Marshallian Uncompensated Demand: A Review of the Demand for Rice in Nigeria

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Abstract: In principle there is a relationship between consumer demand for rice and the price of rice. The paper examines the relationship between Marshallian demand for rice and attempt to plot a graph of same to ascertain the relevance of Marshallian demand assumption on the rice subsector in Nigeria. The study was conducted in Nigeria; secondary data was used for the study. The data set was analyzed using simple descriptive statistics. From the findings of the study there has been an upward trend in the demand of rice within the year under review (2011-2017) which may be attributed to increasing population and favorable government policy. Also, the rice subsector from the study did not completely obey the Marshallian demand assumption within the year under review, money income was assumed constant, and the increase in price of rice did not decrease the demand for rice the demand further increased. The study suggest that this may be because rice is one of the basic necessities of life just like wheat and medicine the study also suggest that it may be due to the increase in inflation rate.

Keywords: **Marshallian Demand, Rice, Price.**

1. INTRODUCTION

Rice accounts for over 20% of global calorie intake and has been an important food commodity for most people in sub-Saharan Africa particularly West Africa. In Nigeria, rice is the fourth most consumed crop in terms of calories (Cadoni and Angelucci, 2013). Nigeria's rice consumption is projected to reach 35 million tonnes by 2050 from 5 million tonnes in 2010, rising at the rate of 7% yearly (Ayanwale and Amusan, 2012). This trend is attributed to rising population growth, urbanization, and income growth, as well as changes in family occupational structures.

Nigeria annual production of rice is about 3million tonnes which is a far cry from her consumption level of 5-6 million tonnes (Ugwu, 2013). The short fall, according to Dangote, 2016 has seen the government spending about $1.8 billion in 2016 to import rice to meet her domestic requirement. Rice production however increased from 5.5 million tonnes in 2015 to 5.8 million tonnes in 2017 (Aminu, 2017). A combination of various factors seems to have triggered the structural increase in rice demand over the years with consumption broadening across all socio-economic classes, including the poor. Rising demand is as a result of increasing population growth and income level with resultant effect in an increase in the price of rice (GAIN, 2012). Rice is one of the most consumed staples in Nigeria, with consumption per capita of 32kg. In the past decade, consumption has increased 4.7 per cent, almost four times the global consumption growth, and reached 6.4 million tonnes in 2017 accounting for about 20 per cent of Africa's consumption.

In principle there is a relationship between consumer demand for rice and their prices. The law of demand states that, given all else being equal, as the price of a goods (rice) increases , quantity demanded of rice decreases; conversely, as the price of a goods (rice) decreases , quantity demanded of rice increases (Nicolas, 2012). This paper examines the relationship between Marshallian demand on rice consumption pattern and attempt to plot a graph of same to ascertain if the graph obeys the Marshallian demand curve. Marshallian demand function specifies what the consumer would buy in each price and income or wealth situation, assuming it perfectly solves the utility maximization problem. The utility maximization problem is the problem consumer's face: "how should I spend my money in order to maximize my utility?" given the fact that Nigeria market is faced by supply of both local rice and the foreign imported rice consumers then to want to maximize their utility subject to their budget constraint. According to this theory, people would not behave

irrationally or make any reckless decision that might hurt or devalue their property. Marshallian demand is sometimes called Walrasian demand or uncompensated demand function instead, because the original Marshallian analysis ignored wealth effects. Uncompensated (Marshallian) demand curve deals with how demand changes when price changes, holding money income constant. The wealth effect is the change in spending that accompanies a change in perceived wealth. Usually the wealth effect is positive: spending changes in the same direction as perceived wealth. People typically spend more overall when one of two things is true: when people actually are richer, objectively, or when people perceive themselves to be richer for example, the assessed value of their home increases, or a stock they own goes up in price.

1.1 Problem Statement

The Nigerian rice sector has witnessed some remarkable developments, particularly in the last ten years. Both rice production and consumption in Nigeria have vastly increased during the aforementioned period (Ojohoemon *et al*., 2009). However, the demand for rice has continued to outstrip production given the shift in consumption preference for rice especially by urban dwellers.

Rice production in Nigeria is plagued and epileptic, just like in most Africa countries (Awoyemi 2010). High cost of production as a result of increase in price of input, low farm income, low efficiency of resource utilization is some of the reasons that can be responsible for shortage in rice to augment local supply. Particularly, the land area under the cultivation of cereals has declined so tremendously due to reduction in size and technology of the farming population and poor soil fertility. Going forward the demand- supply gap tends to have an effect on the price of the rice in the market. The current Agricultural Promotion Policy (2016-2020) of Nigeria discourages the importation of rice and support local production. This has further widened the demand supply gap and hence a consequent increase in price which is obvious as demand outstrips supply. Also, the fluctuation of exchange rate in by the Federal Government of Nigeria 2016 and a consequent increase of the exchange rate from about ₦158 in 2015 to about ₦360 in 2018 to a dollar has indirectly led to an increase in general cost of production of rice as Nigeria economy is still import dependent also, an increase the price of rice in the market. Inflation rate has risen to about 15.6% in 2017 from about 9.01% in 2015(Statista, 2018) consequently an increase in the price of rice. The average price of 1kg of rice (imported high quality sold loose) increased year-on-year by 29.58% and month-on-month by 5.69%toN410.55 in May 2017from N388.46in April 2017(NBS, 2017). The demand for rice has been on the part of increase due to the increase the population with Nigeria population currently hovering around 198million (Duruiheoma, 2018). Minimum wage of Nigeria workers has been constant at ₦18,000 for half a decade now despite the cry from different pressure groups. It's against this backdrop that this study seeks to analyze the Marshallian demand curve of rice subsector in Nigeria.

