

COVID-19 LOCKDOWN AND PRICE, AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY OF RICE IN AKURE METROPOLIS, ONDO STATE, NIGERIA

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Abstract

This paper assessed the effect of covid-19 lockdown on price of rice before, during and after covid-19 lockdown and examined the effect of the lockdown on price, availability and accessibility of rice in Akure Metropolis. Survey design, multistage sampling (proportionate stratified, purposive and random sampling) technique were used to select respondents from four major markets within Akure Metropolis. Structured questionnaire and personal interview were used to collect data. Data were analyzed with descriptive statistic. Hypothesis was tested with Analysis of Variance. The study revealed a significant difference in the price of rice before and after the lockdown, the price of rice went up by 31.25% when the COVID-19 lockdown started, continued to be high for about four months after the lockdown and went down thereafter due to relaxed mobility, reduction in transportation cost and low purchasing power. The paper recommends an intensive government policy decision, strategies and plans to help reduce the effect of pandemic on the price of rice and make rice to be readily affordable, reachable and available during any pandemic in Ondo State in particular and Nigeria in general with the aim of preventing food insecurity and attaining food sustainability.

Keywords: Accessibility; Affordability; Availability; Covid-19 Lockdown; Price; Rice

JEL Classification: E3: E30

1. Introduction

The discovering of COVID-19 pandemic in Wuhan, China, in December 2019 (Albulescu, 2020a; Salisu, Akanni & Raheem, 2020; Tan, Zhao, Ma, Wang, Niu, Xu, ... Wu, 2020) left the entire world into a feeling of uncertainty and fear of future happenings (Laguna, Fiszman, Puerta, Chaya & Tárrega, 2020). The nature of the ailment was at first not comprehended. It was perceived to be pneumonia until the virus started spreading to every part of the world in late February and early March. On the 11th of March 2020 the World Health Organisation announced a state of a pandemic (Laguna *et al.*, 2020) all over the world. The pandemic has had a devastating effect on the economy. In fact, three months after the outburst of the

pandemic, the economic growth of Sub-Saharan Africa was projected to go down from +2.4% in 2019 to between -2.1 and -5.1% in 2020 (Calderon, Kambou, Djiofack, Kubota, Korman, Canales, 2020), in consequent the region is expected to go into recession for the first time over two decades.

In order to reduce the number of people being infected by the virus, several countries in the world, Nigeria inclusive, announced lockdown. This led to the closure of informal and formal markets, falling incomes, constrained traveling, and stillness of majority of countries' economies (Cardwell & Ghazalian, 2020). Panic purchasing of food in several countries was noticed (Pu & Zhong, 2020; Yao, Zuo, Zuo, Lin, Huang & Zang, 2020), large quantity of food stuff was being purchased and in consequent the quantity of agricultural products being marketed dropped deeply (Pu & Zhong, 2020). The lockdown placed the food system under risk like never before and led to a rise in the number of people under malnutrition, poverty and hunger (World Food Programme (WFP), 2020), which are the first and second Sustainable development goals stipulated by United Nations (UN, 2015) to be overcome by the year 2030.

Rice is one of the main staple foods (grain) eaten in large quantity and almost on daily basis in Nigeria. This shows the extent to which rice availability, accessibility and affordability is necessary if food security and sustainability are to be attained in Nigeria. In those days, rice was largely imported into Nigeria. However, in the year 2015, the federal government of Nigeria banned the importation of rice into the country. The immobility within the country made it very difficult for rice and other agricultural products' producers to travel to their farms, there was shortage of labour and reduction in the supply of agricultural products to the markets and consumers. A lot of the local rice that is sold in Akure metropolis, Ondo State's markets are purchased in Mokwa, Niger State, Nigeria. COVID-19 lockdown greatly affected the purchase and supply of rice within and across states in Nigeria. Pu & Zhong (2020) warned that the present supply of stable food in their study area would not last long if the pandemic remains. This could threaten the food security and sustainability in Nigeria. This is bothersome to African countries especially Nigeria whose Human Capital Index as revealed by World Bank (2018)'s is already weak and continued to be weak because of under-investment and the country ranked 152 of 157 countries in this index.

