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# Covid-19 Lockdown: Implication on Commodity Food Price and Household Food Security in Kwara State, Nigeria

**Oluwaremilekun. A. Adebisi[1], *Luke. O. Adebisi[2], Femi Ibrahim[2], Amos. M. Omofaiye[1] and Asuquo Jonathan[3]**

[1]*Department of Agricultural Economics and Farm Management University of Ilorin, PMB 1515, Ilorin, Nigeria*
[2]*Agricultural Development Management Department, Agricultural and Rural Management Training Institute (ARMTI), PMB 1343, Ilorin, Kwara State*
[3]*Department of Agricultural Education, FCT College of Education, Zuba-Abuja*
**Corresponding author: +2347034764622; tobadebisi@gmail.com*

**Abstract**

The study examined the movement in the price of staple food commodities as a result of COVID-19 and its impact on food security of households in Kwara State, Nigeria. Primary data was used for the study and a convenient sampling technique was adopted in the selection of the respondents. A structured questionnaire was used for the purpose of extracting needed information from households selected for the study. The data were analyzed using with Descriptive Statistics, Household Food Insecurity Access Scale (HFIAS) and Correlation Analysis. The result showed that there was increase in price in all the major staple foods consumed during COVID-19. Only 23% of the households were found to be food secure while 51% and 26% of all the households surveyed were found to be moderately and severely food insecure respectively. The effect of the increase in the price of staple commodity food on households' food security was statistically significant ($r = -0.375$, $p < 0.000$) showing that movement in the prices of staple food has negative effect on food security of people. It is therefore recommended that there should be regulation of commodity food prices as this will enable medium and low income households to buy.

**Keywords**:
Food, Income, Households, Correlation

## 1. Introduction

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome (SARS-CoV-2) (Mayo clinic, 2020). The first confirmed case of COVID-19 was detected in Wuhan (capital of China's Hubei province) epicenter of corona virus outbreak. Due to novelty of this virus strain, the disease is spreading among people at alarming rate. The world health organization declared COVID-19 outbreak as global pandemic on March 11, 2020 (Cucinotta & Vanelli, 2020). The virus has affected the lives of many people and it is estimated that COVID-19 will affect the global economy more than every other SARS-CoV-2. The Organization for Economic Co-operation and Development (OCED) has forecasted decrease in economic growth from 2.9% to 2.4% in 2020 and has warned that, economic growth may also reach nearly 1.5% if the pandemic is prolonged (Organization for Economic Cooperation and Development - OECD, 2020). The World Bank also predicted a downsize scenario in the expansion of the global economy by 1.6% in 2021, if the infection continues to rise. International Labour Organization also stated that, "COVID-19 crisis" is the most severe crisis since the Second World War (International Labour Organization - ILO, 2020), as it has threatened public health, productivity, livelihood and food system as a result of border closure, trade restrictions and confinement measures which have prevented farmers from accessing market i.e. for buying inputs and selling their outputs. This has greatly impacted the food security and nutrition of millions of men and women especially those in low income countries (World Health Organization - WHO, 2021).

Empirical findings have stated that food insecurity increases with food prices and price volatility which is more peculiar to developing nations (Shapouri et al, 2009; U.N. Committee on World Food Security, 2011). The occurrence of COVID-19 has raised food insecurity and this will highly affect the poorest and the most vulnerable segments of the population (Food and Agriculture Organization [FAO], 2020). At present, 820 million people are facing chronic hunger and 113 million are facing acute severe food insecurity (FAO, IFAD, UNICEF, 2019). Thus, disturbance in food access brought by the pandemic affects these groups immediately and severely. As a lot of people's means of livelihood has been negatively affected, most households are no longer able to attend to basic needs of which food is one.

The hit of COVID-19 pandemic on the agricultural sector which brought about a decline in production has further increased the prices of commodity foods. This condition makes it unaffordable for households, especially the low income earners rendering them more vulnerable to food insecurity**.** In combating the ongoing global COVID-19 pandemic, it is important and of immense necessity to investigate the impact of the lockdown as well as the restriction of movement and limitation of economic activities, which were government responses to limiting the spread of the pandemic whose index case in Kwara state was recorded on the7th of April, 2020.With the confirmed cases totaling 976 in the state as at 31st August, 2020.

Therefore, this paper was prepared to examine the movement in the price of staple food commodities price as a result of COVID-19 lockdown and its impact on food security of households in Nigeria. The objectives are to

i. describe the socio-economic characteristic of household heads;
ii. evaluate staple food price movement during the COVID-19 lockdown;
iii. evaluate the food security status of households during COVID-19 lockdown and;
iv. determine the effect of price movement of staple food on food security of households.

