Food Security and Sustainable Food Consumption in Nigeria

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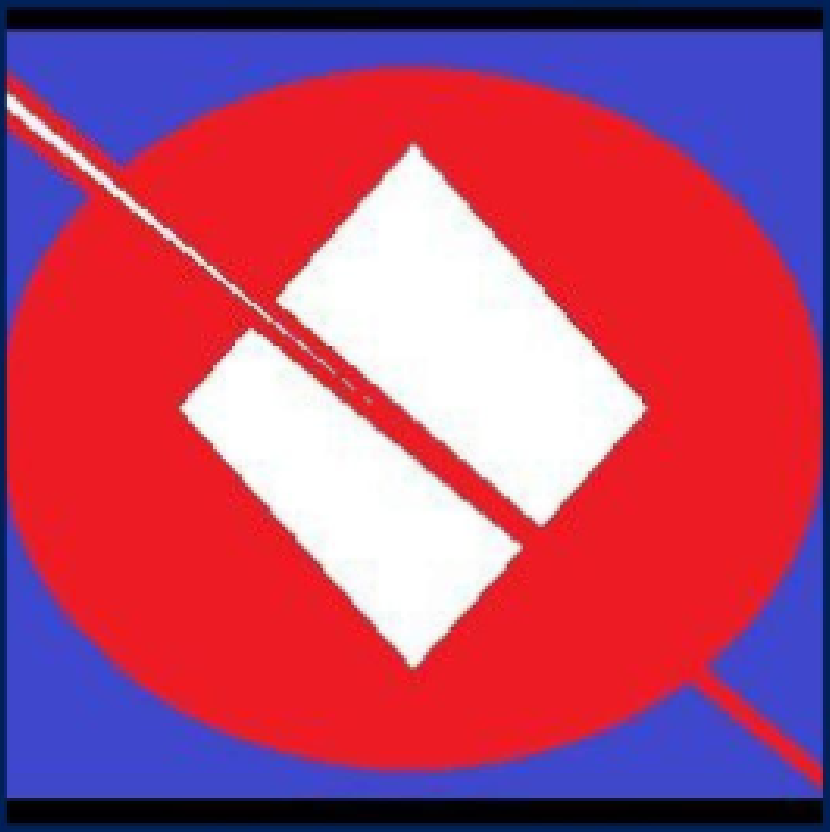

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Food Security and Sustainable Food Consumption in Nigeria

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This study centres on food security and sustainable food consumption in Nigeria. The study is aimed at ensuring if the four pillars of food security actually determine sustainable food consumption in Nigeria. The four pillars of food security (availability, affordability, utilisation, accessibility) were tested empirically to determine if they actually predict food consumption in Nigeria. The sample size is made up of 250 academic staff which were selected from five universities in the south eastern part of Nigeria. Multiple regression aanalysis was used to test for the significance of the hypotheses generated for the study and also to determine the variance in the dependent variable which is due tothe results of independent variable. Results show the significance of availability, accessibility and utilisation. However, affordability was not significant, thus contradicting previous research. Recommendations were made.

Key words: *Food Security, availability, affordability, accessibility, utilisation.*

Introduction

The Food and Agricultural Organisation of the United Nations (FAO-UNO) (2010) defined food security as existing when people have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and enable an active and healthy life. This is to say that food has to be available, accessible and affordable for domestic production and imports, for household production and local markets, and the quality of the food has to be nutritious. Sustainable food consumption involves consuming nutrient-dense, affordable and culturally acceptable foods while sparing the environment (Drewnowski, 2017). Also, sustainable diets were seen by the FAO – UN (2010) to be connected to food security. According to them, food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food access refers to the extent to which individuals are physically and economically able to obtain nutritious foods and represents the