In Nigeria, the Federal government first announced a lockdown as a result of COVID-19 on the 30th of March 2020. The lockdown was to last for 14 days. On Monday 27th of April 2020, the government announced that there will be curfew from 8pm to 6am. On the 2nd of May, the federal government started gradual easing up of lockdown, and further prolonged the lockdown on Monday June 29th 2020 by 4 weeks, starting from July 1st 2020 to July 27th 2020. However, the government allowed interstate movement outside curfew hours. The 2nd phase of the easing of lockdown was further elongated by a week and additional 4 weeks (Oyekanmi, 2020).

Food insecurity is said to have taken place in the United States of America, when there is: (1) need to utilise socially unacceptable method to obtain food, (ii) uncertainty about the accessibility and availability of food in the future, (iii) inadequacy in the type and quantity of needed food for a healthy life (National Research Council, 2006). Food security is opposite of food insecurity. A sustainable food system is that system that makes sure that there is food security and nutrition for everyone in such a way that the social, environmental and economic bases to produce food and nutrition for upcoming generations are not compromised (High Level Panel of Experts (HLPE), 2014).

Numerous studies have been carried out on the effect of COVID-19 pandemic on several facets of life in different countries Policy options for mitigating impacts of COVID-19 on domestic rice value chains and food security in West Africa (Arouna, Soullier, del Villar & Demont, 2020); Statistical analysis of impact of COVID 19 on India commodity markets (Shruthi & Ramani, 2020); COVID-19 restrictions amidst cyclones and volcanoes: A rapid assessment of early impacts on livelihoods and food security in coastal communities in Vanuatu (Steenbergen, Neihapi, Koran, Sami, Malverus, Ephraim & Andrew, 2020), among others. However, researches on the effect of COVID-19 on the price, availability, accessibility and affordability of rice in the study area are scarce. This study intends to fill this gap by evaluating the effect of COVID-19 on the price, availability, accessibility and affordability of rice before, during and after covid-19 lockdown in Ondo State, Nigeria, and recommend policy decisions, strategies and plans to aid in cushioning the effect of pandemic on rice affordable, available and accessible and price during any pandemic especially in Ondo State and Nigeria in general, with the intention of avoiding food insecurity and accomplish food sustainability in Nigeria.

Literature Review

2.1 Effects of COVID-19 on Food Demand, Supply and Value Chain, Small and Medium Enterprises (SMEs), People's Social Security and Economy

COVID-19 has severely affected the real economy, it has had an adverse effect on the global supply and demand for and goods and services, specifically on commodity and stock prices (Salisu *et al.*, 2020). The Lockdown during the pandemic can also result to the collapse of local systems of food supply and make farmers to be incapable of going to sell their products in the market (Arouna *et al.*, 2020). The food supply in the world is anticipated to diminish, its chain for circulation will be blocked, the pressure from the blockade and food exports' ban would begin to have effect on the agricultural products' supply chains and these circumstances would result to a rapid upturn in the prices of food in the world (Yao *et al.*, 2020). The features of supply-side play crucial role in assuring global food security (Udmale, Pal, Szabo, Pramanik, Large, 2020). COVID-19 has also had an adverse effect on trade, transport and tourism industry and thus resulted to the shortage of local food (Albulescu, 2020b). It has resulted to a crucial lessening of consumer confidence, business travels,

tourism, lowered business, upturn the risk aversion rate in the financial system and led to a fall in equity prices (Salisu *et al.*, 2020). While the unceasing spread of COVID-19 and the numerous restriction measures will affect the traditional and advanced domestic value chains in the short, medium and long term, whereas, prices would upturn due to the instabilities in the trade flows and chains of distribution (Arouna *et al.*, 2020).

Ngutsav and Ijirshar (2020) asserted that, the COVID-19 pandemic has had a devastating effect on the Nigerian economy in numerous ways, particularly in the supply and demand sides of SMEs. Thus, on the supply-side, firms experience a decrease in the supply of labour, because employees may fall sick, yet they have to look after their children or some dependents, schools are shut down and people's movement are restricted in order to curtail the spread of the pandemic. This situation affects capacity utilization. Also, in terms of demand-side, there is a probability of an abrupt and dramatic loss of demand and in consequence, revenue for SMEs. This limits the ability of SMEs to function, and this leads to serious liquidity shortages. In addition, consumers loss income, there is fear of being infected by the pandemic, as well as fear of uncertainty which makes consumers to reduce spending and consumption. In fact, the effects are further deepened by employees' layoff and inability of companies to pay salaries. Moreover, a lot of businesses have been affected by low demand for their services and products and supply chain disruptions as a result of weakened consumer purchasing power due to the pandemic (Ngutsav & Ijirshar, 2020).