## 2. Materials and Methods

2.1Study Area

The household survey was carried out in Kwara Sate, Nigeria. The state is located between latitude 7° 20' and 11° 05'and longitude 2° 05' and 6° 45' (Ogunlade et al., 2009). The state is referred to as the "gateway" between the north and south of the country. It has a population of about 2,371,089 with a total landmass of 32,500 square kilometers (National Population Council - NPC, 2010). The State has two main climatic seasons, the dry season and wet season with annual rainfall ranging between 1,000 and 1,500 mm while the average temperature lies between 30ºC and 35ºC (Kwara State Dairy, 2002). The State is a confluence of cultures, populated by Yoruba, Hausa, Fulani, Nupe, Baruba and other Nigerians. The average monthly minimum wage for the state is 18,000 naira while agriculture is the main stay of the state's economy with more than 80 per cent of the population living in rural areas (National Bureau of Statistics [NBS], 2005).


Figure 1. Map of Kwara Sate showing the 16 local government areas

### 2.2 Data and Sampling Procedure

Primary data were used for the study and the population for this study includes households in Kwara state. A convenient sampling technique was used in selecting 120 households across the study area. This entails the random sampling of four local government areas out of the sixteen local government areas; thereafter snowballing technique was employed to selecting households whose household head works with the government, non-governmental organizations and those that are involved in large, medium and small scale businesses. Out of the 120 household's responses, 110 households were found useful for the study.

**2.3 Analytical Techniques**

The data collected were analyzed with descriptive statistics, Household Food Insecurity Access Scale (HFIAS) and Correlation Analysis.

**2.4 Descriptive Statistics**

Descriptive statistics which include frequency distribution table was used to describe the socio-economic characteristics of the households.

**2.5 Household Food Insecurity Access Scale (HFIAS)**

The Household Food Insecurity Access Scale (HFIAS) was used to determine food security status of households. The HFIAS (a nine-item food insecurity scale) was developed by USAID FANTA project and it evaluates concerns about food supply, food quality, food quantity and hunger (Deitchler et al., 2010). The HFIAS score is calculated as a continuous measure of the degree of food insecurity (access) in the household in the past one month (30days/4weeks). The score adds up to a maximum score of 27 for a household if food insecure and a minimum of 0 when the household is food secure. The indicators were weighted equally and the constructs within each indicator domain following Elmerinda (2016). The overall score was then categorized into three (0-9 = food secure; 10-18 = moderately food insecure; 19-27 = severely food insecure).

**2.6 Correlation Analysis**

Correlation analysis was used to analyze the effect of price movement of staple food on food security of households using Pearson correlation.

$$r = \frac{n(\sum XY) - \sum X \sum Y}{\sqrt{[n\sum X^2 - (\sum X)^2]\,[n\sum Y^2 - (\sum Y))^2]}}$$

X = Price Movement
Y = Food Security Status
N = Number of respondent

**3. Results and Discussion**

**3.1 Socio-Economic Characteristics**

Table 1 shows that 79.09% of the household heads were male which means households in the study area are majorly headed by males. This is similar to the results of the study carried out by Adebisi et al. (2019); Omotesho et al. (2017); and Emaziye et al. (2013) where majority of the households were headed by males (83%, 86% and 56% respectively). The mean age was 49 years. This revealed that majority of the household heads in the study area are middle aged and still active. Majority (88%) of the household heads in the study area had at least secondary education which helps them to be better informed and well exposed to current information on the pandemic (COVID-19). Also 94.55% of the household heads were married. The average household size was 6 persons; majority (75%) of the household heads has working with government, private organizations and personal businesses as their means of livelihood. 43% of the household's heads have access to credit during COVID-19 lockdown period in which 45% of them got it from family and friends. The average monthly food expenditure for households in the study area before COVID-19 lockdown was 25,172.73 naira while it was 35,874.55 naira during COVID-19 lockdown; this was due to the hike in the prices of staple food items during the lockdown. The total monthly expenditure for households during COVID-19 lockdown was 74,090.90 naira.

Table 1. Socio-Economic Characteristics of the Household Heads (n=110)

| Characteristics | Frequency | Percentage | Mean |
|---|---|---|---|
| Gender: Male | 87 | 79.09 | |
| Female | 23 | 20.91 | |
| Age (years): < 30 | 08 | 07.28 | 48.54 |
| 30-39 | 17 | 15.45 | |
| 40-49 | 38 | 34.54 | |
| 50-59 | 44 | 40.00 | |
| >60 | 03 | 02.73 | |
| Educational Level: No Formal | 00 | 00.00 | |
| Primary | 13 | 11.82 | |