consumer determinant of food security (Apparicio, Cloutier, & Shearmur, 2007). More than enough food is produced to feed everyone in the world yet, close to 800 million people are chronically hungry. This is because the affordability of food is largely related to income. Food affordability was introduced as a variable in this study. Food affordability which is the ability to pay for healthy nutritious food, is mostly determined by income. Income has been seen to be closely related to food security in that it affects the financial accessibility of consuming a variety of food (Ifeanyichukwu and Nwaizugbo, 2019; Savige, Ball, Worsley, & Crawford, 2011). According to Rose (1999), income is regarded as one of the most significant determinants of food insecurity and hunger. Asides from income, geographical factors also play an essential role in ensuring food security (Jaynea, Yamanob,Webera, Tschirleya, Benficaa, Chapotoa and Zulu, 2003). This is especially evident in more remote areas like South-East Nigeria where a range of exclusionary factors including low income, poor access to transport, the high cost of essentials, and high levels of illness and disability have undermined people's ability to get affordable, nutritious food (Ifeanyichukwu and Nwaizugbo, 2019; Madden & Law,2005).

Therefore, ensuring access to food is one of the key pillars of food security and an anti-poverty agenda. Ramsey (2012) reported that one in four households were food insecure. He also linked food insecurity to lack of money to buy food. Also, Wendy (2010) found out that Australians who are food insecure are more likely to be overweight or obese and even underweight than the ones who are food secure. The consumption of nutritious, safe and appropriate foods leads to a well-nourished and healthy society. Also, a healthy food environment is essential to protect individuals and communities from diseases and other public health risks. (Pollard, Savage, Landrigan, Hanbury and Keir, 2015. Pollard et al (2015) findings reveal that access to fresh, good quality and nutritious food in Australia is limited to where people live and their income. Studies have also shown that it is difficult to eat healthily on a low budget, but it is possible by selecting foods with a high ratio of nutritional quality to price.

The agricultural sector in every economy is the centre of food security. In developed economies, this sector contributes a large share to the Gross Domestic Product (GDP) as the major source of foreign exchange earnings and is mostly the highest employer of labour. However, in Nigeria and most sub-Saharan economies, the case is different. Our major focus and interest is on crude oil production. There is neglect on agriculture and agriculture-related activities, thus, an increase of poverty and of food crisis. TThe question becomes, how can we adequately increase food production and enhance food security while reducing the negative effect of food production on our ecosystem? Empirically, this study seeks to address the following question.

a. How well do the pillars of food security predict sustainable food consumption in Nigeria?

