CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Food is very important to all nations of the world, it occupies a prominent position in the very important food crop. Half of humanity believes rice to be the most significant staple food (Imolehim & Wada, 2000). It is ranked third after maize and wheat in production on a world basis. Sayyadi (as cited in Aye & Mungatana, 2011) stated that Rice is one of the main staple crops in Nigeria and featured among the five food crops (cassava, maize, wheat, rice, and sugar) whose production is to be for attainment of meals self-sufficiency as revealed by way of the Minister of Agriculture and Water sources. Rice is consumed by over 4.8 million people in 176 countries.

There is the growing importance of the food crop which led to the proposal by food and agricultural organization (FAO, 2001) that the annual rice production should be increased from 58.6 million metric tons in 2001 to meet the projected global demand which is about 756 million metric tons by 2030. Rice supply is growing in Africa and many nations on the continent continue to depend so heavily on imports to meet this strong requirement for rice.

Nigeria is Africa's most inhabited nation with a population of 196 million people. The domestic economy of Nigeria is dominated by the agricultural sector which makes it an agrarian economy (Ogen, 2003). Agriculture accounts for about 40% of the GDP, it generates employment for over 70 percent of the total labor force, accounts for about 60 percent of the non-oil exports and, perhaps most significant, provides over 80 percent of the needs of the country as regards to food agriculture supplies food, raw materials and generates income for the majority of the people (Adegboye, 2004).

Crude oil was the main product in the nation, but before the invention of crude oil in business amounts, agriculture was the main mover of the economy. When crude oil was discovered, the agricultural sector was neglected and more priority was given to crude oil since it contributed to about 95% of foreign exchange income. The agricultural sector currently accounts for less than 5% of the GDP of Nigeria (Olagbaju & Falola). This neglecting of the

agricultural sector has several effects which include a reduction in agricultural products, heavily reliance on food import to meet the domestic demand. Nigeria has an annual food import bill of about $10billion, which makes the country currently one of the largest food importers in the world (Obayelu, 2014).

However, Nigeria is one of the highest consumers of rice, this is as a result of the increasing population in the country. The local production of rice is not sufficient to meet the domestic demand for rice, this leads to more imports. Generally, imported rice is very common in the country, this imported rice is gotten mainly from Thailand and India. Local rice is consumed more in rural areas by those who can hardly afford the imported rice. The reality that rice is a significant staple food in Nigeria is not shocking because it is extremely requested in all areas of the nation. (Gyimah- Brempong, Johnson and Takeshima, 2016). This increase is as a result of the preference of the consumer, increasing income, increase in urban population among others (Nwanze, 2006).

This reliance on imported rice was not so in the '90s. Nigeria used to be the highest producer of crops in West Africa of which rice was part of those crops produced (Obayelu, 2014). In 1960 Nigeria was almost 99% self-sufficient in rice production. The period of 1970 and 1980, Nigeria's self-sufficiency in rice manufacturing decreased dramatically to about 38% which led to demand being greater than the supply (Imolehin & Wada, 2000). People favor exported rice to rice manufactured locally because the exported rice has some greater value, this greater value is described in aspects of superior flavor, greater swelling capacity, stronger grain structure, cleanliness and removal of dust. (Bamidele, Abayomi, and Esther 2010; Lancon 2003). Rice produced locally, which is more healthy and nutritious is been treated as an inferior food because they were not properly processed and are not free from impurities such as stones.

According to the farmers stones don't grow with rice but it is the weakness of humans in harvesting and processing that introduces the stones. The nation has a background of indigenous rice manufacturing and a strong supply for rice (Johnson, Takeshima, and GyimahBrempong, 2013).

Low rice manufacturing in Nigeria is due to the peasant's agrarian machinery that does not promote large-scale production. Rice in the nation is mostly generated by small-scale producers, their yields are generally very low due to inefficiency in manufacturing, elderly

farming population and poor use of technology e.t.c. (Fasoyiro and Yaiwo, 2012). The locally produced rice cannot sustain the increasing demand for rice (Uduma, Samson & Mure, 2016). According to the United States Agency for International Development, the agriculture industry in Nigeria is dominated by fragile and inadequate manufacturers.

Apart from the huge cost involved in importing rice to the country, rice imports expose the country to international market shocks which has some implications for food security. The country becomes a price taker. Politically and economically, Rice remains significant to Nigerians. It is the major celebrated diets of the citizens. Despite the fact that there is an improvement in the quantity of rice produced in the country, this production is still not sufficient to meet domestic demand of which several factors are responsible for. Nigeria can hardly produce rice sufficient for its citizens despite the fact that there is good climate and favorable weather condition to promote the growth of rice, it still has zero export earnings for the country.

The rice market should not be overlooked, government, private sectors and, policy makers should look into this sector of the economy (agricultural sector) and as rice is the most consumed staple it should be given priority so as to improve the GDP of the country. Local rice performance can also be enhanced to allow it to contend positively with overseas rice on the global industry and enhance the effectiveness of national rice manufacturing and handling. The government should attempt to stop the period of unnecessary rice imports. A variety of strategies and projects should be placed in a position to enhance rice quality systems, from manufacturing to marketing.

1.2 Statement of the Research Problem

The global food crisis is growing with alarming pace and power, requiring countries and international organizations around the globe to react by developing a strategic and long-term strategy. Nigeria is the world's 31st biggest economy (IMF, 2009), she is ranked 11th in arable land. Nigeria too is currently experiencing a food crisis. This has been attributed to low productivity in the agricultural sector as the country is also ranked 116th out of 138 farming nation, cultivating less than 50% of the available 82million hectares of land available for agricultural purposes (Nigerian National planning commission, 2004), this has necessitated to

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huge food imports. The nation has a strong comparative advantage in producing rice and other agricultural products.

Rice being a major staple in Nigeria is of vital concern to agricultural policy decisions. About 5 million hectares of land is available for rice production. However, out of the potentially cultivable land available, only about 2million hectares have been put into cultivation. This is far below the potentials of the Nigerian Rice sector. Thus, there is an increasing difference between national demand for rice and its production resulting from low productivity. The greater requirement for rice compared to supply is evidenced by the frequent increase in the cost of rice and therefore has excellent implications for the Nigerian economy's water security position and economic development..

Rice importation has become a serious problem in respect of consuming foreign exchange. Nigeria remains to export staple food for its wealthy population. According to statistics from the European Association of Agricultural Economics (EAAE), (2005) quoted by USAID (2010), Nigeria is the biggest importer of rice in West Africa and second-biggest importer of rice after the Philippines globally with an median annual supply of 3 million tons of rice valued N468 billion since 2000. The total consumption is at 4.4 million tons of milled rice while annual consumption per capital stands at 29kg and this has continued to rise at 11% per annum; induced by income growth. Nigeria generates only about 2.8 million metric tons with a deficit of 1.6 million metric tons excluding the big amount smuggled across porous boundaries (USAID, 2010). Rice imports are exceptionally strong in Nigeria despite the fact that the country has adequate land and manpower to produce adequate quantity for her domestic need, the country can as well produce for exportation. This high import has a negative effect on the GDP of the country.

The high reliance on exported rice was triggered by the negligence of agriculture as a consequence of the growth in the oil industry in the 1970s. The boom in the crude oil industry has led to the "Dutch disease". The Dutch disease occurs when a boom in the export of mineral resources leads to a remarkable decline in the activities of another sector of the economy (Udoh & Egwaikhide, 2012). This Dutch disease could have been avoided if the revenue gotten from the petroleum sector were used to develop the agricultural and other sectors in the economy.

The Nigerian rice economy's restricted ability to suit national supply increases the amount of relevant issues both within the strategy arena and among scientists. For example, what variables clarify why national rice manufacturing lags behind Nigeria's commodity supply? To bridge the demand-supply divide, efforts need to be channeled towards growing rice manufacturing.

For greater than a decade, it changed into the notion that adopting meals import as coverage could address the country's meals shortage problem. However, it has become obvious that such policy rather than bring solutions, has fueled inflation, discouraged local production and created poverty among many farm households and helped to cause food insecurity. This, therefore, necessitated alternative policy actions.

1.3 Research Questions

The problem above has led us to the following research questions

- How does rice importation affect GDP in Nigeria?

- How does rice importation affect domestic production of rice in Nigeria?

- What is any causal relationship between rice importation and economic growth in Nigeria?

1.4 Objectives of the Study

The primary goal of this research is to examine the impact of rice imports on Nigeria's economic growth. Specifically, the study tends to:

- Examine the impact of rice imports on GDP in Nigeria

- Examine the effect of rice importation on domestic production in Nigeria

- Establish if there is any causal relationship between rice importation and economic growth in Nigeria

1.5 Research Hypothesis

To attain the study's goals, the null and alternative hypothesis is developed:

- H_0: Rice importation has no effect on GDP in Nigeria.
- H_{01}: Rice importation has effect on GDP in Nigeria.
- H_{20}: Rice importation has no effect on domestic production of rice in Nigeria
- H_{21}: Rice importation has effect on domestic production of rice in Nigeria
- H_{30}: There is no casual significant statistical relationship between rice importation and GDP in Nigeria.
- H_{31}: There is a casual significant statistical relationship between rice importation and GDP in Nigeria.

1.6 Significance of the Study

The Significance for this research cannot be overemphasized since the study is a thorough attempt to explore the impact of rice imports on Nigeria's economic growth. This study is motivated by the important position of rice production in the Nigerian Economy. Rice production not only serves as an important food staple to a majority Of the citizens of Nigeria but also a major source of revenue to both farming households and the nation at large. Nigeria has great potential for better economic growth than is currently experienced through increased production of rice. Therefore, the need to efficiently allocate productive resources for the purpose of development cannot be overstressed. In that case, every resource should be efficiently and effectively mobilized to reduce the gap between actual national output and potential national output.

Most researchers in this area, with respect to Nigeria covered mainly periods before 2018. There are very few updated studies on the rice market in Nigeria. The study talks about the rice market in Nigeria, the challenges or problems the farmers face, the effects of excess rice import on the GDP of the country etc. Therefore, it will be right to say the outcome of this study will be an attempt to update the existing body of knowledge in this field. The commodity of study (rice) is the major staple food in Nigeria. The study will also be relevant to policy makers to enable them to put good policies in place, it will also serve as a reference for further studies by authors who may want to research further.

1.7 Scope and limitation of the Study

The research work is confined to the Nigerian economy. Therefore the considered data were those relating to the Nigeria economy. The study employed the use of secondary data. The time frame for the data used in the study covers (1999-2018) which is a period of 19 years. The choice of this time frame is due to the high level of rice import Nigeria experienced and how it affects the GDP of the county negatively. The major constraint of the study is the short time needed to complete the study and the difficulty in getting a current and accurate date for the scope.