| | | | |
|---|---|---|---|
| Secondary | 32 | 29.09 | |
| Tertiary | 65 | 59.09 | |
| Marital Status: Single | 06 | 05.45 | |
| Married | 104 | 94.55 | |
| Household size (number): < 5 | 76 | 69.09 | 5.56 |
| 6-10 | 25 | 22.73 | |
| >10 | 09 | 08.18 | |
| Livelihood: Civil servant | 20 | 18.18 | |
| Private Organization | 42 | 38.18 | |
| Artisan/Technician | 15 | 13.64 | |
| Trader/Business owner | 21 | 19.09 | |
| Farmer | 12 | 10.91 | |
| Credit Access During COVID-19 | | | |
| Yes | 47 | 42.70 | |
| No | 63 | 57.30 | |
| Credit Source: Friends/family | 21 | 44.68 | |
| Cooperatives | 06 | 12.77 | |
| NGOs/Religious organization | 14 | 29.78 | |
| Banks | 06 | 12.77 | |
| Monthly Food Expenditure before COVID-19 (naira) | | | |
| <10,000 | 16 | 14.55 | 25,172.73 |
| 10,000-30,000 | 83 | 75.45 | |
| >30,000 | 11 | 10.00 | |
| Monthly Food Expenditure during COVID-19 (naira) | | | |
| <10,000 | 14 | 12.73 | 35,874.55 |
| 10,000-30,000 | 46 | 41.82 | |
| >30,000 | 50 | 45.45 | |
| Total Monthly expenditure during COVID-19 (naira) | | | |
| <20,000 | 15 | 13.64 | 74,090.90 |
| 21,000-50,000 | 23 | 20.91 | |
| 51,000-100,000 | 61 | 55.45 | |
| >100,000 | 11 | 10.00 | |

Source: Field survey, 2020

Analysis of Movement in Price of Staple Foods as result of COVID-19 Lockdown between March-August, 2020

Table 2 presents the distribution of the price movement of staple foods as perceived by households in the study area during the COVID-19 lockdown. The result shows all the major staple foods consumed in the study area has a minimum increment of about 8% (the case of rice) and maximum increment of 75% (the case of yam) during this period. The graph in figure1 for better visualization also depicts the percentage difference in the staple food price movement in the study area.

Table 2. Price Movement of Staple Foods between March-August, 2020

| Food Commodities | Price before COVID-19 (naira) | Price during COVID-19 (naira) |
|---|---|---|
| Garri (50kg) | 8900 | 14,500 |
| Rice (50kg) | 25000 | 27000 |
| Beans (Oloyin) (50kg) | 14000 | 18000 |
| Flour (50kg) | 11000 | 12700 |
| Tomatoes (50kg) | 9000 | 12000 |
| Pepper (bag) | 10000 | 13000 |
| Maize (50kg) | 4200 | 6000 |
| Chicken (10kg) | 11000 | 15000 |
| Fish (Titus) (10kg) | 10000 | 13000 |
| Yam (tuber) | 400 | 700 |
| Groundnut (50kg) | 14000 | 16000 |
| Palm oil (50L) | 20,000 | 24000 |
| Vegetable oil (50L) | 13400 | 15400 |

| | | |
|---|---|---|
| Soya beans(50kg) | 16500 | 19500 |
| Onions (50kg) | 10000 | 12500 |
| Yam Flour (elubo) (bag) | 63000 | 69000 |

Source: Field survey, 2020

The result in figure 2 shows the percentage increase in the prices of staple food during COVID-19 lockdown period. The price of yam increased by 75%, which recorded the highest price movement during the period of study, while, the increase in the price of rice had the lowest price movement of 8%. This was due to the inability of farmers to go farm for farming activities which led to the spoilage of produce that are mainly locally produced such as yam, garri e.t.c while staple food like rice did not record much increase because they are majorly imported for consumption.

