalisation commitments at the multilateral trade negotiations that led to the formation of the World Trade Organisation (WTO). Nzuma & Sarker (2010) further observe that the multilateral rules affecting maize trade are related to the Uruguay Round of Agreement on Agriculture (URAA). The main pillars of URAA included market access, elimination of export subsidies and reduced domestic support. Notably, Kenya has focused on commitment to market access especially regarding tariff reduction measures. A report by WTO (2000) indicated that by 2000 Kenya had complied with basic URAA commitments related to market access based on the fact that its agricultural tariffs were bound to the AoA. At the same time, the applied agricultural rates were below the ceiling. Nyangito et al.(2004) observe that since Kenya joined WTO, there has been increased

level of maize importation in the country from Common Market for East and Southern Africa (COMESA) and East African Community (EAC). Notably, entry of Maize from COMESA and EAC to Kenya has been duty free; however, it had to be accompanied by a certificate indicating the country of origin. On the other hand, imports from other parts of the world were subjected to an import tariff of 25% (WTO, 2000).

According to reports by Ministry of Agriculture and NCPB, compiled by Karimi et al.(2011), see table 4-1, Kenya has experienced significant reduction in the exportation of Maize in the period between 1997/1998 and 2009/2010 market years. For instance, in the market year 1996/1997 Kenya's total of exports in maize stood at 221,000 metric tonnes; in the following market year (1997/1998) the total exports in maize declined to 9000 metric tonnes. Even more, in the market year 2002/2003 the total exports in maize (in metric tonnes) was nil. On the flip side, Kenya experienced an increase the total importation of maize in the country between 1997/1998 and 2009/2010 market years. In the market years 1996/1997 the total import of maize to the country was below 1000 metric tonnes. However, in the period following 1997/1998 market years, Kenya experienced an increase in its maize imports to 565,000 metric tonnes as illustrated in table 4-1. Certainly, the changes in maize exports and imports to Kenya during this period can partly be attributed to the membership of Kenya to the WTO whereby the country had to comply with the rules of trade as established through URAA. For instance, the Kenyan government had to reduce import tariffs for the maize entering the country from other countries. To put this into perspective, in 2005 the Kenyan government withdrew the maize tariff for the maize entering the country from member countries of East African Community (EAC) (Karimi et al., 2011). On the other hand, Karimi et al. (2011) observe that the changes in the exportation and importation of maize in Kenya can also be attributed to the poor maize harvest in the country following drought periods and political factors such as post-election violence in 2008. However, the underlying observations is that there has been notable increase in importation of maize and decline in maize exports in the country in the period between 1997/1998 and 2009/2010 market years.

**Table 4-1: NCPB Price Settings and Maize trading volumes in Kenya 1988/89 to 2009/10**

Year	Total output (000 mt)	NCPB maize purchase and sale price (Kenyan shilling (Ksh) per 90kg bag)				NCPB maize purchases (000 mt)	NCPB maize sales (000 mt)	Official exports (000 mt)	Official Imports (000 mt)
		----- Nominal -----		---- Inflation-adjusted ---- (2005=100)					
		Purchase price (B)	Sale price (C)	Purchase price (D)	Sale price (E)				
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	
1988/89	2761	201	326	1725	2703	643.8		167	0
1989/90	2631	221	337	1680	2561	551.3		110	0
1990/91	2290	250	337	1645	2215	235.3	669.6	160	0
1991/92	2340	300	358	1649	1961	318.9	735.2	19	75
1992/93	2430	420	646	1679	2582	493.4	257.4	0	0
1993/94	2089	950	1280	2549	3434	467.6	512.8	0	89
1994/95	3060	920	1280	1960	2728	540	67.7	2	121
1995/96	2699	600	887	1235	1825	100.8	111.3	154	0
1996/97	2160	1127	1100	2232	2176	62.8	54.3	221	0
1997/98	2214	1162	1318	2172	2463	151.5	14.6	9	565
1998/99	2400	1009	1209	1764	2113	34.9	123.3	13	0
1999/00	2322	1200	1436	1923	2301	177.2	145.1	37	52
2000/01	2160	1250	1300	1812	1884	311.5	74.1	7	498
2001/02	2776	1000	1250	1414	1768	257.7	23.7	6	472
2002/03	2441	1052	1265	1408	1693	89.1	196.4	0	24
2003/04	2714	1358	1680	1670	2066	162	136.7	48	109
2004/05	2459	1400	1950*	1566	2181	314.1	144	14	273
2005/06	2918	1250	1770*	1250	1770	135.3	375.6	4	40
2006/07	3248	1300	1500*	1161	1339	407.2	97.6	18	60
2007/08	2931	1300	1335	1111	1148	32	219.6	22	48
2008/09	2367	1950	1435-1835 <sup>#</sup>	1615	1189-1520	78.3	308.6	14	149
2009/10	2443	2300 1500	1750-1910				0	1.5	1410

Source: Reports by Ministry of Agriculture and NCPB, complied by Karimi et al.(2011)

#### 4.3.3 Extent of liberalisation in the maize subsector in Kenya, 2008-2017

In line with the common external tariff (CET) of the East Africa Community (EAC) customs union (CU) protocol which was ratified in 2005, maize imported into Kenya from non-EAC member states attracts an ad valorem tariff of 50%. However, maize imported from EAC member states is imported on a duty-free basis. This duty is high because maize is listed for protection under the sensitive list, where import duties in excess of 25% may be applied (KIPPRA, 2017). Simplified rules of origin have also been adapted to facilitate easier cross-border trade in maize. Nevertheless, significant non-tariff barriers still exist, and these include: burdensome clearance procedures (especially at border points), arbitrary bans on imports and exports, poor transport and infrastructural connectivity which has hindered the movement of maize from maize-surplus to maize-deficit areas (Vitale, Morrison and Sharma, 2011). The lack of harmonized food safety standards (e.g. maize moisture content) is also another major



factor that hinders the cross-border trade in maize between Kenya and its EAC partners.

Moreover, through the National Biosafety Authority, the import of genetically modified maize into Kenya remains banned (Gitonga and Snipes, 2016). The CU protocol however contains a remission provision, which EAC member states can exploit to waive import duty on maize. It is this provision which Kenya has continuously exploited to respond to counter food insecurity, by allowing the importation of duty-free maize. This occurred in 2009-2010, and 2011 (Vitale, Morrison and Sharma, 2011; Gitonga, 2014). The government of Kenya has also occasionally announced complete export bans of maize. The most recent such ban was in January 2017, and this was aimed at preventing the hoarding and subsequent sale of maize by Kenyan farmers to South Sudan, which offers far much better prices (Gitonga, 2017). This was followed by the waiving of duty on maize to allow for duty free imports in April 2017, after maize prices in the country continued rising. Eventually, in the last half of 2017, the Kenyan government enforced subsidies on maize flour, where millers are compensated in order to supply maize to consumers at a fixed price of 90 shillings. This subsidy is expected to be in place until the next crop of maize is harvested (Miriri, 2017). Additionally, Kenya has consistently intervened in the market by offering support for producer prices. This has involved setting the price of maize, bought by the National Cereals and Produce Board (NCPB), at a higher level than the equilibrium market price. For instance, the government offered producer prices of 3,000 shillings for a 90kg bag in September 2016 against the prevailing market price of 2,300 shillings (Gitonga and Snipes, 2016). Although the CET has been in existence since 2005, the finance ministers from the EAC region will be meeting in October 2017 to review it (Anyanzwa, 2017). Other interventions which the Kenyan government has traditionally offered include offering subsidized fertilizer and maize seeds (USDA, 2012). Besides, as illustrated in table 4-2 below, Kenya has consistently been a net importer of maize, with local production having stagnated within a narrow range over the last eight years, and local production being unable to sustain local demand. Key issues behind this include: drought due to unfavourable weather patterns, the continued acidification of soils due to the sustained use of the DAP fertilizer over the years, use of poor seed varieties, crop diseases (e.g. the lethal maize necrosis), and post-harvest losses (e.g. due to poor storage and aflatoxin contamination) (Gitonga, 2014, 2017).

**Table 4-2 Extent of importation and exportation in maize subsector**

	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
<b>Production</b>	2,439	3,222	3,100	2,600	2,800	2800	2800	2850
<b>Exports</b>	0	6	13	10	10	10	10	0
<b>Imports</b>	2,538	259	600	1200	1,600	1800	2000	2,000

Source: Gitonga and Snipes (2016); Gitonga (2014, 2017); USDA (2011, 2012) \*Figures in thousand TMT (thousand metric tonnes)

#### 4.4 A trend analysis Impact of liberalisation on maize production in Kenya

##### 4.4.1 Pre-liberalisation Phase

Nyangito and Kimenyi (1995) observe that two decades after independence of Kenya in 1963, policy makers identified maize as the main staple food in the country. As a result, maize received a significant budgetary support via a marketing board that was controlled by the Kenyan government. Notably, government policies focused on subsidising input and producer prices, research and extension services, as well credit. Subsequently, Kenya experienced an increase in maize production in the 1960s and 1970s, as illustrated in figure 4-1 below, to the extent that there was surplus for exportation.

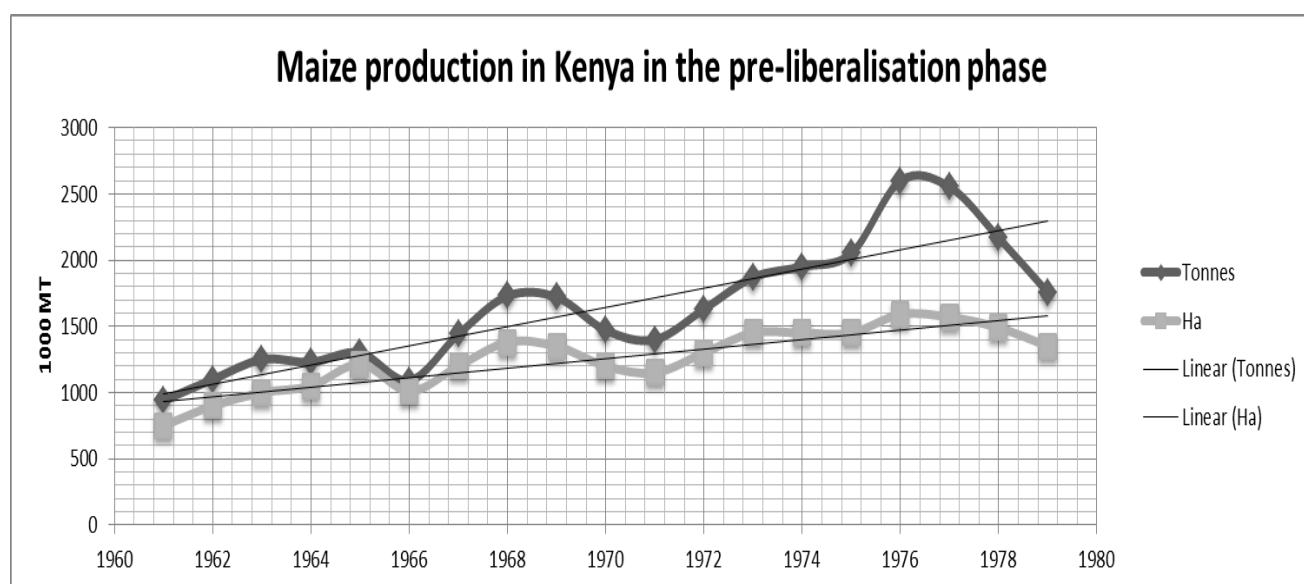


Figure 4-1: Maize production in Kenya in the pre-liberalisation phase

Source: FAO, FAOSTATs (2017)

Moving forward, Nyangito and Kimenyi (1995) observe that in the 1970s, Kenya

experienced prolific growth in its population. At the same time there was a significant shortage in the unexploited arable land in the medium and high potential areas which limited any improvement in maize production, as well as the general food production. Notably, there was significant drop in the per capita intake of nutrition while a significant part of the population remained food insecure (Nyangito and Kimenye, 1995). Moreover, as illustrated in figure 4-1 above, Kenya experienced a significant drop in maize production in the late years of 1970s which further worsened by the 1979 drought which brought about an imbalance between the national demand and supply of maize in the country. As a result, in 1981, the Kenyan government established of the first comprehensive national food policy. This policy outlined the decision making procedures that would be followed with regards to the issues related food production, food security, research and extension, land use, trade and marketing, as well as, agricultural credit.

#### **4.4.2 Liberalisation Phase**

From the start of 1980s, policy makers held the opinion that intensive state controls had limited the terms of trade against agriculture. At the same time, Kenya had started the gradual implementation of SAPs. Notably, the full liberalisation in maize production and marketing was achieved in 1993 (Onono, Wawire & Ombuki, 2013). Instructively, liberalisation in the maize subsector was geared towards removing structural rigidities, align maize prices with the world markets and broaden the role of the markets with the aim of improving terms of agricultural trade for economic performance and maize production. Important to understand is the view that liberalisation resulted to abolishment of all import licensing, control of foreign exchange rate and price controls. Besides, the role of NCPB was limited to buyer and seller of last resort, as well as maintenance of strategic reserves. Additionally, government services shifted from supply to demand oriented approach. Nyangito and Kimenye (1995) argue that while the government of Kenya continued to offer agricultural education and support services to farmers, those who received research and extension services were required to support the research and extension services through levies. On the other hand, the private sector was tasked with the role of undertaking research on commodities that could fit in well with the competitive markets while the government focused on constraints facing small farmers. As illustrated in figure 4-2 below, Kenya experienced significant fluctuations in maize production in the first five years of liberalisation 1980/81 to 1985/86.