1.8 Plan of the Study

The remaining part of the work is organized into five different chapters. Chapter one is the introduction to the study which talks about what the research work is all about. Chapter two is the review of literature both empirical and theoretical. Chapter three explain the research methodology of the study, then chapter four discusses data analysis and interpretation, while chapter five discusses the summary or conclusion and recommendation of the study.

1.9 DEFINITION OF TERMS

Exports: these are goods and services that are sold to other countries by a domestic country.

Imports: these are goods and services that are bought by a domestic country from other countries.

Tariff**:** This is a kind of tax imposed on goods when they are moved across a national political boundary. It is also a schedule of duties imposed by a government on imported or in some countries exported goods.

Trade: This is the exchange of goods and services within a country (domestic or home trade) or between countries (international or foreign trade).

Gross Domestic Product: The gross domestic product (GDP) is one of the primary indicators used to gauge the health of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period, often referred to as the size of the economy.

Usually, GDP is expressed as a comparison to the previous quarter or year.

Trade policy: these are standards, goals, rules and regulations that pertain to trade relations between countries. These policies are specific to each country and are formulated by its public officials with the aim of boosting the nation's international trade.

Dutch disease: This is the apparent causal relationship between the increase in the economic development of a specific sector (for example natural resources) and a decline in other sectors (Like the manufacturing sector or agriculture).

Economic growth**:** Economic growth is the sustained increase of per capita gross domestic product (GDP) or other measure of aggregate income. It is often measured as the rate of change in real GDP.

Economic development**:** This is the process by which a nation improves the economic, political and social well-being of its people. Also, it is the process in which an economy grows or

changes and becomes more advanced, especially when both economic and social conditions are improved. This refers to an increase in a country's national output.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

This chapter serves as a foundation on which the study is built as it observes past studies essential to draw an objective conclusion of the study, a review of relevant literature on conceptual issues as regards the rice market in Nigeria are carried out. Also contained in this chapter are subsections that explain the Nigerian rice trade policy, rice production and consumption trend in Nigeria, opportunities in the rice subsector, etc. It also contains a review of theoretical and empirical studies that are related to this study.

2.2 Trend Analysis of Rice Importation, Consumption, Production, and Export in Nigeria

2.2.1 Nigeria's Rice Trade in a Global Context

Nigeria is presently one of the world's biggest importers of rice. Among the top importers of rice, Nigeria is followed closely by the Philippines, Iran, Indonesia, and the European Union. Most of the rice imports to Nigeria come from Thailand, Vietnam, and India, who jointly supplies about 60% of the rice traded in global markets.

Table 1: Top ten major rice importers and exporters in the world, 2000 – 2012 (percent)

Top 10 major importers (share of global imports)				Top 10 major exporters (share of global exports)			
2000-2004		2008-2012		2000-2004		2008-2012	
Indonesia	8.8	Nigeria	8.2	Thailand	30.1	Thailand	27.3
Nigeria	7.0	Philippines	6.7	Vietnam	14.0	Vietnam	19.3
EU	5.3	Iran	5.6	India	13.6	India	13.7
Philippines	5.1	Indonesia	4.8	United States	11.9	Pakistan	10.3
Saudi Arabia	5.0	EU	4.8	China	7.0	United States	10.1
Iraq	4.4	Iraq	4.0	Pakistan	7.7	Uruguay	2.6
Iran	4.2	Saudi Arabia	3.9	Uruguay	2.7	Brazil	2.4
Brazil	3.5	Malaysia	3.6	Egypt	2.4	Cambodia	2.1
Senegal	3.5	Cote D'ivoire	3.4	Burma	1.8	Burma	2.1
South Africa	3.1	Senegal	3.0	Australia	1.4	China	1.9

Source: United States Department of Agriculture international database (USDA 2013)

The food crisis experience in 2008 led many governments of net importing countries to reduce their vulnerability to price shocks by striving for self-sufficiency in rice production. Nigeria is no exception, the Nigerian government has set a goal of making the country self-sufficient in rice production. Nigerian policymakers believes that the increasing trend of rice imports is fiscally and politically unsustainable, it threatens the country's food security by displacing local production, draining scarce foreign-exchange reserves, and making the country prone to any volatility of supply in global markets (Adesina, 2012).

2.2.2 Trends in Rice Consumption

The indigenous rice species (local rice) have been cultivated and eaten in Nigeria for over 300 years (Akinbile, 2007), making Nigeria historically wealthy in aspects of rice consumption and manufacturing. However, the dominance of rice as a major staple in the Nigerian diet is a fairly recent phenomenon.

The increase in rice consumption began in the late 1970s. This is believed to be caused by an astronomical increase in world prices of crude oil at that time, which gave Nigeria large amounts of foreign currency reserves and made imports cheaper. The increase in rice consumption-led those of yam and cassava by a decade. The situation of rice has shifted from nearly not consumed in the 1960s to becoming a significant staple crop today. Rice is the only staple food crop from all staple food crop which its import is used to meet up with domestic demand.

Rice presently stands first among all staple food products in terms of expenditure and second only to cassava in terms of amounts eaten. The per capita consumption of rice by volume is 3% less than that of cassava and by value, the per capita consumption of rice surpasses that of cassava by as much as 67 percent, indicating that rice is dominant in the Nigerian food budget. The table below shows the ranking of food consumption in kilograms per capita and per capita expenditure.

Table 1.2: Ranking of per capita consumption and expenditure

Commodity	Annual consumption (kg/capita)	Rank by consumption quantity per capita	Annual expenditure (naira/capita)	Rank by expenditure per capita
All rice	32.1	2	3,951	1
Local rice	17.6		1,893	
Imported rice	14.5		2,058	
Maize	24.1	4	1,164	4
Sorghum	28.3	3	960	5
Millet	19.8	5	786	6
Cassava	33.1	1	2,374	3
Yam	18.2	6	2,824	2

Figure 1.1 Aggregate consumption of rice and other major staples in 2011(million tons)

Aggregate consumption of rice and other major staples in 2011 (million tons)
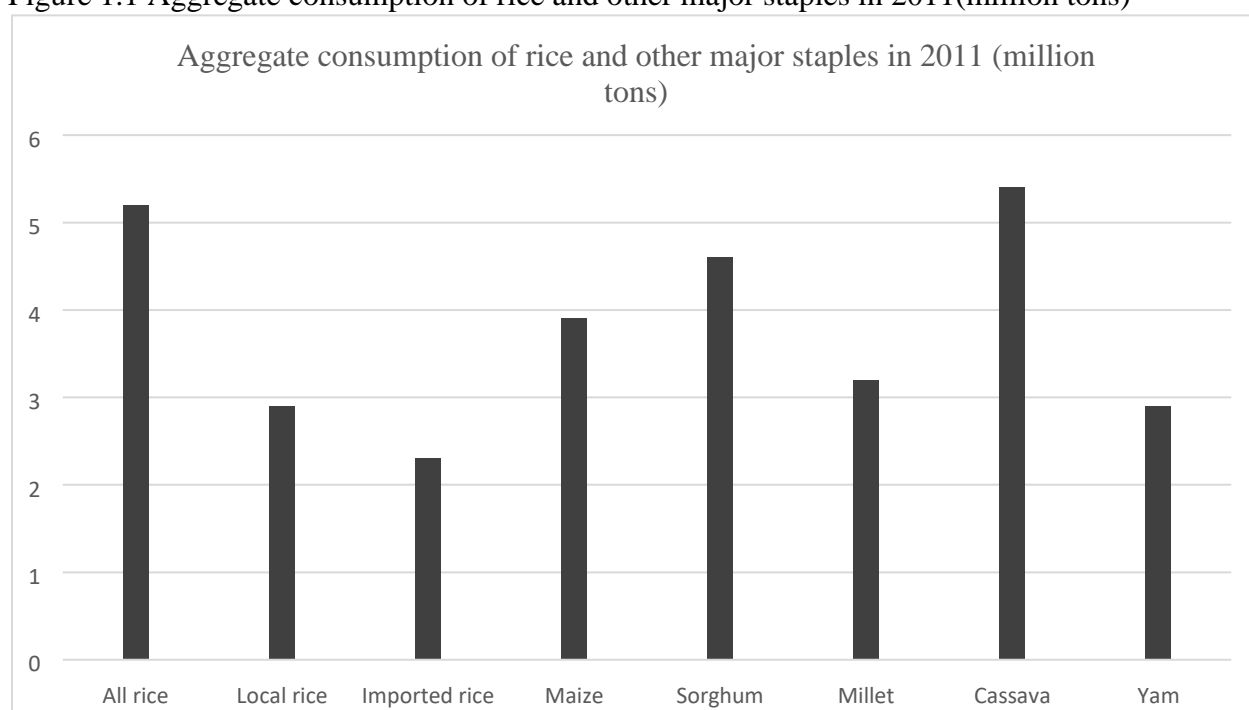
2.2.3 Trend of Rice Production, Consumption, Import and Export

The government of Nigeria as engineered by the World Bank and IMF previously introduced policies regarding rice importation. There was ban on rice in the country which made it illegal for one to import rice into the country (Emodi & Madukwe, 2008). However, this policy that was meant to reduce rice importation resulted to increased dependence on rice importation in the country in relation to foreign income and food security (Emodi & Dimelu, 2012).

The consumers of rice in Nigeria are many (Akpokodje, Lancon & Erenstein, 2001). Demand for rice comes from different aspects of the economy which includes universities, hostels, military, individuals, families etc. in the year 1976, the government established Nigerian National Supply Company (NNSC) which had the responsibility of importing rice and other food item, as well as distributing and selling them to the consumers.

The table below shows the level of milled rice imported into Nigeria during the period of 1999-2013. From the table, in 1999 only 950 thousand metric tons were imported and from year to year the rice import kept on increasing. In 2013, 3000 metric tons were imported.

Table 1.3: Nigeria Milled Rice Imports by Year from 1999-2013

Market Year	Imports	Unit of Measure	Growth Rate
1999	950	(1000 MT)	5.56%
2000	1250	(1000 MT)	31.58%
2001	1906	(1000 MT)	52.48%
2002	1897	(1000 MT)	-0.47%
2003	1448	(1000 MT)	-23.67%
2004	1369	(1000 MT)	-5.46%
2005	1650	(1000 MT)	20.53%
2006	1500	(1000 MT)	-9.09%
2007	1800	(1000 MT)	20.00%
2008	1750	(1000 MT)	-2.78%
2009	1750	(1000 MT)	0.00%
2010	2400	(1000 MT)	37.14%
2011	3200	(1000 MT)	33.33%
2012	2800	(1000 MT)	-12.50%
2013	3000	(1000 MT)	7.14%

Source: Mundi (2014), adapted from the United States Department of Agriculture.

The table below shows the export of Nigeria which amounts to be 0. It revealed Nigeria's inability to export a single unit of milled rice since 1999. Yet, the country still imports high quality of rice.

