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SUSTAINABLE DEVELOPMENT GOAL 2: ASSESSMENT OF NIGERIA'S FOOD SECURITY SITUATION FROM 1960 – 2020

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Abstract

This study analysed the food security situation in Nigeria between 1960 and 2020. The longitudinal survey design was used. Secondary data on food security indicators were obtained from World Development Indicators (WDI) of the World Bank, Food and Agriculture Organization (FAO), Central Bank of Nigeria (CBN), and National Bureau of Statistics (NBS). The data were analysed using descriptive statistics. Findings revealed a general upward trend in agricultural output, per capita food production, and per capita income. The country's agricultural output was relatively low during the independence f 1960 and the first decade. Further, there was instability in growth, this was followed by some slight increase prior to 2015 and 2016. The study also revealed low rate of per capita food production prior to late 1980. Before the oil boom, Nigeria's per capita income was relatively low; while the depth of food deficit obviously decreased from 75 kilocalories per person per day in 1997 to 42 kilocalories per person per day in 2016.This study concluded that Nigeria and Nigerians are having food insecurity problems – a very low value of food production per capita and a high depth of food deficit that has been on the increase since the past decade.

Key words**:** *agricultural output, depth of food deficit, SDG 2, food security, Nigeria*

INTRODUCTION

The definitions of food security abounds in the literature. Food security encompasses access (physical, social and economic) to food by people of all social status at all times in sufficient, safe, and nutritious state that meets their dietary needs and food preferences for an active, healthy, and productive life. This definition focus on the key dimensions of food security: food availability, food access, utilization and stability [6]. Carter and Barrett [4] defined food security as the ability of food-deficit nations to meet target levels of consumption on an annual basis. It also involves access by all people at all times to adequate food for active, healthy [19], and productive life. According to Idachaba [14], food security is the ability of individuals and households to meet the required or recommended food needs. It is also a state of affairs where all people at all times have access to quality, safe and nutritious food a healthy lifestyle [12].

The concept of food security originally dwelt on ensuring food availability and the price stability of basic foods items; this was occasioned by the extreme volatility of agricultural commodity prices and unstable nature of the currency and energy markets at that time [2]. Further, the occurrence of hunger and food shortages required a definition of food security which recognized the critical needs and behaviour of potentially vulnerable and affected people [21]. Indicatively, an understanding of the functioning of agricultural markets under stress conditions, and how at-risk populations found themselves unable to access food, led to the expansion of the FAO definition of food security to include securing access by vulnerable people to available supplies [2]. Furthermore, there was an extension of the concept of food security to include: "access of all people at all times to enough food for an active, healthy life" in 1986 when the World Bank published its seminal report on Poverty and Hunger; and eventually became a human

right issue in 1994 following the UN Development Program's Human Development Report [2; 23].

The next development of the definition of food security was redefined further in the "The State of Food Insecurity in the World 2001" by adding the social emphasis [7]. It was reiterated that poverty reduction is a necessary, but not sufficient condition to achieving this goal [8]. Also, at the 2009 World Summit on Food Security, the fourth dimension of stability was added to the concept of food security [9]. In recent time however, scholar have suggested that sustainability be added as a fifth dimension to address the long-term aspect of food security [2].

Indicators of food security include numbers of: hungry or malnourished people, underweight children and people suffering from micronutrient deficiency [5]. Siamawalla and Valdes [22], conceptualized food security as the ability of the countries, regions or households to meet target levels of food consumption annually. Similarly, the Committee on World Food Security was of the view that food security focus on physical and economic access to adequate food for all household members, without any risk of losing such access. The World Bank [24] looked at food security as access by all people at all times to enough food for an active, healthy life. Food security is thus people-centred, with emphasis on physical and economic access to sufficient food at individual and/or household level without the risk of losing access.