1.2 Objectives of the Study

The main objective of the study is to analyze Rice Consumption in Nigeria given Marshallian Demand while the specific objectives were

1. Describe the trend of Rice production in Nigeria.

2. Plot the Marshallian demand curve in the study area.

2. METHODOLOGY

2.1 Study Area

Abuja is located in the centre of Nigeria and has a land area of 8,000 square Kilometers (Jaiyeola, 2016). It is bounded on the north by Kaduna state, on the west by Niger state, on the east and south-east by Nasarawa state and on the south-west by Kogi state. The area is located between latitude $8^055'52''$N, $9^014'34''$N and longitude $6^051'36''$E, $7^011'35''$E (Balogun, 2001). Abuja experiences two weather conditions in the year. These are the rainy season which begins around March and runs through October, the dry season (usually characterized by bright sunshine) which begins from October and ends in March. Within these periods, there is a brief period of harmattan occasioned by the north east trade wind, with a resultant dusty haze and intense coldness and dryness. During the rainy season daytime temperatures reach 28 °C (82.4 °F) to 30 °C (86.0 °F) and night time hover around 22 °C (71.6 °F) to 23 °C (73.4 °F). In the dry season, daytime temperatures can soar as high as 40 °C (104.0 °F) and night time temperatures can dip to 12 °C (53.6 °F). Crops grown in Abuja are millet, maize, sorghum, cowpea, groundnut, rice, eggplant among others. At the 2006 census, the city of Abuja had a population of 776, 298 (NPC, 2006) making it one of the ten most populous cities in Nigeria. According to the

United Nations, Abuja grew at the rate of 139.7% between 2000 and 2010, making it the fastest growing city in the world. As at 2016, the metropolitan area of Abuja is estimated at 6 million (Jaiyeola, 2016)

2.2 Method of data collection

Secondary data was used for the study. The data set was gotten from NBS, and other journals and publication

2.3 Method of data analysis

The analytical tool used in this study to achieve stated objectives was descriptive statistics. Descriptive statistics involving the use of mean, mode, range, percentages, graph, ratio among others was used. Statistical package for social science (SPSS 20) and Microsoft excel was used to analyze the objectives.

3. RESULTS AND DISCUSSION

3.1 Trend of Rice Production in the Study Area.

The graph below shows the trend in rice production within the year under review. From the graph rice production was 5, 690.2mT in 2011 and about 8, 277.7mT representing about 45.47% increase in rice production within the year under review. This might be attributed to Agricultural Promotion Policy documents which has as one of its mandate to ensure that Nigeria is food self-sufficient in rice production. Going forward we can identify other sister programs such as FADAMA, SRI, Anchor borrowers' scheme, private investment (OLAM and WACOT among others), relative availability of inputs and other projects being implemented in Nigeria. Also, the ban on rice importation by the federal government of Nigeria within the year under review. Going forward if this trend continues Nigeria might attain her food self sufficiency in no distance time.
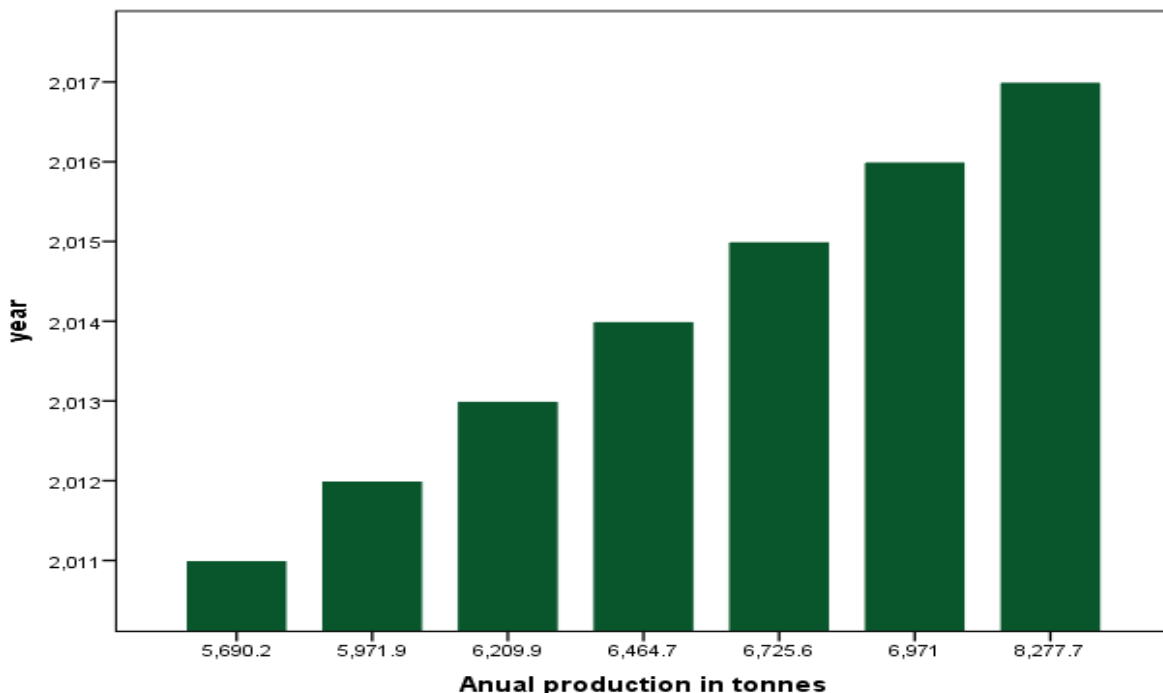