Table 1.4: Nigeria Milled Rice Exports by Year from 1999-2013

Market Year	Exports	Unit of Measure	Growth Rate
1999	0	(1000 MT)	NA
2000	0	(1000 MT)	NA
2001	0	(1000 MT)	NA
2002	0	(1000 MT)	NA
2003	0	(1000 MT)	NA
2004	0	(1000 MT)	NA
2005	0	(1000 MT)	NA
2006	0	(1000 MT)	NA
2007	0	(1000 MT)	NA
2008	0	(1000 MT)	NA
2009	0	(1000 MT)	NA
2010	0	(1000 MT)	NA
2011	0	(1000 MT)	NA
2012	0	(1000 MT)	NA
2013	0	(1000 MT)	NA

Source: Mundi (2014), adapted from the United States Department of Agriculture

The table below shows the high level of demands and consumption of milled rice in Nigeria. In 1999, about 2.8 million metric tons representing 1.81% were consumed domestically, the domestic demand continued to rise and in 2013 it got to 6 million metric tons representing 13.21%. Although the consumption pattern of milled rice is becoming higher, the production still remains stagnant or insignificantly improved to provide for the entire population.

Table 1.5: Nigeria Milled Rice Domestic Consumption by Year from 1999-2013

Market Year	Domestic Consumption	Unit of Measure	Growth Rate
1999	2866	(1000 MT)	1.81%
2000	3029	(1000 MT)	5.69%
2001	3051	(1000 MT)	0.73%
2002	3307	(1000 MT)	8.39%
2003	3670	(1000 MT)	10.98%
2004	3750	(1000 MT)	2.18%
2005	3800	(1000 MT)	1.33%
2006	4040	(1000 MT)	6.32%
2007	4100	(1000 MT)	1.49%
2008	4220	(1000 MT)	2.93%
2009	4350	(1000 MT)	3.08%
2010	4800	(1000 MT)	10.34%
2011	5600	(1000 MT)	16.67%
2012	5300	(1000 MT)	-5.36%
2013	6000	(1000 MT)	13.21%

Source: Mundi (2014), adapted from the United States Department of Agriculture

The table below shows the level of Nigeria's milled rice production from the year 1999 to 2013. The country produced only 0.05% for its market city in 1999 and 16.96% in 2013. This was still unable to add meaningfully to meeting up with the high demands and consumption of rice in the country.

Table 1.6: Nigeria Milled Rice Domestic Consumption by Year from 1999-2013

Market Year	Production	Unit of Measure	Growth Rate
1999	1966	(1000 MT)	0.05%
2000	1979	(1000 MT)	0.66%
2001	1651	(1000 MT)	-16.57%
2002	1757	(1000 MT)	6.42%
2003	1870	(1000 MT)	6.43%
2004	2000	(1000 MT)	6.95%
2005	2140	(1000 MT)	7.00%
2006	2546	(1000 MT)	18.97%
2007	2008	(1000 MT)	-21.13%
2008	2632	(1000 MT)	31.08%
2009	2234	(1000 MT)	-15.12%
2010	2818	(1000 MT)	26.14%
2011	2877	(1000 MT)	2.09%
2012	2370	(1000 MT)	-17.62%
2013	2772	(1000 MT)	16.96%

Source: Mundi (2014), adapted from the United States Department of Agriculture

Rice remains politically and economically central to Nigeria's life. It becomes an important agricultural commodity that needs to draw the attention of the government and policy makers to its impacts on the both the domestic and international market for the being and development of the nation.

2.3 Conceptual Review

2.3.1 The Concept of Economic growth

The concept of economic growth Economic growth can usually be defined as a favorable shift in the amount of products and facilities generated by a nation over a certain span of moment. In other phrases, economic growth is a rise in an economy's importance of products and facilities. It may also be related to as the rise in gross domestic product. It is a comparatively straightforward metric of production and provides an understanding of how well off a nation is relative to rivals and past performance. It is a beacon that enables policymakers to guide the economy towards important financial goals. Finally, it is a metric of a state's well-being; generally in real terms, all other stuff being equivalent (Enu P, 2009).

According to (Todaro, 1977) economic growth is simply the increase overtime of an economy's capacity to produce those goods and services needed to improve the wellbeing of the citizens in increasing numbers and diversity. It is the continuous method by which the efficient ability of the economy increases overtime to give about increasing rates of national income. Baumol and Blinder (1988) view financial development as happening when an industry is prepared to generate more products and facilities for each customer, while Roger Miller (1991) described financial development as the development of the industry to generate more products, employment and prosperity.

In debating development, it is essential to examine population overtime behavior. This is because economic growth becomes a significant notion if it contributes to an enhancement in the overtime well-being of culture and this can only occur if the pace of population growth lags behind that of overtime economic growth. Thus, development is a continuous method of enhancing the economy's efficient ability and thus raising national income, marked by elevated levels of per capita production rise and total factor productivity, particularly employment efficiency (Anyanwu and Oaikhenan: 1995).

2.3.1.1 Determinants of Economic Growth

Several factors have been identified as the macroeconomic determinants of economic growth in any country. Some of these variables include: natural resources, population growth and investments, human capital. innovation and technological progress, economic policies and macroeconomic conditions in the country, governmental, and institutional factors, level of development of the country's financial system, access foreign aid, knowledge and information, openness to the world economy, foreign direct investments, foreign portfolio investment, economic migrants remittances and workers' salaries, political factors, socio-cultural factors, geographical features of the country, demographic distribution and trends, religious diversity and debt overhang.

2.3.1.2 Factors That May Affect Economic Growth

i.   Interest rate: According to Keynes, Interest rate is a reward not for hoarding, but for sharing liquidity for a specific period of time. Keynes? The interest rate concept relies more on the lending rate. Adebiyi (2002) described exchange level as the return or return on equity or the opportunity cost of potential deferral of present consumption. Oosterbaan et al., (2000) estimated the relationship between the annual rate of economic growth and the real rate of interest. The study shows the effect of a rising real interest rate on growth and claimed that growth is maximized when the real rate of interest lies within the normal range of say, -5 to +15%. Later on, De Gregorio and Guidotti (2009) cited in Oosterbaan et al., (2000) Suggest that the connection between actual tax prices and economic development might look like an inverse U-curve: very small (and adverse) true tax levels appear to trigger financial disintermediation and thus decrease development

ii. Public Expenditure/Government Investment: Public investment or expenditure affects capital formation in twofold.

Firstly, the government can only invest resources acquired from the people through taxes and thought domestic and foreign borrowing. Tax increase demotivates private investment and also reduces the number of real incomes from households and firms. Borrowing domestically has the effect of crowding out personal expenditure by raising the price of assets through elevated

interest rate. External borrowing equally increases the tax burden, as the loans must be serviced by individuals.

However, public investment has a positive effect on private capital formation due to the fact that it creates a favorable environment for investment. Investment in infrastructures, such as roads, railway, and development of energy source among other encourage private investors to increase their investment in the areas where such investment is desirable.

Government undertakes critical human development in such areas as education and training that are the direct input to private operations through the promotion of technology and skills development. This, in the long run, encourages deepening of the value-added content of the production. This implies that curtailing of public investments inevitable leads to curtailing of private formation.

iii. Inflation rate: Inflation is a circumstance in the economy which causes an increase in the price level for the goods and services over a period of time. According to Hidayat, inflation rate has brought significantly positive influence on GDP. In order to measure inflation, there are two measurement tools can be used, there are Consumer Price Index (CPI) and Producer Price Index (PPI).

iv. Foreign direct investment: A growth of a nation will be affected by the increasing assets and base installation, as well as investments. Hussin and Saidin (2012) indicated that FDI is a most significant element to determining the economic growth. The rise in FDI will stimulate the GDP. Gyebi, Owusu and Etroo (2013) mentioned that the GDP most impacted by FDI among other independent variables.

2.3.2 The Concept of Rice Market

2.3.2.1 Rice Production

Rice Production Rice manufacturing relates to the amount of rice paddy generated each calendar year in a specified nation. Production includes the amounts of the commodity purchased on the market (retail manufacturing) and the amounts eaten or used by the manufacturers (auto

consumption). It does not include damages from logging, damages from threshing, and unharvested plant parts.

2.3.2.2 Rice Consumption

Nigeria is one of the highest consumers of rice. In 2010, the consumption of rice was 5million metric tons which are expected to increase to about 36 million MMT in 2050. Currently, Nigeria is one of the largest rice importers globally. This high importation of rice is due to increasing demand for it and also the population increase. The largest consumed rice in Nigeria is milled rice which is used as food item for a household. It is also used by sectors to produce pharmaceutical products and other meals depending on rice.

2.3.2.3. Factors Affecting the Demand for Rice in Nigeria

There are some major factors that affects the demand for rice in Nigeria. Some of which include population growth, rapid urbanization, increase in per capita income, and changes in family occupation, lifestyles etc have contributed to increase in the demand for rice (Akpokodje, Lancon, and Erenstein 2001; DeMont et al. 2013).

  The major factor affecting rice demand is urbanization, this is because of the changes in lifestyle it creätes, requiring foods that are convenient and quicker to prepare, and rice meets these conditions very satisfactorily. Urban households generally have a preference for imported rice. The features that have drawn many of these customers to imported rice include greater quality, defined as greater growing ability, superior flavour and desired seed size, cleanliness, as old rice appears to be polished, unbreaked and free of rocks and other objects. (Bamidele, Abayomi, and Esther, 2010). The consumers of local rice aspire to afford imported rice. The local rice when compared with imported rice is often not properly processed, has a high percentage of broken grain, and usually includes foreign matter such as stones and debris. Local rice is consumed for several reasons: it is cheaper, and it possesses some attributes that make it a vital component in local delicacies (Bamidele et al, 2010).

2.3.2.4 Negatives of Rice Importation

The importation of rice has a more negative effect on the economy. Excessive importation of rice makes life difficult for small scale farmers as it worsens their poverty level. The cost of production the small scale farmers incur is high when compared to the foreign counterparts who enjoy benefits of subsidies and grants from the government of their country. The small scale farmers make little or sometimes no profit.

This excessive import of rice into the country increases poverty in the country as local producers of rice who are unable to cope with the high production cost might end up leaving the business and sometimes they will become unemployed which will, in turn, increase the poverty level in the country. However, the country where rice is being imported from will enjoy having more employment opportunities which will make their economy better off. More producers exiting the rice industry contribute to poor rice manufacturing and dependence on exported rice, which can also contribute to food insecurity. Rice import dependency does not allow sustainable development in the country and if not properly checked can cause dumping of poor quality or expired rice into the country. Globally, emerging nations like Nigeria have little or no say concerning the prices of milled rice, they are price takers and not price makers. The huge level of imported rice also makes it difficult for domestic producers to compete with their foreign counterpart favorably.