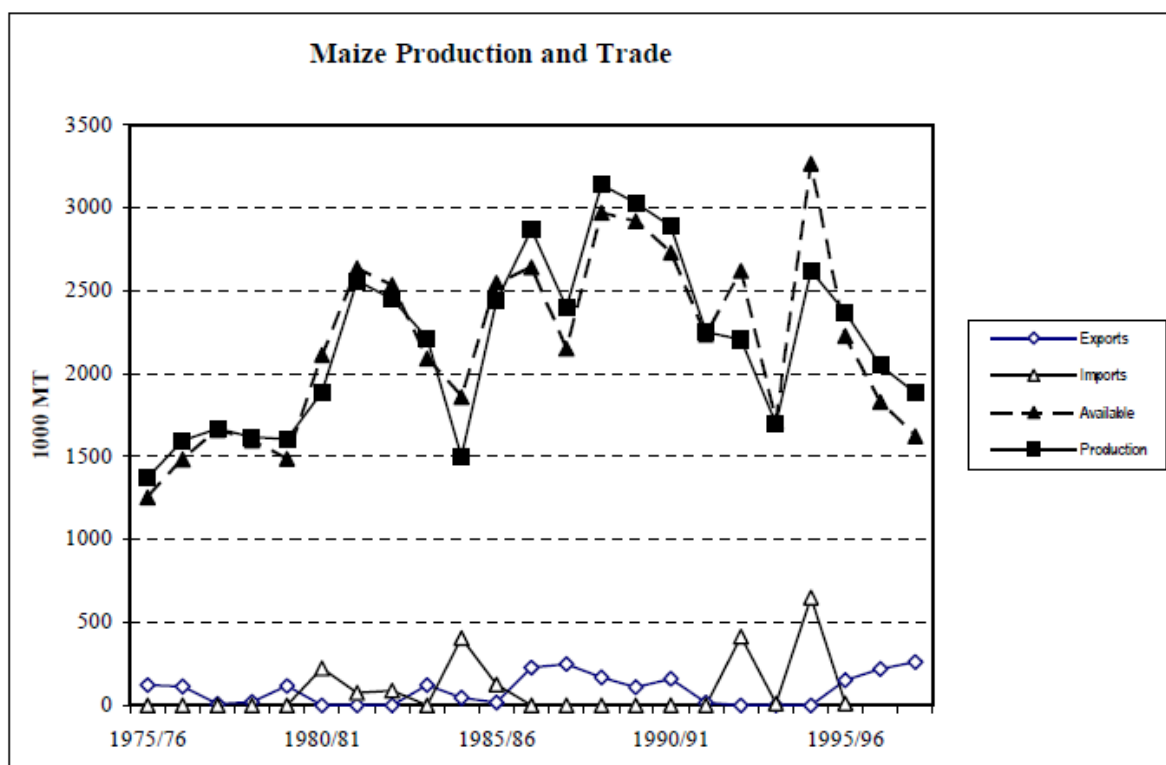


Figure 4-2: Maize production and trade in Kenya

Source: Government of Kenya, Statistical Abstracts (1998)

Based on figure 4-2, maize production in Kenya experienced significant fluctuations in the period 1976-1996 during the liberalisation era. In view of figure 4-2 above, the average maize production in the period before liberalisation stood at 1.47 MT/ha with a standard deviation of 274. On the other hand, the highest yield in maize production during liberalisation period stood at 2.07 MT/ha in 1982 while the lowest yield in maize production was 1.20 MT/ha which were obtained in 1984. Notably, yields in maize production in the period of liberalisation were higher than yields in maize production in the period before liberalisation. Mbithi & Huylenbroeck (2001) observe that yields in maize production during liberalisation had a mean of 1.75MT/ha and their standard deviation stood at 177. Notably, the highest yield in maize production was obtained in 1994 with at 2.04 MT/ha. According to Mbithi & Huylenbroeck (2001) increase in maize production in the period prior to liberalisation is attributable to increase in area under production. On the other hand, increase in maize production in the liberalisation period is attributable to increase in yields. Instructively, increase in yields is mainly attributable to use improved maize hybrids and improved maize production technologies. As such, the average annual production of maize during the liberalisation period is higher with a mean value of 2.5 Million MT compared to that obtained

in the period before liberalisation which stood at 1.95 million MT (Mbithi & Huylenbroeck, 2001), as illustrated in table 4-3 below.

**Table 4-3: Total maize production, average annual rainfall, area {000 ha} and yield {kg/ha}**

	Mean	No	Std Deviation	2-tailed sig. (95% con.Int)
<b>Maize production {000MT}</b>				
Before Liberalisation	1954.2	14	406.8	
After Liberalisation	2441.9	14	283.7	
Difference	-587.7			0.0024
<b>Average annual rainfall (mm)</b>				
Before Liberalisation	1140.5	12	173.8	
After Liberalisation	109.2	12	191	
Difference	48.6			0.594
<b>Area {000 ha}</b>				
Before Liberalisation	1333.1	14	172.7	
After Liberalisation	1424.6	14	65	
Difference	-91.52			0.081
<b>Yield (kg/ha)</b>				
Before Liberalisation	1456.4	14	246.7	
After Liberalisation	1705.3	14	176.9	
Difference	-288.8			0.0126

*Source: Mbithi & Huylenbroeck (2001)*

Moreover, Onono, Wawire & Ombuki (2013) observe that in the period between 1996 and early 2000, Kenya experienced significant decline in maize production while the economic performance in the country was on the decline. Delgado (1995) observes that fluctuations in maize productions can be explained by inadequate complementary policy measures in institutions and rural infrastructure which weakened the price incentives of farmers. Delgado (1995) argues that public investments in roads, fertiliser supply, supply and extensions and water supply systems complement pricing systems which impact on private investment in agriculture. At the same time, low budgetary allocations towards research and extension in agriculture and lack infrastructural investment in roads limited maize production in the country.

### 4.2.3 Post-liberalisation phase

Starting 2003, the government of Kenya initiated legislative, institutional and macroeconomic, infrastructural developments that were geared towards revitalisation of the agricultural sector towards economic recovery of the country. Notably, developments and reforms alongside human development and macroeconomic stability were considered as imperatives for providing a suitable environment for achieving Kenya vision 2030 goals. Important to note is the observation that the Kenya vision 2030 goals are aimed at transforming subsistence agriculture in Kenya into a market and commercial oriented activity towards achievement of sustainable food security in the Country. However, despite the much government efforts which were expected to provide incentives for enhanced maize production, maize output continued to remain below the expected domestic requirement and Kenya continued to rely on imports to meet the maize deficits. This has raised the important question of the responsiveness of production in maize towards economic incentives (Olwande, Ngigi & Nguyo, 2009).

Additionally, the period between 2001 and 2010 Kenya experienced stagnation in maize production and productivity. Notably, this stagnation resulted to increased gap between consumption and production as illustrated in figure 4-4 below.

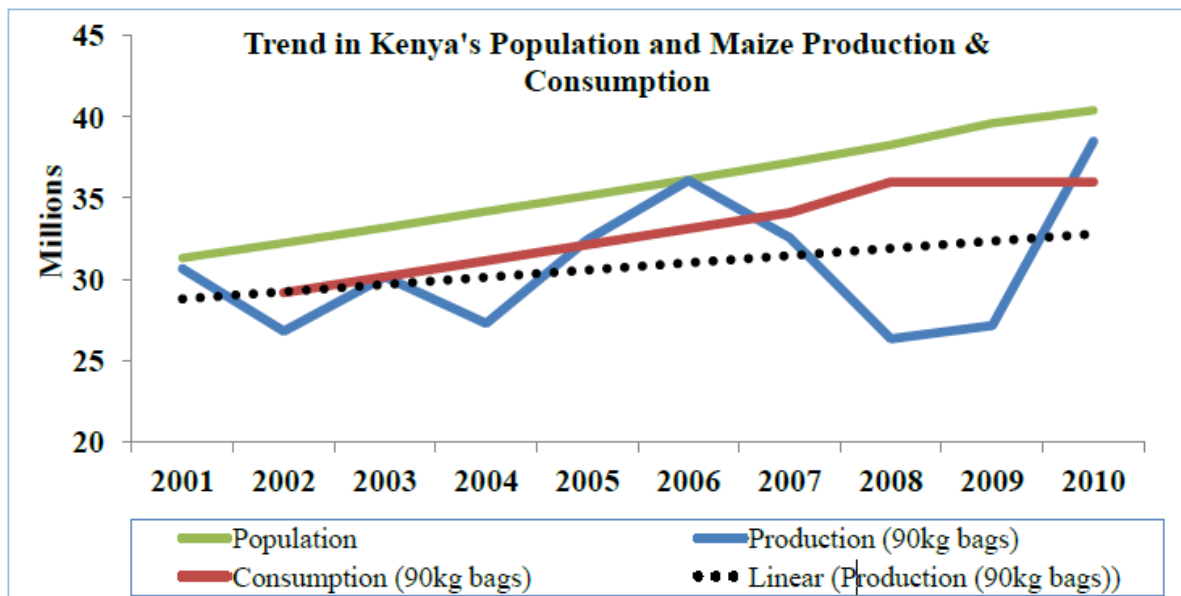


Figure 4-4: Trends in Kenya's maize production 2001-2010

Source: Government of Kenya; Ministry of Agriculture (2010)

According to Olwande (2012) the main challenge facing maize production mainly involves sufficiency of maize production by smallholders who constitute about 70% of maize farmers in the country. Notably, Olwade (2012) observes that the maize subsector in the country is faced with high costs of production and marketing costs which are mainly influenced by the market. As such, farmers do not have the incentives to produce more maize because consumers prefer to purchase cheaper imported maize. Besides, Olwade (2012) attributes the low productivity in the Kenyan maize subsector to lack of technical efficiency that is required to ensure increased maize production. Notably, the gap between the low production of maize and high demand among consumers influenced Kenya to focus on importation of maize to ensure food security in the country.

Moving forward, a report by FAO, as illustrated in figure 4-5 below gives the indication that Kenya experienced relative fluctuations in maize production between 2009 and 2014. For instance, figure 4-5 above shows that highest production in maize was in 2012 with about 3750 metric tonnes while the lowest production was in 2011 with about 3400 metric tonnes. The relatively low production in this period, according to WAME (2015), is attributable to erratic weather conditions, maize diseases such as maize lethal necrosis (MLN), low use of agronomic technologies and use of unimproved varieties of maize.

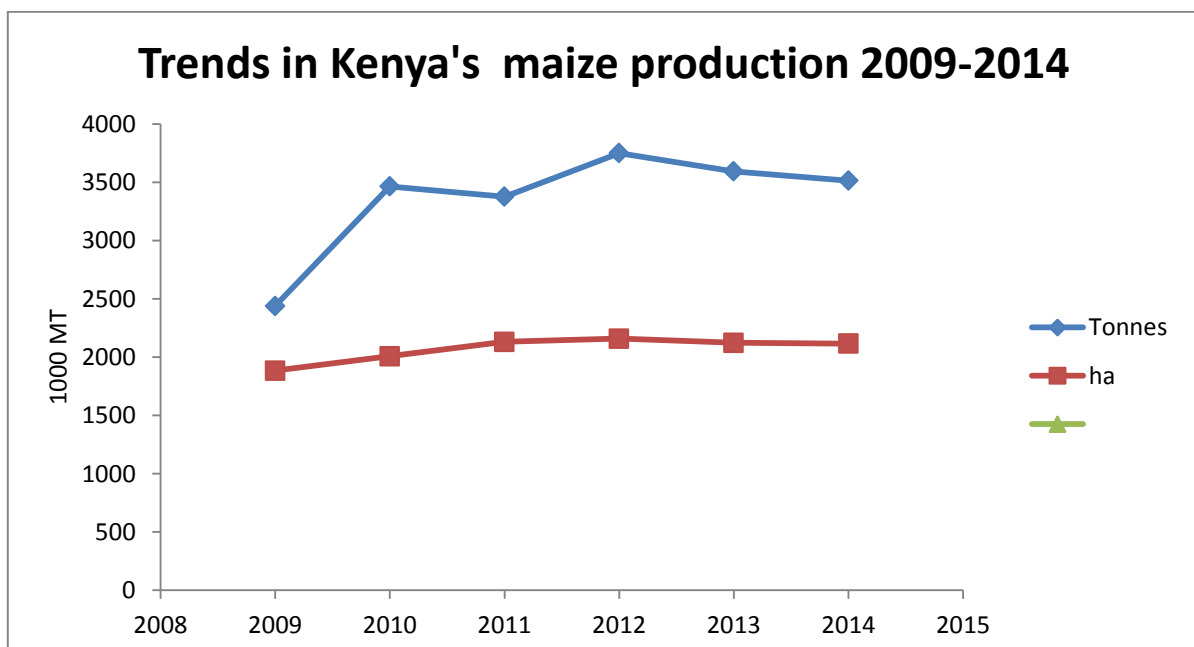


Figure 4-5: Trends in Kenya’s maize production 2009-2014

Source: FAO, FAOSTATs (2017)

According to Thuku (2015), the drop in maize production in Kenya in the period 2014-2015 is attributable to minimal government intervention in the training on, and control of, maize diseases – mainly maize lethal necrosis. As such, the country experienced noticeable drop in maize production as maize farmers abandoned maize farming for drought resistant crops. Equally, Andae (2017) observes that maize production in Kenya has continued to drop significantly due to lack of government intervention to farmers with regards to dealing with armyworm attacks which has minimised maize production in the country. However, Andae (2017) also observes that poor maize production in Kenya is also attributable to poor weather conditions in the country. Notably, maize production in Kenya dropped from 37 million bags in 2016 to 28 million bags in 2017. This was the lowest maize production in Kenya since 2009 as illustrated in figure 4-6 below.