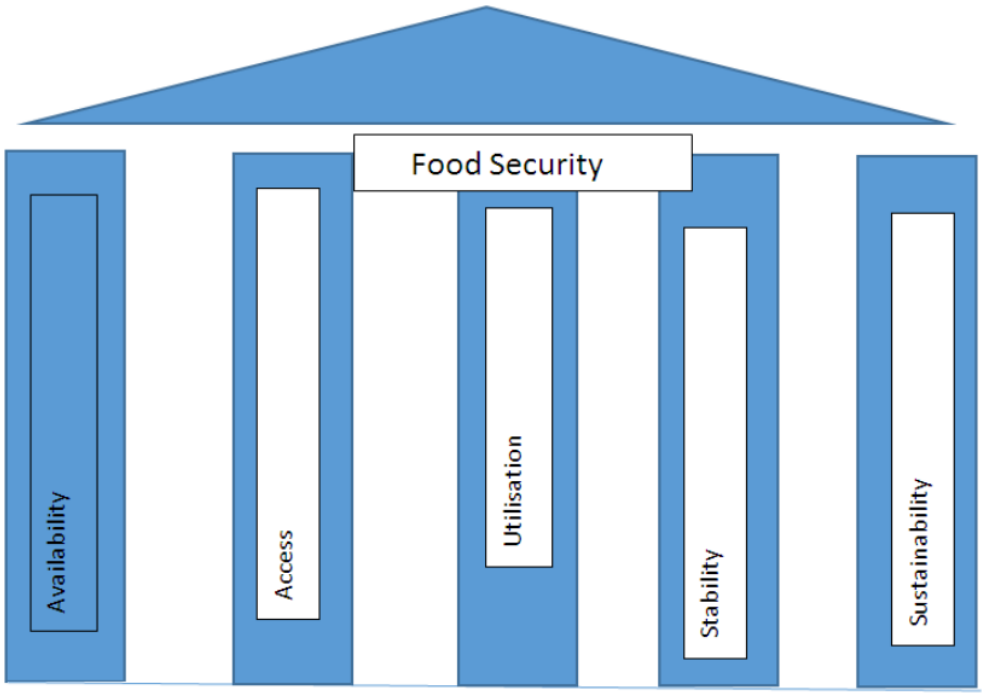
Literature Review

There have been many formulations of what the components of food security are. For instance, the Committee on World Food Security identified four main dimensions or "pillars":

- Availability is ensured if adequate amounts of food are produced and are ready to have at people's disposal.
- Access is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods (through production, purchase, or donation) for a nutritious diet.
- Utilisation is ensured when the human body is able to ingest and metabolise food. Nutritious and safe diets, an adequate biological and social environment, and a proper health care system to avoid diseases help achieve adequate utilisation of food.
- Stability is ensured when the three other pillars are maintained over time.

Diagrammatically, it can be represented thus,

Figure 1. Pillars of food security



Source: World Resource Institute,2010

The challenge of food security is immense as recorded by the United Nations Development Programme (UNDP) can be seen below;

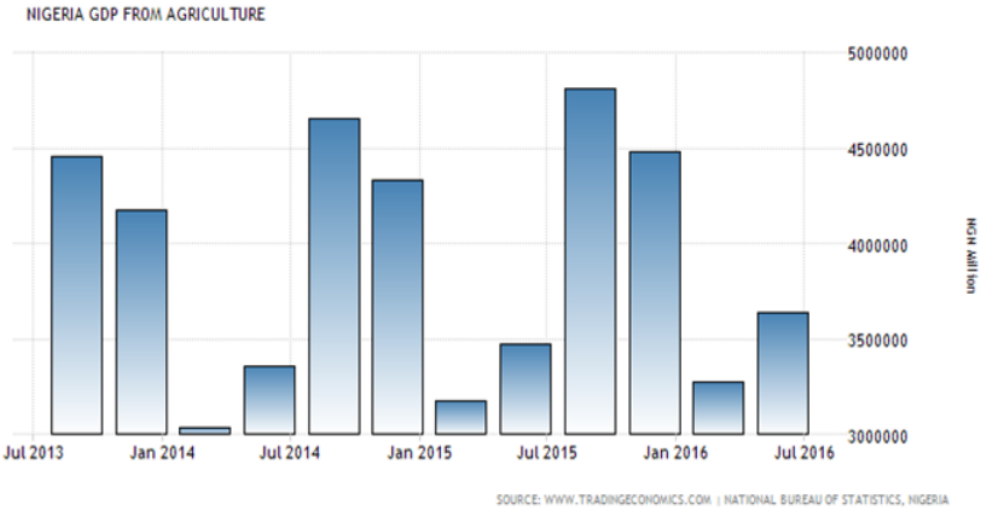
- In the developing countries, an estimated 13 to 18 million people, mostly children, die from hunger, malnutrition, and poverty-related causes each year. That is about 40,000 people a day or 1,700 people an hour.
- One billion people - 20 per cent of the global population - live in households too poor to obtain the food necessary for sustaining regular work. Half- a-billion live in households too poor to obtain the food needed for the healthy growth of children and for the minimal activity of adults.
- One child in three is underweight by age five, and more people are undernourished now more than in 1950.
- More than one billion people are plagued by intestinal parasites, which undermine nutrition and cause anaemia, and 600 million people are seriously deficient in such micronutrients as iron and iodine, which can lead to long-term impairment or death.
- Most hunger - 85 to 90 per cent - arises from silent poverty, and only 10 to 15 per cent stems from famine and similar emergencies. Moreover, the United Nations projects that the number of people in "absolute poverty" will increase by 300 million in the next 30 years, from 1.2 billion today to 1.5 billion by 2025.