Figure 1: Bar chart of trend in rice production from 2011 to 2017

3.2 Plot of Marshallian Demand Curve

The graph below shows the demand curve of rice in the year under review. From the graph its can be seen that the rice consumption pattern in Nigeria within the year under review holding money income constant given a fixed minimum wage and an assumption that other prices are relatively constant did not completely obey the Marshallian demand assumption. Rice demand in Nigeria from the graph can be said to be exceptional as people tends to consume more even as price increases. This might be because rice is a basic food for majority of Nigerians. Also, likely due to closure all the land border to the importation of rice by the federal government of Nigeria. This resulted to artificial scarcity because the local production falls short of the demand; Hence it made more money and people to chase very essential commodity in

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the Nigerian space that is limited in supply. Going forward rice can be termed as necessaries of life like wheat, medicine among others therefore the demand may be considered inelastic. There was also an increase in the inflation rate in Nigeria rising to about 15.37% in 2017 from 10.3% in 2011 and all time high within the year under review of 18.55 (NBS, 2018).
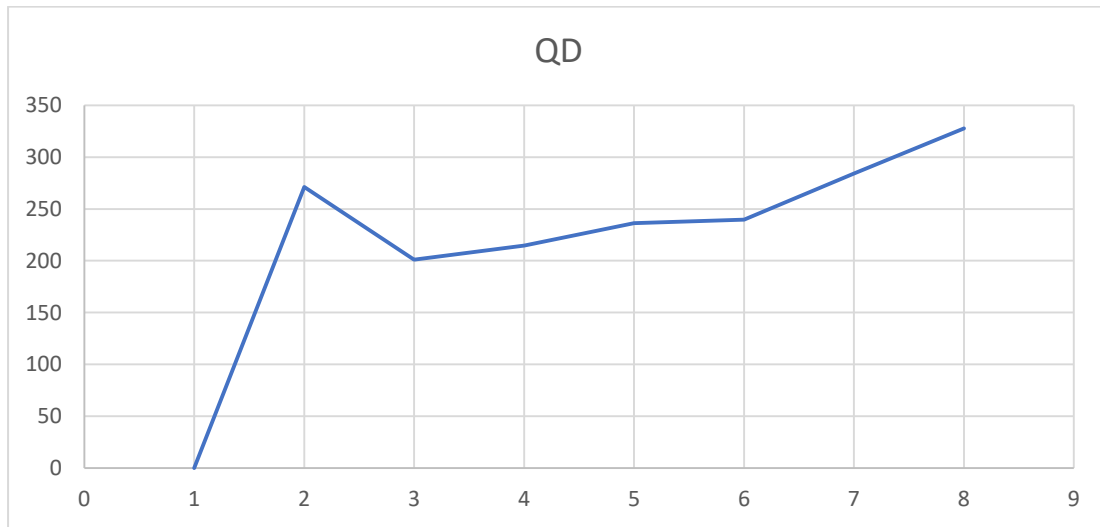

Figure 2: Graph of Marshallian Demand Curve of Nigeria Rice Subsector

4. RECOMMENDATION AND CONCLUSION

The paper examined the relationship between Marshallian demand for rice and attempt to plot a graph of same to ascertain the relevance of Marshallian demand assumption on the rice subsector in Nigeria. An individual's demand curve shows the relationship between how much an item cost and how much of it they will demand. The higher the price the less an individual will buy, which is why the demand curve slopes down. This simple observable relationship is the Marshalllian demand curve, if you want to predict how much people will buy at a given price; this is the curve you want. From the findings of the study there has been an upward trend in the demand of rice within the year under review (2011- 2017) which may be attributed to increasing population and favorable government policy. Also, the rice subsector from the study did not completely obey the Marshallian demand assumption within the years under review, money income was assumed constant, and the increase in price of rice did not decrease the demand for rice, the demand further increased. The study suggest that this may be because rice is one of the major source of calorie in Nigeria, the study also suggest that it may be due to the increase in inflation rate. Going forward the paper recommends that a consistent policy support by the government to increase rice production so as to bridge the demand gap and reduce the artificial scarcity.

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