### Maize production (in million bags)

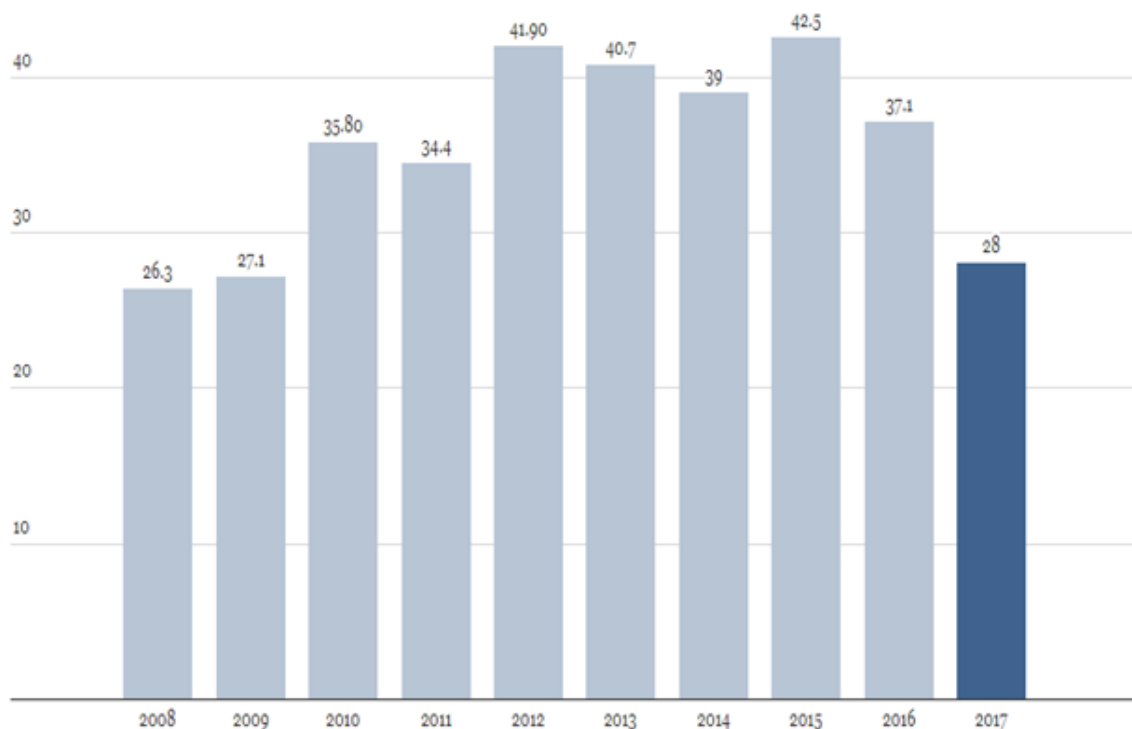


Figure 4-6: Kenya’s maize production in million bags

*Source: Kenya National Bureau of Statistics*

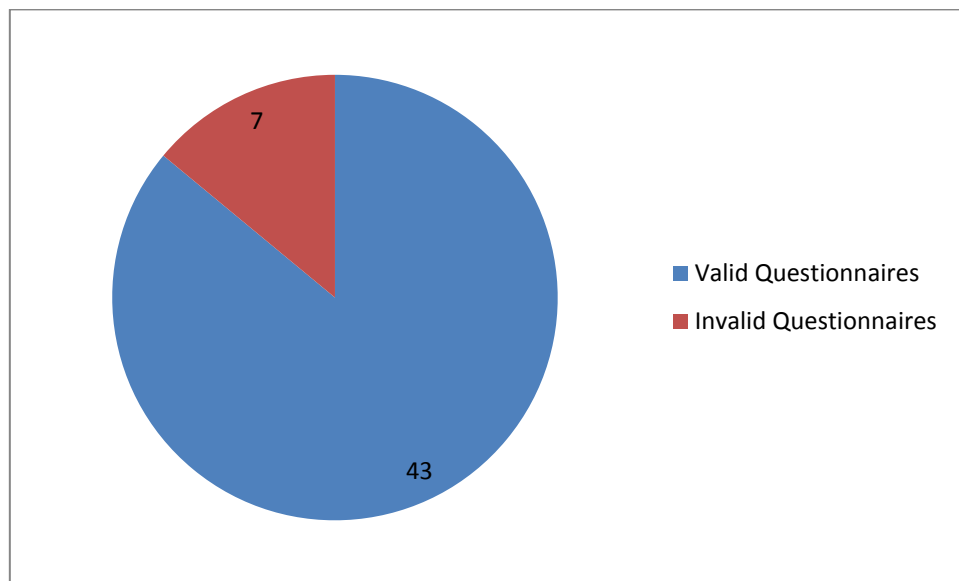
Andae (2017) observes that for Kenya to be food secure, the country needs about 40 million bags of maize per year. As such, 28 million bags of maize produced in 2017 meant that the



country was in a state of food insecurity based on the understanding that maize is the main staple food in Kenya. This resulted to an increase in the prices of maize in the country by almost 100% to 150Sh per packet of maize. Subsequently, the Kenyan government resulted to importation of maize to cover the maize deficit in the country.

#### 4.4 Descriptive Analysis of Liberalisation and Food Security in Nakuru County

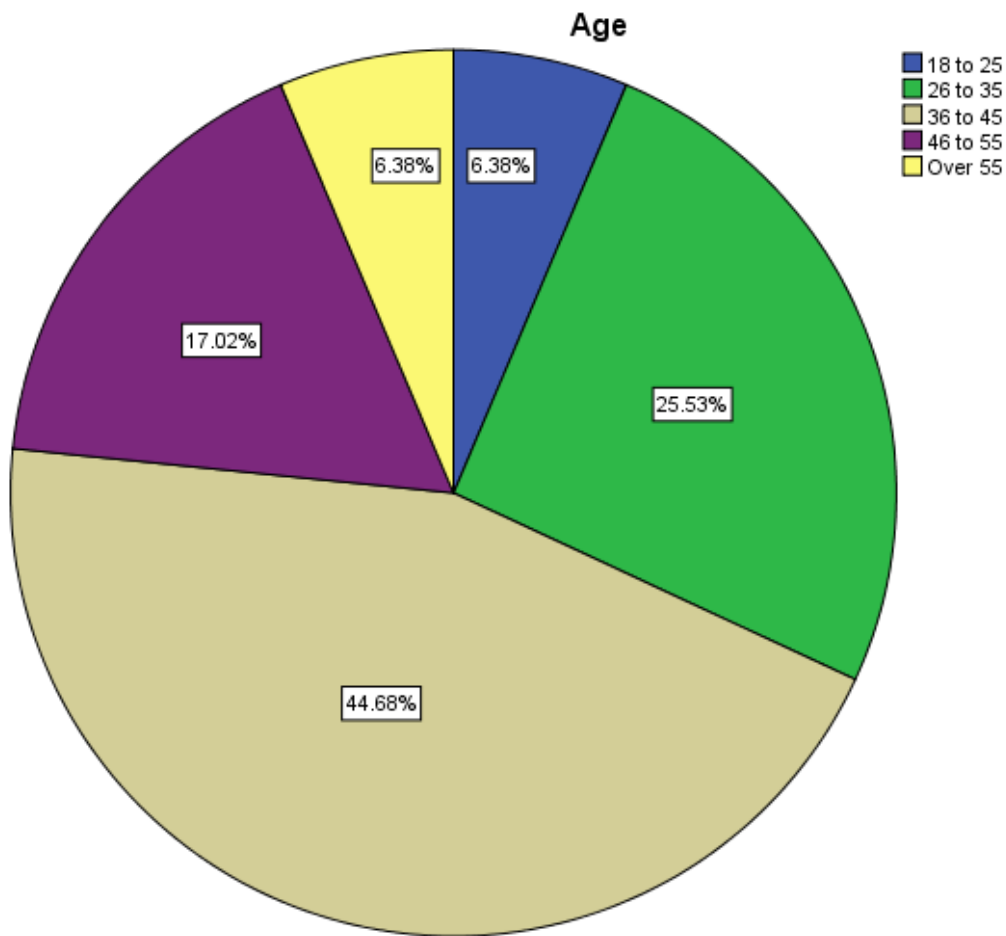
##### 4.4.1 Analysis of the Response rate



**Figure 4-7: Frequencies for the response rate**

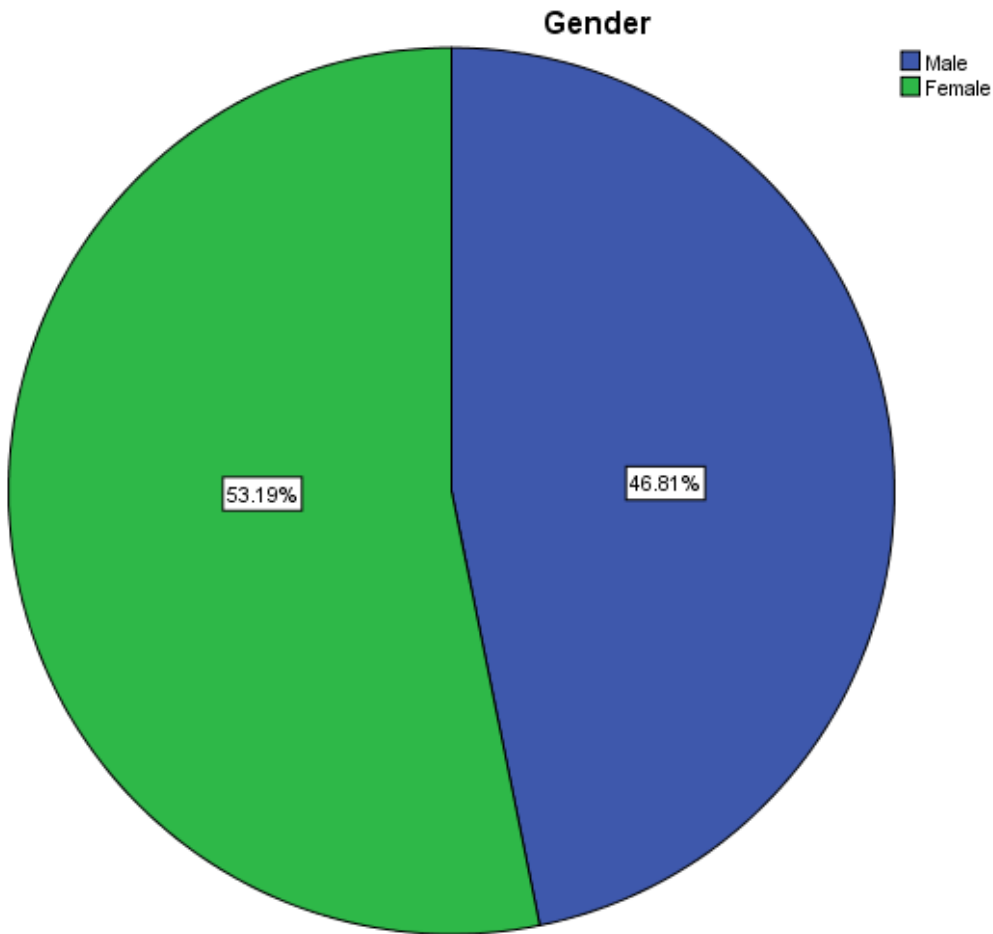
Based on figure 4-7 above, it can be seen that the total number of the valid questionnaires for the study are 43 while the invalid questionnaires are 7. As such, the valid response rate for the research is 86%. This means that the findings of the research are representative of the views of the most of the farmers selected to take part in the research. This response rate ensures that the findings of the study can be generalised for most of the maize farmers in Njoro constituency and Nakuru county at large.

#### 4.4.2 Analysis of the demographic information of the respondents



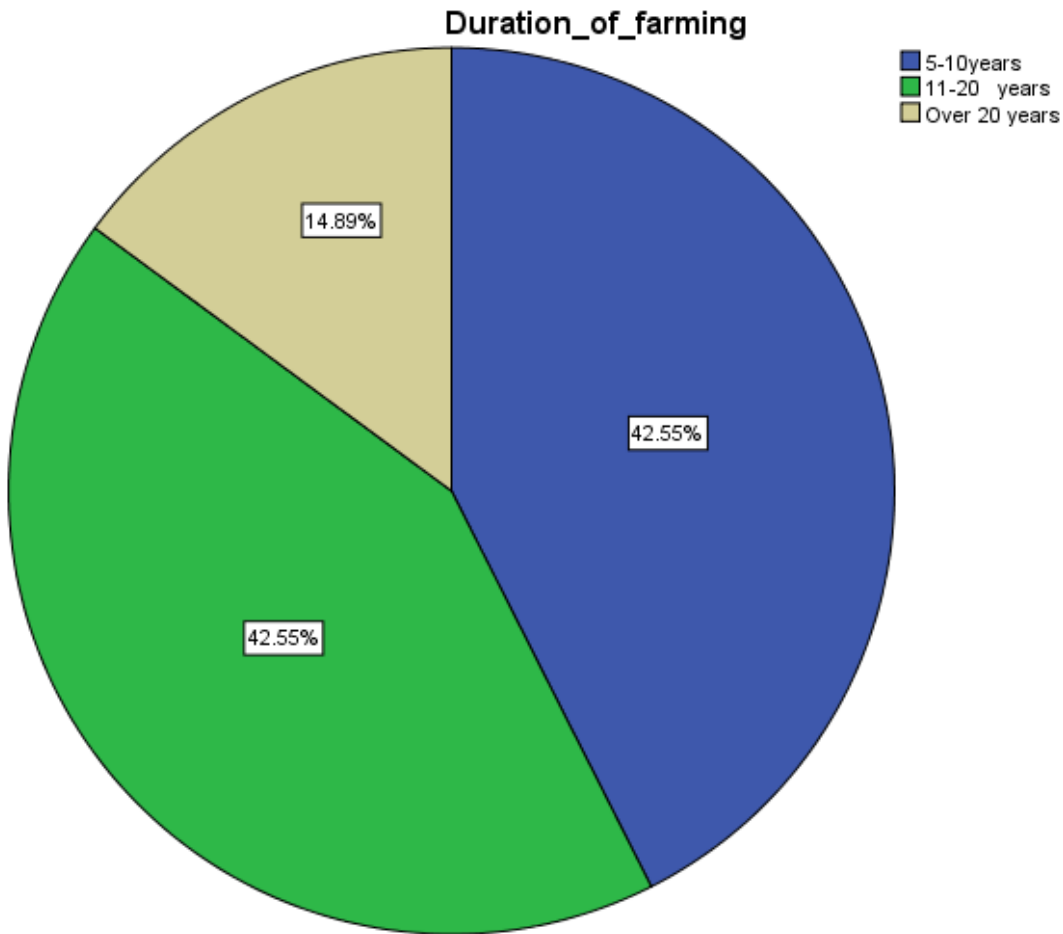
**Figure 4-8: Frequencies related to age of the respondents**

In view of figure 4-8 above, it can be seen that most of the respondents with 44.68% were between 36 to 45 years of age. These findings of the research are understandable because most of the people within this age group in Kenya have a significant size of land. However, it can be seen that the findings are also representative of people from other age groups thus making the findings of the research to be reliable.



**Figure 4-9: Frequencies related to the gender of the respondents**

Besides, figure 4-9 shows that majority of the respondents to the research are female with 53.19%. These findings are reliable based on the understanding that women constitute the larger population of the rural farmers in Kenya. However, it can be seen that the gap between the percentage of female and male respondents is not wide thus making the findings of the research to be representative of the two genders.