Sopko, Ijirshar and Asom (2020) affirmed that COVID-19 pandemic appears to have had a devastating effect on social security especially in developing economies like Nigeria. They further stated that the pandemic has paralyzed virtually all economic activities of organisations and enterprises, affected the demand and supply sides of the organisations and enterprises and therefore leaving employees with the likelihoods of survival via social security packages. Thus, SMEs have significantly laid off several employees, reduced their monthly expenses on employees' welfare and worsened the state of social security of workers.

2.2 Effects of COVID-19 on Financial Institutions and Stock Exchange

COVID-19 has had a noteworthy effect on the United States of America (USA)'s stock market unpredictability (Baek, Mohanty & Glambosky, 2020). The stock markets recorded numerous shockwaves commencing with February 2020, and the financial volatility continued to upsurge in the background of COVID-19 uncertainty (Albulescu, 2020a). In fact, the world is undergoing a global crisis different from what we are used to in terms of currency, financial and debt crises (Salisu *et al.*, 2020). Markets and investors are facing a high degree of uncertainty due to both financial and physical effects of the pandemic (Baek *et al.*, 2020). The outspread of the pandemic has significantly raised the uncertainty surrounding economic activities and this would upturn the financial institutions' hesitancy to make loans available. Thus, the commercial financial institutions may decrease their credit

lines (Arouna *et al.*, 2020). There is a strong correlation between the growth in COVID-19 and poor performance of the stock market across nations (Ashraf, 2020). Past studies have affirmed that the international stock markets were negatively impacted by COVID-19 and (Heyden and Heyden, 2020; Liu, Manzoor, Wang, Zhang & Manzoor, 2020). This reveals an inverse relationship between the variables (Alfaro, Chari, Greenland & Schott, 2020). Also, higher rated social and environmental organisations displayed lower stock return volatility (Albuquerque, Koskinen, Yang, & Zhang, 2020).

2.3 Empirical literature

Shruthi & Ramani (2020) carried out a research on statistical analysis of impact of COVID-19 on India's commodity markets, by depending on the current environment and using it to assess the public health actions, fiscal policies, and contracting procedures that were executed during the period. The study evaluated the unpredictability transmission over the financial crisis. Newly established connection in instinct response variance and functions test to everyday data from January 2020 were implied. Statistics were divided into two intervals (pre-COVID period and the post-COVID period) in order to acknowledge the consequence of the food cost crisis.

The paper concluded that the statistical volatility transmission varies in post food price crisis. Cardwell & Ghazalian (2020)'s study on COVID-19 and international food assistance: Policy proposals to keep food flowing, revealed that the pandemic is hampering food supply and making it necessary to search for international food assistance and food delivery. The study disclosed that a succession of incomparable shockwave is demanding the capability of food aid organizations to reach susceptible populations, and recommended three changes in policy that can assist in making food to keep flowing to persons in need. The study first of all recommended contributing countries to prioritize their humanitarian expenditure on aid-allocation decisions; suggested that governments should excuse implementing agencies that are into food aid from trade barriers that hinder procurement in form of export restrictions and delivery, including import tariffs; and recommended that donor countries should permit for plasticity by freeing implementing agencies that partake in food assistance, from shipping restrictions. These suggestions are crucial now that donor-countries' governments are going into economic recessions and making foreign assistance's budgets to be restricted. Principato, Secondi, Cicatiello and Mattia (2020)'s study on caring more about food: the unexpected positive effect of the Covid-19 lockdown on household food management and waste, revealed that above half of the entire quantity of food wasted in Europe has to do with household food waste which mostly results from behaviour and habits on inappropriate food management. However, during the outbreak of Covid-19, the habits on food consumption and management altered intensely as a result of the stringent lockdown restrictions that was made obligatory by governments in order to lessen infection. The study examined how the