Nigeria's Challenges to Food Security

The United Nations population division projects the global human population to grow from 7 billion in 2012 to 9.3 billion by 2050 and 47% of the population growth will be in sub-Saharan Africa of which Nigeria is inclusive, where agricultural productivity and soil quality is exceptionally low, and reliance on basic staples is high. Currently, Nigeria has a total population of over 180 million people which is projected to increase by 20 per cent in the next few years. Nigeria has also been faced with several issues such as the 'Boko haram' insurgency, militancy and the evil activities of Fulani herdsmen. These are some of the political and religious rivalries that have made food security unachievable in Nigeria.

Nigeria needs agriculture to contribute to inclusive economic development. There is little contribution of agriculture in the Nigerian Gross Domestic Product and earnings in Nigeria. See figure 2 below. It is general knowledge that GDP growth originating in agriculture is effective for reducing poverty more so than growth arising from other economic sectors. Agriculture in this context does not only mean farming, rather, it goes deeper to include other agriculture-related activities like fish farming, poultry, palm oil production, piggery, rearing and grazing of livestock and so on.

Figure 2. Nigeria GDP from Agriculture as at 2016



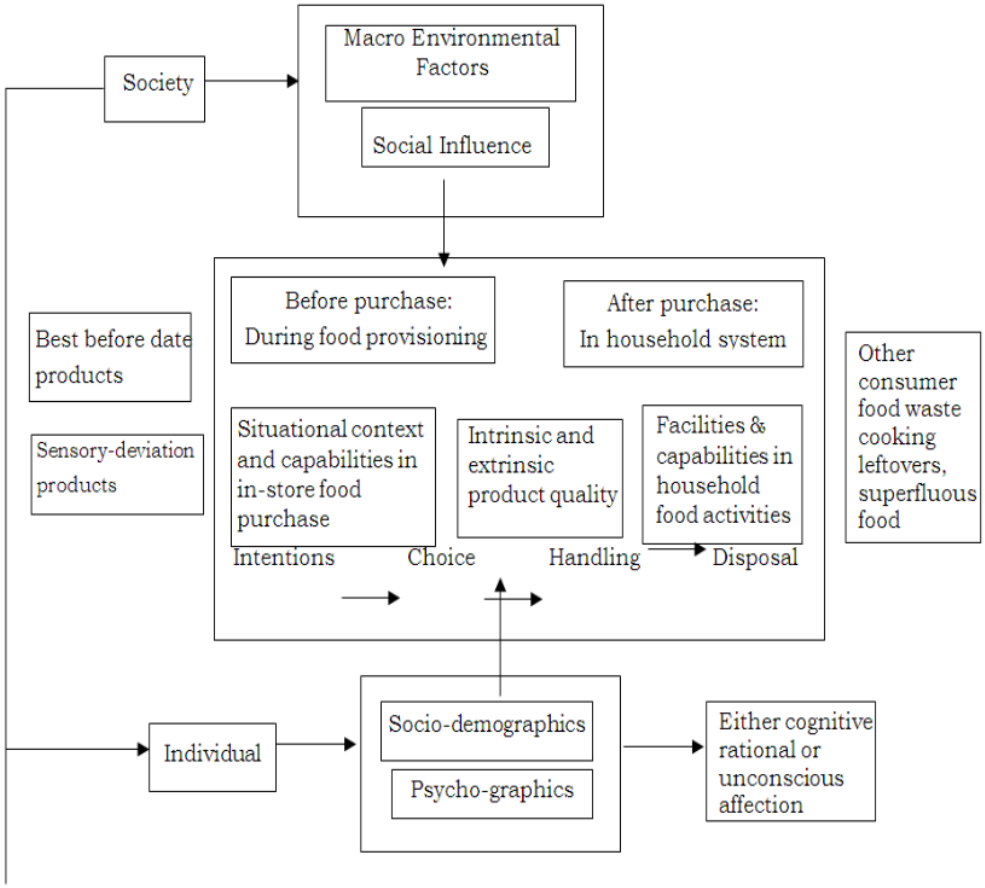
Nigeria also needs to reduce the impact of agriculture on the environment and natural resources. Agriculture is a major contributor of gas emissions, it is the largest consumer of water, fuel and diesel due to the epileptic power supply in Nigeria. Agriculture pollutes the land, air, water and has contributed to blocked drainages, erosion, littering of the ecosystem, amongst other negative effects.