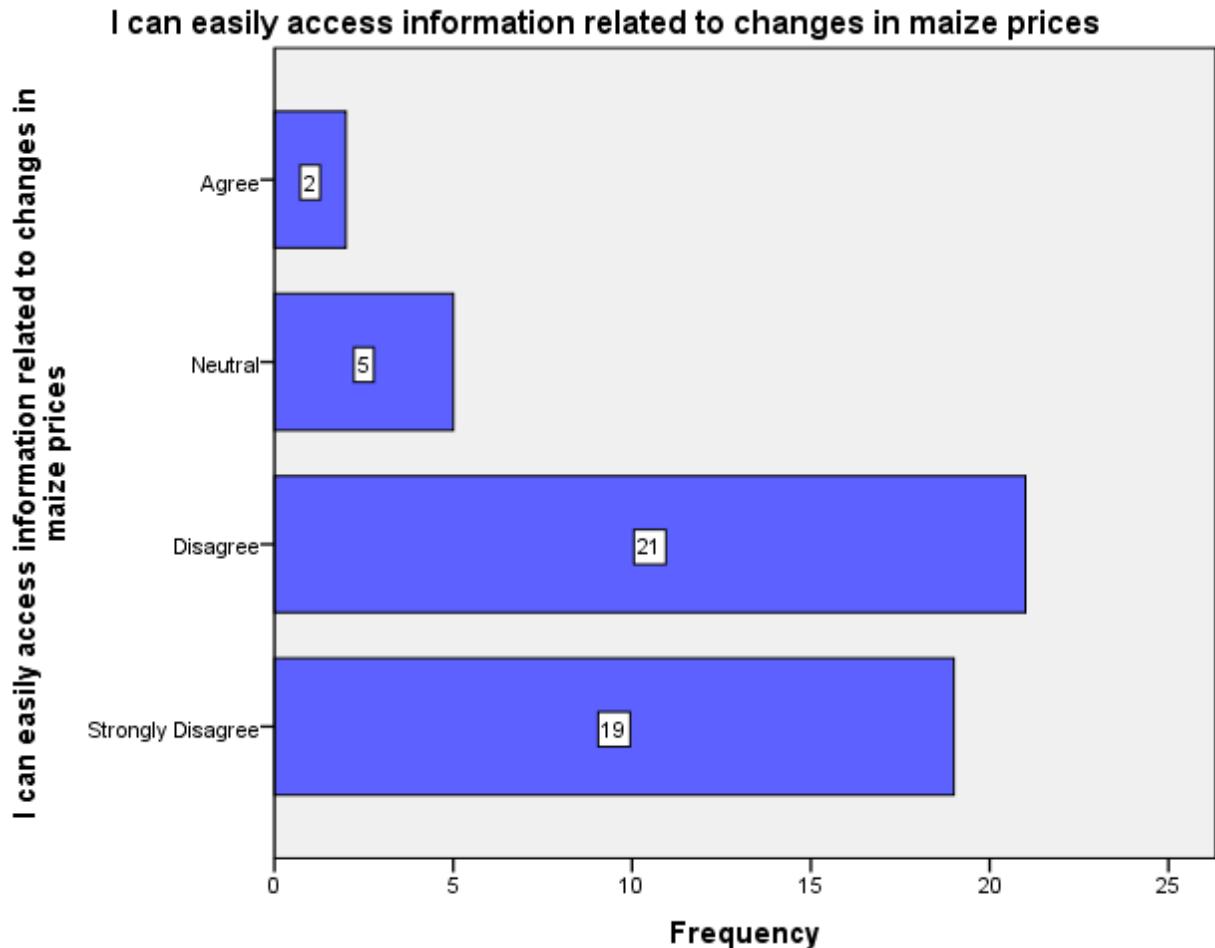


**Figure 4-10: Frequencies related to the duration of farming**

Moreover, figure 4-10 indicated that most of the respondents in the research have 5-10 years' experience in maize farming with a percentage of 42.5%. From these findings, it can be deduced that most of the respondents to the research were conversant with the challenges and opportunities faced by farmers in the maize subsector thus making the findings of the study to be reliable.

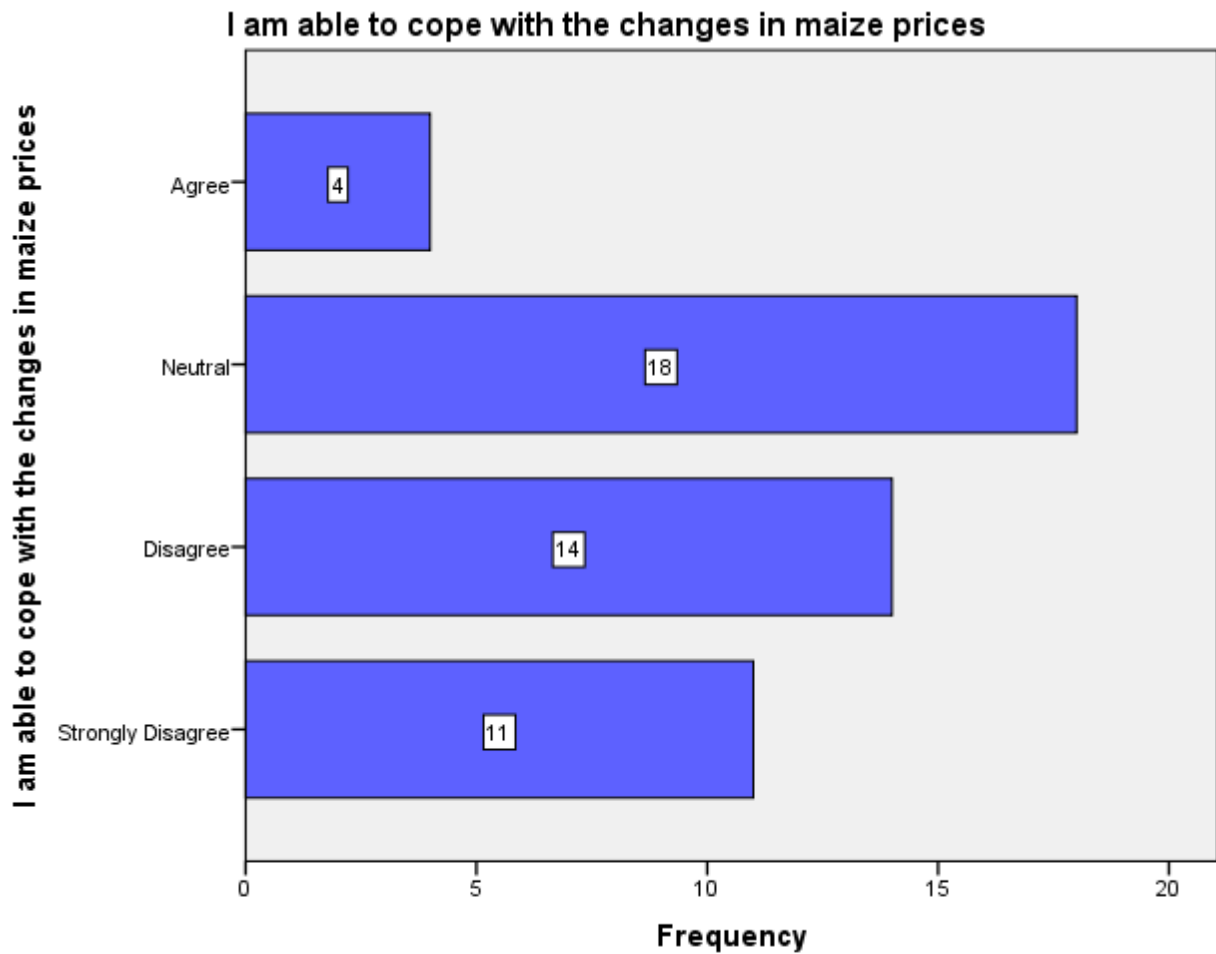
## 4.5 Discussion on liberalisation in the Maize subsector in Nakuru

### 4.5.1 Changes in market prices of maize seeds



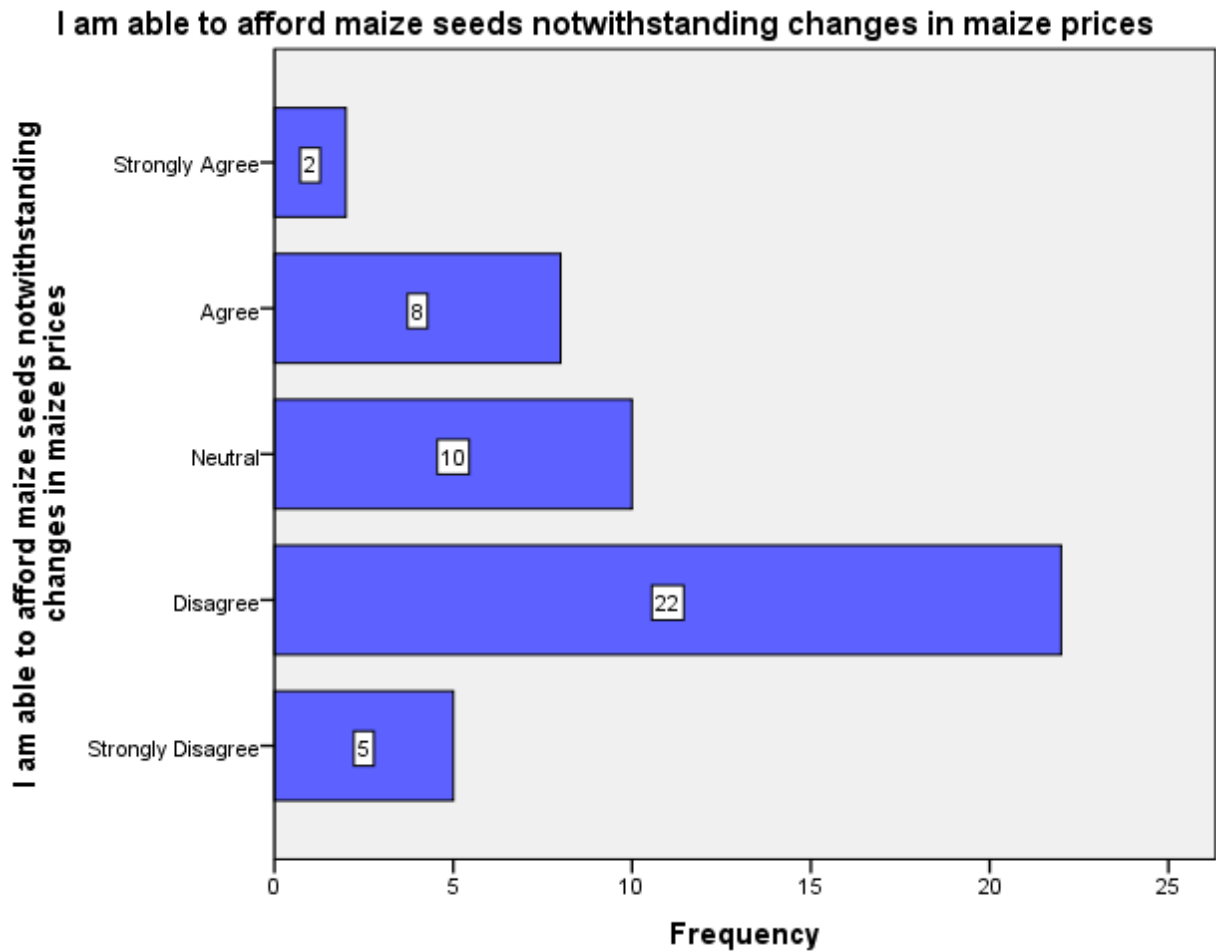
**Figure 4-11: Access to information related to maize prices**

In view of table 4-11, it can be seen that most of the farmers with a frequency of 21 disagreed while 19 farmers strongly disagreed with the statement that they can easily access information related to changes in maize prices. Explanation for these findings is found in the fact that maize market in Kenya is controlled by forces of supply and demand. As such, prices rise when the supply is low and demand is high. On the other hand, prices of maize seeds reduce when the demand is low and supply is high. Based on these observations, it becomes difficult for the maize farmers to know the prices of maize seeds because they have little information regarding the demand and supply in the market.



**Figure 4-12: Coping with changes in maize prices**

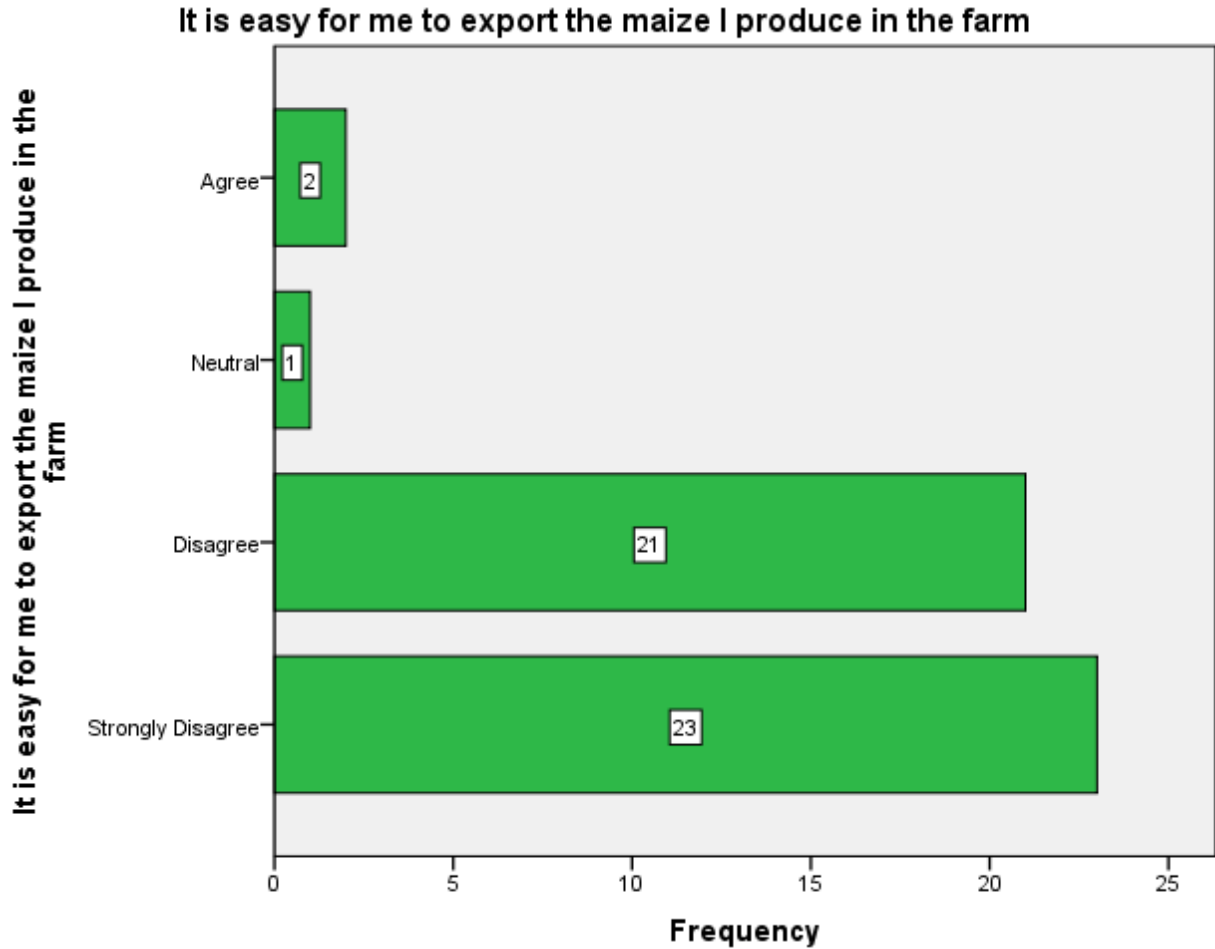
In view of figure 4-12, it can be seen that most of the farmers with a frequency of 18 indicated that they were neutral regarding the statement “I am able to cope with changes in maize prices”. Besides, a significant number of farmers with frequencies of 14 and 11 respectively, disagreed and strongly disagreed with the foregoing statement. Explanations for these finding is based on the fact that most farmers have limited information regarding changes in maize seeds. As such, any changes in maize prices affect their ability to purchase the maize seeds because they are not alerted in good time regarding changes in prices of maize seeds.