dramatic alterations in the daily lives of consumers affected the food waste generation at the household level. Questionnaire was used to collect data from a sample of 1,078 Italian consumers March-April 2020, during the lockdown period. The study concentrated on analysing the differences between the food which the respondents acknowledged to have wasted during and before the lockdown period. The study discloses that a lot of households got rid of less food during the Covid-19 lockdown in comparison with the food they threw away before COVID-19. Regression model was used to assess the association between the behaviour of food waste during the two periods under consideration and other factors observed. The results revealed that young people and consumers that commenced the implementation of good food management practices (meal planning, shopping list, among others) reduced their food waste more frequently than those who tried to commence their own during the lockdown period. Also, customers experienced logistical difficulties of grocery shopping during the lockdown period, and this made the customers to manage their household's food consumption more prudently, in order to reduce the amount of food wasted.

Salisu *et al.* (2020) carried out a study on COVID-19 global fear index and the predictability of commodity price returns. In the study, the global fear index (GFI) for the COVID-19 pandemic was subjected to empirical analysis by examining its predictive power in the likelihood of price returns of commodity during the pandemic. All the territories and regions of countries in the globe were considered in construction of the index. The results disclosed an indication of a positive relationship between the global fear index and commodity price returns. This result confirms that commodity returns upsurges as COVID-19 related fear rises.

Udmale *et al.* (2020) carried out a study on global food security in the context of COVID-19: A scenariobased exploratory analysis. The study recognised the foremost players in the world food equilibrium and probable implications of COVID-19 on the cereal supply in the globe and Sustainable Development Goal (SDG) - 2 (zero hunger). The study showed that four developing countries from Asia, fifteen from Africa, six from Oceania and ten from Latin America are the key countries that are prone to changes in food supply shocks. The study came to the conclusion that the present COVID-19 pandemic may probably cause temporary food insecurity across such susceptible countries. In addition, the pandemic's impact may lengthen as a joint effect on food security (Sustainable Development Goal - 2) and upturn poverty, slowdown the economy and impede food access and supply, beyond 2020.

3. Methodology

3.1 Study Area

The study area Akure Metropolis. The Metropolis is made up of Akure South and Akure North Local Government Areas of Ondo State, Nigeria. Ondo State was carved out from

defunct western state, when the Federal Republic of Nigeria extended the number of its states from twelve (12) to nineteen (19). Ondo State is one of the six states in South-Western Nigeria. The population of Akure city is 484,798 and its coordinates are: 7°15'0"N 5°11'42"E (National Population Census, 2006). Ondo State occupies a total area of 15,500 sq. m with a population of 3,460,877, lies between latitude 5° East of Greenwich and 6° to 8° North and the State has dry savannah up lands in the northern parts, humid tropics with swampy areas in the extreme south and tropical rainforest in far north. (National Population Commission, 2006).

3.2 Method

Survey design and multistage sampling (purposive, proportionate stratified and random sampling techniques) technique was used to select the respondents from four major markets (Oja Oba (84), Isikan, Odopetu and Osolo markets) within Akure Metropolis. Data were collected with structured copies of questionnaire and personal interview and analyzed with descriptive statistic (trend analysis and mean average). Hypothesis was tested with Analysis of Variance (ANOVA) Ondo state was purposively selected because of the proximity of the State occasioned by the restriction in mobility during the COVID-19 pandemic. The population of the study was registered rice sellers in the four major markets (Oja Oba market (261), Isikan market (84), Osolo market (66) and Odopetu market (48)) totally 459 in Akure north and Akure south Local Government Areas of Ondo State, Nigeria. Out of the 459 rice sellers, 214 were selected by using Yaro Yamane (1967)'s formula ($n = N/1+N(e^2)$). Where: n = Sample Size, N = Population of the Study, and e = error margin @ 5% (0.05). Since the rice sellers in each market were not equal, the sellers were selected from each market by using proportionate stratified sampling and simple random sampling techniques. The number of selected rice sellers included in the sample size are captured on table 1.

Table 1: Selected markets, number of registered rice sellers and number of rice sellers selected from each market and used as sample size.