Food Waste

Food waste is one of the issues of food security which needs to be addressed. Food waste is a situation where food is not used for the purposes of consumption, rather it is used inefficiently, which leads to the increased exploitation of resources. Food waste generates Greenhouse Gas Emissions, including methane and carbon dioxide. It also reflects the loss of natural resources such as water and fossil fuels used to produce food. Reducing waste has been a persistent goal of the food policy since the 1950s. Food produced is not enough to meet the rising population demand (FAO, 2015); thus, the need to reduce food waste for more sustainable food security. Food waste is defined as any food and inedible parts of food removed from the food supply chain to be recovered or disposed. This includes crops not harvested, bio energy production, incinerated food, food discarded to sea and so on. Food can either be wasted by the consumers, producers or at a retail level. Food waste at the consumer level is referred to as sub-optimal foods. This means foods that consumers perceive as undesirable when compared to similar food because they are expired or close to the expiry date. Reducing food waste leads to food security. Food security is the ability of individuals, households and communities to acquire appropriate and nutritious food on a regular and

reliable basis using socially acceptable means (Harrison, Coye, Lee and Leonard, 2007). Witzel, Hooge, Amani, Bech-Lersen and Vostindjen (2015) conducted an in-depth, interview using a semi-structured interview guide to find out the factors that cause consumer-related food waste. They summarised the factors in fig 3 below.

Figure 3. Factors that Influence Consumer-related Food Waste



Source: Witzel et al 2015

Food Crisis in Nigeria

Nigeria, which is a developing country in sub-Saharan Africa started the year of 2016 well just like other years. As the months rolled over, issues arose on economic and fuel crisis which contributed to the rising price of food, transportation. Nigerians witnessed a sudden hike in the price of food and other commodities to the extent that four small balls of tomato

were sold for #500, a painter of garri doubled in price, a bag of rice almost tripled in price. Even other little foodstuffs like fish, melon, ogbono etc were not left out in the increase of prices. The sudden hike in the price of food without an increase in income has drastically reduced the consumption quantity and quality of most Nigerians. This multidimensional crisis has directly hit the poorest in Nigeria and has gone as far as decreasing their already low quality of life. See fig 4 below;

Figure 4. current food prices in Nigeria

COMMODITIES	COST BEFORE	COST AT PRESENT (AVERAGE)
Parboiled Rice (1 bag)	N10,000	N20,000
Beans (1 bag)	N18,000	N27,000
Vegetable Oil (25 litres)	N6,500	N13,000
Palm Oil (25 litres)	N5,000	N10,000
Yam Flour (1 bag)	N40,000	N60,000
Garri (Bag)	N8,000	N12,000
Flour (50kg)	N8,640	N10,800
Sugar	N8,800	N17,000
Semovita (5kg)	N900	N1,500
Wheat (5kg)	N900	N1,500
12.5kg Cooking Gas	N2,400	N3,700
Cement	N1,500	N2,300
Kerosene (5 litres)	N750	N1,125
Turkey (1kg)	N800	N1,400
Bread (Loaf)	N70	N100
Crate of Eggs	N700	N850
Tomato Paste	N40	N70
Indomie	N1,400	N1,900
Air fare, Economy (Lagos - USA)	N350,000 - N400,000	N600,000 - N700,000
Air fare, Economy (Lagos - London)	N250,000	N400,000
Tokunbo Golf 1 (car)	N500,000 - N600,000	N1.3 million - N1.5 million