2.3.2.5 Nigeria's Rice Trade Policy (1980s- 2009)

Rice is a very significant commodity in Nigeria and its supply is increasing, and domestic manufacturing is unable to satisfy this large requirement, which has become a significant problem in national food security. According to estimates, more than 90% of domestic production comes from small scale farmers. The government of Nigeria aims to achieve self-sufficiency in Rice production and has introduced a different trade policy instrument. The policies are import tariff, import restrictions, outright ban on rice importation as well as setting up special presidential Committees on the product (Damola 2010).

In the 1960s Nigeria became almost 99% self-sufficient in domestic production of rice. Self-sufficiency reduced to 38 percent after two decades, (1970s – 1980s) leading to demand surpassing

supply. To supplement the 62 percent deficit, Federal Government of Nigeria resorted to massive importation of foreign rice (Imolehin and Wada 2000). In the post-ban period (1995 – present), the prohibition of rice was lifted of which an import duty of 120 percent was imposed on rice in the last administration (Liverpool et al 2009). In 2006, the duty was later reduced to 50 percent (Reuters 2007). It returned to 100 percent and was temporarily suspended in 2008 as a result of the high prices of cereal. Regardless of the fact that there are import duties and unstable rice import quantities, the importation of rice into Nigeria still remain positive.

Statistics from the European Association of Agricultural Economics (2005) cited by USAID (2009) show that Nigeria is the biggest importer of rice in West Africa with a median annual consumption of 1.6 million metric tons since 2000. Domestic production has been far lower than domestic demand, leading to large imports. Nigeria produced about 2 million MT of milled rice in 2008 and imported approximately 3 million MT, including the estimated 800,000 MT suspected of entering the country illegally on an annual basis. FAO (2010) declared that for the period of 2005 – 2007 Nigeria imported between 500,000 and 1 million tons of rice. However, in 2007 rice import bill of Nigeria was about $200 million and this significantly increased with the global price hike of 2008.

Increasing the import of rice has a negative effect on domestic production. The federal government placed a ban on rice imports in 1985 in order to save the domestic economy. The import ban was later removed as the local supplies could not be enough to meet up local demand. The table below shows Nigeria's rice trade policy between 1974 and 2009.

Table 1.7: Nigeria's rice trade policy (1974-2009)

Period	Policy measures
Prior to April 1974	66.6% tariff
April 1974 – April	1975 20%
April 1975 – April	1978 10%
April 1978 – June	1978 20%
June 1978 – October	1978 19%
October 1978 – April 1979	Import in containers under 50kg were banned
April 1979	Imports under restricted license only to government agents
September 1979	6 months ban on all rice imports
January 1980	Import license issued for 200,000 tons of rice
October 1980	Rice under particular import license without quantitative restrictions.
December 1980	The Presidential Task Force (PTF) on rice was established and used the Nigerian National Supply Company (NNSC) to grant allocations to clients and traders
May 1982	PTF commenced issuing of allocations directly to customers and traders in addition to those issued by NNSC
January 1984	PTF disbanded rice importation placed under general license restrictions
October 1985	Importation of rice (and maize) banned
July 1986	Introduction of SAP and the abolition of commodity boards to provide production incentives to farmers through increased producer prices
1995	100%
1996	50%
1998	50%
1999	50%
2000	50%
2001	85%
2003	100%
2005	110%
2007	100%
2008	0% for 6 months
2009	32.9%

Source: Federal Government Budget, 1984 – 1986, 1985 – 2000; USDA Foreign Agricultural

Service, GAIN Report. Nigeria Grain and Feed Rice Update in Damola (2010)

2.3.2.6 Opportunities in the rice subsector

There is increase in demand for rice in Nigeria due to the population growth which has given rise to opportunities across the rice value chain. There are array of opportunities available in the rice subsector in Nigeria, right from the cultivation stage to the stage of distribution, some of which will be briefly discussed below;

Inputs: Good access to farm inputs such as pesticides, fertilizers, credit facilities, improvement in the quality of seed etc can improve the quality as well as the quantity of yield produced. If rice manufacturing increases, it also means higher or better work possibilities for sectors and firms that are specialized in generating farm components required for rice manufacturing. This will also lead to the empowerment of many people into the rice sub-sector. Also, arable land will be cultivated for rice production which will also mean more opportunities for those who sell equipment and machines for rice production. Investment in rice inputs will lead to more employment.

Distribution: distribution of rice has to do with the movement from one place to another. Job opportunities will also be created in this sector because it is not only enough to produce rice but there will be need to move it to different part of the country.

Milling: majority of rice produced domestically is by cottage mills. These mills do not produce high quality rice, the rice produced is not always free from impurities. Nigerians have preference for good quality rice. In order to meet up with this good quality rice, integrated rice mills should be established sin different part of the world so as to produce good quality rice that can compete favorably with imported rice.

Restaurant/catering business: This is also another job opportunity available in the rice sub sector. Rice is the major staple food consumed in Nigeria. Restaurants and caterers make money from rice, they use it to prepare some meals such as jollof rice, fried rice, and coconut rice e.t.c.

2.3.3 Dutch Disease

The word was invented by The Economist in 1977 to define the decrease of the manufacturing sector in the Netherlands after the finding of the big natural gas field in Groningen in 1959. In economics, the Dutch disease is the obvious causal relationship between a rise in the economic development of a particular industry (e.g. oil industry) and a decrease in other industries

(e.g. production industry or agricultural industries). As income increases in the increasing industry, income from other industries reduces, it can also be referred to as any growth that occurs in a big influx of foreign currency, including a strong rise in natural resource prices, foreign assistance and foreign direct investment. According to the development economics handbook, the Dutch disease is described as "the deindustrialization of the economy of a nation that happens when the finding of a natural resource increases the importance of the currency of that nation, rendering manufactured goods less competitive with other countries, reducing prices and reducing revenues."

2.4 THEORETICAL REVIEW

This section looks at theories that try to explain the concept of the rice market and economic growth.

2.4.1 Theories on Trade

2.4.1.1 Theory of Absolute Cost

In his 1776 work, "An Inquiry into the Nature and Causes of the Wealth of Nations," Adam Smith was the first economist to bring up the concept of absolute advantage, and his arguments concerning the same supported his theories for a laissez-faire state. According to Adam Smith, who is regarded as the father of modern economics "countries should only produce goods that they have an absolute advantage in". A state is said to have an absolute advantage if the nation is able to generate a product at a reduced price than another. Furthermore, this implies that fewer funds are required to provide the same quantity of products as the other nation. This effectiveness in manufacturing generates a "complete benefit" which enables profitable trade.

In economics, absolute advantage refers to the capacity of any economic agent, either an individual or a group, to produce a larger quantity of a product than its competitors. It is described as an absolute advantage as a certain country's intrinsic capability to produce more of a commodity than its global competitors. Smith also used the concept of absolute advantage to explain the international market's gains from free trade. He prophesied that the complete benefits of nations in distinct commodities would assist them benefit concurrently through sales and imports, rendering unrestricted international trade even more significant in the worldwide financial structure.

Smith refers the same values of cost of chance and expertise to international economic policy and the concept of international trade. He describes that it is easier to export products from overseas where they can be produced more efficiently because this enables the importing nation to place its funds on its own most efficient sectors. Smith thus emphasizes that a technological distinction between countries is the main determinant of international trade worldwide.

2.4.1.2 Theory of Comparative Advantage

The law of comparative advantage is ascribed in 1817 to the English political scientist David Ricardo and his study "On the Principles of Political Economy and Taxation," although it is probable that the study was initiated by Ricardo's mentor James Mill. The classic model of international trade is popularly recognized as the Theory of Comparative Costs or Advantage, it seeks to clarify how and why nations benefit by trading. The concept of a relative price benefit was the consequence of the deficiencies found by Ricardo in the complete price benefit rules of Adam Smith.

Ricardo said that other items being equivalent, a nation continues to specialize in and exchange those commodities in the manufacturing of which it has the highest relative price benefit or the minimum relative benefit. Similarly, exports from the country will be products with comparatively less relative price benefit or higher benefit. David Ricardo thought that international trade was controlled by the relative price benefit rather than the actual price benefit.

His contribution is based on the concept of opportunity cost which exists because production resources must be shifted from the other product to this product. A nation will export the products and facilities it can generate at small opportunity cost and transport the products and facilities it can generate at elevated opportunity cost. The major word in this theory is comparative meaning relative and not absolute. Suppose India generates high-cost pcs and rice while Japan generates both commodities at small price. It does not imply that Japan will specialize in both rice and electronics, and India will have nothing to export. If Japan can manufacture computers at a comparatively lower price than rice, it will decide to specialize in software manufacturing and export and India, which has less relative price benefit in rice manufacturing than machines will decide to specialize in rice manufacturing and import it to Japan in return for electronics.

2.4.1.3 Heckscher- Ohlin theory

The Heckscher–Ohlin theorem was developed by Swedish economist Eli Heckscher and Bertil Ohlin (his student). It is one of the Heckscher – Ohlin model's four critical theorems. In the two-factor scenario, it says: "A capital-abundant nation will export the capital-intensive good while the labor-abundant nation will export the labor-intensive good."

The Heckscher – Ohlin model's critical hypothesis is that the two nations are identical, except for the distinction in energy endowments. This also means that the aggregate attitudes are the same. The comparative lack of resources will trigger the capital-abundant nation to generate the capital-intensive product better than the labor-abundant nation and vice versa.

2.4.2 Theories of Economic growth and Development

2.4.2.1 The classical theory

The first components of economic growth theory refer to the classical writers Adam Smith, Th. Malthus and David Ricardo. They considered the evolution of the economy dependent on two factors: the land (with a limited character), and the labor force, respectively, population (increasing). According to Adam Smith, the determining aspect of manufacturing development is population growth, alternatively, of the number of employees (the wage per employee remains continuous).

According to Malthus' understanding, economic growth includes the reinvestment of the excess but is restricted by population growth. According to his hypothesis, the financial balance is reached when the wage is below the subsistence level, at which point the work bid is no longer performed at the same rate.

In Ricardo's principle, the property is not a forming variable but also a cause of lease for holders, equity is a replacement for the labor and not an aspect of productivity growth. The excess reinvestment is restricted by the land's declining output. For D. Ricardo, the effect of the introduction of technical progress is jobs decrease. Karl Marx considers that the origins of growth are in the formation of capital; the growth is limited in time, because of the tendency of the rate of profit to decrease.

2.4.2.2 Endogenous growth theory

The endogenous growth theory supports the stimulation of growth level and growth rate of per capital output through economic policies such as tax policies. The theory proposes that the driver of economic growth is fundamentally the result of endogenous factors and not external factors (Roma, 1994). The endogenous growth theory further argues that economic growth is generated from within an enhancement if a nation's human capital will lead to economic growth by means of the development of new forms of technology and efficient and effective means of production which are not disrupted by taxes. Endogenous growth models look similar to the neoclassical ones, but they differ significantly in initial assumptions and conclusions (UN, 2011). Endogenous growth theory overcomes this shortcoming of neoclassical theory. First of all, they reject the neoclassical premise of diminishing marginal productivity of capital, assume the possibility of production scale effect throughout the economy, and often focus on the impact of external effects on the profitability of investments. Positive externalities act as an important prerequisite.