**Figure 4-13: Affordability of maize**

In view of figure 4-13, it is evident that most of the farmers with a frequency of 22 disagree with the statement, “I am able to afford maize seeds notwithstanding changes in maize prices”. The findings of the research can be explained by the fact that farmers do not have control over changes in maize prices. Besides, lack of information prior to changes in maize prices means that farmers are not prepared for changes in maize prices. As such, most of the farmers may not afford to buy enough maize seeds for their maize production due to lack of financial preparedness.

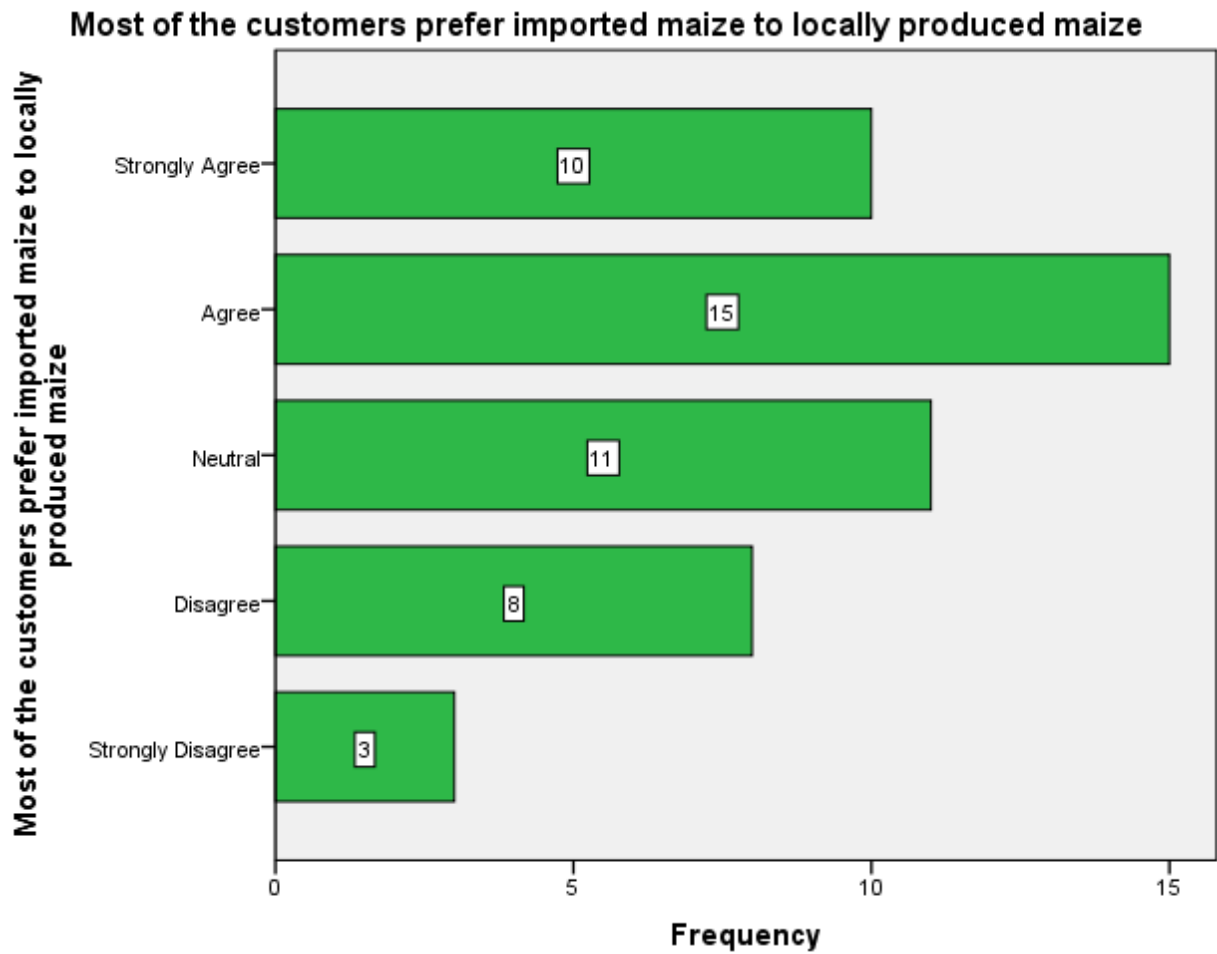
#### 4.5.2 Opening of the market



*Figure 4-14: Exportation of maize*

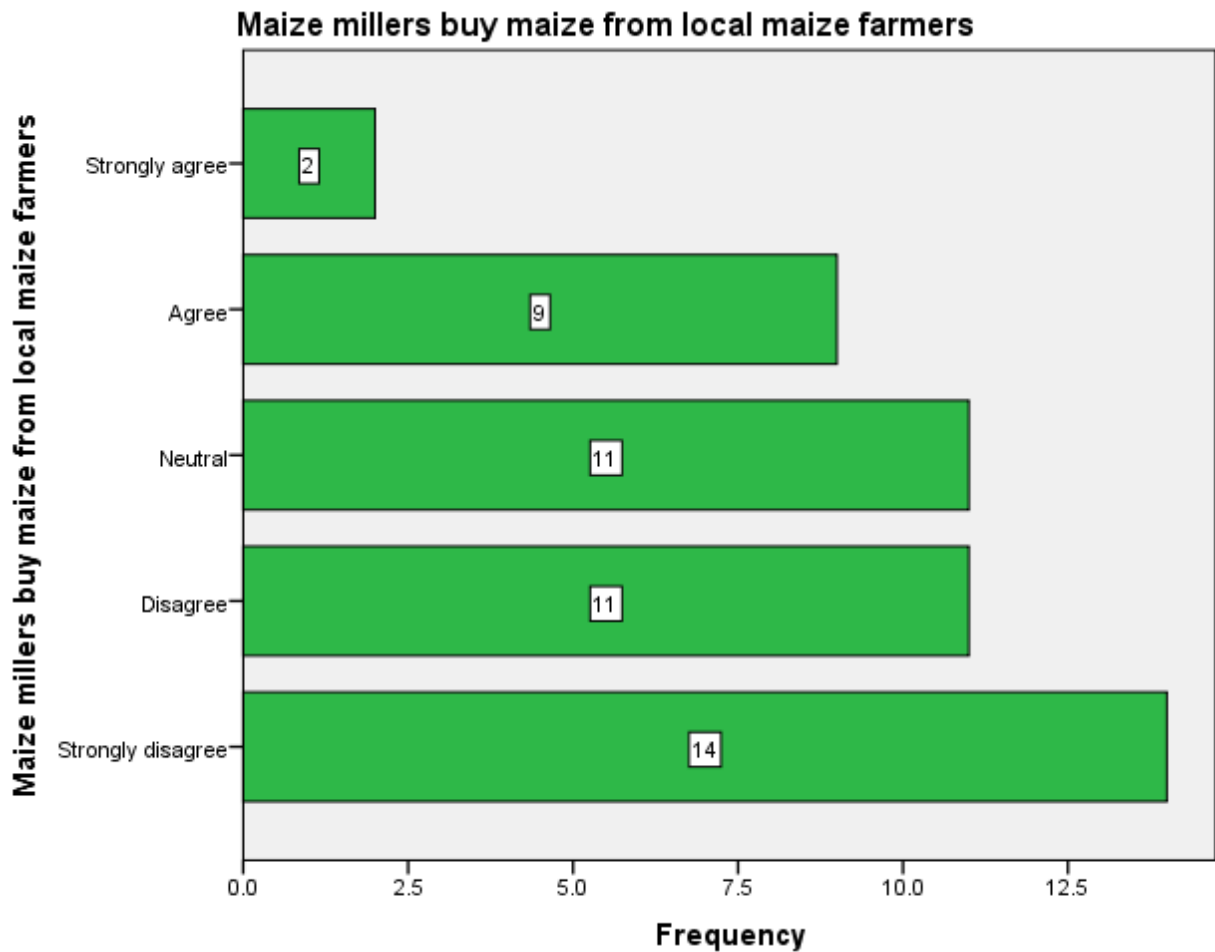
In view of figure 4-14, it can be seen that a significant number of the farmers with a frequency of 23 and 21 strongly disagree and disagree respectively, with the statement, “It is easy for me to export the maize I produce in the farm”. This can be explained by the fact that most of the farmers who took part in the study do not have large pieces of land to facilitate large harvests that would make it possible for them to export surplus maize. Instructively, most of these maize farmers mainly produce maize for consumption by their own families.





*Figure 4-15: Importation of maize*

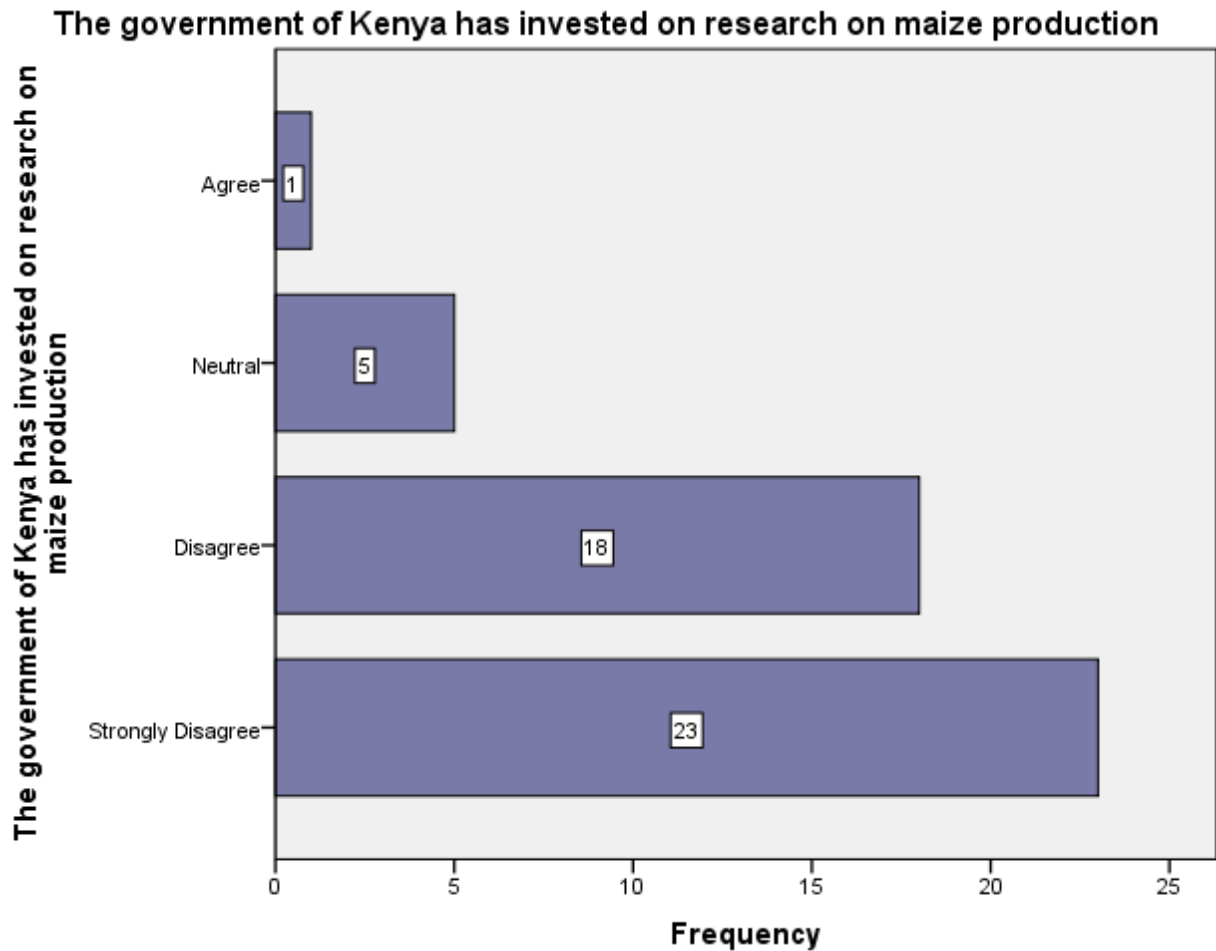
According to 4-15, most farmers with frequencies of 15 (agree) and 10 (strongly agree) respectively gave the indication that most of the maize customers prefer to buy imported maize rather than purchase locally produced maize. Explanation for these findings is found in the understanding that imported maize is cheaper compared to locally produced maize. This is because local farmers transfer the cost of maize production on customers who have to purchase locally produced maize at higher cost. As a result, local consumers opt to purchase the cheap imported maize.