Source: Nigerian Tribune nationwide survey

Nigeria GDP from Agriculture versus other Sectors

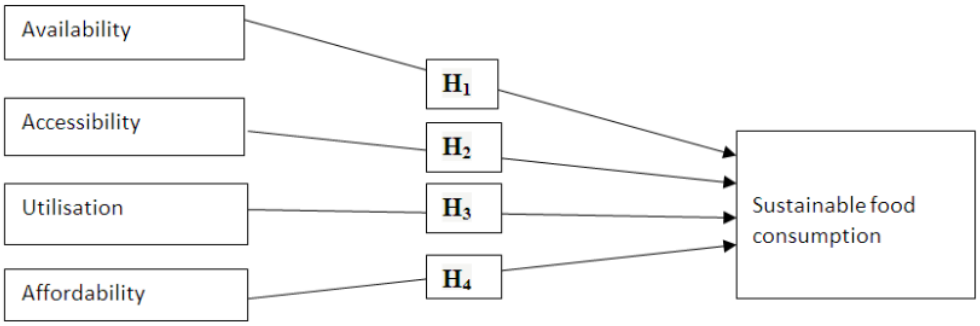
GDP from Agriculture in Nigeria increased to 3635533.14 NGN Million in the second quarter of 2016 from 3274725.01 NGN Million in the first quarter of 2016. GDP from Agriculture in Nigeria averaged 3607744.92 NGN Million from 2010 until 2016, reaching an all-time high of 4816519.15 NGN Million in the third quarter of 2015 and a record low of 2594759.86 NGN Million in the first quarter of 2010. GDP from Agriculture in Nigeria is reported by the National Bureau of Statistics, Nigeria.

Table 1: Nigeria GDP from Various Sectors

Nigeria GDP	Last	Previous	Highest	Lowest	Unit
GDP Growth Rate	0.82	-13.70	9.19	-13.70	percent
GDP Annual Growth Rate	-2.06	-0.40	19.17	-7.81	percent
GDP	481.07	568.50	568.50	4.20	USD Billion
GDP Constant Prices	16254490.12	16137052.85	18745360.19	56260.04	NGN Million
Gross Fixed Capital Formation	2672798.96	2410065.78	3015594.20	17236.65	NGN Million
GDP per capita	2548.20	2548.40	2548.40	1086.40	USD
GDP per capita PPP	5638.89	5639.45	5639.45	2739.59	USD
GDP From Agriculture	3635533.14	3274725.01	4816519.15	2594759.86	NGN Million
GDP From Construction	693744.65	659950.18	740204.22	369190.91	NGN Million
GDP From Manufacturing	1519448.03	1522488.05	1829246.64	875408.17	NGN Million
GDP From Mining	896051.02	1391091.74	3083257.13	896051.02	NGN Million
GDP From Public Administration	394453.72	372471.20	614330.87	372471.20	NGN Millions
GDP From Services	5973387.93	7087965.27	7087965.27	4564086.31	NGN Millions
GDP From Transport	189398.69	190912.72	229523.13	144848.60	NGN Millions
GDP From Utilities	55205.04	114401.69	114401.69	51342.43	NGN Million

Source: National Bureau of Statistics, Nigeria (2017).

Figure 5. Research Framework



Source: Researchers conceptualisation

Methodology

The researcher adopted the descriptive survey research design, which refers to studies that aim at collecting data and systematically describing the data, the characteristics, features or facts about a given population. The population of this study consists of selected households in the south-eastern part of Nigeria. The South-East geo-political zone of Nigeria is made up of five states, namely Anambra, Enugu, Imo, Abia and Ebonyi. These five states are a small fraction in Nigeria. The choice is informed by the recent food crisis that has engulfed the five chosen states in recent times. To analyse the needed households, workers/staff were conveniently selected from a university in each state to form the sample size making it a total of 250 participants. The research instrument used in this study is a structured questionnaire, and the collected data was analysed using multiple regression.