Markets/Sample Size	NO. Rice Sellers	NO. Selected as sample size
1) Oja Oba Market	261	122
2) Isikan Market	84	39
3) Osolo Market	66	31
4) Odopetu Market	48	22
Total	459	214

Source: Field Work, 2020

Data were collected from respondents with the aid of structured copies of questionnaire and personal interview. Two hundred and fourteen (214) copies of structured questionnaire were disseminated to gather information from the selected rice sellers. However, only 184(86%)

copies were retrieved from the sellers. The dissemination and gathering of the copies of questionnaire were carried out with the assistance of trained research assistants. Data were analyzed with descriptive statistic (mean average and trend analysis). Cronbach Alpha was used to test for the reliability of the research instrument while the instrument was validated by two experts in the field of the study (Agricultural Economics). The questionnaire comprised two sections, A and B. Section A was based on the socio-economic characteristics of the respondents, while section B comprised questions whose responses provided information for the assessment of the effect of COVID-19's lockdown on the price, accessibility, availability and affordability of rice in the study area. Cronbach Alpha was used to test for the reliability of the research instrument, and the coefficient of 0.862 which is greater than 0.7 was attained. This shows that the result is high and suitable for social science.

The theory underpinning this study is the classical supply and demand theory. According to Whelan and Msefer (1996), this theory assumes that there are rational consumers, a perfect competitive market with free entry and exit, and all factors except price which affect the quantity of goods sold and purchased are held constant. Therefore, demand and supply are dependent on price. Thus, the higher the prices of goods, the lower the demand for them, while the higher the price, the higher the quantity supplied and the higher the sellers' revenue. This theory is related to this study because, COVID-19 lockdown resulted to scarcity and reduction in supply of goods into the market, increase in prices and decrease in demand for these goods.

4. Results and Discussion of Findings

4.1. Socio-Demographic Characteristics of the Respondents

Table 2: Distribution of Socio-Economic Characteristics of the Rice Sellers

Personal Characteristics	Frequency	Percentage (%)
Nationality		
Nigeria	100	100
Others	-	-
Gender		
Male	161	75.23
Female	53	24.77
Age Range (Years)		
20-29	6	2.80
30-39	67	31.31
40-49	121	56.54
50-59	12	5.61
60 years and above	8	3.74
Working Experience (years)		

1-10	16	7.48
11-20	82	38.32
21-30	94	43.93
31-40	17	7.93
Above 40	5	2.34
Level of Education		
Primary School Cert	106	49.53
Secondary/O' Level	41	19.16
Vocational/Technical	12	5.61
Polytechnic/University	4	1.87
Not Educated	51	23.83

Source: Field Work, 2020

Table 2, discloses that, 100% of the respondents were Nigerians, majority (75.23%) of the rice sellers were men, while the remaining 24.77% were women. Also, 2.80% of the rice sellers were between the ages 20 and 29 years, 31.31% were between the ages of 30 and 39 years, 56.54% were between the ages 40 and 49 years, 5.61% were between ages 50 and 59 years, while 3.74% were 60 years and above. This implies that a lot of the rice sellers were adults within productive ages of 30 to 49 years.

Moreover, the study revealed that 7.48% of the rice sellers had 1-10 years of experience, 38.32% had 11-20 years of experience, 34.57% had 21-30 years of experience, 7.93% had 31-40 years of experience, while the remaining 2.34% had 40 years above experience. This implies that the rice sellers had enough experience to provide valuable information on subject matter. Also, 49.53% of the beneficiaries had Primary School Certificate, 19.16% had Secondary/O'Level certificate, 5.61% had Vocational/Technical education certificate, 1.87 had Polytechnic/University education certificate, while the remaining 23.83% were not educated. This result revealed that, a large number of the respondents had at least primary education and some knowledge to fill the questionnaire.

4.2 Prices (₦) Per kongo of Rice in Selected Markets in Akure North and South Local Government Areas and Average Price Per Month Before (November 2019-March 2020) During (April 2020-August 2020) and After (September 2020-October 2020) the COVID-19's Lockdown.