*Figure 4-16: Source of maize for maize millers*

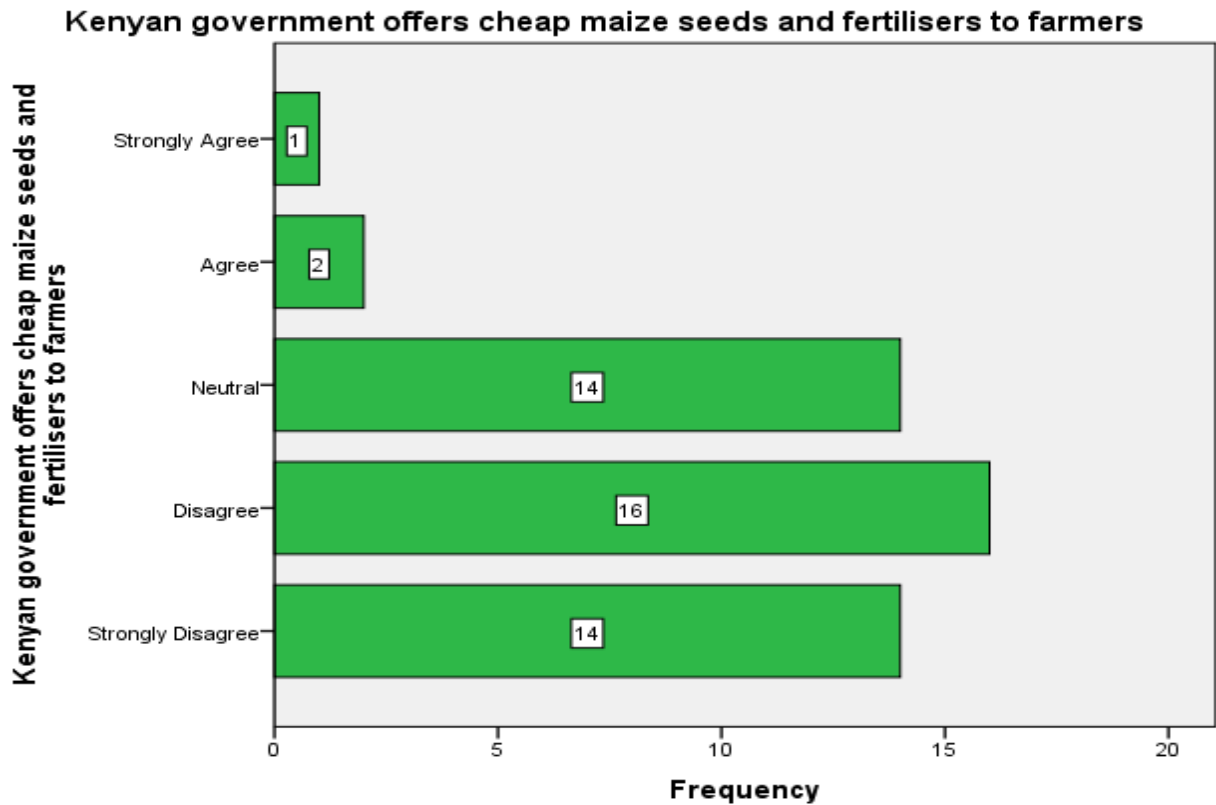
Based on figure 4-16, a significant number of the farmers indicated that maize millers do not normally buy maize from local maize farmers. Just like in the case of the customers, maize millers prefer to use imported maize for the manufacture of maize flour because it is cheaper compared to locally produced maize. These findings of the research are supported by the view 6 managers at the Unga Group Limited and Pembe Flour Mills Limited maize milling companies. The managers gave the observation that they preferred to use imported maize because it was cheaper and readily available compared to locally produced maize. Besides, the managers indicated that use of locally produced maize would mean transferring the cost of purchasing this maize to the customers.

### 4.5.3 Government intervention



*Figure 4-17: Investment in research on maize production*

Figure 4-17 shows that most of the farmers with a frequency of 23 and 18 strongly disagree and disagree, respectively, with notion that the government of Kenya has invested significantly on research related to maize production. The researchers indicated that the government does on research neither does it offer them with important information related to production of better hybrids of maize or control of maize lethal necrosis which has affected their maize production. In other words, these findings of the research are indicative of the fact there is minimal government intervention with regards to research and extension services related to maize production.



*Figure 4-18: Subsidy in maize seeds and fertilisers*

Based on figure 4-18, most farmers with a frequency of 16 disagree while 14 strongly disagree. With the statement that, “Kenyan government offers cheap maize seeds and fertilisers to farmers”. The farmers indicated that they mainly relied on their own income to purchase maize seeds and fertilisers which are relatively expensive.

### Kenyan government offers farmers with training on new farming methods and disease control

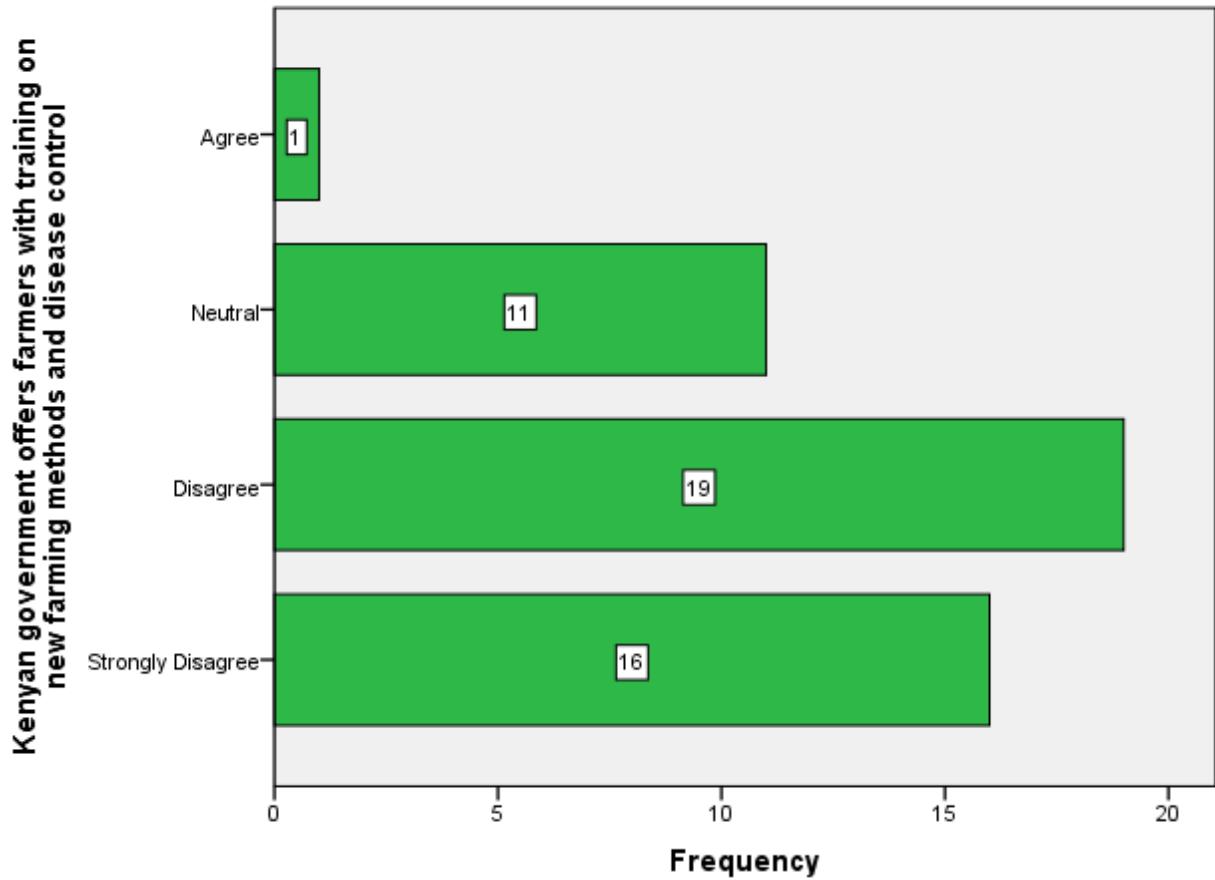
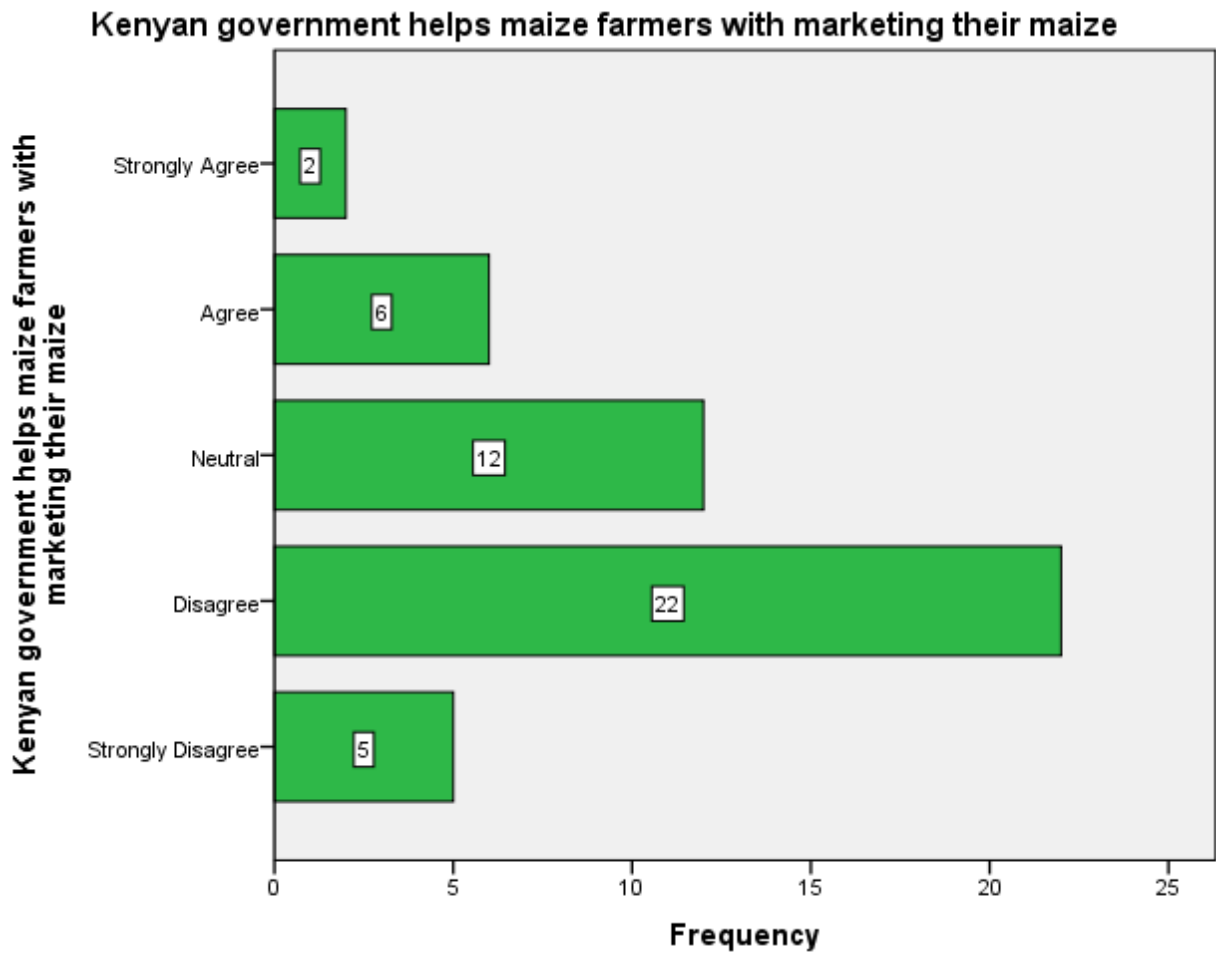


Figure 4-19: Training on new farming methods and disease control

Moving forward, figure 4-19 above shows that a significant number of farmers with a frequency of 19 disagree while 16 strongly disagree with the assertion that the Kenyan government offers training on new methods and disease control to maize farmers. These maize farmers mainly relied on the farming methods they learn from amongst themselves. Besides, the farmers gave the indication that they possessed little information related to control of maize lethal necrosis disease which has really affected maize productivity.



*Figure 4-20: Support on maize marketing*

Based on figure 4-20 above, it is evident that most of the farmers with a frequency of 22 disagree with the assertion that the “Kenyan government helps maize farmers with marketing their maize”. This maize farmers indicated that the Government of Kenya played little role in marketing their maize products. Instead, the farmers marketed their maize by physically approaching potential maize buyers.