The endogenous growth theory can be divided into two groups. The first group includes theories in which human capital emerges as an important determinant of economic growth. These are the theories of P. Romer (1989b) and R. Lucas (1988). In the second group of theories, R&D is a key factor of growth. So, the theory of J. Grossman (1953 – till now) and E. Helpman (1946 – till now) describes the effect of endogenous high-tech innovations to economic growth rates (UN, 2011).

A key factor in the endogenous growth theory of Paul Romer is the variable called "knowledge" or "information". It assumes that the information contained in the inventions and discoveries are available to everyone and can be used at the same time. The basic idea of the theory of Romer is as follows: "there is an exchange between consumption today and knowledge that can be used for the expansion of consumption tomorrow." He formulates the idea as "research technology," which produces "knowledge" from the past consumption. Thus, the rate of economic growth is in theory of Romer directly dependent on the value of human capital, focused in obtaining new knowledge.

2.4.2.3 Harrod-Domar Growth Model

This theory was named after two famous economists, Sir Roy Harrod of England and Professor Evesey of United State of America who independently formulated the model in the early 1950's.This basic model assumes that it is a closed economy and that there is no government, no depreciation of existing capital so that all investment is net investment, and all investment (I) comes from savings (S). The model describes the economic mechanism by which more investment leads to more growth. For a country to develop and grow, it must diver part of its resources from current consumption needs and invest them in capital formation. Diversion of resources from current consumption is called saving. While saving is not the only determinants of growth, the HarrodDomar model suggests that it is an important ingredient for growth. Its argument is that every economy must save a certain proportion of its national income if only to replace worn-out of capital goods. The model shows mathematically that growth is directly related to saving and indirectly related to capital output ratio.

The simplified version of the famous Harrod – Domar equation in the theory of economic growth implies that the rate of growth of GNP ($\Delta y/y$) is determined jointly by the national saving ratio, S, and national capital/output ratio, k. More specifically, it says that the growth rate of national income will directly or positively be related to saving ratio (the more an economy is able to save-and invest-out of given GNP, the greater will be the growth of that GNP) and inversely or negatively; relate to the economy's capital/output ratio (the higher the K, the lower will be the rate of GNP growth). In order to grow, an economy must save and, therefore invest, a certain proportion of their GNP. According to Bakare (2011), the more an economy can save, the more it can grow for any level of the rate of growth depends on how productive the investment is.

2.4.2.4 Balanced vs unbalanced growth theory

In macroeconomics, balanced growth is usually associated with constant returns to scale. For most development economists, the term is more strongly associated with increasing returns, and a debate that began with Rosenstein-Rodan (1943). He argued that the post-war industrialization of Eastern and South-Eastern Europe would require coordinated investments across several industries. The idea is that expansion of different sectors is complementary, because an increase in the output of one sector increases the size of the market for others. A sector

that expands on its own may make a loss, but if many sectors expand at once, they can each make a profit. This tends to imply the need for coordinated expansion, or a "Big Push", and potentially justifies a role for state intervention or development planning. Another influential contribution by Nurkse (1953) made similar points, giving more emphasis to the links between market size and the incentives to accumulate capital.

The Balanced growth theory has been criticized by notable scholars and consequently, they formulated the unbalanced growth theory. Notably, Hirschman (1958) asserted that concurrent, timely expenditure demanded too much from emerging nations. He saw growth as a completely unbalanced vibrant system in which consecutive disorders generate circumstances for development in other industries. Unbalanced growth could happen either through forward and backward linkages with downstream and upstream sectors or through the development of latent capacity required for development, such as the implementation of entrepreneurial abilities.

2.5 Review of Empirical Literature

This section looks at some empirical studies and their respective methodologies used in previous related studies on inquiring into the rice market in Nigeria. The choice of the reviewed literature is due to the fact that they have similarities with this study.

The literature on the Rice market in Nigeria is scarce and few existing studies have examined the study differently.

Using analysis of variance to test the data and Duncan Multiple Range test (Duncan, 1955) to compare the difference among the means, J.A. Adeyeye, E.P. Navesero, O.J. Ariyo and S.A Adeyeye (2010) Investigated the consumer preference for rice consumption in Nigeria, they came up with the conclusion that most Nigerians prefer imported rice to locally produced rice because of some certain characteristics it has and that to improve the consumer acceptance of Nigerian rice, such characteristics should be given a priority in any rice improvement program.

Akaeze (2010) maintained that, Nigeria is the highest consumer of rice within the West African sub-region. He further argued that the quality of rice production mostly imported into Nigeria is far better than the rice produced locally. That is to say that the consumption of

imported rice over locally produced rice to some individuals is a habit while to some others is due to quality preference.

A.S.Ajala and A.Gana (2015) worked on Analysing the Challenges Facing Rice Processing in Nigeria. The paper revealed that there is need to improve the quality of local rice to compete with foreign rice and that the government should form strong policies that will favour production of local rice.

Olaf Erenstein, Frederic Lançon, Olu Osiname and Mohamed Kebbeh (2004) worked on operationalizing the strategic framework for rice sector revitalization in Nigeria. Findings from this study revealed that the only sustainable and socially acceptable way forward is to enhance the competitiveness of local rice against imported rice – both in terms of quality and price. This calls for improving quality management and increasing efficiency along the entire marketing chain. The present document has outlined a number of activities to operationalize the strategy to tackle these challenges.

Terwase, I. T. M., & Madu, A. Y. (2014) studied the impact of rice production, consumption and importation in Nigeria. The article argues that the state must make intentional efforts to put in location excellent measures to enhance its agricultural foundation, especially in rice manufacturing. This will not only replace its import and national use, but also exchange. This will increase foreign earnings and complement the country's economic growth and development.

A study carried out by Godwin Akpokodje, Frederic Lancon and Olaf Erenstein (2001) on the topic "Nigerian rice economy" indicated that there is no clear policy position undertaken in terms of how to develop the rice economy, the policy that affects the rice economy is inconsistent and based on short term views.

Asiru Monday Abbas, Iye Gloria Agada, Olaoluwa kolade (2018) analyzed the impacts of rice importation on Nigeria's economy and recognized inconsistency in policy as the major hurdle to the improvement in the rice sector. They proposed that here should be consistent and friendly policies in the rice sector so as to attract investors.

Biyi Daramola (2005) carried out a study on government policies and competitiveness of Nigerian rice economy. The study showed that the government of Nigeria is doing well in improving domestic production of rice but a lot still needs to be done to make the rice market of

Nigeria to be internationally competitive. Government should revisit its policies pertaining to agricultural inputs in order to achieve success in rice self-sufficiency.

In the study carried out by S.B fakayode, O.A Omotesho and A.E Omoniwa (2010) on "economic analysis of rice consumption pattern in Nigeria", a two stage sampling technique was used. It was ascertained that an effort to increase rice production with standard processing facilities should be made so as to produce quality local rice that can compete favourably with foreign rice.

Frederic Lancon (2003) worked on Rice processing in Nigeria: a survey. The survey shows that it is worth investing in improved technology to enhance the appearance and cleanliness of the local rice to match imported rice standard, it revealed also that getting improved technology is not easy as there is a major constraint of accessing the huge capital needed to get it

Bello .M, Madza .T, and Saror S.F (2011) analysed the Nigerian youth involvement in rice production. They used two stage purposive sampling technique and descriptive statistics to analyse data. The findings from this study shows that the major constraint faced by youth in rice production were inadequate capital, farm inputs and farming land. The study also recommended that improvements should be made by the government to ensure capital provision for the youths to ensure greater productivity.

Evans S. Osabuohien, Uchechukwu E. Okorie, Romanus A. Osabohein (2018) in their study looked at rice production and processing constraint in Ogun state. The study finds that finance is a major constraint that affects rice production and processing.

Frederic Lancon and Helene david benz (2007) exploiting the inconclusiveness from other studies examined the effect of rice import in west Africa the result of this study indicated that consumers are willing to pay high price for imported rice which has superior quality against domestic rice with inferior quality. The study also identified that the fact that domestic rice has not been competing favourably is not just due to the cost constraint the farmers experience but the major problem from domestic rice comes from the post-harvest period which does not allow the quality to match with imported rice.

Nkang, N. M., Abang, S. O., Akpan, O. E., & Edet, E. O. (2006) investigated the connection between rice production, imports and food security in Nigeria using co integration and error correction model. The study concluded that efforts to reduce rice imports should not only rely on

increasing domestic rice production but trade agreements between Nigeria and its trading partners to restrict rice imports to a level that will not lead to food insecurity.

Emodi and Dimelu (2011) observed that putting a ban in place on the importation of rice in Nigeria by the government will be an encouragement to the producers of local rice.

Oluyemisi Kuku shittu (2013) carried out a study to determine the policy options for accelerated growth and competitiveness of the domestic rice economy in Nigeria. Restriction of import alone is not effective to stimulate large supply response in rice production, technological change and market improvement should be focused on as it appears more promising in achieving rice self-sufficiency in the country.

A.O.S Ayanwale, U.O Akinyosoye, S.A Yusuf, A.O Oni (2011) examined empirically the rice supply response in Nigeria using an error correction model in a co integration framework to test the variables. The study revealed that rice supply in Nigeria is not responsive to price, climate, import, trade regulation policy but it is responsive to area cultivated and fertilizer consumption.

2.6 Gap in Literature

In a nutshell, it is evident that several researchers have examined the rice market in Nigeria, there are conflicting findings from the reviewed literature. Further, there are also some variations in the results of the empirical results of these studies, some revealed that the major problem of the domestic rice is the poor quality while others were of the opinion that there is no good policy in place to encourage rice production, some other researchers believed that inadequate funds and low level of technology in the country is a major constraint to rice production in Nigeria.

However most of the available studies are not updated, there is no comprehensive work on the rice market in Nigeria, the present study fills the gap and provides empirical analysis of the rice market in Nigeria as well as provide possible policy recommendations based on the result of this research work.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the general methodology applied in undertaking this study. Research methodology is the procedural plan that is adopted by the researcher in order to carry out the study. The research design, method of data collection, method of data analysis, model specification, estimation technique and operationalization of variables will be undertaken.

3.2 Research Design

Research design refers to the structure and plan for examining the relationship between the variables of the study based on historical data. In the course of this study, the *ex-post facto* research design will be used, which is based on secondary data collected from federal office of agriculture (FAO). The major function of this Ex-post-facto design is to observe the dependent variable at occurrence of the independent variable (Ogwuru, 2014). The *ex-post facto* design involves the collection of secondary data through articles, journals, annual report etc. It is appropriate because the study is based on time series data and also intends to investigate the strength of relationship between two or more economic factors on which design is based.