Table 3: Distribution of prices (₦) per kongo of Rice in Selected Markets in Akure North and South Local Government Areas and Average Price Per Month Before (November 2019-March 2020) During (April 2020-August 2020) and After (September 2020-October 2020) the COVID-19's Lockdown

Months/ Selected Markets	Oja Oba Market Price of one Kongo ₦)	Isikan Market Price of one Kongo ₦)	Osolo Market Price of one Kongo ₦)	Odopetu Market Price of one Kongo (₦)	Average Price of one Kongo (₦)
Before COVID-19's Lockdown					
November	450	500	500	550	500
December	550	550	550	550	550
January	550	550	550	550	550
February	550	550	550	550	550
March	550	550	550	550	550
After COVID-19's Lockdown					
April	750	800	800	850	800
May	750	800	800	850	800
June	750	800	800	850	800
July	750	800	800	850	800
August	750	800	800	850	800
September	700	700	700	700	700
October	600	700	600	700	650

Source: Field Work, 2020

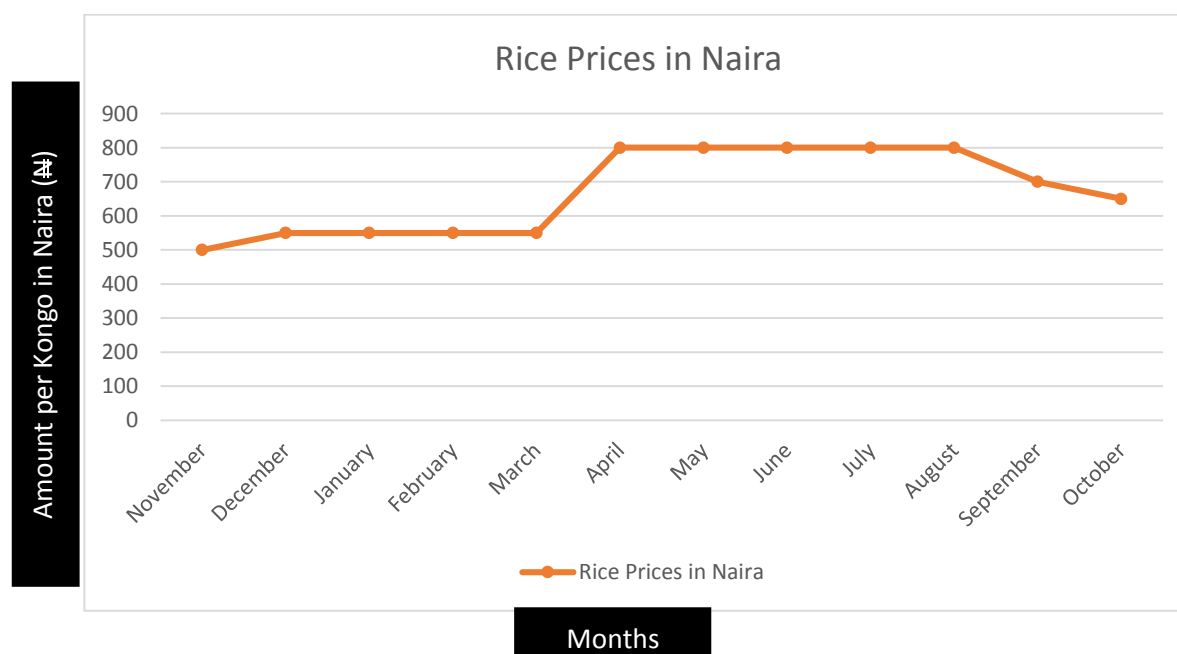


Figure 1: A Chart Showing the average prices of Rice per Kongo, per Month, in Naira, before, during and after COVID-19's Lockdown

Source: Field Work, 2020

Table 3 and figure 1, disclosed that, the average price of a kongo of rice in November 2019 was ₦500, December 2019 - ₦550, January 2020 - ₦550, February 2020 - ₦550, March 2020 - ₦550, April 2020 - ₦800, May 2020 - ₦800, June 2020 - ₦800, July 2020 – ₦800, August 2020 – ₦800, September 2020 - ₦700, and October 2020 - ₦650. These figures show that the prices of a kongo of rice in the study area increased by 10% from November 2019 to December from 2019, remained stable from December 2019 to March 2020, increased in April by 45.45%, remained stable from April to August 2020, reduced by 12.5% in September 2020 after the relaxation of the lockdown, and reduced further by 7.14% in October 2020.