Nwaniki, [18] earlier reported three dimensions to food security; availability, accessibility and adequacy Food availability has to do with the supply of food, that is to say, food should be sufficient in quantity and quality and also should be in variety. The right to sufficient food is enshrined in the universal declaration of human rights and in subsequent international law. Broadly, food security entails safety from basic physiological needs. The lack of safety will be manifested in chronic hunger or starvation and malnutrition. According to Eme *et al.* [5], it can either be chronic or transitory. Chronic food insecurity is a perpetual inadequate diet due to lack of resources to produce food. Transitory food insecurity, on the other hand, is a temporary decline in household's access to sufficient food due to instability in food production and prices, and/or reduction in household income. Both conditions are prevalent in sub-Saharan Africa and some parts of Asia [5].

Statistics have shown that over 7.1 million people in Nigeria are food insecure [6]. The larger percentage of this population depends on agriculture for their livelihoods. Expectedly, to meet the global demand for food which is to increase by 60 per cent in 2050, agricultural production must increase by 70–100 per cent [8]. For Nigeria to be self-sufficient in food production vis-à-vis food security, the agricultural sector must be consciously prioritized.

The concept of food security in a developing country like Nigeria could go simultaneously with poverty alleviation. Hence, it will suffice to say, hunger (food insecurity) and poverty are complementary. Particularly, the poverty phenomenon in Nigeria has attracted significant global attention in recent times. Evidence from literature and recent indices by relevant bodies/organizations identified Nigeria as one of the world's poorest countries and the country's economy largely depends on crude oil (65 per cent of total government revenues in 2018) [6], and agriculture as the primary source of income and food for her populace.

Sustainable Development Goal 2 (SDG 2) aims to achieve "zero hunger". It is one of the 17 Sustainable Development Goals established by the United Nations in 2015. The target of this goal is to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture by the year 2030. In Nigeria, the Millennium Development Goal (MDG) of reduction of extreme hunger is an articulated pointer whose commitment by world leaders was to be actualized in 2015; this target still remains a mirage, even in 2021. Consequently, Nigeria's attainment of SDG 2 by 2030 seems unrealistic. There is therefore the need to assess the various elements or food security

indicators in the country within the study period.

MATERIALS AND METHODS

This study was conducted on Nigeria. Nigeria is one of the sub-Saharan African nations located in West Africa with a population of over 200,000,000, using the country's population growth rate (National Population Commission, 2006). The spatial distribution of the population is uneven with the majority (63 per cent) living in rural areas and the remaining population living in the urban areas [National Bureau of Statistics, NBS, 16]. The country is located between 3^0 and 14^0 East Longitudes and 4^0 and 14^0 North Latitudes (NBS, 2020). Nigeria is bordered on the west by the Republics of Benin and Niger; on the east by the Republic of Cameroon; on the north by Niger and Chad Republics and the south by the Gulf of Guinea. The coast of Nigeria is a belt of mangrove swamps traversed by a network of creeks and rivers and the great Niger Delta. The climate is equatorial and semi-equatorial in nature, characterized by high humidity and substantial rainfall. There are two seasons – the wet and dry seasons. The wet season lasts from April to October, while the dry season lasts from November through March.

Time series data for the period 1960 – 2020 on agricultural output, per capita food production, per capita income, and depth of food deficit were sourced from publications of: World Development Indicators (WDI) of the World Bank, Food and Agriculture Organization (FAO), Central Bank of Nigeria (CBN), and National Bureau of Statistics (NBS). Graphs were used to present the findings.

RESULTS AND DISCUSSIONS

National food security exists when a country's residents have physical and economic access to sufficient, safe, and nutritious food for a healthy and productive life at all times. FAO, WFP and IFAD [10] identified food availability, per capita food production, percentage of under-five who are underweight, percentage of under-five who are stunted, domestic food price volatility, and depth of food deficit as some of the key indicators of food security. Availability and affordability of food are one of the key objectives of any serious economy as survival of human beings who in turn pilot the affairs of other sectors of the economy, depends on food availability. Following FAO's position and the need for food affordability, the following were adopted as food security indicators in this study:

Agricultural Output/Food Production

The trend of agricultural output in Nigeria from 1960 – 2020 is presented in Figure 1. The country's agricultural output generally experienced upward trend during the period under study. Specifically, the trend shows that, during the independence and first decade, the country's agricultural output was relatively low. The increase was somewhat impressive in the early 1980 to early 2000. After some staggered growth, the country's agricultural output experienced rapid slight increase prior to 2015 and continued to increase after 2016. The increase in agricultural output may have implications on food security in terms of food availability.