3.3 Theoretical Framework

This section of the methodology contains which theory this research is based on. The theoretical framework of this topic is the theory of comparative advantage. Ricardo stated a theorem that, other things being equal, a country tends to specialize in and export those commodities in the production of which it has maximum comparative cost advantage or minimum comparative disadvantage. Similarly, the country's imports will be of goods having relatively less comparative cost advantage or greater disadvantage.

3.4 Method of Data collection

Secondary data are data that have been used for previous studies and are available in written and storage format. In this study, secondary data is used, covering the period of 1999- 2018. Data

was collected from various sources on the following variables: domestic rice production, domestic rice consumption, GDP, consumer price index (CPI), and others.

The data sources included: Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics, and annual abstract of statistics of the federal office of statistics: Trade year book was collected from the federal office of agriculture (FAO).

3.5 Method of Data Analysis

The data collected for this study was analyzed using E-view 10 software. Findings from the study are reported using inferential statistical method in order to report the result of the hypothesis tested in the study.

3.6 Model Specification

Based on the theoretical framework for the study and some empirical literature reviewed, the empirical model for objective one is presented below;

GDP = f (QTYRI)…………………………………… (1)

Where GDP and QTYRI are Gross domestic product and quantity of rice imported. According to this equation, the growth rate of the gross domestic product depends on the quantity of imported rice. In the theoretical and empirical literature on the analysis of macroeconomic determinants of economic growth, econometric literature points to a number of robust and important long term variables. For simplicity, this study will include consumer price index, population and labor force

$GDP = a + b_1 QTYRI + b_2 CPI + b_3 POP + b_4 LF + u$……….. (2)

The equation 2 above shows that Gross domestic product is a function of quantity of rice imported, consumer price index, labor force, and population. It shows that Gross domestic product depends on these variables and if there are changes in these variables it will affect the level of domestic production either positively or negatively.

Furthermore, in order to obtain an econometric model used in accessing the effect of rice importation on domestic production of rice, the econometric function is specified below

DRPROD = f (QTYRI)………………………. (3)

From theoretical and empirical literature on the analysis of determinants of domestic production of rice, the literature points to a number of several important variables. To take into account the objective in this section of the study, this study will include Total import value, Agricultural labor force, and domestic rice consumption. Therefore in line with argument, an econometric presentation of the equation is specified as follows:

$$DRPROD = a + b_1QTYRI + b_2IMPVAL + b_3ALF + b_4DRCONS + u ………….\ (4)$$

In order to investigate if there is a bi-causal relationship between rice importation and economic growth which is the objective (3), the Pairwise Granger causality test will be applied. $GDP = f$ (QTYRI)

OR

$QTYRI = f$ (GDP)

3.7 Measurement and Sources of Variables

The data required for the purpose of this study will cover the period from 1999 to 2018. The table below shows the variables, Types and sources, measurement of data collected for the purpose of this study

S/N	VARIABLES	TYPES	MEASUREMENT
1	GDP	Dependent	Gross Domestic Product in (N Billions)
2	DRPROD	Independent	Total domestic production in (MMT)
	IMPVAL	Independent	Total imported value in (MMT)
4	POPUL	Independent	Total population in (Billions)
5	CPI	Independent	Consumer price index (CPI) in %
7	EXTRES	Independent	

3.8 Estimation Technique

Ordinary Least Square (OLS) technique will be used to determine the effect of rice importation on economic growth in Nigeria, with Real GDP as the dependent variable and other determinants prominently Rice importation as independent variables, all to achieve the specific objectives of the study. OLS is chosen because it minimizes the error sum of square and has a number of advantages which includes unbiasedness, consistency, minimum variance and sufficiency; it is widely used and simple and easy to understand.

CHAPTER FOUR

PRESENTATION AND ANALYSIS

4.1   Introduction

This chapter reveals the descriptive summary of the variables of interest, correlation matrix, unit root test result and co integration relationship of the variables, empirical testing and integration of findings from the model put forward as well as testing of the research hypothesis. The method of analysis employed the Phillip-Perron unit root test, Johansen Co integration test and the Fully Modified Ordinary Least Square method of analysis.

4.2   Presentation of Results

This section concerns itself with the presentation of the results of data analysis carried out in the research to evaluate the effect of rice importation on economic growth in Nigeria.

4.2.1 Descriptive Analysis

This sub-section presents a descriptive analysis of the variable used. These descriptive statistics reveals the trend and average values of the variables used in this research work.

Table 4.1: Descriptive Summary

	LNGDP	LNDRPROD	IMPVALR	CPI	LNESTRES	LNPOPUL
Mean	31.43117	7.709022	19.20808	93.21302	23.94619	18.83063
Median	31.53785	7.718812	12.55000	83.38703	24.22444	18.83444
Maximum	31.87638	7.964503	17.95479	214.2321	24.70480	19.06719
Minimum	30.74333	7.409136	1.862130	27.93258	22.45487	18.59738
Std. Dev.	0.393378	0.154632	5.203670	53.19171	0.729784	0.143725
Skewness	-0.558121	-0.065017	20.28680	0.697161	-0.880553	0.013786
Kurtosis	1.909210	2.288239	0.000039	2.596940	2.287173	1.871675
Jarque-Bera	2.029848	0.436261	499.4100	1.755495	3.008012	1.061565
Probability	0.362430	0.804021	8059.360	0.415718	0.222238	0.588144
Sum	628.6234	154.1804	26	1864.260	478.9238	376.6126
Sum Sq. Dev.	2.940185	0.454309	8059.360	53757.81	10.11911	0.392478
Observations	20	20	26	20	20	20

Source: Author's computation using E-views 10

Table 4.1 above shows the summary of the various descriptive statistics of all the variables used for the current study.

4.2.1.1 Mean*:* The mean is used to measure the average value of a distribution or what you expect to happen the next time you conduct a similar statistical experiment. The average values of Gross Domestic Product, logged domestic rice production, logged import value of rice, consumer price index and logged external reserves are 31.43; 7.70;29.30; 93.21 and 23.95 respectively.

4.2.1.2 Standard Deviation: Standard deviation measures the dispersion of the data set from the mean. It can be thought of as a measure of variability or risk. The larger values of standard deviation imply greater variability in the data. The standard deviation as revealed in table 4.1 above of LNGDP is 0.39; LNDRPROD is 0.15; LNIMPVALR is 0.44; CPI is 53.19; and lastly LNEXTRES has a standard deviation value of 0.73.

4.2.1.3 Skewness: Skewness is the measure of asymmetry in a distribution. When the distribution is mound-shaped symmetrical, the values for the mean, median and mode are the same or almost the same. For skewed-left distributions, the mean is less than the median and the median is less

than the mode. For skewed-right distributions, the mode is the smallest value, the mean is the next largest and the mean is the largest. LNGDP, LNDRPROD, LNIMPVALR and LNEXTRES with skewness of -0.56, -0.06, -0.76 and -0.88 respectively show that the distributions are negatively skewed and normally distributed since its value is approximately zero; CPI with skewness of -0.697 shows that the distribution is positively skewed and not normally distributed.

4.2.1.4 Kurtosis: This measures heaviness or lightness in the tails of the data distribution of the variables. The standard normal distribution has a kurtosis of 3. A positive value tells you that you have heavy-tails (a lot of data in your tails), while a negative value means that you have light-tails (i.e. little data in your tails). The kurtosis values of most of the variables help to conclude that the variables are platykurtic. LNGDP with kurtosis value of 1.90, which is largely less than 3 implies that the data distribution is very thin tailed and almost flat, while that of LNDRPROD with kurtosis value of 2.28 indicates a thin tailed distribution but not very flat. The other variables which include CPI and LNEXTRES are also thinly distributed with kurtosis values of 2.59 and 2.28 respectively and lastly, the LNIMPVALR data distribution is leptokutic with a kurtosis value of 3.08 indicating heavy tailed distribution.

4.2.2 Correlation Matrix

Table 4.2 Correlation Matrix

	LNGDP	LNDRPROD	IMPVALR	CPI	LNESTRES	LNPOPUL
LNGDP	1					
LNDRPROD	0.727736	1				
IMPVAL	0.605582	0.67894	1			
CPI	0.891708	0.52089	0.33133	1		
LNESTRES	0.846038	0.745514	0.8379	0.60434	1	
LNPOPUL	0.966717	0.628	0.48235	0.971681	0.7326	1

Source: Authors Computations using E-views 10

The table 4.2 above reveals the degree or strength of linear relationship between two variables on a scatterplot**.** From the values of the correlation coefficients presented above it can be concluded that gross domestic product which proxy economic growth in the data analysis is positively related to all

the explanatory variables which include logged domestic rice production, logged total import value, consumer price index and logged external reserves. The strength of relationship however varies from one variable to another with the correlation coefficient of GDP and DRPROD having a value of 0.72 the coefficient of correlation between LNGDP and LNIMPVALR having a value of 0.70. The linear relationship between CPI and LNGDP is somewhat strong with a coefficient of 89% and finally that of LNEXTRES having a high degree of relationship confirmed by the correlation coefficient of 0.85

4.2.3 Unit Root Test

Empirical work based on time series assumes that the underlying time series is stationary. This subsection reveals the nature of stationarity of the variables as concluded using the T-statistics of and P-value of Phillip-Perron unit root test.

Table 4.3: Stationarity Test using Phillip-Perron

Variables	Unit Root Test at level				Unit root test at first difference				Order of Integration
	T-statistics	Crit. Value (α = 0.05)	Pvalue	Decision	T Statistics	Crit. Value (α = 0.05)	P-value	Decision	
LNGDP	0.499028	-2.981038	0.8762	Non Stationary	-4.889975	-2.986225	0.0006	Stationary	1(1)
LNDRPROD	-2.192528	-3.029970	0.2149	Non Stationary	-8.195679	-3.040391	0.0000	Stationary	I(1)
LNIMPVALR	-3.042956	-3.029970	0.0488	Stationary	-5.327963	-3.040391	0.0005	Stationary	I(0)
LNPOPUL	-1.703545	-3.029970	0.4137	Non-Stationary	5.182639	-3.040391	0.0332	Stationary	I(1)
CPI	-1.553509	-3.029970	0.4858	Non Stationary	-3.422753	-3.040391	0.0197	Stationary	I(1)
LNEXTRES	-2.193819	-3.029970	0.2145	Non-Stationary	-3.069355	3.040391	0.0473	Stationary	I(1)

Source: Author's computation using E-views 10

The unit root test result shown above is generated using Phillip-Perron unit root test statistic and P-value respectively. A variable is said to be integrated of order d, (I(d)) if it is stationary after differencing d times (Engle and Granger, 1987). The result shows that all the variables are stationary after first difference except the LNIMPVALR which was revealed to be stationary at

level. The decision rule when using P-value is that the null hypothesis of unit root is rejected when the P-value is less than the level of significance. The implication of this result for the further analysis is that, the variables now being stationary are now fit to be used for the policy inference and forecasting.