Data Analysis

Table 1: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.167[a]	.028	.012	1.467

a. Predictors: (Constant), affordability, utilisation, availability, accessibility
b. Dependent Variable: consumption

The model above shows that accessibility, availability, affordability and utilisation explains 28 per cent of the variance in consumption.

Table 2: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15.176	4	3.794	1.763	.000[b]
	Residual	527.388	245	2.153		
	Total	542.564	249			

a. Dependent Variable: consumption
b. Predictors: (Constant), afffordability, utilisation, availability, accessibility

The ANOVA table above shows that the model is significant. The coefficient table below compares the contribution of each independent variable to the model.

Table 3: Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.810	.594		8.093	.000
	Availability	.053	.070	.480	.754	.002
	Accessibility	-.006	.064	-.600	-.089	.001
	Utilisation	-.032	.078	-.260	-.410	.000
	Affordability	.123	.049	.160	2.530	.012

a. Dependent Variable: consumption

The largest Beta coefficient is .600 which is accessibility. This means that accessibility makes the strongest unique contribution to explaining the dependent variable. This is closely followed by availability, utilisation and affordability which comes last. A look at the sig column shows that all variables apart from affordability are significant.

Discussion of Findings

The four pillars of food security (availability, affordability, accessibility and utilisation) were empirically tested to determine if they actually predict sustainable food consumption in Nigeria.

For Availability, Z=.480 and P=.002 which is <0.05. Accessibility, Z =.600 and P= 0.01 which is < 0.05. Utilisation, Z=.260 and P= .000 which is <0.05. This makes Availability, Accessibility and Utilisation significant. Therefore, we accept $\mathbf{H_1}$, $\mathbf{H_2}$ and $\mathbf{H_3}$ and conclude that a significant relationship exists between availability, accessibility, utilisation and sustainable food consumption in Nigeria. This aligns with findings from Previous studies- Ramsey (2012), Jaynea et al (2003), Madden and Law (2005), Pollard et al (2015) and Wendy (2010).

However, affordability was seen to be insignificant with a P value of 0.12 which is > 0.05. We reject $\mathbf{H_4}$ and conclude that affordability has no significant relationship with Sustainable Food Consumption in Nigeria. This contradicts the findings of Rose (1999) and Savige et al (2001).

Conclusion

The analysis above has shown a significant contribution of variables like accessibility, availability and utilisation towards sustainable food consumption in Nigeria. This is rather contradictory with earlier studies which showed the significant contribution of affordability (income).

To ensure increased food security in Nigeria, production of food should be increased. A greater percentage of South-East Nigerians needs to go into food production, agriculture and agriculture-related activities. This can be possible by redirecting the psyche of Nigerians from white collar jobs, which is the predominant practice in South-East Nigeria. Since the South-East Nigerians are seen to be more educated/school compliant than other zones. Agriculture and agricultural related activities should be practicalised in schools down to the primary and secondary level to ensure early exposure to these activities. Facilities (both human and technological equipment) should be adequately provided. More teachers need to be recruited in the needed areas and resource centres made available. Roads and other infrastructural facilities should further developed. The affordability of food relates to income but ensuring access to the food is a major problem. Responsible investment should be encouraged in the agricultural sector.

The issue of food availability and food security is one that needs immediate and constant attention from all. This is to ensure continuance and development in not just the current generation but also generations to come. Taking a look at the United Nations Sustainable Development Goals (SDGs), more than five items emphasises the issue of food security and curbing poverty. This goes a long way to show the need for ensuring food availability, access and sustainability. All hands need to be on deck to achieve this great vision.

However, the issue of food security is a global phenomenon. It is not just a Nigerian issue. Even developed economies still battle with this issue, but most of the economies have mapped out various strategies to tackle it. This study did not attempt to look at whatother nations have done regarding the issue, thus this is a major limitation to this study. Also, further study should be conducted in the area of food security vis-à-vis sustainable development.

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