An interview held with some of the rice sellers, revealed that,

When the COVID-19's lockdown commenced, the rice sellers were unable to travel from Akure to Mokwa in Niger State where they usually purchase rice from and resell. They stated that, the law enforcement agencies barricaded the roads, even when the federal government of Nigeria instructed them to allow vehicles carrying food and some other essential commodities and services to move freely within and across all States in Nigeria, the instruction was not totally obeyed. The rice sellers either had the option of paying extra fee to cross the barricades erected by these officials or sit at home. This extra fee coupled with high transportation cost increased the cost of purchase of rice. They gave an example: the price of transportation from Akure to Mokwa in Niger State was ₦4,000 to and ₦4,000 fro, totally ₦8,000 per trader before the pandemic. It also cost ₦2,000 and ₦1,500 to transport a bag of rice, back to Akure, before the lockdown. However, during the lockdown, it cost ₦7,000 to and ₦7,000 fro, totally ₦14,000, to transport each trader from Akure to Mokwa in Niger State. It also cost ₦2,500 and ₦2,500 to transport a bag of rice, back to Akure, during the lockdown. They also explained that, the rice farmers complained about having transportation problems while transporting rice from their farms to the rice mills and to the local markets due to scarcity of vehicles occasioned by the COVID-19's lockdown and increase in transportation cost resulting from the fee to cross barricades set up by the law enforcement agencies. All these resulted in upturn in selling price of rice at the local markets' end and consumers' end.

This result is in agreement with the study of Kamdem, Essomba and Berinyuy (2020) which concluded that, the pandemic had an effect on the variations in prices and demand for products resulting from the number of confirmed COVID-19 cases and the total number of deaths. In the same vein, Arouna *et al.* (2020)'s study which revealed

that, the persistence of COVID-19 pandemic, lockdown and restrictions in movement of people and goods will lead to making local rice production to reduce, there will be shortage of inputs, labour (because the traditional mills which are largely operated by individuals employees or family members may find it problematic to travel to other regions or to and fro the mill), increase in costs and high rate of death. Likewise, the study of Cardwell and Ghazalian (2020) which stated that, the pandemic resulted to restriction in traveling, shutting up of informal and formal markets, falling incomes, and stillness in a lot of countries' economies and that of Pu and Zhong (2020) which affirmed that, the restricted mobility occasioned by COVID-19's lockdown would lead to labour scarcity and lessened production efficiency are in accord with this study.

Also, Chen, Groenigen, Yang, Hungate, Yang, Tian, Zhang, W. (2020)'s study which concluded that the pandemic could result to a modification in the cropping system of rice from "double seasons" to a "single season", and this situation can be a threat to total production in the long term is in harmony with these findings. Furthermore, these findings are in agreement with that of Pu and Zhong (2020) which disclosed that, if the situation is extended, more citizens may go back into hunger and poverty, and this would have adverse effect on the Sustainable Development Goals (SDG) of eradicating poverty and hunger by 2030. Accord. Moreover, Salisu *et al.* (2020)'s study which concluded that COVID-19 has had an adverse effect on the global supply and demand for goods and services is in harmony with this study. Also, Arouna *et al.* (2020)'s study which stated that the Lockdown during the pandemic can result to the collapse of local systems of food supply and make farmers to be incapable of going to sell their products in the market. In addition, Yao *et al.* (2020)'s study which predicted that food supply in the world is anticipated to diminish, its chain for circulation will be blocked, the pressure from the blockade and food exports' ban would begin to have effect on the agricultural products' supply chains and these circumstances would result to a rapid upturn in the prices of food in the world is in harmony with this study.

Furthermore, the rice sellers also revealed that:

When the lockdown was announced, people started buying food stuff, rice included, in large quantity. During the lockdown, people could no longer go to work and receive salaries, the elongated lockdown resulted in the breakdown of market activities, people ended up spending the money they had left and their purchasing power went down. There was scarcity of food, people started managing the food they had bought already. Some people could no longer afford to buy more food anymore, while other people could only afford to buy in very small quantity. Some of the traders stated that they could no longer travel to buy more food for fear of contacting the virus and high cost of travelling. According to the rice sellers, rice became scarce, difficult to access and the selling price

became high. It came to a time that they became afraid that the lockdown would last for a very long time and they may not be able to afford to buy other food stuff because of exorbitant prices or the other food stuff may not even be available. They therefore decided to reserve their own stock for their families. They locked up their stores. This further aggravated the situation. However, the low purchasing price of the people did not allow the price of rice to be exercise. The situation was leaning towards food insecurity and sustainability. Luckily, they claimed that when the government announced the easing of the lockdown sometime in August and the final one early September, the barricades on the roads decreased, they were able to travel to restock, there was enough rice for people to buy, and the price of rice went down. Some people started working and receiving salaries again, and they could afford to buy rice.