4.2.4 Co integration Test 4.2.4 Bounds Test for Co integration

Testing for co integration is a necessary step to establish whether or not a model empirically exhibits meaningful long run relationships. Here, Autoregressive Distributed Lag co integration technique or bounds co integration testing technique is employed because it can be used regardless of whether the underlying variables are I(0), I(1) or a combination of both. See the results below; Table 4.4. ARDL Bounds Test for Co integration

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	3.845008	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37
			Finite Sample: n=35	
Actual Sample Size	18			
		10%	2.46	3.46
		5%	2.947	4.088
		1%	4.093	5.532

Source: Author's computations using E-views 10

4.2.5 Granger Causality Test

Pairwise Granger Causality Tests

Date: 07/23/19   Time: 10:55
Sample: 1999 2018

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNDRPROD does not Granger Cause LNGDP	18	0.41773	0.9799
LNGDP does not Granger Cause LNDRPROD		1.03715	0.3820
LNIMPVALR does not Granger Cause LNGDP	18	2.37152	2.35032
LNGDP does not Granger Cause LNIMPVALR		0.02038	0.9799
CPI does not Granger Cause LNGDP	18	3.68140	0.0541
LNGDP does not Granger Cause CPI		0.9877	0.3910
LNESTRES does not Granger Cause LNGDP	18	2.35032	0.1345
LNGDP does not Granger Cause LNESTRES		0.84005	0.41773
LNPOPUL does not Granger Cause LNGDP	18	3.84014	0.0489
LNGDP does not Granger Cause LNPOPUL		0.01239	0.9877

4.2.5 Diagnostic Test

In this sub-section, a variety of diagnostic statistical tests are applied, including tests for hetoreskedasticity, serial correlation test and normality test.

4.2.5.1 Serial Correlation Test

The Breusch-Godfrey serial correlation LM test for autocorrelation in the errors in a regression model. It makes use of the residuals from the model being considered in the regression analysis, and a test statistic is derived from these

Table 4.5: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.215321	Prob. F(2,13)	0.3282
Obs*R-squared	3.150408	Prob. Chi-Square(2)	0.2070

Source: Author's computation using E-views 10

Table 4.9 above concludes using the Prob Chi-Square (2) value of 0.2070 which is greater than the 5% level of significance, and the decision rule implies that the null hypothesis (H_0) will be reject at a 95% confidence level.

4.2.5.2 Heteroskedasticity Test

It is used to test for heteroscedasticity in a linear regression model and assumes that the error terms are normally distributed. It tests whether the variance of the errors from a regression is dependent on the values of the independent variables.

Table 4.6

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.123294	Prob. F(4,15)	0.3824
Obs*R-squared	4.609999	Prob. Chi-Square(4)	0.3297
Scaled explained SS	2.246264	Prob. Chi-Square(4)	0.6906

Table 4.10 above concludes using the Prob Chi-Square (4) value of 0.3297 which is greater than the 5% level of significance, and the decision rule implies that the null hypothesis (H_0) will be rejected at a 95% confidence level

4.2.5.3 Normality Test

In statistics, Normality test in statistics, normality tests are used to determine whether an information collection is well-modeled by a normal distribution and to calculate how probable it is to be normally distributed for a random variable containing the information set.

Series: Residuals	
Sample 1981 2016	
Observations 36	
Mean	1.05e-14
Median	-0.000207
Maximum	0.154453
Minimum	-0.165889
Std. Dev.	0.075637
Skewness	-0.045745
Kurtosis	2.590832
Jarque-Bera	0.263684
Probability	0.876479
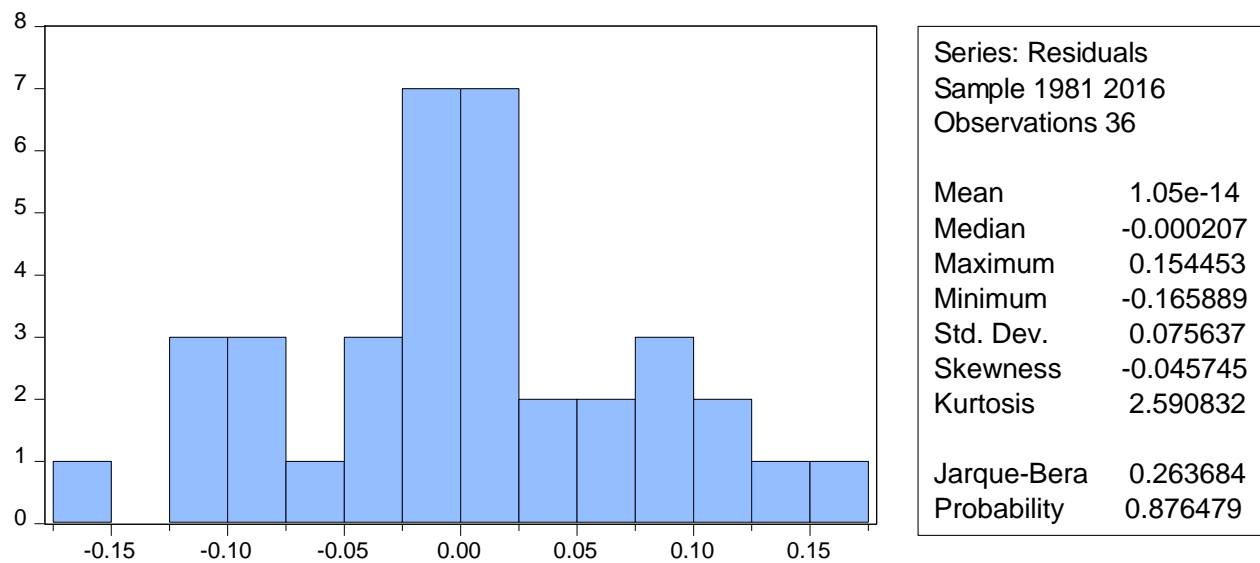
Figure 4.1 above reveals that the Jarque Bera Probability value is 0.876479 which is more than the 5% level of significance and the decision rule suggests that we accept the null hypothesis (H_0) that the error term has an asymptotic normal distribution.

4.2.5 Estimation with Ordinary Least Square (OLS)

The summary of OLS estimation result presented in Table 4.5 reveals that consumer price index logged external reserves and logged population is statistically significant at 5 percent since their individual p-value is less to 0.05 but domestic rice production and import value are statistically insignificant. Also, all the significant explanatory variables confirmed with their expected sign. The adjusted R-square of 0.988 indicated that the explanatory variables (logged domestic rice production, logged total import value,

consumer price index and logged external reserves) explained 98.8 percent changes in economic growth in and other explanatory variables not modeled explained 1.2 percent. Thus, the goodness of fit of this model is adequate with high predictive power.

Table 4.7 OLS Output

Dependent Variable: LNGDP Method:

Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNDRPROD	0.150040	0.124067	1.209339	0.2466
LNIMPVALR	-0.129778	0.328616	-5.987699	0.0314
CPI	-0.004037	0.001431	-2.821874	0.0136
LNESTRES	0.120715	0.046148	2.615827	0.0203
LNPOPUL	3.693995	0.613974	6.016528	0.0000
C	-39.39437	10.42433	-3.779078	0.0020

R-squared	0.986311	Mean dependent var		31.43117
Adjusted R-squared	0.981423	S.D. dependent var		0.393378

Source: Author's computations using E-views 10

Specifically, 1 percentage increase in domestic rice production induces 0.17 percent drop in real gross domestic product in the long run while a one percentage increase in import value induces 0.08 percent fall in real gross domestic product in the long run. This implies that importation causes contraction in the national income and acts as a leakage from the economy, on the other hand, domestic rice production positively affects the economy, but not significant as revealed in the OLS estimation result. Furthermore, 1 percent increase in consumer price index, a measure of inflation induces 0.04 percent fall in real gross domestic product. It is the priority of policy makers to ensure price stability and the negative impact of inflation is well revealed in the analysis as the price index goes up, so does the economy contracts

significantly. Also, the external reserves were revealed to have a positive impact on the economy as the result of the analysis shows that a one-unit increase in the reserves, the economy will improve quantitatively and significantly by 0.12 units. The population is also a major indicator of productivity in the economy and it has been included in the analysis to find out how increased birthrate and/or morbidity rate affects economic growth. The result of the analysis reveals that a one individual increase in population, the economy grows in terms of output by

3.69. This implies a positive impact of population.

Dependent Variable: DRPROD
Method: Least Squares
Date: 07/29/19   Time: 11:01
Sample: 1999 2018
Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIMPVALR	-23.4434	281.6341	0.793382	0.4392
EXTR	7.68E-09	8.17E-09	0.939333	0.3615
CPI	1.210172	1.319080	0.917436	0.3725
C	-4641.872	8048.332	-0.576750	0.5721

R-squared	0.523581	Mean dependent var		2253.696
Adjusted R-squared	0.434253	S.D. dependent var		347.0793
F-statistic	5.861305	Durbin-Watson stat		2.091818
Prob(F-statistic)	0.006722			

Source: Author's computation using E -views 10

As revealed above a 1 percentage increase in the importation of rice induces a 23.44 percent fall in domestic production in the long run. This implies that importation causes a contraction in the national income and acts as a leakage from the economy, on the other hand, domestic rice

production positively affects the economy, but not significant as revealed in the OLS estimation result.

4.3 Discussion of Findings

The discussion of findings will be based on the objectives of the study and the decisions as it pertains to the research hypothesis.

For Hypothesis One:

H_{01}: Rice importation has no effect on the GDP in Nigeria.

From the result as revealed in table 4.5, it shows that rice importation is a major macroeconomic factor impact the gross domestic product of Nigeria.

For Hypothesis Two H_{02}: Rice importation has no effect on domestic production of rice in Nigeria;

The Ordinary least square model 2 indicates that there exists a long-run relationship between the rice importation and domestic production of rice. The sign revealed from the estimation corresponds with the a priori expectation of the research that a negative impact is expected to flow from the importation in a sector with the value of production in that sector. The impact was however found insignificant and the null hypothesis of insignificant impact will be accepted at 5 percent level of significance.

For Hypothesis Three H_{03}: There is no bidirectional causal link, between rice importation and economic growth in Nigeria

From the table 4.5, granger causality test, revealed there is neither a bidirectional nor a unidirectional relationship between rice importation and economic growth.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter presents the summary, conclusions and recommendations of the study. The summary presents a brief overview of the research problem, research objectives, methodology and findings, the conclusions shows the overall outcomes regarding the findings of the study in light of the hypotheses. Furthermore, the chapter provides policy recommendations as well as the limitation to the study.