#### 4.6 Discussion on Maize productivity in Nakuru County

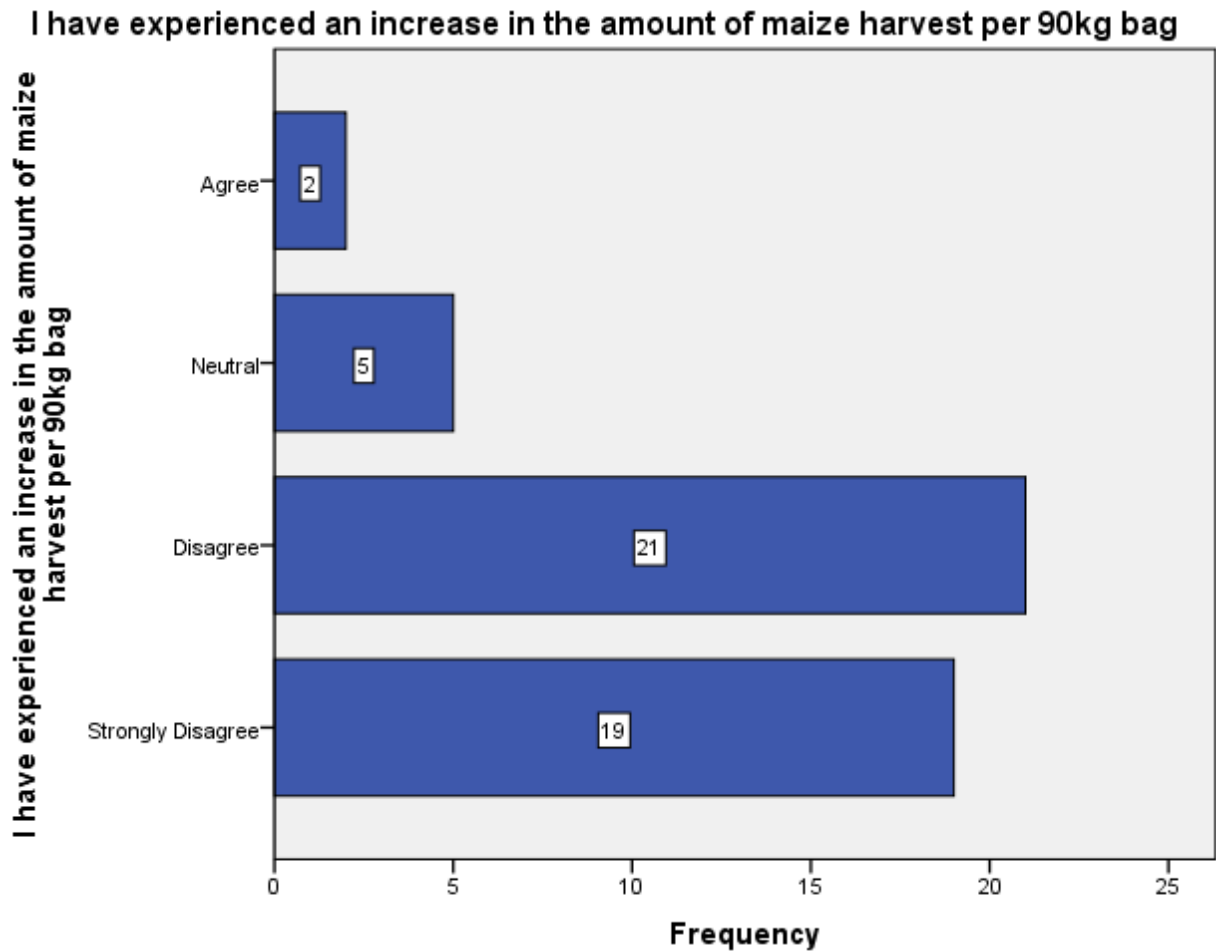
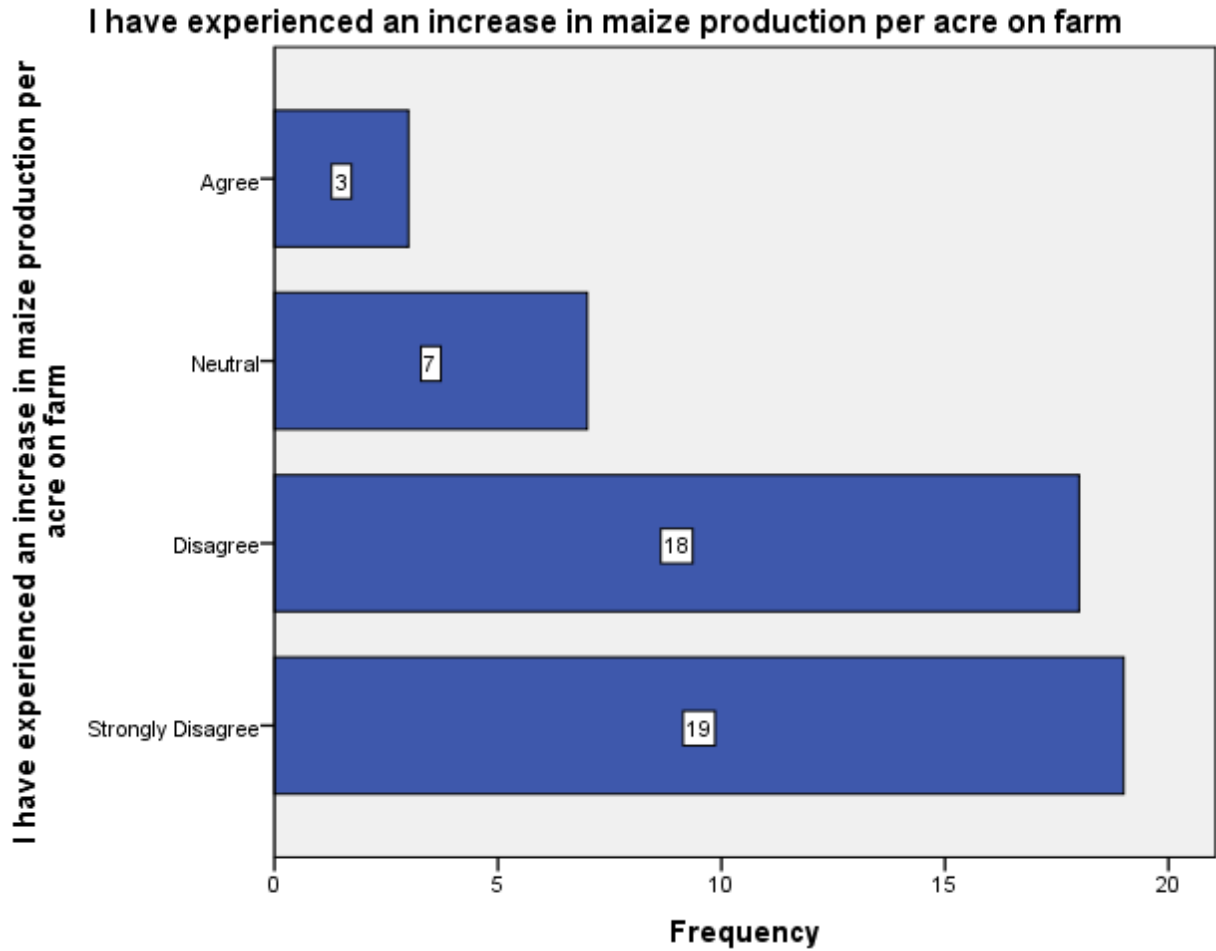


Figure 4-21: Maize harvest per 90kg Bag

In view of figure 4-21, it can be seen most of the farmers with a frequency of 21 disagree while 19 farmers strongly disagree with the statement, “I have experienced an increase in the amount of maize harvest per 90kg bag”. Notably, most of farmers elucidated that instead, they have experienced a reduction in the amount maize they are able to harvest in terms of 90kgs bag. This reduction can be attributed to reduced rainfall in the region, attacks by the army worms and outbreak of maize lethal necrosis.

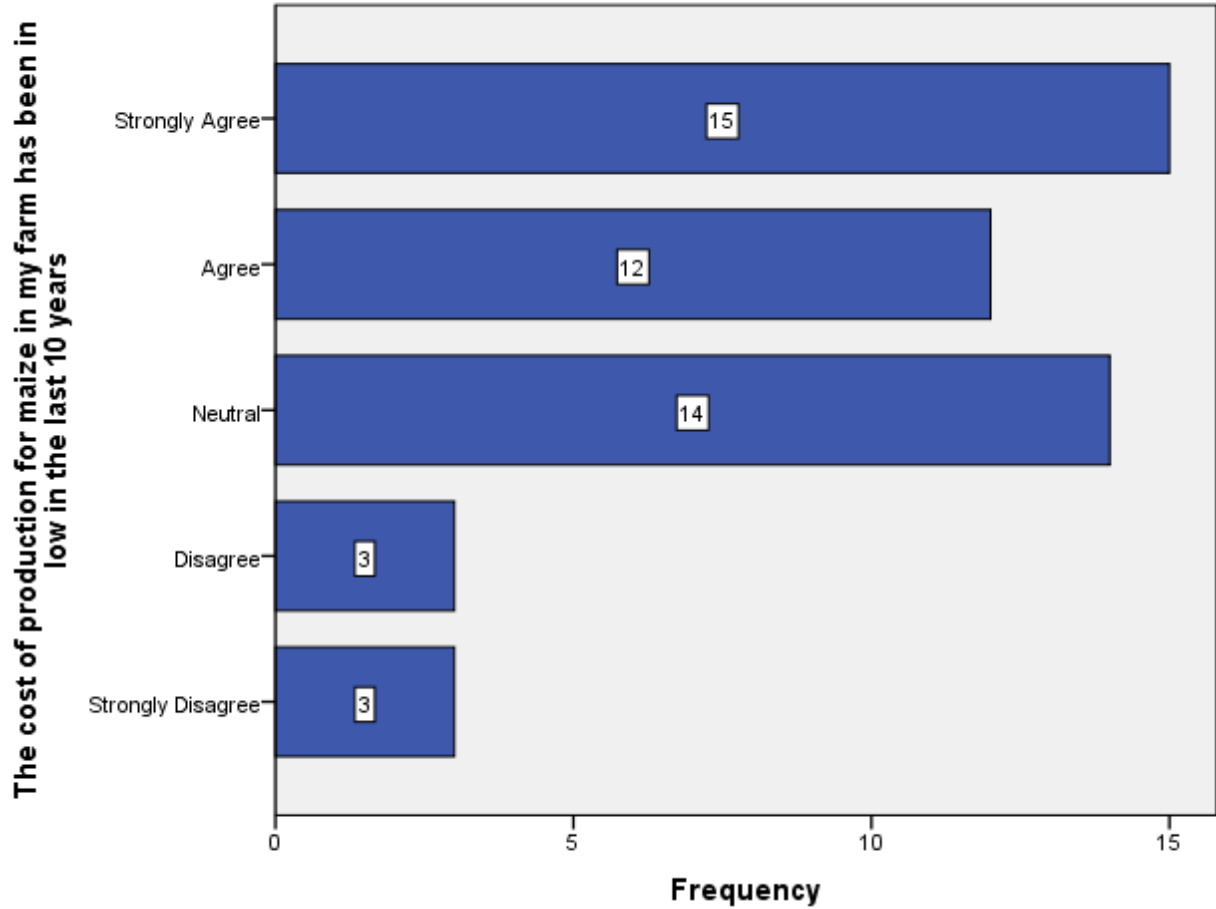


*Figure 4-22: Maize production per acre of farm*

Figure 4-20 shows that most of the farmers with a frequency of 19 strongly disagree while 18 farmers disagree with the notion that they have experienced increase in maize production per acre of farm. Reduced maize production per acre of land is experienced as a result of poor farming methods, lack of modern farming techniques and technology in maize production, reduced rainfall and infestation by army worms and maize lethal necrosis. Besides, lack of government support with regards to training, research and extension has limited the knowledge of the farmers regarding better methods of maize production.



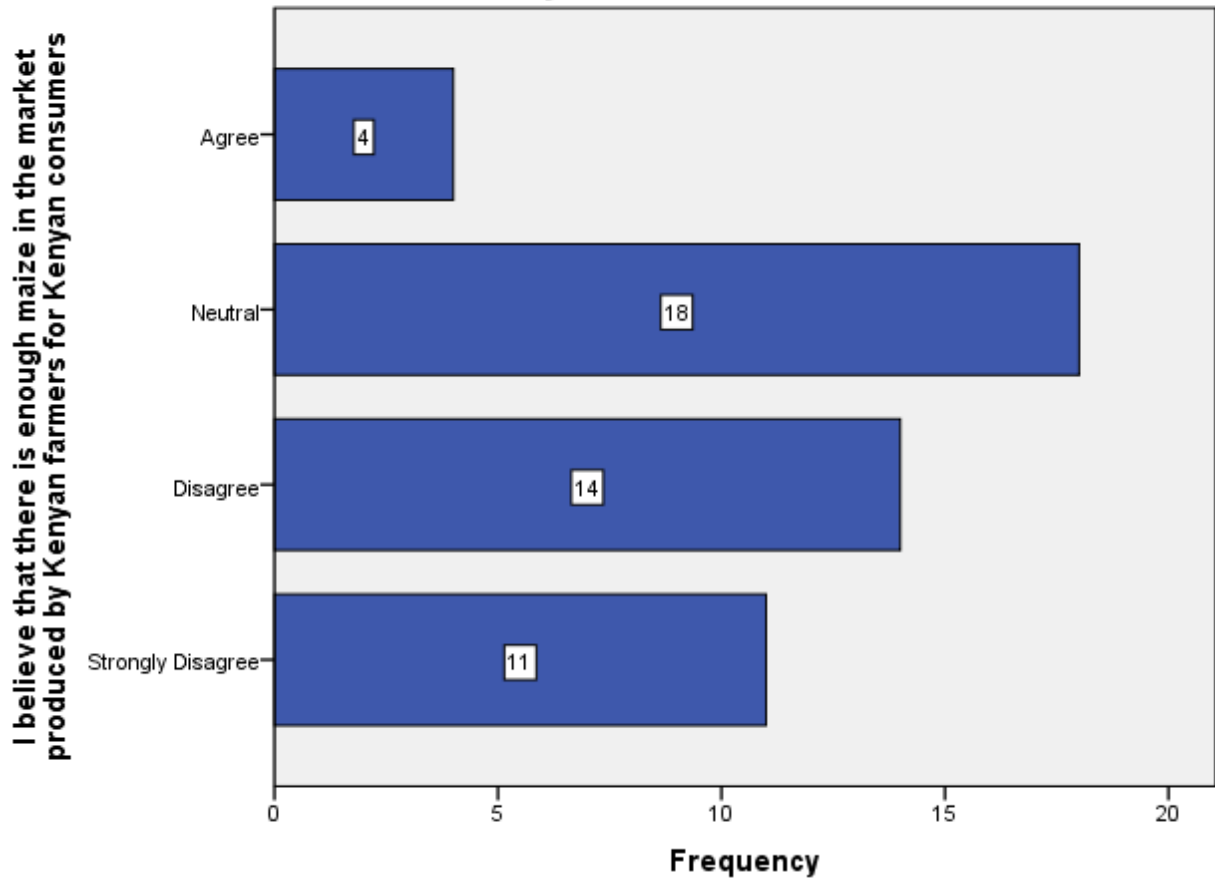
**The cost of production for maize in my farm has been in low in the last 10 years**



*Figure 4-23: Cost of maize production*

In view of figure 4-23, most of the farmers with a frequency of 15 strongly agree while 12 agree with the view that the cost of maize production has gone up. Explanation for these findings are found in the observation that prices of maize seeds has increased progressively in the last years. Equally, prices of fertilisers have risen while pesticides are significantly expensive thus making it difficult to improve on the quality of maize and to control pests such as army worms.

**I believe that there is enough maize in the market produced by Kenyan farmers for Kenyan consumers**



*Figure 4-24: Availability of maize in the market*

In view of figure 4-24, most of the farmers held the belief that there is limited availability of maize in the market. The farmers indicated that low productivity of maize among local farmers has results to deficit of maize in the country. As such, Kenya has resulted to importation of maize in order to cover the underlying maize deficit in order to meet the demand in the market.

#### 4.5 Analysis of the impact of liberalisation on maize productivity

**Table 4-4: Correlations**

Correlations		
		Maize Productivity
Market Prices	Pearson Correlation	.762
	Sig. (2-tailed)	.000
	N	47
Open Market	Pearson Correlation	.562**
	Sig. (2-tailed)	.000
	N	47
Government Intervention	Pearson Correlation	.173
	Sig. (2-tailed)	.245
	N	47
Maize Productivity	Pearson Correlation	1**
	Sig. (2-tailed)	
	N	47

\*\* . Correlation is significant at the 0.01 level (2-tailed).

In view of table 4-4, it is evident that the sig values for market prices, open market and government intervention are 0.000, 0.000 and 0.245. This implies that market prices, open market and government intervention correlate with maize production at the significant level of 0.01. Besides, the Pearson Correlations value of maize prices is 0.762 which shows that there is a strong high correlation between maize prices and maize productivity. Moreover, the Pearson Correlation value of open market is 0.562 which is indicative of the fact that there is moderate correlation between open market and maize productivity. Finally, the Pearson correlation of government is 0.245 giving the indication that government intervention has low correlation with maize productivity.