This revelation is in harmony with those of (Cardwell & Ghazalian, 2020; Arouna *et al.*, 2020) who predicted that the lockdown could make a lot of people to lose their jobs, purchasing power and demand will be low and food security of families will be threatened. Also, in agreement with this result is that of Arouna *et al.* (2020) which asserted that the elongation of the pandemic will lead to low purchasing power of the people, the farmers may retort to the situation by eating up their rice stocks and seed. This could have a serious effect on global food system (Pu & Zhong, 2020). The easing of lockdown in Nigeria, remedied the situation. This result is however not in accord with the study of Si, Zhang, Fan, (2020) which ascertained that, at the recovering period of the pandemic, poor people would be hurt by food shortage and high prices. Nigeria can be said to be recuperating and waiting for the second wave, but the price of rice has not gone up even up to the time of the lockdown. Nevertheless, Nigeria may not be able to withstand another lockdown because more people have now lost their jobs due to the pandemic, a lot more people now eat from “hand to mouth” on daily paid jobs. These the people would not be able to afford to eat if there is another lockdown and they could go fall back into abject hunger and poverty.

4.3 ANOVA Result on the Test for Significant Difference between the Prices (₦) Per Kongo of Rice in Selected Markets in Akure North and South Local Government Areas Before (November 2019-March 2020) and After (September 2020-October 2020) the COVID-19's Lockdown in Nigeria

Table 4: ANOVA Result on the Test for Significant difference between the Prices (₦) Per Kongo of Rice in Selected Markets in Akure North and South Local Government Areas Before and After the COVID-19's Lockdown in Nigeria

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7234.713	1	7234.713	.431	.001
Within Groups	39026.667	3	13008.889		
Total	46,260.797	4			

Source: Field Work, 2020

Table 4 shows the ANOVA that was used to test if there is a significant difference in the prices (₦) per kongo of rice in selected markets in Akure North and South Local Government Areas before and after the COVID-19's lockdown in Nigeria. The p-value is 0.001, which is less than the table value of 0.05. Based on this result, the null hypothesis H_0 , which states that there is no significant difference in the prices (₦) per kongo of rice in selected markets in Akure North and South Local Government Areas before and after the COVID-19's lockdown in Nigeria is rejected, and the alternate hypothesis which states that there is a significant difference in the prices (₦) per kongo of rice in selected markets in Akure North and South Local Government Areas before and after the COVID-19's lockdown in Nigeria is accepted.

5. Conclusion and Recommendations

This study revealed that there was a significant difference in the price of rice before and after the lockdown. The prices of a kongo (contains 10 cups) of rice was fairly affordable at ₦500 to ₦550 (for a kongo of rice) before COVID-19 lockdown. The price of a kongo of rice increased by 9.1% November 2019 to December from 2019, remained stable from December 2019 to March 2020, increased in April by 31.25% at the commencement of the lockdown, and remained high from April to August 2020 when mobility started easing up and reduced by 14.29% in September 2020, and reduced further by 7.7% in October 2020. Also, the p-value of the ANOVA result was 0.001, which is less than the table value of 0.05. Thus, the paper concluded that, there is a significant difference in the prices (₦) per kongo of rice in selected markets in Akure North and South Local Government Areas before and after the COVID-19's lockdown in Nigeria.

The paper recommends an intensive government policy decision, strategies and plans to help reduce the effect of pandemic on the price of rice and make rice to be readily affordable, reachable and available during any pandemic in Ondo State in particular and Nigeria in

general with the aim of forcing more people profoundly into poverty and hunger (SDGs one and two) by such pandemic, increasing food insecurity and food sustainability in Nigeria.

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