5.1 Summary of Findings

This research provides an empirical analysis of the effect of rice importation on the economic growth of Nigeria for the period between 1999 and 2018 employing various techniques of econometric analysis. In the course of the study, the main objective was to determine the effect of rice importation on economic growth in Nigeria. The study examined the trending behavior of rice importation, domestic production, value of export, population and inflation rate which are the component of rice market used to determine economic growth over the study period (1999-2018). The Ordinary Least Square (OLS) technique was employed to determine the impact of the independent variables on the dependent variable. Stationarity tests, Johansen-Jueslius cointegration tests, granger causality test and Phillip-Perron unit root test were used to test the hypothesis

5.2 Conclusion

This study sets out to determine the effect of rice importation on economic growth in Nigeria. For the attainment of the objectives, the study uses some economic indicators as measures which include total domestic production, imported value, external reserves, CPI, population and, inflation.

A major finding of this study is that government expenditure on the agricultural sector plays a significant role in achieving food security in Nigeria. This emphasizes the fact that

investment on rice production requires huge resources in terms of manpower development through extension services, provision of seed varieties, chemicals, research and development for innovation as well as social infrastructures. It is also useful to observe that the government agricultural credit policy has not generated a positive impact on total agricultural output, this combined with the increasing rate of inflation rate remained a threatening force in the path to sustainable food security.

5.3 Recommendations

Based on the results of this research, the following recommendations are presented as follows:

Firstly, to ensure efficient growth in the Nigerian economy, there is a need for the government to increase allocation towards the development of all the sectors in the economy rather than focusing on just one sector. The agricultural sector should be given priority to alongside and as rice is the major staple food, a very negligible percentage of the total budget should be allocated to it.

Secondly, In order to improve the performance of the economy, the government should ensure that price stability is maintained.

More so, the government should ensure that the Ministry of Food and Agriculture partners with private institutions to purchase modern rice processing equipment to aid domestic rice production and processing. Increase in quantity should not be the only focus but they should also try to increase the quality of the produced rice in order to make it more attractive to consumers.

Government should introduce a special package in the rice sector in the form of money to support smallholder rice farmers and the youths who may show special interest in rice production. This should be done in order to make the sector more attractive to majority of youth. When this is executed well, more youths will be attracted to rice farming, which will help to reduce the growing number of old age farmer in rice farming. It will also help reduce the level of youth employment in the country and at the same time providing more food for the country.

Finally, to ensure that the target of attaining rice self-sufficiency is achieved, there is need to redirect public expenditures towards making Nigeria a producer nation rather than a regular importer. This ought to be the central focus of fiscal objective.

5.4 Suggestion(s) For Further Studies

This study has only examined the effect of rice importation on the economic growth in Nigeria. Although, emphasis has been placed specifically on the impact of self-sufficiency in rice production on economic growth, this therefore provides a good basis for further studies. Other areas suggested for study includes;

Dutch disease and economic growth of Nigeria

Effect of rice importation on domestic production

Nexus – Rice import, consumption and production

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APPENDIX

Descriptive Summary

	LNGDP	LNDRPROD	IMPVALR	CPI	LNESTRES	LNPOPUL
Mean	31.43117	7.709022	19.20808	93.21302	23.94619	18.83063
Median	31.53785	7.718812	12.55000	83.38703	24.22444	18.83444
Maximum	31.87638	7.964503	17.95479	214.2321	24.70480	19.06719
Minimum	30.74333	7.409136	1.862130	27.93258	22.45487	18.59738
Std. Dev.	0.393378	0.154632	5.203670	53.19171	0.729784	0.143725
Skewness	-0.558121	-0.065017	20.28680	0.697161	-0.880553	0.013786
Kurtosis	1.909210	2.288239	0.000039	2.596940	2.287173	1.871675
Jarque-Bera	2.029848	0.436261	499.4100	1.755495	3.008012	1.061565
Probability	0.362430	0.804021	8059.360	0.415718	0.222238	0.588144
Sum	628.6234	154.1804	26	1864.260	478.9238	376.6126
Sum Sq. Dev.	2.940185	0.454309	8059.360	53757.81	10.11911	0.392478
Observations	20	20	26	20	20	20

Source: Author's computation using E-views 10

Table 4.2 Correlation Matrix

	LNGDP	LNDRPROD	IMPVAL	CPI	LNESTRES	LNPOPUL
LNGDP	1					
LNDRPROD	0.727736	1				
IMPVAL	0.605582	0.67894	1			
CPI	0.891708	0.52089	0.33133	1		
LNESTRES	0.846038	0.745514	0.8379	0.60434	1	
LNPOPUL	0.966717	0.628	0.48235	0.971681	0.7326	1

Unit root Test

Null Hypothesis: LNGDP has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-0.499028	0.8762
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

Null Hypothesis: D(LNGDP) has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.889975	0.0006
Test critical values:			
	1% level	-3.724070	
	5% level	-2.986225	
	10% level	-2.632604	

Null Hypothesis: LNDRPROD has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-2.192528	0.2149
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one -sided p-values.

Null Hypothesis: D(LNDRPROD) has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-8.195679	0.0000
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one -sided p-values.

Null Hypothesis: LNIMPVALR has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.042956	0.0488
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D (LNIMPVALR) has a unit root

Exogenous: Constant

Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-5.327963	0.0005
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

Null Hypothesis: LNPOPUL has a unit root

Exogenous: Constant

Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-1.703545	0.4137
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one -sided p-values.

Null Hypothesis: D (LNPOPUL) has a unit root

Exogenous: Constant

Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		5.182639	0.0332
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

Null Hypothesis: CPI has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-1.553509	0.4858
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

Null Hypothesis: D (CPI) has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-3.422753	0.0197
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

Null Hypothesis: LNEXTRES has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-2.193819	0.2145
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one -sided p-values.

Null Hypothesis: D(LNEXTRES) has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t -Stat	Prob.*
Phillips-Perron test statistic		-3.069355	0.0473
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one -sided p-values.

Co integration Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
S				
F-statistic	3.845008	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37
		Finite Sample:		
Actual Sample Size	18	n=35		
		10%	2.46	3.46
		5%	2.947	4.088
		1%	4.093	5.532
		Finite Sample:		
		n=30		

10%	2.525	3.56
5%	3.058	4.223
1%	4.28	5.84

Pairwise Granger Causality Tests

Date: 07/23/19   Time: 10:55
Sample: 1999 2018

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNDRPROD does not Granger Cause LNGDP	18	0.41773	0.6671
LNGDP does not Granger Cause LNDRPROD		1.03715	0.3820
LNIMPVAL does not Granger Cause LNGDP	18	2.37152	0.1324
LNGDP does not Granger Cause LNIMPVALR		0.02038	0.9799
CPI does not Granger Cause LNGDP	18	3.68140	0.0541
LNGDP does not Granger Cause CPI		1.01039	0.3910
LNESTRES does not Granger Cause LNGDP	18	2.35032	0.1345
LNGDP does not Granger Cause LNESTRES		0.84005	0.4538

	18	3.84014	0.0489
LNPOPUL does not Granger Cause LNGDP			
LNGDP does not Granger Cause LNPOPUL		0.01239	0.9877

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.215321	Prob. F(2,13)	0.3282
Obs*R-squared	3.150408	Prob. Chi-Square(2)	0.2070

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.123294	Prob. F(4,15)	0.3824
Obs*R-squared	4.609999	Prob. Chi-Square(4)	0.3297
Scaled explained SS	2.246264	Prob. Chi-Square(4)	0.6906
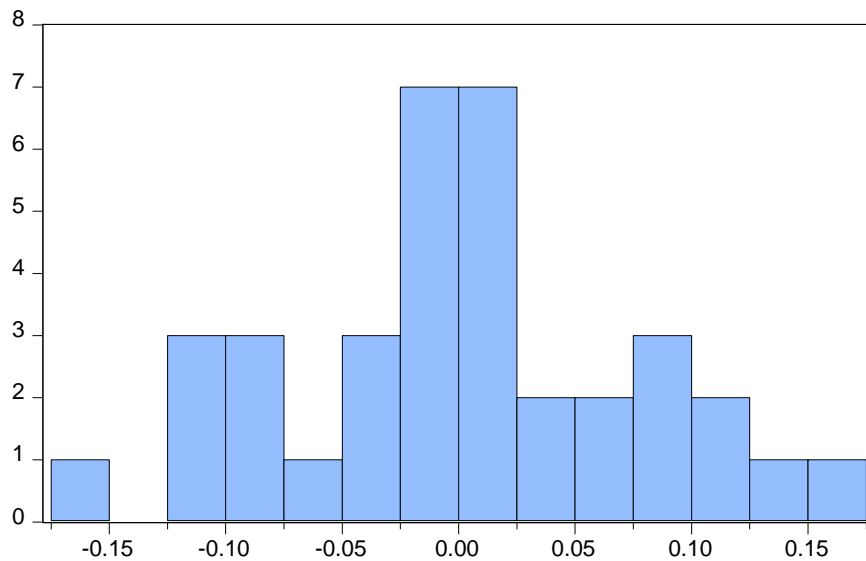
			Series: Residuals
			Sample 1981 2016
			Observations 36
			Mean 1.05e-14
			Median -0.000207
			Maximum 0.154453
			Minimum -0.165889
			Std. Dev. 0.075637
			Skewness -0.045745
			Kurtosis 2.590832
			Jarque-Bera 0.263684
			Probability 0.876479

Dependent Variable: LNGDP

Method: Least Squares

Date: 07/23/19   Time: 09:10

Sample: 1999 2018

Included observations: 20

Variable	Coefficient	Std. Error	t - Statistic	Prob.
LNDRPROD	0.150040	0.124067	1.209339	0.2466
LNIMPVALR	-0.082098	0.065616	-1.251199	0.2314
CPI	-0.004037	0.001431	-2.821874	0.0136
LNESTRES	0.120715	0.046148	2.615827	0.0203
LNPOPUL	3.693995	0.613974	6.016528	0.0000
C	-39.39437	10.42433	-3.779078	0.0020

R-squared	0.986311	Mean dependent var		31.43117

Adjusted R-squared	0.981423	S.D. dependent var	0.393378
S.E. of regression	0.053617	Akaike info criterion	-2.770580
Sum squared resid	0.040247	Schwarz criterion	-2.471860
Log likelihood	33.70580	Hannan-Quinn criter.	-2.712267
F-statistic	201.7509	Durbin-Watson stat	1.440864
Prob(F-statistic)	0.000000		

Dependent Variable: DRPROD

Method: Least Squares

Sample: 1999 2018

Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIMPVALR	-23.4434	281.6341	0.793382	0.4392
EXTR	7.68E-09	8.17E-09	0.939333	0.3615
CPI	1.210172	1.319080	0.917436	0.3725
C	-4641.872	8048.332	-0.576750	0.5721

R-squared	0.523581	Mean dependent var	2253.696
Adjusted R-squared	0.434253	S.D. dependent var	347.0793
F-statistic	5.861305	Durbin-Watson stat	2.091818
Prob(F-statistic)	0.006722		