**Table 4-5: Variables entered/removed**

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	Government Intervention, Open Market, Prices		Enter

a. Dependent Variable: Maize Productivity

b. All requested variables entered.

Based on table 4-5 above, it is evident that dependent variable of the study is maize productivity. On the other hand, the independent variables include Government Intervention, Open market and market prices.

**Table 4-6: Model Summary**

Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.794 <sup>a</sup>	.630	.605	.35778	.630	24.436	3

Based on table 4-6, it can be seen that the adjusted R square of the research is 0.605. Implications of these findings is that changes in Government Intervention, Open market and market prices can explain changes in maize productivity by 60.5%.

**Table 4-7: Coefficients**

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.548	.288		1.902	.064
	Prices	.512	.088	.629	5.788	.000
	Open Market	.184	.083	.238	2.205	.033
	Minimal Intervention	.099	.094	.099	1.056	.002

a. Dependent Variable: Maize Productivity

Based on table 4-7, it is evident that the sig value for maize prices is 0.000. Certainly, this figure is below 0.01. This means that the market prices have a significant impact on maize productivity at the significant level of 0.01. This confirms the hypothesis that *changes in maize prices have a negative impact on cost of production and Per Capita Maize output*. Besides, table 4-8 gives the indication that the sig value of open market is 0.033. This figure is certainly above the value of 0.033 but below 0.05. Implications of these findings are that open market has a significant impact on maize productivity at the significant level of 0.05. These findings confirm the hypothesis that *increased importation of maize in the Kenyan maize subsector has a negative impact on cost of production and Per Capita Maize output*. Moreover, the findings of the study give the indication that the sig value of government intervention is 0.297. This value is evidently below 0.05 but above 0.01. This implies that minimal government has a significant impact on maize productivity at the significant level of 0.05. These findings confirm the hypothesis that *Minimal Government Interventions have a negative impact on cost of production and Per Capita Maize output*.

The foregoing findings of the research confirm the views of Gonzalez (2004) that liberalisation policies which include opening of the market weakens agricultural prices for farm products thus denying farmers the incentives to produce maize for commercial purposes. As a result, the farmers are denied the wherewithal to purchase consumer goods which are not produced in the farm. These observations are supported by maize millers who indicated that they preferred to use imported maize rather than purchase maize from farmers because imported maize was cheaper compared to locally produced maize. Similarly, a significant numbers of farmers in Njoro constituency indicated that they did not get significant revenue from the sales of the maize they produce this limited their ability to

increase the output of maize in their firm. These findings of the research resonate with Nyoro (2002) that liberalisation has affected production and exportation of maize through reduced employment opportunities, increased poverty in rural areas thus affecting food security.

Besides, most of the farmers indicated that most of the maize they produced was consumed locally by immediate community or sold to local millers while minimal or no maize is exported. This means that the farmers have to compete with the imported cheaper maize in the market thus accruing minimal revenue from the sales of maize. Subsequently, the farmers do not have enough money to increase maize productivity in their firms or to buy enough, safe and nutritious foods that meet their dietary needs, as well as those of their families. These findings of the research further confirm the views of Nyangito et al. (2004) that liberalisation has resulted to trade imbalance in maize whereby Kenya is importing more maize than it is exporting thus leading to decline of Kenya from being self-sufficient food producer to being a net importer of maize thus having negative influence on food security.

Even more, a significant number of farmers indicated that they did not have access to safe and nutritious food for their use with their families. Most of the farmers gave the indication that they trusted locally produced maize compared to imported maize. This is because they believed that locally produced maize was of higher quality compared to imported maize. As such, most of the farmers concentrated more on subsistence farming compared to commercial maize farming. The findings of the research seem to be in line with the views of Asche et al. (2015) that in some instances, imported food can be of lower quality while compared to locally produced food thus having a negative influence on food security in the developing countries.

## **5.0 CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This section of the studies was based on the analysis of the findings in the previous chapter of the study. Notably, the chapter addressed itself to the findings of each objective of the research from which conclusions are drawn. Moreover, the chapter relied on the findings to make recommendations related to liberalisation and food security. Even more, limitations of the research are presented, as well as direction for future research.

#### **5.2 Summary of the findings**

In summary, the findings and analysis of the research show that there are three main factors which influenced liberalisation of agricultural sector in Kenya; market reforms related to SAP, Uruguay Round Agreement on Agriculture (AoA), as well as, donor intervention and conditionality. With regards to extent of liberalisation in the maize subsector, the analysis of the findings give a clear indication that there has been on-and-off government interventions in the maize subsector through NCPB with the aim of protecting local farmers and consumers. Besides, the trend analysis of the research shows that maize production in Kenya has been fluctuating over different period during liberalisation. However, there has been a significant drop in maize productivity which has affected the supply of maize in the market. As a result, the Kenyan government has resulted to importation of maize in the country in order to meet the maize deficit in the country. Even more, the study shows that maize productivity in Nakuru County has been affected minimal government interventions. Notably, farmers expressed that the Kenyan government has been absent in offering them with training on how to adopt new farming methods and in subsidising maize seeds and fertilisers. Besides, the findings of the study give a clear indication that farmers have minimal control over the prices of maize seeds in the market which are mainly controlled by demand and supply in the market. Equally, the findings of the study give a clear indication that maize farmers face stiff competition from cheap imported maize which has dominated the maize market. As such, their productivity is affected in the sense that they do not get enough revenue from maize farming to buy seeds, fertilisers and other farm inputs necessary for production of maize.

### **5.3 Factors influencing liberalisation of maize sub-sector in Kenya**

The first objective of the research involved investigation of the factors which influenced liberalisation of agricultural sector in Kenya. The findings of the research show that there are three main factors which influenced liberalisation of agricultural sector in Kenya; market reforms related to SAP, Uruguay Round Agreement on Agriculture (AoA), as well as, donor intervention and conditionality. With regards to market reforms, they mainly focused on the liberalisation of the market operations which were previously dominated by government control. Moreover, Kenya liberalised its agricultural sector as a result of obtaining membership in the WTO through Uruguay Round Agreement on Agriculture (AoA) which emphasised on market access based on the understanding that there were different trade restrictions on imports and domestic support which included; subsidies and other programmes that raised the farmers' incomes and subsidies on exports that make exports to be artificially competitive. Even more, the Kenyan government liberalised its market policies based on donor conditionality based on the understanding that release of donor aid in Kenya was dependent on the extent of implementation of reforms in the Kenyan agricultural sector.

### **5.4 Extent of liberalisation in the maize subsector in Kenya**

The second objective of the research involved analysis of the extent of liberalisation in the maize subsector. The findings of the study established that during the period of market reforms (1986-1996) liberalisation of the maize sector, the reform process was slow as a result of government interference. Notably, this era experienced advances and reversals with regards to the freedom that the private sector was allowed to market their maize. In the period between 1996 and 2008, after joining WTO, Kenya focused on commitment to market access especially regarding tariff reduction measures. Since the time Kenya joined WTO, there has been increased level of maize importation in the country. Moreover, between 2008 and 2017, significant non-tariff barriers still existed, and these included: burdensome clearance procedures (especially at border points), arbitrary bans on imports and exports and poor transport and infrastructural connectivity which has hindered the movement of maize from maize-surplus to maize-deficit areas.

### **5.5 Impact of liberalisation on maize productivity in Kenya;**

The trend analysis of the study shows that maize productivity in Kenya has experienced fluctuations in the pre-liberalisation, liberalisation and post-liberalisation periods. These



fluctuations can be explained by changes in market reforms which have resulted to minimal government interventions, control of maize prices by the market and increased importation of maize in the country. However, it is important to note that these are not the only factors which have influenced low production of maize in Kenya. Other significant factors such as reduced rainfall, attacks by army worms and maize lethal necrosis (MLN) disease, among other factors have played a role in reduced maize productivity of maize in the country. With particular reference to maize production in Nakuru County the findings of the study shows that the overall impact of liberalisation on maize production in the county is low. Notably, the findings of the study give the indication that farmers have little control over the prices of maize seeds in the market. Explanation for these findings is found in the fact that maize market in Kenya is controlled by forces of supply and demand. As such, prices rise when the supply is low and demand is high. Lack of control and limited information on maize prices make it difficult for farmers to cope with the ever changing maize prices which in turn affect their ability to purchase maize seeds. Moreover, the findings of the research shows that limited government intervention has played a role in reduced maize production in Nakuru County. Reduced role of government in control of prices of maize seeds has overburdened maize farmers in the county who are not able to cope with the ever changing market controlled maize prices. Besides, the government has played limited role in educating farmers and offering them with new information and technologies on maize farming thus limiting productivity and innovativeness of maize farmers. Even more, importation of maize in the country as a reduced tariffs and non-tariffs barriers has led to influx of cheap maize in the maize market thus increasing competition for the maize farmers. As a result, maize farmers do not have the incentive to produce maize for commercial purposes. Subsequently, they do not have revenue to invest back in their production of maize.

## **5.5 Conclusion**

The study concludes that there is a significant correlation between liberalisation and maize productivity in Kenya. Precisely, the study concludes that the impact of liberalisation on maize productivity has been to the negative. The study establishes that changes in maize prices have a negative impact on cost of production and Per Capita Maize output. Lack of control and limited information on maize prices make it difficult for farmers to cope with the ever changing maize prices which in turn affect their ability to purchase maize seeds. Besides increased importation of maize in the Kenyan maize subsector has resulted to increased

importation of maize which has a negative impact on cost of production and Per Capita Maize output. Importation of maize in the country as a result of reduced tariffs and non-tariffs barriers has led to influx of cheap maize in the maize market thus increasing competition for the maize farmers. Moreover, minimal government interventions have a negative impact on cost of production and Per Capita Maize output. Reduced role of government in control of prices of maize seeds has overburdened maize farmers in the county who are not able to cope with the ever changing market controlled maize prices

## **5.5 Recommendations**

Based on the analysis and conclusions from the findings, the following recommendations of the study were proposed;

Firstly, the findings of the research has shown that liberalisation of the maize subsector in Kenya has resulted to increased importation of cheaper maize in the country and reduced intervention of the government especially in regards to offering subsidies to farmers. This denies local farmers the incentive to produce maize for commercial purposes, subsequently; they do not have the capacity to purchase other food stuff to meet their dietary needs. On the other hand, it is not lost on the researcher that government intervention may be counterproductive in the sense that protection of the maize subsector may cause farmers lack competitiveness in an open competition. As such, the current research recommended that the government should adopt hybridised policies which accommodate open market policies and mercantilist policies. For instance, the government of Kenya should invest more on education of maize farmers regarding different production and marketing techniques. Afterwards, the government of Kenya should let the farmers to participate competitively in the open market. Besides, intervention of the government with regards to offering subsidies to farmers may be costly to the government due to limited resources thus making economics to suffer. However, the government should facilitate establishment of Savings and Credit Cooperative Organizations for maize farmers and conduct education on farmers regarding the need to join such organisations to access credit to run their maize production. Through these organisations, the government will be able to reduce the amount of subsidies given to farmers while encouraging farmers to more competitive in the market.

Besides, the findings of the research have established that liberalisation has influenced importation which is favourable to consumers because of low prices of the imported maize

while hurting the producers. On the other hand, restriction in the importation of maize would not only hurt the consumer, it would also affect food security in the country. However, the government of Kenya can circumvent this conundrum through application of complementary reforms that would protect both the consumers while giving the maize farmers the incentive to produce more maize. These reforms include more investment on information services given to farmers, infrastructure, research and extension, as well as human capital development.

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## APPENDIX 1: QUESTIONNAIRE FOR MAIZE FARMERS

### Introduction

Thank you for accepting to take part in the study. My name is Waithera Stephen Njuku a student at University of Nairobi Department of Political Science and Public administration- pursuing Masters of Arts in Political Science and Public Administration. As part of my studies, I am required to conduct a research related to my areas of the study. As such, the questionnaire is structured to help in the investigation of impact of liberalisation on maize productivity in Kenya from 1986-2017. Notably, by filling this questionnaire you will help me answer the key questionnaires of the study. Besides, kindly be informed that the information shared is highly confidential. This means that the researcher will not share information you share with other parties expect for academic purposes. To ensure your personal confidentiality, kindly do not write your name or personal information such as home address or phone numbers. More importantly, kindly answer the questions with honesty and to the best of your ability.

### Part A. General Information

1. Kindly tick your age

- a) 18 years- 25 years
- b) 26 years- 35 years
- c) 36years- 45 years
- d) 46years- 55years
- e) Over 55 Years

2. Please tick your gender\_

- a) Male
- b) Female

3. How long have you done farming?

- a) Less than 5 years
- b) 5-10years
- c) 11-20 years

- d) Over 20 years

**Part B. Liberalisation in the maize subsector**

*This part of the questionnaire uses the five points Likert's scale. This means that you have five alternatives while answering each of the questions. The five alternatives are indicated as 1, 2, 3, 4, and 5 in turn. You are thus requested to tick the option that represents your views.*

**a) Changes in maize prices**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I can easily access information related to changes in maize prices	1	2	3	4	5
I am able to cope with the changes in maize prices	1	2	3	4	5
I am able to afford maize seeds notwithstanding changes in maize prices	1	2	3	4	5

**b) Opening of the market**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
It is easy for me to export the maize I produce in the farm	1	2	3	4	5
Most of the customers prefer imported maize to locally produced maize	1	2	3	4	5
Maize millers buy maize from	1	2	3	4	5

local maize farmers					
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**c) Government intervention**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
The government of Kenya has invested on research on maize production	1	2	3	4	5
Kenyan government offers cheap maize seeds and fertilisers to farmers	1	2	3	4	5
Kenyan government offers farmers with training on new farming methods and disease control	1	2	3	4	5
Kenyan government helps maize farmers with marketing their maize					

**Part C: Maize productivity**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I have increased the amount of maize harvest per 90kg bag	1	2	3	4	5
I have experienced an increase in maize production per acre on farm	1	2	3	4	5

The cost of production for maize in my farm has been in low in the last 10 years	1	2	3	4	5
I believe that there is enough maize in the market produced by Kenyan farmers for Kenyan consumers	1	2	3	4	5



## APPENDIX 2: INTERVIEW GUIDE

1. Does your company source maize from local maize farmers or do you import from other countries?
2. What influences your company to source maize from local maize farmers or import from other countries?
3. If your company imports maize from other countries, which of the following factors would you say has facilitated maize importation?
  - a) Removal or reducing restrictions on international trade
  - b) Enlargement of import quotas
  - c) Reduction of tariffs
  - d) Abolition of multiple exchange rates
4. Why did you use select the option you selected in question 3 above? Please give detailed explanations.

## TURNITIN REPORT