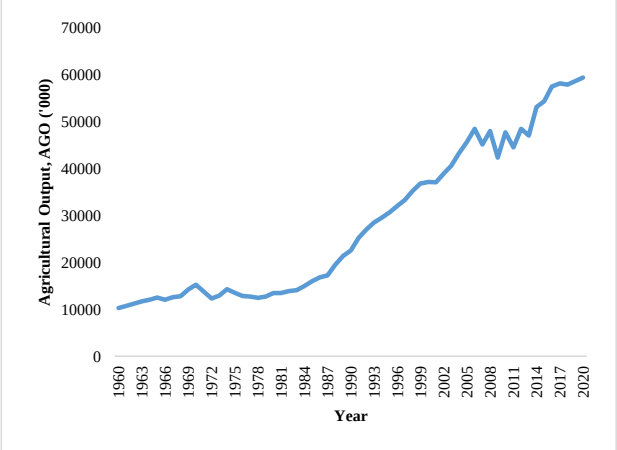

Fig. 1. Nigeria's Agricultural Output (AGO), 1960 – 2020

Source: Author's Computation using WDI Data, 2021 [26].

The observed output pattern in this study is similar to the report of Abah *et al*. [1] and Kalikume [15] who found that agricultural output in Nigeria has risen substantially over the years.

Per Capita Food Production (kcal/per capita/day)

The graph for the trend of per capita food production in Nigeria within the study period as presented in Figure 2 reveals that the country had maintained a consistent increase in the domestic supply of food over the years. The increase was however relatively slow prior to late 1980, after when the country experienced significant growth in per capita food production. Despite the unstable growth in 2009 and 2013, Nigeria's per capita food production further peaked in 2018 and has been on the increase. The observed pattern in this study is similar to Nkonya *et al*. [20]. FAO [9] and Holmen [13] also observed an increasing per capita food production in Nigeria.

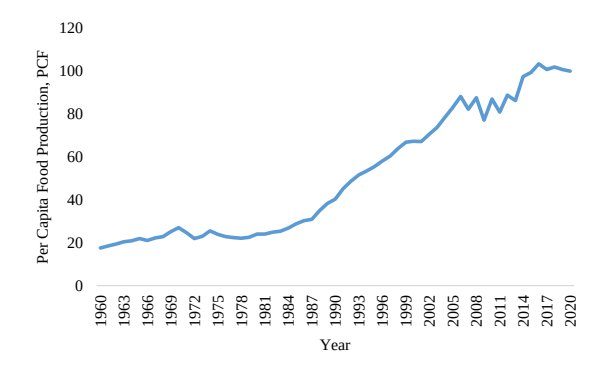

Fig. 2. Nigeria's Per Capita Food Production (PCF), 1960 – 2020
Source: Author's Computation using WDI Data, 2021 [26].

Per Capita Income

The trend of Nigeria's per capita income within the period under study is presented in Figure 3. Per capita income measures the average income earned per person in the country, and it is calculated by dividing the area's total income by its total population. Per capita income has implications on individual's ability to purchase food; 'proxying' the affordability aspect of food security. The graph shows unstable pattern in Nigeria's per capita income between 1960 and 2020. The per capita income was relatively low prior to the discovery of oil and peaked in 1982. This value however drastically dropped in the early 1990's, after which the country experienced some gradual upward trend in per capita income, except for around 2009 and 2017 which recorded sharp decline.

The noticeable increase at various times of the year in the country's per capita income could be associated with the recorded Gross National Income (GNI) and Gross Domestic Period (GDP) in those years.