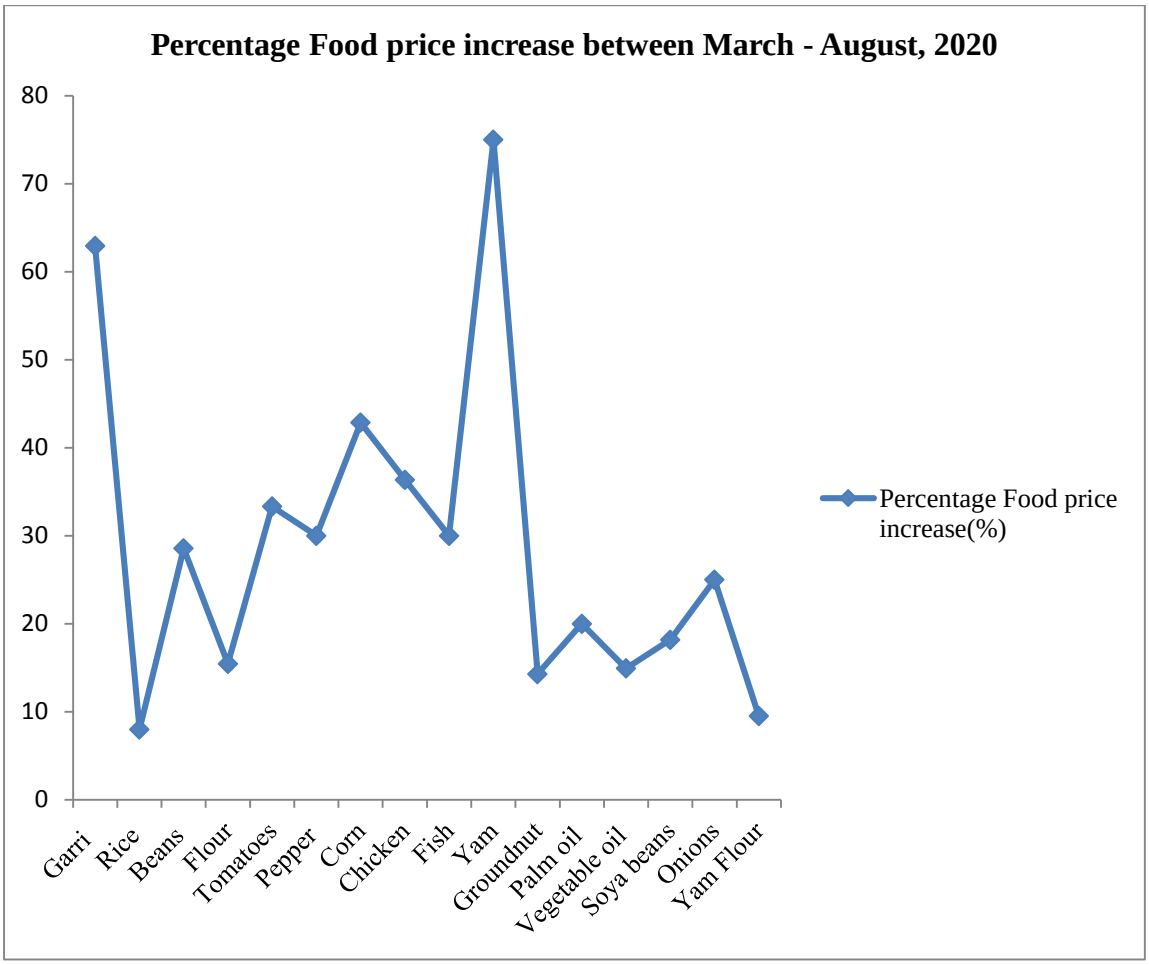


Figure 1. Percentage Food Price Increase
Source: Field survey, 2020

### 3.2 Food Security Status of Households during COVID-19 Lockdown

Table 3 presents the result of analysis of the Household Food Insecurity Access Scale (HFIAS). The result shows that only 23% of the households were categorized as food secure using this indicator; 51% of the households were categorized as moderately food insecure, while 26% of all the households surveyed were found to be severely food insecure. This implies that majority of the households under the study were food insecure which was due to the suspension of economic activities of people during the lockdown period.

Table 3. Food Security Status of Farming Households (n = 110)

| Level of Food security | Frequency | Percentage |
|---|---|---|
| Food Secure | 25 | 22.73 |
| Moderately Food Insecure | 56 | 50.91 |
| Severely Food Insecure | 29 | 26.36 |

Source: Field survey, 2020

**3.3 Effect of Price Movement of Staple Food on Food Security Status of Households at COVID-19 lockdown period**

Table 4 presents the effect of price movement of staple foods on food security level of households. The result shows there is a weak negative correlation as shown by (r = -0.375) between price movement of staple foods and food security level of households as this was also significant. This shows that the increase in the prices of staple food items negatively affected the food security of households, this implies the higher the prices of staple foods items the more food insecure the household during the lockdown period.

Table 4. Effect of Price Movement of Staple Food on Food Security Status of Households

| | | Price Movement | Food Security Level |
|---|---|---|---|
| Price Movement | Pearson correlation | 1 | -0.375*** |
| | Sig (2-tailed) | | 0.000 |
| | N | 110 | 110 |
| Food security level | Pearson correlation | -0.375*** | 1 |
| | Sig (2-tailed) | 0.000 | |
| | N | 110 | 110 |

Source: Field survey, 2020

*** Significant at P<0.01

**4. Conclusion and Recommendations**

The research concludes that there was increase in expenditure on food items during the lockdown as the price of food items also increased during this period. However, the high spike in the price of staple food commodities increased food insecurity in Kwara State, Nigeria. The study therefore recommended that there should be regulation of commodity food prices as this will enable medium and low income people to buy. Storage facilities should be put in place to preserve food commodities especially the perishable produce.

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