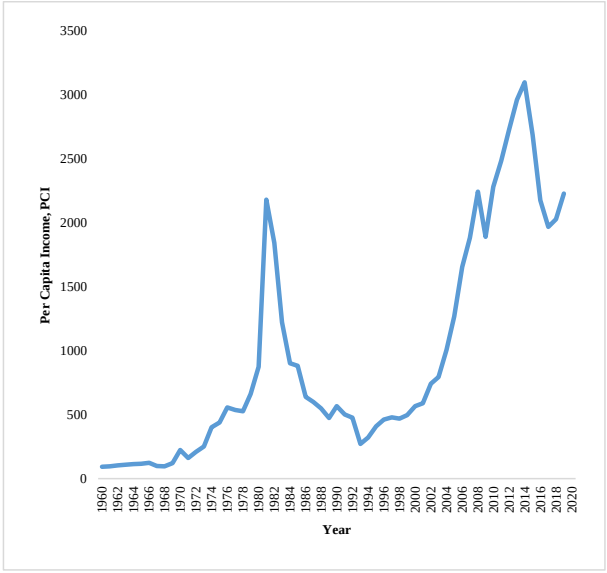

Fig. 3. Graph of Nigeria's Per Capita Income (PCI), 1960 – 2020
Source: Author's Computation using WDI Data, 2021 [26].

Depth of Food Deficit (DFD)

The trend of Nigeria's depth of food deficit is presented in Figure 4. The depth of food deficit is a measurement of how many calories would be needed to lift the undernourished from their status, *all else equal* [25]. According to FAO [11], DFD measure the average per capita amount of additional energy (kcals) needed for undernourished individuals to meet the Average Energy Requirement (ADER). This indicator is useful for problem identification, advocacy, and global and national monitoring [20].

Figure 4 shows that, prior to the availability of a national document on agricultural policy, the country's depth of food deficit was above 100 kcal/person/day. Depth of food deficit of Nigeria decreased from 75 kilocalories per person per day in 1997 to 42 kilocalories per person per day in 2016. This figure however increased and the tendency of continuous increase in the coming years is quite high. This is despite the observed food crop

production increases which have not kept pace with population growth, resulting in rising food imports and declining levels of national food self-sufficiency. This is in line with Thomas Malthusian's theory. Nigeria is endowed with abundant land and human resources to produce enough food commodities not only for domestic consumption but also for export. If the potential of agriculture resources is harnessed and all institutional frameworks are in order, the depth of food deficit will continue to decrease.

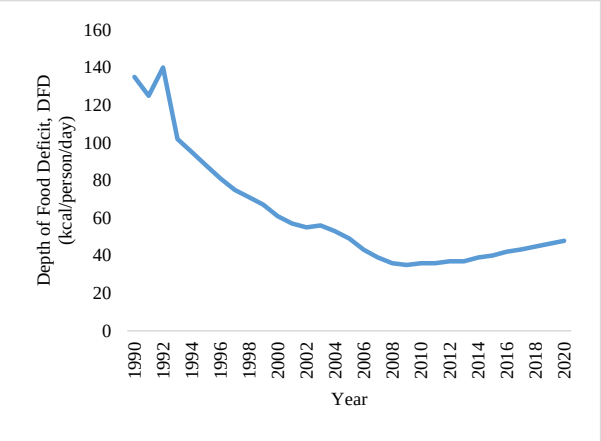

Fig. 4. Nigeria's Depth of Food Deficit
Source: Author's Computation using WDI Data, 2021 [26].

The observed pattern in Nigeria's DFD during the period under study could also be associated with seasonality, price spikes, or climate related shocks to the country's food system. This result corroborates the position of Cafiero and Pietro [3] who reported similar findings.

CONCLUSIONS

Following the Sustainable Development Goal 2, which aims at eliminating hunger and achieve sustainable food security globally by the year 2030, this study was motivated by the need to contribute to the frontiers of knowledge that will help understand Nigeria's food security situation. The statistics on food security indicators within the study period show that Nigeria and Nigerians are having food insecurity problems – a very low value of food production per capita and a high depth of food deficit that has been on the increase since the past decade.

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